

Conservation Advice

Amytornis barbatus barbatus

grey grasswren (Bulloo)

Taxonomy

Conventionally accepted as *Amytornis barbatus barbatus* (grey grasswren (Bulloo))(Favaloro & McEvey, 1968). The grey grasswren (Bulloo) is one of two subspecies of *A. barbatus*. The other subspecies, *A. b. diamantina*, occurs in the Lake Eyre Basin and is considered of least concern by the *Action Plan for Australian Birds 2010* (Garnett et al., 2011).

Conservation status

Endangered: Criterion 2 B1,(a),(b)(i)(ii)(iii)(v).

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>

Reason 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

Grey grasswrens are medium-sized grasswrens with strongly graduated and very long tails (Higgins et al., 2001). Grey grasswrens have the palest colouration of all grasswrens with sandy grey-buff upperparts streaked with white lines edged in black, a black crown with white streaks, a pale breast partially covered in fine black streaks, pale buff flanks and a distinctive black marking around the eye and throat creating a necklet pattern (Pizzey, 1991). Female grasswrens are very similar to males but can be distinguished by the narrower black streaks around the face and throat and narrower black eye marking (Higgins et al., 2001).

Grey grasswrens (Bulloo) are similar to grey grasswrens (Lake Eyre Basin) (*A. b. diamantina*), however the Lake Eyre Basin subspecies are larger and have slightly different plumage characteristics, including more broadly separated black markings on the throat and narrower black edges to the white streaks on the upperparts (Higgins et al., 2001).

Grey grasswrens (Bulloo) have a call comprising three syllable ringing notes briskly uttered in a high pitch (Higgins et al., 2001).

Distribution

Grey grasswrens (Bulloo) are endemic to the floodplain of the Bulloo River on the New South Wales/ Queensland border including the Bulloo River overflow, Caryapundy and Jerrira Swamps (Favaloro & McEvey 1968; McAllan & Cooper 1995; Rowley & Russell 1997). In New South Wales, the subspecies is now restricted to a small area-of suitable habitat on Narriearra Station and Delalah Downs Station, however its previous range is thought to have been considerably larger (Hardy, 2010). Surveys for grey grasswrens (Bulloo) conducted in Queensland in 2013 recorded seeing or hearing grasswrens at nine sites, in five localities, across the Bulloo Downs Station (Jaensch et al., 2013).

Relevant Biology/Ecology

Grey grasswrens (Bulloo) are known to occupy swampy floodplains dominated by tall, dense lignum (*Muehlenbeckia cunninghamii*), which forms their primary habitat (Hardy, pers comm., 2013). They may also occupy stands of swamp canegrass (*Eragrostis australasica*) where plants form dense thickets of 1 m or greater in diameter and 1-2 m in height, if these thickets are interspersed with lignum (Favaloro & McEvey 1968; Higgins et al., 2001). They usually nest in lignum but often forage in swamp canegrass, old man saltbush (*Atriplex nummularia*) and samphire (*Halosarcia* spp.) (Hardy, 2010).

Grey grasswren breeding behaviour is poorly known but the subspecies is thought to be socially monogamous and potentially engage in cooperative breeding, where additional adults assist in the raising of young (Higgins et al., 2001). Breeding is thought to occur from late July to August, and territory size for breeding pairs or groups is thought to be around 200 m² (Higgins et al., 2001). Nests are semi-domed structures with large openings high-up on one side and sometimes feature a hood or base at the entrance; construction is bulky and loose with an outer wall of grass and lining of soft grass, downy plant seeds or feathers (Higgins et al., 2001). Nests are usually concealed in the middle of lignum or canegrass clumps, are often raised 0.3 m or more above the ground and are generally orientated towards the outside of the thicket (Higgins et al., 2001). Breeding pairs generally produce two eggs which are finely-grained elongated ovals; colouration is a lightly glossy, creamy white, occasionally tinged a pale pink, with reddish-brown speckles or blotches concentrated at the larger end (Higgins et al., 2001). A generation time of 9.7 years (BirdLife International, 2011) is derived from an age at first breeding of 2.3 years and a maximum longevity of 17 years, both extrapolated from fairy-wrens (*Malurus* spp.).

The diet of grey grasswrens primarily consists of seeds and insects (Higgins et al., 2001; Rowley & Russell 1997). The subspecies is known to forage on or near the ground in dense vegetation, particularly lignum or canegrass, or occasionally in the open between clumps of vegetation (Higgins et al., 2001). Birds are believed to forage through early and mid morning and sometimes in the late afternoon, while seeking cover in the middle of the day, and usually forage in groups (Higgins et al., 2001). Grey grasswrens are believed to be sedentary and resident with restricted ranges and small, apparently isolated, populations (Higgins et al., 2001).

