

Conservation Advice

Amytornis textilis myall

western grasswren (Gawler Ranges)

Taxonomy

Conventionally accepted as *Amytornis textilis myall* (western grasswren (Gawler Ranges)) (Mathews, 1916). The western grasswren (Gawler Ranges) has recently been recognised as one of five subspecies of *A. textilis*, it occurs only in the eastern Gawler Ranges/north-eastern Eyre Peninsula of South Australia, while the other extant subspecies, *A. t. textilis*, occurs only in the Shark Bay area of Western Australia (Black et al., 2010; Black, 2011a). Three other Western Australian subspecies are considered extinct; *A. t. macrourus* of southern Western Australia, *A. t. carteri* of Dirk Hartog Island and *A. t. giganturus* of east Murchison WA (Black, 2011b; Austin et al., 2013). [Note: as *A. t. giganturus*, *A. t. carteri* and *A. t. macrourus* have only been recently recognised as distinct subspecies they are not currently listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).]

Conservation status

Vulnerable: 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

Western grasswrens are medium-sized, thickset grasswrens with long bills and long tails and dark coarsely streaked colouration (Higgins et al., 2001). The upperparts are dark brown to rufous with paler streaks, while the underparts are pale grey-buff with fine streaking from the chin to the breast (Pizzey & Knight 1999) and a white patch on the centre of the belly (Higgins et al., 2001). Female grasswrens are differentiated by chestnut patches on the flanks and a slightly shorter tail length (Higgins et al., 2001). The Gawler Ranges subspecies of the western grasswren is usually seen in pairs or small groups, but sometimes occurs singly (Higgins et al., 2001).

Western grasswrens (Gawler Ranges) are similar to western grasswrens (WA) (*A. t. textilis*), however the Western Australian subspecies have a slightly longer tail, are slightly paler in the upperparts and have a smaller white patch in the centre of the belly (Higgins et al., 2001). The extant Western Australian subspecies also occupies a different range of habitats to the Gawler Ranges subspecies as they are only found in Western Australia and are confined to an area around Shark Bay (Higgins et al., 2001).

Western grasswrens have a quiet but clear silvery song and an alarm call consisting of high-pitched squeaks (Pizzey, 1991).

Distribution

Western grasswrens (Gawler Ranges) are endemic to the southern ranges of South Australia. The subspecies is known from a number of locations between Munyaroo Conservation Park south of Whyalla and the eastern Gawler Ranges, concentrated in the Myall

Creek and Pine Creek drainages of the north-eastern Eyre Peninsula (Matthew & Carpenter 1993; Black et al., 2009; Black et al., 2010). Historically the subspecies was possibly much more widespread, as indicated by specimens from the Yellabinna Region of South Australia in 1909 (Black, 2004; Black et al., 2010).

Relevant Biology/Ecology

Western grasswrens (Gawler Ranges) are known to occupy chenopod shrublands scattered across the North Eyre Peninsula and the Gawler Ranges (Higgins et al., 2001). The subspecies is most commonly found in low shrublands, chiefly comprising blackbush (*Maireana pyramidata*) and Australian boxthorn (*Lycium australe*), however they are also known to inhabit low woodlands, mostly comprising Western Myall (*Acacia papyrocarpa*) (Black et al., 2009). The subspecies is very occasionally found on rocky, Spinifex-covered hills within the Gawler Ranges (Higgins et al., 2001). Most of the subspecies habitat is found along drainage lines but occasionally habitat also includes low rocky hills and semi-arid low woodlands. In a survey by Black et al. (2009) the density of shrub cover in occupied sites was found to be higher than in unoccupied sites.

