Abstract

This report, the fourth describing the biological survey of the Eastern Goldfields, covers the Edjudina–Menzies Study Area which lies between 29° and 30° South and 120°45′ and 123° East. The Study Area is located in the Eremaean Botanical Province, mainly in the Austin Botanical District with a small part entering the Helms Botanical District.

Nine landforms are recognised. Broad Valley (over granite), Undulating Plain (over greenstone) and Salt Lake Feature are most extensive, interrupted by Sandplain and punctuated by scattered Breakaway, Dunefield, Granite Exposure and Hill.

Vegetation and flora were documented at 22 sample sites. A total of 29 vegetation types was recognised, consisting mainly of low woodland dominated by mulga *(Acacia aneura)*. There are limited areas of tall shrubland, mallee over hummock grasses, and low shrubland. Dunes of yellow siliceous sand are a feature of special interest in the south-western part of the Study Area. They support several outliers of the south-western flora in an area otherwise dominated by Eremaean elements.

The vascular flora comprises two species of ferns and 442 species of flowering plants. The known distributions of several poorly documented taxa, such as *Acacia* spp., were extended. The gazetted rare species *Calytrix watsonii* was recorded. Although lichens and other non-flowering plants were recorded, the number of species is not known.

The vertebrate fauna of the Study Area was documented, principally from two survey areas. Four amphibian, 67 reptile, 108 bird and 25 mammal species were recorded. This is the richest herpetological area in the Eastern Goldfields with several species at the extremes of their distribution. Birds and mammals mirror the herpetofauna in having an admixture of South-western and Eremaean species. Three taxonomically similar pairs of native mammals occur sympatrically.

There is only one nature reserve, straddling the southern border, in the Study Area. This contains small samples of several landforms and their associated borders. However, several types, particularly hummock grasses on nutrient-poor soils, are inadequately represented.

I Introduction

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The Edjudina–Menzies Study Area (Figure 1), covering about 24,225 km^2, is situated north-east of Kalgoorlie and south of Laverton in the eastern part of the Eastern Goldfields. It lies between latitude 29°00′S and 30°00′S and longitude 120°45′E and 123°00′E. The Study Area consists of the whole of the Geological Survey of Western Australia 1:250,000 Edjudina map, sheet SH 51-6 (Williams *et al.* 1976), and the eastern half of the 1:250,000 Menzies map, sheet SH 51-5 (Kriewaldt 1970).

The Study Area is near the eastern edge of the Precambrian Shield; the underlying geology consists primarily of Archaean granitic rocks. There are also areas of metamorphosed sedimentary rocks and smaller areas of felsic volcanic rocks, and mafic and ultramafic intrusive complexes (Geological Survey of Western Australia, 1979). Several north-west/south-east aligned saltlakes have associated Quartenary

