

# NSW SCIENTIFIC COMMITTEE

## Beach Stone-curlew *Esacus neglectus*

Review of Current Information in NSW

April 2008

### **Current status:**

The Beach Stone-curlew *Esacus neglectus* is currently listed as Vulnerable in Queensland under the *Nature Conservation Act 1992*, but is not listed under Commonwealth legislation. The NSW Scientific Committee recently determined that the Beach Stone-curlew meets criteria for listing as Critically Endangered in NSW under the *Threatened Species Conservation Act 1995* (TSC Act), based on information contained in this report and other information available for the species.

### **Species description:**

The Beach Stone-curlew is a large, thickset grey-brown shorebird with a massive yellow-based bill, a black and white face pattern, yellow eyes, a brown and white stripe on the forewings, and bold black and white patches on the wingtips in flight. The species is 50 cm in length, with a wingspan of 100 cm.

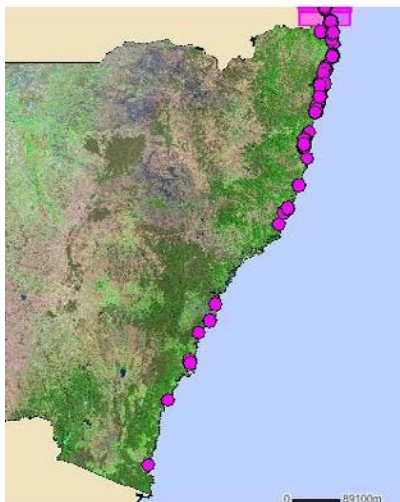
### **Taxonomy:**

*Esacus neglectus* Mathews 1912 is monotypic (*i.e.* no subspecies) within its Australian and global range (to South East Asia).

### **Distribution and number of populations:**

In NSW the breeding population of the Beach Stone-curlew is confined to the North Coast, although dispersing birds reach the Victorian border. A recent population census determined that there are at least 16 birds in NSW, of which at least 13 are adults. Therefore there are estimated to be about eight pairs in the State. This comprises a single population having possible interchange with the population in south-east Queensland (Rohweder 2003). These pairs are dispersed among the major river estuaries: Richmond River, Belongil Creek (historically), Clarence River, Sandon River, Wooli River, Corindi River, Nambucca River and Manning River. Each pair is separated by 10 to 150 km (mostly 20-50 km) and they do not interact with one another (Rohweder 2003). However, single transient birds, which are probably dispersing juveniles, have been observed at several locations between Sydney and the Victorian border, remote from known breeding sites.

# NSW SCIENTIFIC COMMITTEE



**Figure 1.** Records of the Beach Stone-curlew (NSW Wildlife Atlas).

## **Ecology:**

The ecology of the Beach Stone-curlew is generally well understood following recent studies on breeding biology in NSW (Hole *et al.* 2001) and population census in NSW (Rohweder 2003).

### Key habitat requirements

The Beach Stone-curlew inhabits marine littoral habitats including islands. Sites include muddy, sandy, stony or rocky estuaries and beaches, particularly sandbars, and low mangroves.

### Breeding biology

The Beach Stone-curlew's nest is a scrape in sand above the tideline, on a sandbank, sandspit or island in an estuary, sometimes among scattered trees or mangroves, and sometimes under a mangrove or among branches of a fallen tree. Pairs have a traditional, small nesting territory in which they repeatedly attempt to nest. There is only a single egg in a clutch, laid in spring to summer, with multiple attempts in a season. The incubation period is one month. Downy chicks are precocial and can run soon after hatching, and fly well when three months old. Nests and chicks are frequently disturbed by human activity and dogs, leading to poor breeding success in NSW (Hole *et al.* 2001).

### Diet

The Beach Stone-curlew forages in the intertidal zone for marine invertebrates, especially crabs. Its food supply (beach macroinvertebrates) is adversely affected by human impacts such as four-wheel-drive vehicles (Schlacher *et al.* 2007; 2008).

# NSW SCIENTIFIC COMMITTEE

## Social biology

The Beach Stone-curlew occurs solitarily, in pairs, or in a family group of a pair along with dependent young. It occurs rarely in small groups. It is easily disturbed by humans and dogs, e.g. adults leave chicks unguarded until disturbance has ceased, thus exposing them to predation.

## Territoriality/home range

Beach Stone-curlew pairs are well dispersed at low density and defend an exclusive home range against other members of their species.

## Generation length

The generation length of the Beach Stone-curlew is estimated as five years (Garnett & Crowley 2000).

## Ability to disperse/susceptibility to population fragmentation

The Beach Stone-curlew is able to disperse long distances (hundreds of kilometres); gaps in its distribution are therefore thought not to be genetic barriers (Garnett & Crowley 2000). The species can fly over open water (Marchant & Higgins 1993).

## **Number of mature individuals:**

The NSW population of the Beach Stone-curlew was determined to be about 16 birds (eight pairs), with 13 adults and three immature birds counted (Rohweder 2003). There is a high level of confidence in this estimate, because the linear habitat was surveyed intensively and the occupied locations have been known to ornithologists for decades.

