

Conservation Advice

Amytornis merrotsyi pedleri

short-tailed grasswren (Gawler Ranges)

Taxonomy

Conventionally accepted as *Amytornis merrotsyi pedleri* (short-tailed grasswren (Gawler Ranges)) Christidis et al., 2008. The short-tailed grasswren (Gawler Ranges) is one of two subspecies of *A. merrotsyi*.

Conservation status

Endangered: Criterion 1 A2(c)(e), A3(c)(e); Criterion 2 B1,B2,(a),(b)(iii); Criterion 3 B,(a),(b)(iii).

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

Short-tailed grasswrens are medium-sized, slim-bodied and rather short-tailed grasswrens with grey-brown to dark rufous/dark red-brown upper body with fine black and white streaking and dusky breast-streaking: Adult females are differentiated from males by a small rufous-patch on the rear flanks (Higgins et al., 2001).

Short-tailed grasswrens (Gawler Ranges) are similar to striated grasswrens (*A. striatus*), western grasswrens (*A. textilis*) (Higgins et al., 2001) and the Flinders Ranges subspecies of short-tailed grasswren (*A. m. merrotsyi*). Short-tailed grasswrens (Gawler Ranges) are distinguishable from striated grasswrens by their significantly shorter tail and slightly heavier bill, as well as other subtle differences in colouration: the subspecies is distinguishable from western grasswrens by their significantly shorter tail, smaller size, slimmer appearance, finer bill and considerably brighter rufous upperparts (Higgins et al., 2001). The Gawler Ranges subspecies of short-tailed grasswren is distinguishable from the Flinders Ranges subspecies by their noticeably darker colouration (Christidis et al., 2008), more coarsely streaked chin, throat and breast and darker buff belly and flanks (Higgins et al., 2001).

Short-tailed grasswrens are said to have a high pitched contact call and are said to squeak when issuing an alarm call, however little else is known of their song (Higgins et al., 2001).

Distribution

Short-tailed grasswrens (Gawler Ranges) are distributed across central and western Gawler Ranges, South Australia, in scattered and disjunct sites (Baxter & Paton 1998; Christidis et al., 2008). There are three main subpopulations: the eastern side of Mt Ive Station, the eastern side of Paney Station in Gawler Ranges National Park and south-east of Hiltaba Homestead (Garnett et al., 2011). There are outlying or intermediate records from four other locations (Carpenter, pers comm., 2014). In May 2012 and 2013 Nature Foundation South Australia conducted surveys for short-tailed grasswrens on Hiltaba Station reserve. Historically the subspecies had been recorded on four hills in the Hiltaba Station

reserve, however the 2012 surveys only found grasswrens in one location on one hill and the 2013 survey did not detect any grasswrens at all (Black, pers comm., 2013).

Relevant Biology/Ecology

Short-tailed grasswrens (Gawler Ranges) inhabit rocky (granitic) hillsides, ridges and hilltops (Garnett et al., 2011; Higgins et al., 2001) and are most commonly found on the rocky rounded hilltops typical of the region (Christidis et al., 2008). The vegetation is usually dominated by spinifex (*Triodia*) tussock grassland, usually with scattered spiny shrubs, particularly *Acacia* spp. and *Grevillea* spp. (Carpenter, 2006; Christidis et al., 2008). Short-tailed grasswrens (Gawler Ranges) response to fire is not well known, however the Flinders Ranges subspecies have been known to recolonise habitat patches in Flinders Ranges National Park within 5–7 years after a fire, though this occurred only where spinifex regeneration was good, usually following wet seasons, and predator numbers were low (Carpenter, pers comm., 2014). Short-tailed grasswren (Flinders Ranges) populations reach peak densities 10–30 years after fire (Carpenter, pers comm., 2014).

There is very little known about the breeding behaviour of short-tailed grasswrens, however anecdotal evidence suggests they breed in dispersed territories which may disband outside of the breeding season (Higgins et al., 2001). Eggs have been recorded in nests throughout September and October, with nests located in clumps of spinifex (Higgins et al., 2001). Nests range from oval shaped to domed and are loosely constructed utilising dry spinifex grass and sometimes incorporating rabbit fur as a nest liner (Higgins et al., 2001). Breeding pairs produce elongated oval eggs that are equally rounded at both ends; colouration is pearl white with reddish-brown spots and 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 17.0 years, both extrapolated from fairy-wrens (*Malurus* spp.).

