

HABITAT CHARACTERISTICS OF THE THICK-BILLED GRASSWREN *AMYTORNIS TEXTILIS* IN GRAZED SHRUBLANDS IN WESTERN AUSTRALIA

P.J. Curry

Rangeland Management Branch,
Department of Agriculture,
South Perth, W.A. 6151, Australia

Synopsis

An endemic form of a scarce grasswren *Amytornis textilis* is maintaining its stronghold in arid pastoral shrublands in the Shark Bay district. It inhabits produmbent and decumbent shrubs of three associations which are resistant to changes induced by grazing, and a fourth association of slow-changing seral shrublands growing after fire.

Introduction

The western and nominate subspecies of the Thick-billed Grasswren *Amytornis textilis textilis* is a little-known inhabitant of arid shrublands between the Peron peninsula and Esperance, Western Australia. It is difficult to locate, owing to exceptionally retiring behaviour. Its biology has never been studied and it has been found regularly only on Peron, in the Shark Bay district. Since 1951, none have been reported from the major part of its former range throughout the Murchison and Goldfields districts (Blakers, et al. in press). In a review of its status, Schodde (1983) speculated that it may be 'on the verge of extinction' and identified grazing by stock and predation by feral cats as the greatest dangers to its continued survival. Like many previous authors, Schodde (op.cit) described the habitat of *A. t. textilis* as 'shrub steppes of saltbush (= *Atriplex* spp.) and bluebush' (= *Maireana* spp.).

During 1982, *A. t. textilis* was looked for in shrub associations of the Shark Bay district between 25°42'S, 113°25'E and 26°38'S, 115°10'E. Birds were found in four types of shrubland described below.

Acacia shrublands on plains of red aeolian sand

On the eastern side of the Peron peninsula, *A. t. textilis* lives in shrublands 1.5-3 m tall, dominated by *Acacia ligulata*, *A. tetragonophylla* and *A. ramulosa*, with undershrubs such as *Scaevola*, *Rhagodia* and *Ptilotus* spp., *Threlkeldia diffusa* and *Zygophyllum* spp. Similar associations are widespread elsewhere in the district. Those on Peron differ mainly in the growth form of the larger shrubs which, in an area receiving strong southerly winds, are lower and procumbent more often than elsewhere away from the coast.

Mixed shrublands succeeding *Acacia* shrublands after fire or clearing

Observations suggested that *A. t. textilis* is widespread in seral shrublands that replace *Acacia ramulosa*-dominated areas for at least 40 years after uncontrolled fires (Curry 1984). Such shrublands are typically lower and more open than the association they replace, and feature increased numbers of low shrubs such as *Ptilotus obovatus* and *Solanum orbiculatum* which grow to unusually large size and in decumbent forms. Similar associations appearing as regrowth on previously cleared areas are also inhabited by *A. t. textilis*.

Low shrublands on calcareous sandplains

On the western side of the Peron peninsula, *A. t. textilis* lives in shrublands mostly < 1.5 m tall, dominated by *Acacia ligulata*, *Thryptomene*, *Exocarpus* and *Ptilotus* spp., mixed with hummocks of spinifex grass *Triodia* sp. Perennial saltbushes (*Atriplex* spp.) occur as minor elements but were absent from two sites at which the birds were located. While exhibiting a tolerance for a mixture of semi-arid shrub species more typical of the South-West Botanical Province, this grasswren has not been found to occur in the denser heaths dominated by Myrtaceae and Proteaceae, which lie south of Peron.

Shrub associations in drainage depressions

Scattered within the limestone plains of the Carbla Plateau (east of Humelin Pool 26°25'S, 114°11'E) are small, seasonally swampy drainage foci with clay soils. They support dense procumbent shrubs such as *Muehlenbeckia cunninghamii*, *Atriplex rhagodioides* and *Eremophila maculata*. One such site was investigated: although difficult to locate, several groups of *A. t. textilis* were present within

1 ha. Such depressions are surrounded by sparser, taller *Acacia* shrublands; no *A. t. textilis* were encountered in such associations.

Impact of grazing

Pastoral leasehold properties cover almost the whole of the area known to be inhabited by the grasswren. On the sandplains, sheep have been stocked at rates in the order of 1: 10 ha for 30-80 years, with pastoral development having been earliest in coastal districts. Changes in the herbaceous layer brought about by heavy rainfall grazing may have predisposed large parts of the sandplain to occasional widespread fires. Major changes in the shrub associations that follow make fire-affected areas more favourable as habitats for *A. t. textilis*. On alluvial soils elsewhere in the region, major losses of palatable *Atriplex* spp. and *Maireana* spp. have occurred on sites subjected to overgrazing. These losses are relatively local, and wide areas of chenopod steppe remain, but no *A. t. textilis* were located among them during visits to 36 sampling sites dominated by *Atriplex* or *Maireana*.

Discussion

The current status of *A. t. textilis* in the Shark Bay region appears to be that of a scarce and localized population of arid shrubland-dwelling birds, coping successfully with changes brought about by pastoralism and other consequences of European land use. A range of shrub associations in which it lives suggests an ability to adapt to various habitats, provided that the growth form of the shrubs provided refuges of cover near ground level. A widely-held belief that, in Western Australia, the species lives mainly in chenopod steppes is erroneous. It probably stems from mis-interpretation of the identity of the 'saltbushes' mentioned in an early key account of its occurrence (Whitlock 1910), which evidently describes *Cratystylis* and *Rhagodia* shrubland rather than *Atriplex*.

Literature Cited

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