

## ABSTRACT

The Barlee–Menzies Study Area is located between latitudes 29°00'S and 30°00'S and longitudes 118°50'E and 120°45'E.

Eight landform units are recognized in the Study Area. The most extensive are Salt Lake Features, Sandplains and Broad Valleys. In the Study Area, Hills are a prominent feature while Undulating Plains occur in limited areas and Granite Exposures are scattered throughout. Small areas of Dunefields and Breakaways are also present. An abrupt range of banded ironstone Hills, the Mt Manning Range, is one of the most marked topographical features in the Eastern Goldfields.

The Barlee–Menzies Study Area straddles the boundary between the Eremacian and South-West Botanical Provinces. This boundary is the so-called "Mulga-Eucalypt line", which marks the transition from low woodlands of *Acacia aneura* (Mulga) to *Eucalyptus* woodlands and low woodlands. Other prominent vegetation types include Mallees with an understorey of hummock grasses (*Triodia*) on sandplains and low shrublands associated with salt lakes. An important vegetation pattern, largely restricted to steep slopes of metasedimentary rock, consists of tall shrublands with many elements of the South-western Interzone, giving way to *Eucalyptus* low woodlands at the base.

The known vascular flora of the Study Area comprises 3 species of ferns, 2 species of conifers and 577 taxa of flowering plants, including 293 taxa recorded from the Mt Manning Range area. Exhaustive floristic lists for 24 sample sites, representing most of the Study Areas' surface lithologies, are included as an appendix. No species of Declared Rare Flora were recorded within the Study Area.

Vertebrate species were surveyed in two survey areas. A total of 21 native mammal, 114 bird, 53 reptile and 2 frog species were recorded. The known vertebrate fauna of the Study Areas is listed, and discussed in terms of the sampling strategy and post-European changes. Sixteen mammal species are now presumed to be extinct in the Study Area. Preliminary numerical analysis of the quadrat data revealed patterns in the species composition of the vertebrate assemblages that could be explained in terms of surface stratigraphy.

Mount Manning Range Nature Reserve and Mount Elvire Pastoral Lease (owned by CALM and proposed as State forest) are the only conservation reserves in the Study Area. The Mt Manning Range itself is, however, excluded from the Nature Reserve.

