

# NSW SCIENTIFIC COMMITTEE

## **Bush-hen *Amaurornis olivaceus***

Review of Current Information in NSW

August 2008

### **Current status:**

The NSW Scientific Committee recently determined that the Bush-hen *Amaurornis olivaceus* meets criteria for listing as Vulnerable 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. The Bush-hen is not currently listed under any other State or Commonwealth legislation.

### **Species description:**

The Bush-hen is a medium-sized (28 cm) rail with olive-tinged brown upperparts, slate-grey underparts and a fawn vent; the bill is green with a small red forehead shield, and the legs are yellow. The similar Dusky Moorhen *Gallinula tenebrosa* has a redder frontal shield and bill, and white sides to the black undertail. The smaller Spotless Crake *Porzana tabuensis* has a dark bill, red legs and a barred undertail.

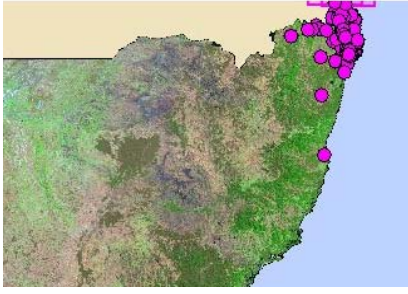
### **Taxonomy:**

Formerly known and listed on the TSC Act as *Amaurornis olivaceus* (Meyen 1834) (Rallidae) this is a polytypic species (*i.e.* several subspecies) in a widespread genus. The Bush-hen was formerly regarded as extending to the Philippines, but the Philippine taxon is now separated as a full species (*A. olivacea*), and the Australasian species is now classified as the Pale-vented Bush-hen *A. moluccana* Wallace 1865 (Christidis & Boles 2008). The subspecies in Australia and southern New Guinea is *A. o. ruficrissa* Gould 1869. Other subspecies are nominate *A. m. moluccana* of the Moluccas and west New Guinea, *A. m. nigrifrons* of the Bismarck Archipelago and west Solomon Islands, and *A. m. ultima* of the east Solomon Islands.

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

The Bush-hen is a tropical species occurring in northern Australia from the Kimberley in Western Australia to Cape York, down east Queensland, and just penetrating the northern parts of the North Coast Bioregion. It is known from the Richmond and Clarence Valleys, with recent records south to the Nambucca Valley (NPWS 2002).

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**Figure 1.** All records of the Bush-hen (NSW Wildlife Atlas).

## **Ecology:**

The general biology and ecology of the Bush-hen is moderately understood, but knowledge on breeding biology is poor (Marchant & Higgins 1993; Stewart & Stewart 1994; Muranyi & Baverstock 1996).

## Key habitat requirements

The Bush-hen inhabits dense vegetation on the margins of freshwater creeks, rivers and natural or artificial wetlands (including farm dams), from the margins of rainforest to forest regrowth, rank grass or reeds, thickets of weeds (*e.g.* Lantana *Lantana camara*, Tobacco Bush *Solanum mauritianum*), and farmland (*e.g.* sugar cane, grassy or weedy fallow or abandoned fields), and occasionally dense gardens around human habitation. Key elements are dense undergrowth 2-4 m tall, within 300 m of water. Habitat tolerance is much broader than that of specialised birds of natural wetlands (*e.g.* bitterns), and the Bush-hen is partly terrestrial.

## Breeding biology

The Bush-hen's nest is a platform or cup of grass stems, partly hooded or domed, built in thick ground cover near water (*e.g.* dense Blady Grass *Imperata cylindrica*, matt rush, reeds, Lantana or sugar cane), sometimes under or near overhanging cover such as a shrub, vine or tree. A clutch of four to seven eggs is laid in spring to early autumn, with multiple attempts per season. The incubation period is about three weeks. Downy chicks are precocial and can run soon after hatching; they are probably dependent for about four to five weeks and able to fly at about two months (as in other similar-sized rails). Like other rails, the species is highly fecund.

## Diet

The Bush-hen feeds on seeds, plant matter, earthworms, insects and some frogs, taken from ground cover or by wading.

## Social biology

The Bush-hen occurs solitarily, in pairs, or family groups of parents and young.

## Territoriality/home range

Solitary pairs defend breeding territories; the home range extends up to 500 m from nest (*i.e.* a home range of less than 80 ha).

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## Generation length

The generation length for slightly smaller rails is estimated as three years (Garnett & Crowley 2000). Generation length for the Bush-hen is estimated as possibly up to five years.

## Ability to disperse/susceptibility to population fragmentation

The Bush-hen is apparently mobile and partly nomadic or dispersive, as its presence at ephemeral wetlands varies according to water levels. Although reluctant to fly by day, it probably flies between wetlands at night, as other rails do.