## **Threats:**

Much of the Beach Stone-curlew's littoral and estuarine habitat in NSW has been, and continues to be, destroyed or degraded by coastal development and human population increase. Remaining habitat is at risk of disturbance by human recreational activities (including 4WD beach drivers) and dogs. Other threats include nest or chick predation by foxes and feral pigs. 'Predation by the European Red Fox *Vulpes vulpes*' and 'Predation, habitat destruction, competition and disease transmission by Feral Pigs, *Sus scrofa*' are listed as Key Threatening Processes in NSW under the TSC Act.

## **Extreme fluctuations:**

There is no evidence of extreme fluctuations in the population size or habitat of the Beach Stone-curlew.

## **Population reduction and continuing declines:**

The Australian population of the Beach Stone-curlew is believed to be stable (Garnett & Crowley 2000), but is very low in NSW (Rohweder 2003). The NSW population was thought to have increased slightly over the past decade (Rohweder 2003), but the number of birds in Rohweder's

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# NSW SCIENTIFIC COMMITTEE

survey (16) compared with an earlier estimate of 10 birds (Smith 1991) may be related to survey effort and the inclusion of chicks in surveys conducted by Rohweder.

## **Extent of Occurrence (EOO) & Area of Occupancy (AOO):**

This species occurs in linear coastal habitat, with breeding from the Queensland border to the Manning River estuary, over a distance of about 450 km (at a map scale of 1: 1 600 000). However, occupation is patchy and concentrated around estuaries at eight locations (Rohweder 2003). Under the IUCN guidelines for EOO and AOO for linear habitats, the calculated EOO for the core breeding population is 450 km<sup>2</sup> (assuming the species occurs up to 1 km inland from the littoral zone), and the calculated AOO is 8 km<sup>2</sup> (assuming 1 km<sup>2</sup> per breeding pair, given that breeding pairs remain within a small territory: Marchant & Higgins 1993). Applying a 2 x 2 km grid, the AOO is 32 km<sup>2</sup>.

## **Severe fragmentation:**

The remaining littoral habitat of the Beach Stone-curlew is now severely fragmented by coastal development, but its population is probably not severely fragmented because some individuals still disperse as far south as the Victorian border. Good dispersal ability, and hence genetic exchange, is also inferred from the lack of geographical variation or subspecies within the species' global distribution.

## **References:**

- Garnett S, Crowley G (Eds) (2000) 'The Action Plan for Australian Birds 2000'. (Environment Australia: Canberra)
- Hole H, Hole B, Mardell C (2001) Observations of nesting Beach Stone-curlews on the mid-north coast of New South Wales. *Australian Bird Watcher* **19**, 49-54.
- IUCN (2008) 'Guidelines for using the IUCN Red List Categories and Criteria. Version 7.0.' (Standards and Petitions Working Group of the IUCN Species Survival Commission Biodiversity Assessments Sub-committee: Switzerland). (<http://intranet.iucn.org/webfiles/doc/SSC/RedList/RedListGuidelines.pdf>).
- Marchant S, Higgins PJ (Eds) (1993) 'Handbook of Australian, New Zealand and Antarctic Birds', vol. 2. (Oxford University Press: Melbourne)
- Rohweder DA (2003) A population census of Beach Stone-curlews *Esacus neglectus* in New South Wales. *Australian Field Ornithology* **20**, 8-16.
- Schlacher TA, Richardson D, McLean I (2008) Impacts of off-road vehicles (ORVs) on macrobenthic assemblages on sandy beaches. *Environmental Management* **41**, 878-892.

# NSW SCIENTIFIC COMMITTEE

Schlacher TA, Thompson LMC, Price S (2007) Vehicles versus conservation of invertebrates on sandy beaches: quantifying direct mortalities inflicted by off-road vehicles (ORVs) on ghost crabs. *Environmental Management* **41**, 878-892.

Smith P (1991) 'The biology and management of waders (suborder Charadrii) in New South Wales.' Species Management Report No. 9, NSW NPWS, Hurstville.

## Explanatory note

Between 2007 and 2009 the NSW Scientific Committee undertook a systematic review of the conservation status of a selection of plant and animal species listed under the Threatened Species Conservation Act. This species summary report provides a review of the information gathered on this species at the time the Review was undertaken.

The Scientific Committee's report on the Review of Schedules project and final determinations relating to species that were either delisted or had a change in conservation status can be found on the following website: [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au) .

The Committee gratefully acknowledges the past and present Committee members and project officers who ably assisted the Committee in undertaking the Review of Schedules Project. Information on the people involved in the project can be found in the Acknowledgement section of the project report entitled "Review of the Schedules of the Threatened Species Conservation Act 1995. A summary report on the review of selected species" which is available on the abovementioned website.

This species summary report may be cited as:

NSW Scientific Committee (2008) Beach Stone-curlew *Esacus neglectus*. Review of current information in NSW. April 2008. Unpublished report arising from the Review of the Schedules of the Threatened Species Conservation Act 1995. NSW Scientific Committee, Hurstville.