

## Conservation Advice

### *Thinornis rubricollis tregellasi*

hooded plover (western)

#### Taxonomy

The hooded plover is generally accepted as *Thinornis rubricollis* (Christian, 1992). Previously placed under the genus *Charadrius* (Gmelin, 1789) (Marchant & Higgins, 1993; Christidis & Boles, 2008). 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* (Christidis & Boles, 2008; Garnett et al., 2011) 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 tregellasi* (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 its coastal distribution.

#### Conservation status

Not threatened.

Species can also be listed as threatened under state and territory legislation. For information on the listing status of this subspecies 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* (Garnett et al., 2011), as developed by Birdlife Australia.

#### Description

The hooded plover is a stocky, medium-sized wading bird about 20 cm long and approximately 100 g in weight. 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; 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; having dark brown edging on the feathers of the upperparts; having a mostly black bill with a small area of

fleshy-pink colouring at the base; and having pale orange rings around the eyes (Marchant & Higgins, 1993).

## **Distribution**

The hooded plover is endemic to the southern states of Australia. The hooded plover (western) occurs on the south-west Western Australian coast from Cape Naturaliste to Eyre, and on inland lakes as far north as lakes Cowan, Moore and Yalgorup (Garnett et al., 2011).

## **Relevant Biology/Ecology**

Hooded plovers may be observed singly, in pairs, family groups or flocks. The hooded plover (western) inhabits ocean beaches and the edges of near-coastal and inland salt-lakes that may be hundreds of kilometres from the coast. It occasionally occurs inland from the edges of lakes, on nearby grassy freshwater seepages, and in estuaries. It appears nomadic, forming flocks of hundreds on inland lakes in the early breeding season and forming very large non-breeding flocks near coastal salt-lakes. The occurrence and location of flocks may depend on the availability of surrounding wetlands (Marchant & Higgins, 1993; Weston et al., 2004). It appears to move towards the coast in summer, which may be a response to the drying of wetlands, and return to inland wetlands following periods of rain (Weston & Elgar, 2000).

Hooded plovers have relatively large breeding territories of around 37 ha, to which they exhibit high fidelity (Marchant & Higgins, 1993; Garnett et al., 2011; Weston et al., 2009). Nests are dispersed and often many kilometres apart (Marchant & Higgins, 1993; Garnett et al., 2011). The western subspecies mainly breeds on the shores of inland salt-lakes, although coastal habitats are also used (Marchant & Higgins, 1993; Garnett et al., 2011).

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. Breeding in the western subspecies occurs from September to February and is reliant on rainfall and water levels. Pairs may lay multiple clutches in a single year (Halse & Jaensch, 1989; Elson & Singor, 2008). Age at first breeding is estimated at 1.7 years, and generation time at 12.9 years (Weston et al., 2004).

Chicks are precocial, leaving the nest shortly after they hatch, and able to start feeding almost immediately. The 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 salt pans (Marchant & Higgins, 1993; Weston, 2003). Beach-washed seaweed seems to be an important component of their habitat, with rotting seaweed providing food for invertebrates which plovers then prey upon (Weston, 2003). New-born chicks mainly feed on insects (Marchant & Higgins, 1993). On salt-lakes the hooded plover (western) appears to mainly feed from the surface of the substrate, which includes sand and shell banks, open mud, salt-covered mud and shallow water (Weston & Elgar, 2000).

## Threats

The hooded plover faces a number of threats, principally: human disturbance to nesting birds; crushing or disturbance of eggs and chicks by people, vehicles and livestock; and predation by invasive species such as dogs (*Canis familiaris*), cats (*Felis catus*), rats (*Rattus spp.*) and foxes (*Vulpes vulpes*). Human activity (availability of food and rubbish) also increases the numbers of native scavengers such as silver gulls (*Larus novaehollandiae*), ravens (*Corvus spp.*) and currawongs (*Strepera spp.*), which can reduce breeding success of the species (Garnett et al., 2011).

Egg predation, for example from feral cats, is a major cause of breeding failure in many plover species (Baird & Dunn, 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 high 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 decline (Baird & Dunn, 2003).

As the hooded plover (western) mostly breeds at more remote beaches and inland lakes, declines are mainly driven by habitat degradation arising from cattle grazing, and water abstraction for agriculture (Birdlife International, 2011). Wandering livestock reduces the availability of nest sites (Weston, 2003) and plovers may abandon a grazed and trampled site for several weeks regardless of their breeding status (Baird & Dunn, 2003).