Short-tailed grasswrens forage mostly on the ground, eating seeds, fruits, insects and other invertebrates (Higgins et al., 2001). There is no detailed information available on the feeding behaviour of short-tailed grasswrens.

Threats

Excessive frequencies of fires, both natural and human mediated, along with grazing have been identified as the most immediate threats to the subspecies (Higgins et al., 2001). Burnings are often undertaken deliberately to encourage the growth of green 'pick' for grazing by stock (Higgins et al., 2001). Intense and/or frequent fires can remove many of the spinifex refuges utilised by the subspecies in times of fire (Higgins et al., 2001). Single fire events have the potential to eliminate whole subpopulations (Carpenter, pers comm., 2014). The 2012 Nature Foundation survey of Hiltaba Station reserve noted that the spinifex habitat on one hill (Waroona Peak) had been almost completely destroyed by lightning fire (Black, pers comm., 2013). Fire is also known to have destroyed a significant amount of habitat on Paney Station (Gawler Ranges National Park) and it is highly likely that the cumulative effect of habitat loss and degradation has led to a recent population decline of short-tailed grasswrens (Gawler Ranges) (Black, pers comm., 2013). Furthermore, short-tailed grasswrens (Gawler Ranges) have also been identified as one of 55 Australian bird taxa considered likely to be exposed to increases in the frequency and intensity of fires as a result of climate change (Garnett et al., 2013).

In addition, short-tailed grasswren (Gawler Ranges) habitat is also being degraded as a result of various grazing pressures. Reports suggest that sheep (*Ovis aries*) grazing is degrading habitat patches in parts of the Gawler Ranges, with dorper sheep posing a greater threat than traditionally grazed merino sheep, as they are reputedly more destructive browsers and are more likely to venture into the hilltops. The impact of kangaroo (*Macropus* spp.) grazing on spinifex grasses in the National Park, possibly in combination with the alteration of some habitats from natural grasslands to pine woodlands, is also leading to a reduction in the quality of short-tailed grasswren habitat (van Weenen, pers comm., 2013),

particularly in areas where kangaroos have become overabundant. Predation by foxes (*Vulpes vulpes*), possibly in association with fire, may also be significant (Carpenter, 2004). Furthermore, predation by feral cats (*Felis catus*) may also pose a risk to short-tailed grasswrens.

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 size reduction, very severe $\geq 80\%$, severe $\geq 50\%$ or substantial $\geq 30\%$, 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

Eligible for listing as Endangered: experts suspect both past and potential future reductions in the number of short-tailed grasswrens (Gawler Ranges) as a result of ongoing grazing pressure, in combination with a decline in quality of habitat.

Garnett et al. (2011) estimated the number of mature individuals of short-tailed grasswrens (Gawler Ranges) to be around 900 and stated that past, current or future population declines were thought unlikely to exceed 30% in any three generation period (Garnett et al., 2011). However, recent lightning fires have degraded key habitat and, in combination with ongoing grazing pressures, this may have led to a population reduction of between 50% and 80% within the last three generations (Garnett, pers comm., 2014).

Furthermore, future population declines of greater than 50% within the next three generations are projected due to the effects of grazers (in particular dorper sheep) which can significantly degrade grasswren habitat (Garnett, pers comm., 2014).

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

- B1. Extent of occurrence estimated to be very restricted <100 km², restricted <5000 km² or limited <20 000 km²
- B2. Area of occupancy estimated to be very restricted <10 km², restricted <500 km² or limited <2000 km²

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 Endangered: the short-tailed grasswren (Gawler Ranges) area of occupancy and extent of occurrence are restricted and the subspecies geographic distribution appears to be precarious for their survival.

The predicted extent of occurrence for short-tailed grasswrens (Gawler Ranges) is thought to be approximately 1100 km² (restricted) and the area of occupancy about 90km² (restricted) (Garnett et al., 2011). Furthermore, there is evidence that the populations are severely fragmented (Baxter & Paton 1998; Christidis et al., 2008).