Western grasswren (Gawler Ranges) breeding behaviour is poorly known but the subspecies is thought to be socially monogamous and to engage in cooperative breeding with additional adults assisting in the raising of young, though again there is no data to confirm this (Higgins et al., 2001). Breeding occurs from late June to September, and territory size for breeding pairs or groups is thought to be around one hectare in good seasons (Higgins et al., 2001). Nests vary from open cups, to partly or fully dome-shaped structures solidly constructed from dry grass, saltbush twigs and narrow strips of bark and lined with downy plant material, or occasionally fur and feathers (Higgins et al., 2001). Nests are usually located close to the ground in clumps of canegrass or in the centre of low shrubs such as saltbush and blackbush (Higgins et al., 2001; Pizzey, 1991). Breeding pairs generally produce two to three eggs which are tapered ovals with colouration varying from white to pink and markings ranging from heavy red-brown or purplish-grey spots or blotches to fine red-brown specks (Higgins et al., 2001; Pizzey, 1991). 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.).

The diet of western grasswrens primarily consists of seeds, fruits, insects and other invertebrates (Higgins et al., 2001). The subspecies is known to forage on the ground under and around the bases of shrubs, in leaf litter and occasionally in open areas (Higgins et al., 2001). Birds are believed to forage through early and mid morning and sometimes in the late afternoon and usually forage in pairs (Higgins et al., 2001).

Threats

Western grasswrens are threatened by over-grazing, land use change and/or introduced predators. The degradation of soils and loss of understorey vegetation caused by overstocking of livestock such as sheep (*Ovis aries*) and possibly cattle (*Bos taurus*) (Skroblin & Murphy, 2013), coupled with further degradation caused by rabbits (*Oryctolagus cuniculus*) and feral goats (*Capra hircus*), has been shown to adversely affect the subspecies (Higgins et al., 2001; Garnett, 1993). Western grasswrens are believed to be particularly susceptible to habitat degradation caused by over-grazing during periods of drought (Garnett, 1993; Higgins et al., 2001; Skroblin & Murphy, 2013). Large areas of blackbush are also believed to have succumbed to recent extended drought conditions, independent of grazing activity (Black et al., 2009). Western grasswrens have been extirpated from several locations due to habitat destruction by stock, sand quarrying and recreational activities.

The extinction of all Western Australian subspecies other than *A. t. textilis* in the early 20th century across southern Western Australia, and the extinction of the related thick-billed grasswren subspecies' *A. modestus modestus* from the Northern Territory and *A. modestus inexpectatus* from central eastern NSW, have been attributed to destruction of habitat by livestock and feral herbivores at times of severe drought, possibly in addition to the

impacts of introduced predators (Schodde, 1982; McAllan, 1987; Higgins et al., 2001). The reason for the disappearance of this subspecies from the Yellabinna region is unknown, though possible causes include predation by foxes (*Vulpes vulpes*) or feral cats (*Felis catus*), or overgrazing by rabbits or feral goats, as the region has not been grazed by livestock (Australian Government, 2009; Higgins et al., 2001). Widespread fox baiting may underlie recent increases in other grasswrens in the Flinders Ranges and north Olary Plains (Pedler et al., 2007).

About 20% of the population of western grasswrens lives within the Cultana Training Area on lands nominated for military purposes, including tank training, which poses potential risks of direct physical habitat damage (Black et al., 2009). This area is exempt from the South Australian Native Vegetation Act and vegetation clearance is permitted, under Native Vegetation Regulation 5(1)(zn), if carried out by the Commonwealth Department of Defence or an arm of the Australian Defence Force (SA Native Vegetation Regulations, 2014).

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 most recent estimate of the number of mature individuals was 8400 in 2010 (Garnett et al., 2011). The number of mature individuals is suspected to be decreasing, 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 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 Vulnerable: the extent of occurrence and area of occupancy are limited, the subspecies distribution is severely fragmented and there is an inferred continuing decline in the quality of habitat.

Garnett et al. (2011) predicted the extent of occurrence for western grasswrens as 12 000 km² (limited) and the area of occupancy as 600 km² (limited) (Garnett et al., 2011). In 2006, western grasswrens were found at 76% of 62 sites surveyed, with sites chosen based on previous records of the subspecies occurring there (Black et al., 2009). Historically the subspecies is suspected to have been much more widespread, with specimens having been collected from the Yellabinna Region of western South Australia in 1909 (Black, 2004; Black et al., 2010). This location is at least 400 km from the nearest record of the subspecies in the Gawler Ranges (Black, 2004).