## **Number of mature individuals:**

There are no measures of abundance for this species (Marchant & Higgins 1993). The species has been found to be more common and widespread in the Richmond and Tweed Valleys than formerly believed (Stewart & Stewart 1994; Muranyi & Baverstock 1996). In the Tweed Valley there were three pairs in 1 km of creek habitat (Stewart & Stewart 1994), which suggests that the species can reach a high density in suitable habitat. The species is data deficient on number of mature individuals.

## **Threats:**

Identified threats to the Bush-hen include clearing, filling and draining of wetlands; pollution of wetlands from agricultural, urban and industrial run-off (*e.g.* herbicides and pesticides); weed invasion; loss of the shrub layer in areas developed for human settlements, and predation by foxes and feral cats. However, the species can live in weed thickets, so that the threats to wetlands that are affecting other similar species may not have as great an impact on the Bush-hen. 'Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands', 'Predation by the European Red Fox *Vulpes vulpes*' and 'Predation by the Feral Cat *Felis catus*' are listed as Key Threatening Processes under the TSC Act in NSW.

## **Extreme fluctuations:**

There is no evidence of extreme fluctuations in population size or habitat of this species.

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

Historical lapses in southerly records have been interpreted as absences of the species and therefore possible declines (*e.g.* early records near Grafton, but none recently). However, the Bush-hen is cryptic and has recently been found south of Grafton. The scarcity and patchiness (both temporal and geographic) of historical records, and the prevalence of recent records, probably reflect greater observer familiarity with the species and its calls in recent times, and greater targeted survey. The species was recorded in one extreme north-east NSW 1-degree grid

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in the first national bird atlas in 1977-1981, with no breeding (Blakers *et al.* 1984), and in three grids in the second bird atlas in 1998-2002, with breeding in one grid (Barrett *et al.* 2003). That is, there has been an increase in known EOO and reporting rate in the past two decades. This change, and the recent southerly range extension to the Nambucca Valley, may represent an increase in abundance and range, or improving detection rates. The species is data deficient on population trends in the last three generations.

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

The Bush-hen's current EOO is calculated to be around 16 000 km<sup>2</sup> (based on a triangle of 130 km at its widest point x 250 km of coast). AOO is unknown, but is conceivably at least 25% of the EOO, or 4 000 km<sup>2</sup>, as the species can live in rank weeds, grass and crops around farm dams as well as in more natural habitats. There is no demonstrable recent decline in the species' population.

## **Severe fragmentation:**

The species' habitat is inferred to have been fragmented by agricultural clearing. However, the Bush-hen is mobile and possibly nomadic, and rails are dispersive in response to water levels. Bush-hens can live in rank undergrowth up to 300 m from water, including weedy farmland, and are therefore inferred to be able to move through the agricultural matrix in high-rainfall regions such as the NSW North Coast. The Bush-hen's population is therefore unlikely to be severely fragmented (based on IUCN (2008) definitions). The Bush-hen is thought to be able to cross Torres Strait and it is distributed on oceanic islands (Marchant & Higgins 1993).

## **References:**

- Barrett G, Silcocks A, Barry S, Cunningham R, Poulter R (2003) 'The New Atlas of Australian Birds.' (RAOU: Melbourne)
- Blakers M, Davies SJF, Reilly PN (1984) 'The Atlas of Australian Birds.' Melbourne University Press: Melbourne)
- Christidis L, Boles WE (2008) 'Systematics and Taxonomy of Australian Birds.' (CSIRO: Melbourne)
- Garnett S, Crowley G (Eds) (2000) 'The Action Plan for Australian Birds 2000.' (Environment Australia: Canberra)
- 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>).

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Marchant S, Higgins PJ (Eds) (1993) 'Handbook of Australian, New Zealand and Antarctic birds, vol. 2.' (Oxford University Press: Melbourne)

Muranyi M, Baverstock PR (1996) The distribution and habitat preference of the Bush-hen *Amaurornis olivacea* in north-eastern New South Wales. *Emu* **96**, 285-287.

NPWS (2002) 'Threatened species of the Upper North Coast of NSW: Fauna.' NPWS, Coffs Harbour.

Stewart DA, Stewart AJ (1994) Notes on the Bush-hen breeding in New South Wales. *Sunbird* **24**, 1-5.

## 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) Bush-hen *Amaurornis olivaceus*. Review of current information in NSW. August 2008. Unpublished report arising from the Review of the Schedules of the Threatened Species Conservation Act 1995. NSW Scientific Committee, Hurstville.