Abstract

This report, the fifth describing the biological survey of the Eastern Goldfields, covers the Youanmi-Leonora Study Area which lies between 28° and 29° South and 118°30′ and 120°45′ East. The Study Area is located in the Austin Botanical District of the Eremaean Botanical Province.

Ten Landforms are recognized with Broad Valley being the most extensive. Vegetation and flora were documented at 23 sample sites. Most plant species have a broad Eremaean distribution but a southwestern influence is evident in some areas of Broad Valley.

The vertebrate fauna of the Study Area was documented principally from one survey area. Three amphibian, 43 reptile, 78 bird and 22 mammal species were recorded. Geckos and skink lizards are well represented. The reptile assemblage reflects the arid nature of the Study Area with several species present that were not recorded in Study Areas further south.

Individuals of granivorous species of non-passerine birds dominate the assemblage in marked contrast to other Study Areas in the Eastern Goldfields. Water from stock-troughs coupled with changes to the vegetation because of grazing provides advantage to granivorous birds. The mammal fauna has a high diversity of small carnivorous dasyurid species including four in the genus *Sminthopsis*. This contrasts with the rodent fauna which is depauperate. No conservation reserves occur in the Study Area. A reserve in the southwest of the Study Area is recommended.

I Introduction

J. Dell

The Youanmi-Leonora Study Area (Figure 1) is a rectangle of approximately 13,920 km^2 situated between 28° and 29°S and 118°30′ and 120°45′E in the northwestern part of the Eastern Goldfields. It comprises the whole of the 1:250,000 geological survey Youammi sheet, SH/50-4 (Stewart *et al.* 1983) and the western half of the Leonora sheet, SH/51-1 (Thom and Barnes 1977). It is located in the Austin phytogeographic region in the Eremaean Botanical Province (Beard 1980).

The Youanmi-Leonora Study Area was selected as part of the biological survey of the eastern Goldfields which commenced in 1978. The rationale for, and methods used in this survey are outlined in Biological Surveys Committee (1984). This report is the fifth presenting baseline data on the Eastern Goldfields Survey; the others are Newbey *et al.* (1984), Dell *et al.* (1985), Dell *et al.* (1988), and How *et al.* (1988).

The botanical survey work was carried out by A.V. Milewski during several short periods between January 1980 and August 1982. Vegetation descriptions, plant species lists and soil data were compiled for the faunal sample sites by J. Dell during 12-19 September 1986.

The vertebrate fauna was recorded in a representative area of each of the major vegetation formations within 15 km radius of a campsite near New Well in 28°33′25S, 119°05′30E on Yuinmery Station during 1-8 June 1979, 12-19 February 1980 and 30 September-7 October 1981.

The first European exploration of the area was in 1855 by Robert Austin the assistant surveyor who traversed the western portion of the Study Area. Austin named Poison Rocks while travelling northwards from Northam to Shark Bay via Mount Magnet (which he also named) while in search of good pasture land or water resources. Although