Threats

Grey grasswrens are primarily threatened by habitat loss caused by introduced herbivores, including cattle (*Bos taurus*) (McAllan & Cooper 1995; Hardy, 2010; Skroblin & Murphy, 2013). A specific example is evident in the Caryapundy outflow channel, where cattle grazing upon young and regenerating lignum rendered all habitat unsuitable within >10 km radius (Hardy, 2010). Much of the recent historical habitat in NSW is now unsuitable as it has been degraded by over-grazing which intensifies vegetation loss associated with drought conditions (Hardy, pers comm., 2013). It has been assessed that grazing management will be required in remnant habitat patches if the subspecies is to persist (Skroblin & Murphy, 2013). Rabbits (*Oryctolagus cuniculus*) and feral pigs (*Sus scrofa*) are suspected to degrade habitat at some sites (Hardy, 2002; Hardy, 2010).

Other potential threats include fire and predation by feral cats (*Felis catus*) and foxes (*Vulpes vulpes*) (McAllan & Cooper 1995; Australian Government, 2005). Water extraction from the Bulloo River system for irrigation, and noxious weed invasion, also have the potential to become significant threats (Australian Government, 2005).

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: past, current or future population declines are thought unlikely to exceed 30% in any three generation period.

The current number of mature individuals is estimated to be 10 000 and the number of individuals is suspected to be decreasing (Garnett et al., 2011). However, past, current or future population declines are thought unlikely to exceed 30% in any three generation period (Garnett et al., 2011).

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

- B1. Extent of occurrence estimated to be very restricted $< 100 \text{ km}^2$, 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.

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- 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 Endangered: the subspecies has a restricted extent of occurrence and area of occupancy, it has a fragmented distribution (multiple disjunct locations within the Bulloo River floodplains) and there has been an observed continuing decline in the extent of occurrence, area of occupancy, quality of habitat and number of mature individuals.

Garnett et al (2011) predicted the extent of occurrence for grey grasswrens (Bulloo) to be 1700 km² (restricted) and the area of occupancy to be approximately 500 km² (restricted). Recent surveys in Queensland by Jaensch et al (2013) identified additional sites containing grey grasswrens (Bulloo) and suggested that these may represent an increase in the subspecies extent of occurrence. However, recalculations conducted on behalf of BirdLife Australia have concluded that the subspecies extent of occurrence is 1701 km² (Ehmke, 2014) even with the additional data provided by Jaensch et al. (2013). Both extent of occurrence and area of occupancy are considered to be declining through habitat degradation from overgrazing, particularly in times of drought when over-grazed vegetation does not have the opportunity to regenerate (Garnett et al., 2011).

Recent range contractions have occurred in New South Wales (Hardy, 2010). Furthermore, declines in habitat quantity and quality, through overgrazing, are thought to be ongoing (Hardy, pers comm., 2013). While flooding can result in regeneration of lignum stands, this can only occur where vegetation survives grazing pressure (Hardy, pers comm., 2013).

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 number of mature individuals is limited and the subspecies geographic distribution is considered precarious for its survival.

The current number of mature individuals is estimated to be approximately 10 000, which is considered limited (Garnett et al., 2011). The number of mature individuals is also predicted to be decreasing, (Garnett et al., 2011). Predictions of a declining population are based on recent observed declines in the grey grasswren's primary habitat, due to ongoing cattle grazing, and subsequent declines in habitat quality (Hardy, pers comm., 2013). The subspecies geographic distribution is considered precarious for its survival as it has a fragmented distribution (multiple disjunct locations within the Bulloo River floodplains) and there are observed or inferred declines in extent of occurrence, area of occupancy, quality of habitat and number of mature individuals (Garnett et al., 2011).

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 10 000 (Garnett et al., 2011) which is not considered extremely low, very low or low. Therefore, the subspecies has not been demonstrated to have met this required element of this criterion.

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

Not 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 subspecies have been considered by the Committee.

Recovery Plan

There should not be a recovery plan for *Amytornis barbatus barbatus* as conservation advice for the subspecies would provide sufficient direction to implement priority actions and mitigate against the key threats. The steps required to stop decline and support recovery are not considered complex for this subspecies.

Recovery and Impact avoidance guidance

Primary Conservation Objectives

1. Establish stable subpopulations of grey grasswrens (Bulloo) at surveyed sites.
2. Extend the area of suitable habitat in order to enable linkage between existing populations.

Important populations

All populations are of high conservation value.

Important habitat for the survival of the subspecies

Habitat of primary importance includes swampy floodplains dominated by lignum (*Muehlenbeckia cunninghamii*) and swamp canegrass (*Eragrostis australasica*), where these plants form dense thickets of 1 m or greater in diameter and 1-2 m in height (Favaloro & McEvey 1968; Higgins et al., 2001).

Information required, research and monitoring priorities

1. Undertake survey work to establish current population size and distribution in Queensland.
2. Evaluate the impacts of predation by foxes and feral cats.
3. Determine the hydrological requirements of the subspecies habitat.

Management actions required

1. Erect and maintain effective fencing to exclude livestock from key areas
2. Consider options for de-stocking some or all of Narriearra Station
3. Establish and implement a management plan for the control of feral herbivores
4. Develop a fire management plan suitable to subspecies ecology and habitat requirements
5. Consider implementing a feral predator management program
6. Implement a strategy to manage any disruptions to water flow

Recommendations

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

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- (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

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