The subspecies also appears to be severely fragmented. The term severely fragmented describes the circumstance in which individuals of a taxon are found in small and relatively isolated subpopulations with the result being an increased extinction risk to the taxon and a reduced probability of recolonisation if subpopulations were to go extinct (IUCN, 2012). Mature individuals of western grasswrens (Gawler Ranges) are spread across more than 10 locations from Munyaroo Conservation Park to the eastern Gawler Ranges (Garnett et al., 2011), a distance of over 100 km. Reports suggest that western grasswrens are mainly sedentary and pairs appear to remain within the same 4 to 5 hectare patch throughout the year (Higgins et al., 2001). Given the fractured distribution and the limited dispersal capabilities of the western grasswren (Gawler Ranges), it can be inferred that the subspecies is severely fragmented.

The quality of western grasswren habitat is also thought to be declining as over-grazing pressures are negatively impacting on habitat in the Gawler Ranges (Higgins et al., 2001). Grazing is the principal threat across all locations, however grazing intensity is likely to be spatially heterogeneous because of fencing and land ownership (Garnett, pers comm., 2014).

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, the subspecies distribution is severely fragmented and there is an inferred continuing decline in the quality of habitat.

The current number of mature individuals is estimated to be 8400, which is considered limited, and the population is also suspected to be decreasing (Garnett et al., 2011).

A continuing decline in the number of mature individuals and the area of occupancy is suspected based on the apparent extirpation of the subspecies from some of the sites it historically occupied and ongoing threats to the extent and quality of the subspecies' habitat, chiefly excessive grazing pressure, altered land use and climate change (extended drought) (Black et al., 2009). Habitat quality is also thought to be declining as over-grazing pressures are negatively impacting on habitat in the Gawler Ranges (Higgins et al., 2001).

Furthermore, it would appear that subspecies distribution is severely fragmented. The term severely fragmented describes the circumstance in which individuals of a taxon are found in small and relatively isolated subpopulations with the result being an increased extinction risk to the taxon and a reduced probability of recolonisation if subpopulations were to go extinct (IUCN, 2012). Mature individuals of western grasswrens (Gawler Ranges) are spread across more than 10 locations from Munyaroo Conservation Park to the eastern Gawler Ranges (Garnett et al., 2011), a distance of over 100 km. Reports suggest that western grasswrens are mainly sedentary and pairs appear to remain within the same 4 to 5 hectare patch throughout the year (Higgins et al., 2001). Given the fractured distribution and the limited dispersal capabilities of the western grasswren (Gawler Ranges), it can be inferred that the subspecies is severely fragmented.

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 8400 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 textilis myall* as, given the small number of locations occupied by the subspecies (around 10) and the fact that at least some of the locations are in a Conservation 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 Objective
1. Ensure that all known populations of western grasswrens (Gawler Ranges) are stable.

Important populations

All populations are of high conservation value.

Important habitat for the survival of the subspecies

Habitat of primary importance includes low shrublands, chiefly comprising of blackbush (*Maireana pyramidata*) and Australian boxthorn (*Lycium austral*), with habitat of secondary importance including low woodlands, mostly comprising Western Myall (*Acacia papyrocarpa*). Habitat along drainage lines, on low rocky hills and in semi-arid low woodlands appears to be preferred.

Information required, research and monitoring priorities

1. Undertake survey work in historical habitat, suitable habitat and potential habitat to locate all remaining, and any additional, populations.
2. Determine the acceptable levels of grazing by livestock and feral herbivores required to ensure subspecies survival, with a focus on the regeneration potential of critical habitat plants (particularly blackbush and native boxthorn) under grazing by domestic stock.
3. Evaluate the impacts of predation by foxes and feral cats.

Management actions required

1. Ensure grazing by stock is kept at low levels at a selection of locations until the relationship between grazing and grasswren abundance is better understood.
2. Ensure that military authorities monitor and conserve populations on land they control.

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 vulnerable category:

Amytornis textilis myall

- (ii) The Committee recommends that there should not be a recovery plan for this subspecies.

Threatened Species Scientific Committee

03/09/2014

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