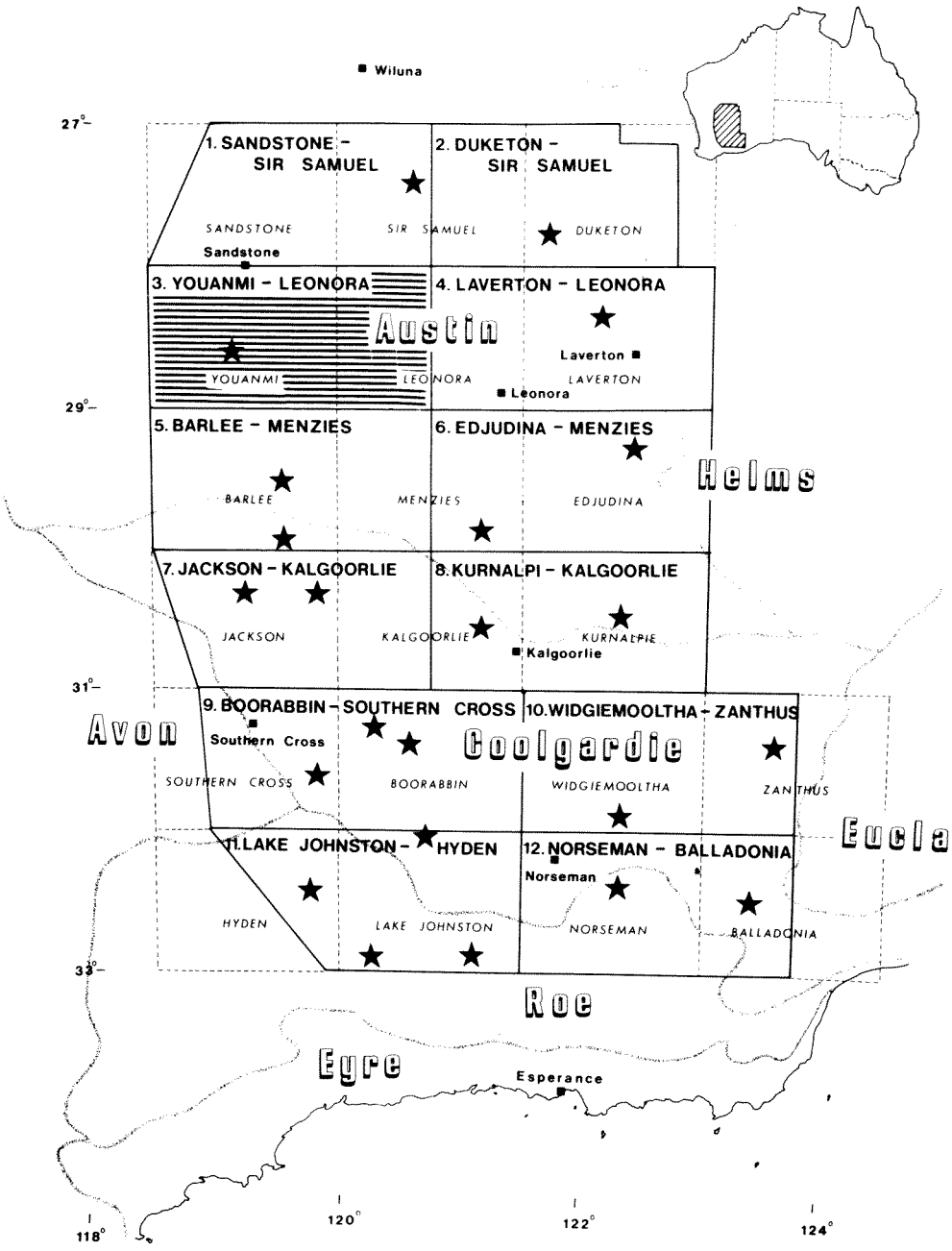

Figure 1 Map showing the extent of the Eastern Goldfields Region, the vegetation districts and the boundaries of the Study Areas included in the biological survey. The shaded portion shows the Youanmi-Leonora Study Area covered by this report.

disappointed with the pastoral potential of the region, Austin did report that the area to the northwest of the Study Area was probably "the finest goldfields in the world" (Feeken *et al.* 1970).

Later explorers included John Forrest in 1869 who travelled northwards through the middle of the Study Area from Lake Barlee and named Mount Alfred and Mount Holmes (Forrest 1875).

Gold was the first significant industry in the Study Area; the first discoveries were in the extreme northern edge in 1895, later discoveries led to major mines at Youanmi, Lawlers, Agnew and Paynesville. The history and development of gold mining and other minerals of economic importance are discussed by Stewart *et al.* (1983) and Thom and Barnes (1977).

The gold mining industry declined considerably after 1908 and most mines ceased operation. From time to time economic considerations lead to renewed exploration and extraction and in the 1980's there was considerable activity with old mines being reworked and new ones commenced. Economic potential of the Study Area includes uranium, zinc and gold with nickel in the eastern portion (Stewart *et al.* 1983).

Sheep grazing for wool production has been the major industry of the region. The original haphazard shepherding along the major watercourses of the region developed into paddocking and by 1910 the Study Area was almost completely taken over by grazing leases (Beard 1976) which remain today. This grazing has had severe effects on the vegetation generally (Brockway 1959) and presumably substantially affected animal populations.

The vegetation of the Study Area has not previously been studied. Beard (1976) lists the general botanical work in the region which includes little within the Study Area. There has been no systematic faunal survey prior to our study.