Observations suggest that sheep (*Ovis aries*) grazing is degrading habitat patches in parts of the Gawler Ranges. Reports indicate that kangaroo grazing on spinifex grasses in the National Park is also leading to a reduction in habitat quality (van Weenen, pers comm., 2013), particularly in areas where kangaroos have increased in abundance. Fire is known to have destroyed a significant amount of habitat on Paney Station (Gawler Ranges National Park) and it is highly likely that the cumulative effect of habitat loss and degradation has led to a recent population decline (Black, pers comm., 2013).

Although a full population census has not been undertaken limited surveys have supported the notion of a decline in available habitat. In particular, in May 2012 and 2013 the Nature Foundation of South Australia conducted surveys for short-tailed grasswrens on Hiltaba Station reserve. Historically the subspecies had been recorded on four hills in the Hiltaba Station reserve, however the 2012 surveys only found grasswrens in one location on one hill and the 2013 survey did not detect any grasswrens at all (Black, 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 Endangered: the total number of individuals is low, and the subspecies geographic distribution appears to be precarious for its survival.

The total number of mature individuals was estimated to be about 900 in 2010, which is considered low (Garnett et al., 2011). This figure was based on estimates of a few hundred birds each at Paney Station and Mt Ive, and significantly fewer birds at each of the four smaller sub-populations. Since those estimates were produced large parts of Paney Station have been burnt (Carpenter, pers comm., 2014). There is also evidence that the population is severely fragmented (Baxter & Paton 1998; Christidis et al., 2008).

In May 2012 and 2013 Nature Foundation South Australia conducted limited surveys for short-tailed grasswrens on Hiltaba Station reserve. Historically the subspecies had been recorded on four hills in the Hiltaba Station reserve, however the 2012 surveys only found grasswrens in one location on one hill and the 2013 survey did not detect any grasswrens at all (Black, pers comm., 2013).

Observations suggest ongoing degradation of short-tailed grasswren habitat is occurring as a result of overgrazing (van Weenen, pers comm., 2013) by both native species and livestock. Fire is also known to have destroyed a significant amount of grasswren habitat and it is highly likely that the cumulative effect of habitat loss and degradation has led to a recent population decline (Black, pers comm., 2013). Recent fires at Paney Station may have also reduced the grasswrens area of occupancy.

Criterion 4: Estimated total number of mature individuals:

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

Evidence

Eligible for listing as Vulnerable: the total population is estimated as low.

The total number of mature individuals was estimated to be about 900 in 2010, which is considered low. This figure was based on estimates of a few hundred birds each at Paney Station and Mt Ive, and significantly fewer birds at each of the four smaller sub-populations. Since those estimates were produced large parts of Paney Station have been burnt (Carpenter, pers comm., 2014).

- Criterion 5:** Probability of extinction in the wild based on quantitative analysis is at least:
- 50% in the immediate future, 10 years or three generations (whichever is longer); or
 - 20% in the near future, 20 years or five generations (whichever is longer); or
 - 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 merrotsyi pedleri* as, given the small number of locations occupied by the subspecies and the fact that at least some of the locations are in National Park, conservation advice for the subspecies should provide sufficient direction to implement priority actions and mitigate against key threats.

Recovery and Impact avoidance guidance

Primary Conservation Objectives
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| <ol style="list-style-type: none">1. Establish a stable population size of short-tailed grasswren (Gawler Ranges).2. Increase the area of suitable habitat for short-tailed grasswrens (Gawler Ranges). |
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Important populations

All populations are of high conservation value.

Important habitat for the survival of the subspecies

Important habitats for the survival of short-tailed grasswrens include rocky (granitic) hilltops, ridges and hillsides with spinifex (*Triodia*) tussock grassland and scattered spiny shrubs, particularly *Acacia* and *Grevillea* (Christidis et al., 2008).

Information required, research and monitoring priorities

1. Regular monitoring of population trends at key sites.
2. Identify the operational approach to fire management most likely to result in an increase in the extent of long unburnt vegetation.
3. Impacts of predation by foxes.

Management actions required

1. Actively manage fires to reduce overall extent and frequency, especially of high intensity fires.
2. Implement measures to manage sheep grazing in areas of spinifex regeneration.
3. If appropriate, design and implement a feral predator control program.

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 endangered category:

Amytornis merrotsyi pedleri

- (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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