Flooding is a frequent cause of nest failure at salt-lakes where water levels can rise rapidly (Elson & Singor, 2008). Other issues facing inland lakes include pollution, drying from extended drought, and flooding of shoreline habitat due to rising water levels following clearing of vegetation (Garnett et al., 2011). Predation by cats and foxes are also threats, but it is unknown whether these constrain the population (Elson & Singor, 2008; Birdlife International, 2011).

## 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  $\geq 90\%$ , severe  $\geq 70\%$  or substantial  $\geq 50\%$  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  $\geq 80\%$ , severe  $\geq 50\%$  or substantial  $\geq 30\%$  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  $\geq 80\%$ , severe  $\geq 50\%$  or substantial  $\geq 30\%$ , 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  $\geq 80\%$ , severe  $\geq 50\%$  or substantial  $\geq 30\%$  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:** There are insufficient data available to judge whether the subspecies has undergone, is suspected to have undergone, or is likely to undergo, a reduction in numbers.

Relatively standardised monitoring of numbers on Western Australian beaches and lakes between 2002 and 2010 show an overall negative trend (Garnett et al., 2011). However, this trend is strongly influenced by the size of the first count, and the counts exhibit high variability (Atkins, pers comm., 2013). While numbers near Esperance have decreased significantly since the 1990s (Garnett et al., 2011), it is notable that during 1996 water levels became much higher in the Esperance wetlands, which resulted in the flooding of plover habitat. A decrease in numbers may therefore have been due to a severe population decline or dispersal to other areas (Atkins, pers comm., 2013).

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

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

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

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

**Not applicable:** The extent of occurrence and area of occupancy are not limited. Therefore, the subspecies has not been demonstrated to have met this required element of this criterion.

The extent of occurrence is estimated at  $580\,000 \text{ km}^2$  and the area of occupancy estimated at more than  $2000 \text{ km}^2$ . Both extent of occurrence and area of occupancy are estimated to be stable (Garnett et al., 2011).

**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.

<b>Evidence</b>
-----------------

<p><b>Not applicable:</b> The total number of mature individuals is 2500 (limited). However, there is insufficient information available to determine if the population is declining or whether the subspecies' distribution is precarious for its survival. Therefore, the subspecies has not been demonstrated to have met this required element of this criterion.</p>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p>As discussed under Criterion 1, there are insufficient data to demonstrate that the population has declined. In addition, the subspecies is not severely fragmented or known to exist at a limited location, and has not exhibited extreme fluctuations in population (Garnett et al., 2011).</p>
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**Criterion 4:** Estimated total number of mature individuals:

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

<b>Evidence</b>
-----------------

<p><b>Not applicable:</b> The total number of mature individuals is 2500 which is not considered extremely low, very low or low. Therefore, the subspecies has not been demonstrated to have met this criterion.</p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**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.

<b>Evidence</b>
-----------------

<p><b>Not applicable:</b> Population viability analysis has not been undertaken.</p>
--------------------------------------------------------------------------------------

## 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 it is not eligible for listing.

## Recommendations

- (i) The Committee recommends that *Thinornis rubricollis tregellasi* is **not eligible** for inclusion in the list referred to in section 178 of the EPBC Act.
- (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

Atkins A (2013). Personal communication by letter, 7 October 2013. Department of Parks and Wildlife, Western Australia.

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.amlnrm.sa.gov.au/Portals/2/Part\\_D\\_Southern\\_Fleurieu\\_Action\\_Plan\\_lr.pdf](http://www.amlnrm.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>.

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

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

Elson SJ and Singor MJC (2008). Hooded plover *Thinornis rubricollis tregellasi* breeding data from Western Australia. *Stilt* **53**, 6-12.

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

Halse SA and Jaensch RP (1989). Breeding seasons of waterbirds in south-western Australia – the importance of rainfall. *Emu* **89**, 232-49.

Marchant S and Higgins PJ (eds) (1990). *Handbook of Australian, New Zealand and Antarctic Birds. Volume 2 - Raptors to Lapwings*. Oxford University Press, Melbourne.

- 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.
- Weston MA and Elgar MA (2000). The effect of a major rainfall event on Hooded Plovers foraging on a salt-lake in Western Australia. *Emu* **100**, 64--70.
- Weston MA, Kraaijeveld-Smit FJL, McIntosh R, Sofronidis G and Elgar MA (2004). A male-biased sex ratio in non-breeding Hooded Plovers in a salt lake in Western Australia. *Pacific Conservation Biology* **9**, 273-277.