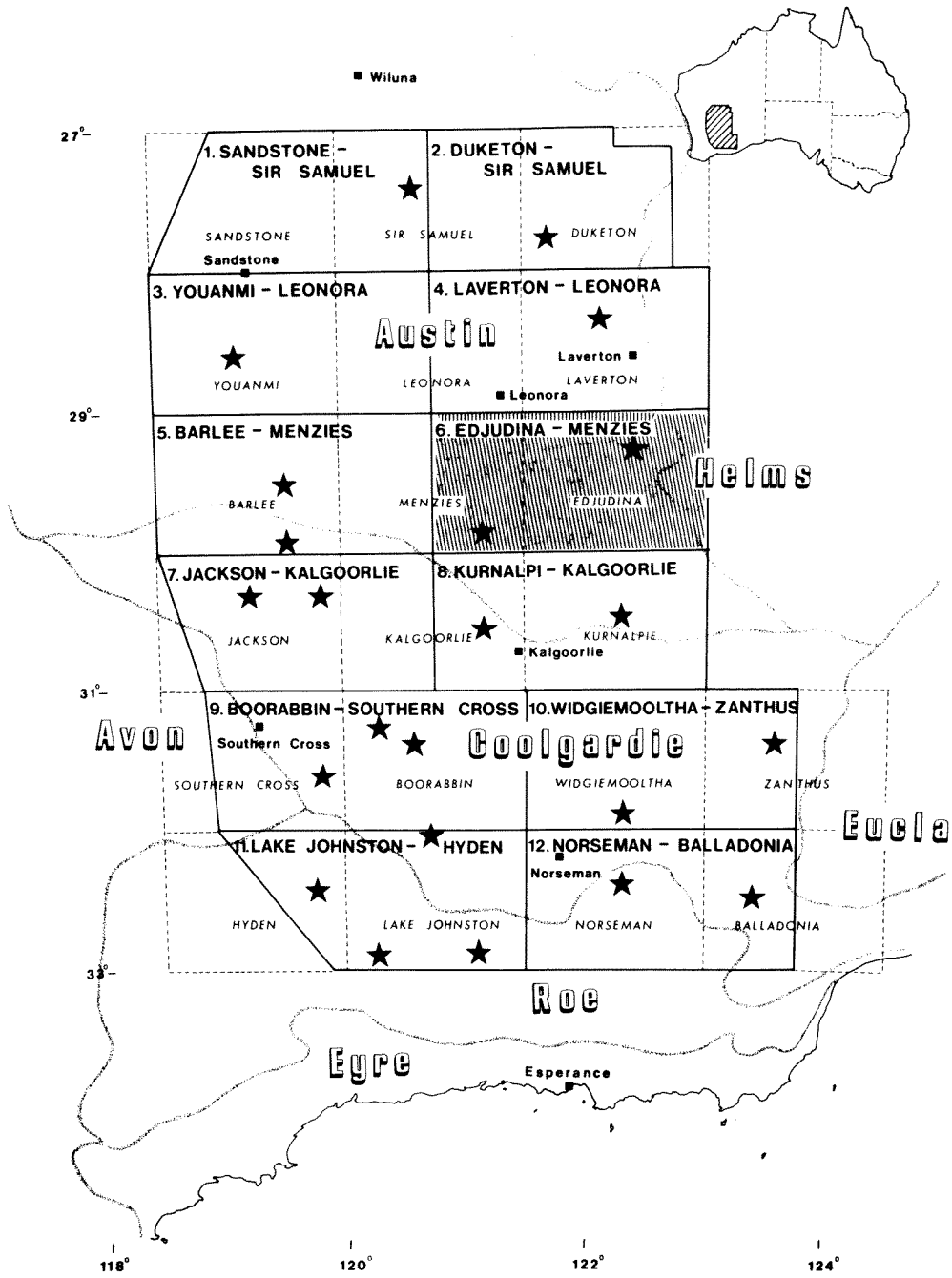

Figure 1 Map showing the extent of the Eastern Goldfields Region, the vegetation districts and the boundaries of the Study Areas included in the biological survey. The shaded portion shows the Edjudina-Menzies Study Area covered by this report.

and Tertiary valley-fill alluviums and calcrete development. Much of the surface is eroded by weathering and colluvial deposition is common over most of the Study Area.

This report is an inventory of the vegetation, flora and vertebrate fauna recorded during a biological survey of the Edjudina–Menzies Study Area. The survey, coordinated by the Biological Surveys Committee of Western Australia, documented the biota of the Study Area and provided baseline data to be used in determining the adequacy of conservation reserves already in existence (Conservation through Reserves Committee 1974) and those proposed (Biological Surveys Committee 1984). The survey was conducted in two parts with the vegetation and flora being documented by a consultant botanist and the fauna by the Western Australian Museum.

The major botanical field work was carried out by A.V. Milewski during several short periods between January 1980 and August 1982. Areas visited are shown on Figure 3.

The vertebrate fauna was recorded in a representative area of each major vegetation formation within a 15 km radius of two campsites: near Lake Goongarrie (29°55′10″S, 121°08′30″E) and near Mt Linden on Yundamindra Station (29°18′20″S, 122°25′00″E). The methods employed during the vertebrate study are documented by Biological Surveys Committee (1984). In addition, significant collections of invertebrate material were made and will be reported in later papers. Each campsite was visited for seven days each in March 1979, October 1980 and July 1981.

The Study Area is crossed by one sealed road (Kalgoorlie to Leonora) and a network of unsealed graded roads and ungraded pastoral station tracks. Some tracks are impassable after heavy falls of rain, and others have patches of deep sand which make travelling hazardous when the soil is loose and dry. The railway from Kalgoorlie to Leonora runs parallel to the main sealed road.

Exploration in the Study Area was briefly outlined by Beard (1976) who also listed the main human activities as gold mining and sheep grazing. Mining activity spread northwards from Coolgardie and Kalgoorlie and major mining settlements were established at Menzies, Kookynie and Niagra with numerous smaller settlements and isolated mines including Comet Vale, Mt Linden and Yundamindra. Much of the mining industry has declined, most mines have closed and the only remaining settlement is the town of Menzies and the railway siding of Kookynie.

Sheep grazing spread throughout the Eastern Goldfields with the establishment of pastoral leases. The whole Study Area is now under pastoral lease except for a small strip of unsuitable country on the eastern border and the Goongarrie National Park in the south. The main permanent human habitations are the pastoral station homesteads.

Timber cutting for mining and the widespread degradation of the vegetation by sheep grazing in the Eastern Goldfields has been documented by a number of writers and reviewed by Beard (1976). However, in general the vegetation is in good condition compared to that further north where the effects of the pastoral industry have been much more severe.