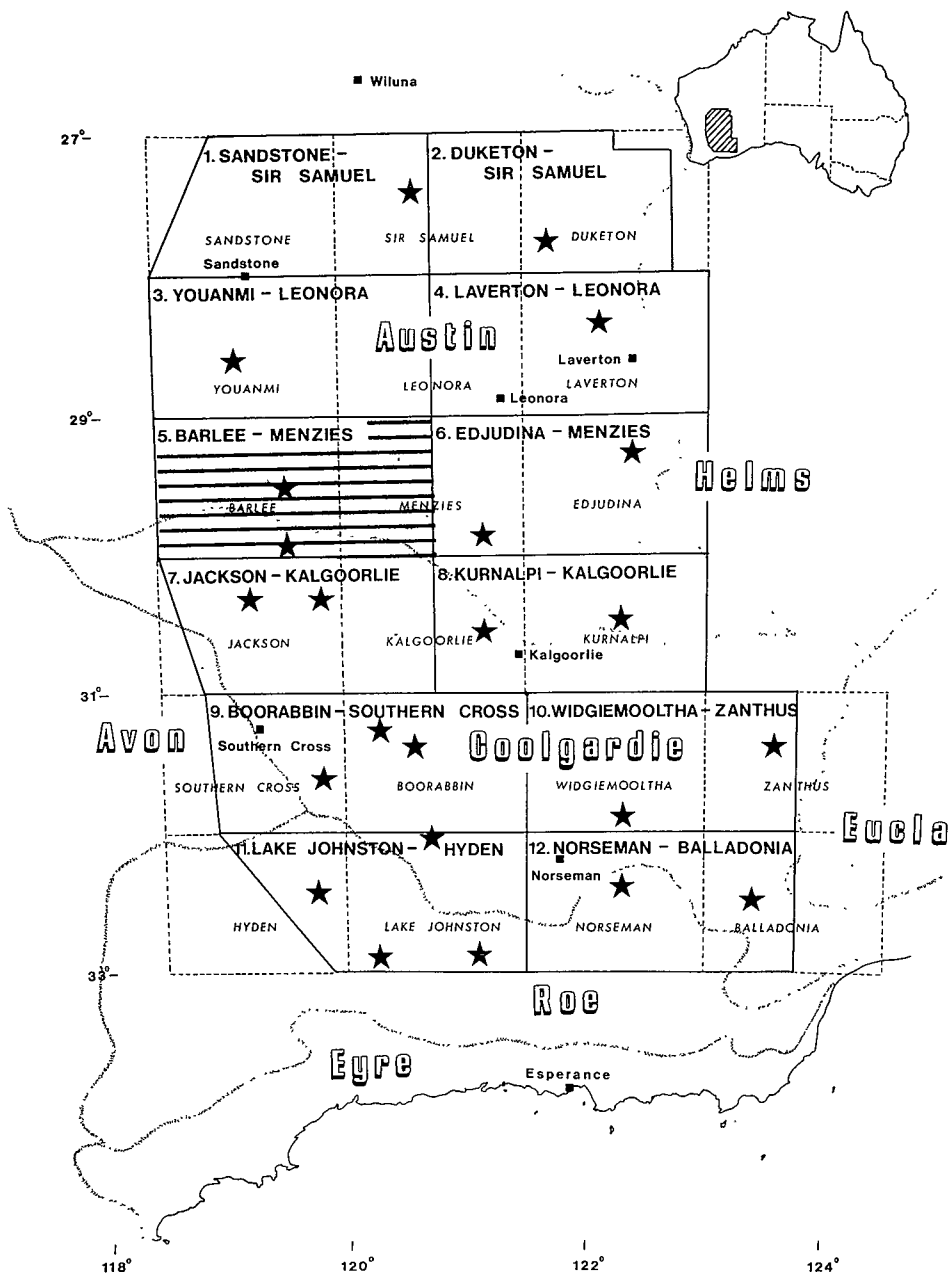
## INTRODUCTION

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This report is the twelfth in a series of biological survey reports covering the Eastern Goldfields Region (e.g. Newbey *et al.* 1984, Dell *et al.* 1985, How *et al.* 1988, Dell *et al.* 1988, Dell *et al.* 1992, How *et al.* 1992, McKenzie and Hall 1992, Hall and McKenzie 1993, Hall *et al.* 1994, Keighery *et al.* 1994). The philosophies behind the survey, its design and the methods employed are outlined in Biological Surveys Committee of Western Australia 1984.

The region was divided into 12 Study Areas (Figure 1). Herein we document the vegetation, flora and vertebrate fauna recorded during our survey of the Barlee–Menzies Study Area. This report aims to present data rather than focussing on regional interpretation. The data from all Study Areas will be pooled for analysis, and a quantitative synthesis of patterns in the Eastern Goldfields biota will be published later.

The Barlee–Menzies Study Area, an area of approximately 20 000 km<sup>2</sup>, is covered by two 1:250 000 geological maps: "Barlee" (Walker and Blight 1983) and the western half of "Menzies" (Kriewaldt 1970). The Study Area, situated between 29°00'S and 30°00'S and 118°50'E and 120°45'E, lies between Cashmere Downs at the northern edge of Lake Barlee to the north and the Mount Manning Range to the south.



**Figure 1** 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 Barlee-Menzies Study Area covered by this report.

The biological survey was conducted in two parts. The vegetation and flora was documented by a consultant botanist (A.V. Milewski) and G.J. Keighery (Department of Conservation and Land Management). The fauna was surveyed by staff of the Western Australian Department of Fisheries and Wildlife (wildlife branches now in the Department of Conservation and Land Management).

The initial vegetation survey was carried out during April, June and October 1980 and September 1981. Subsequent work was conducted by G.J. Keighery in November 1991. Field traverses and vegetation sample sites, selected to document the vegetation on the main landform units, are shown in Figure 2.

Most vegetation and vertebrate sampling was concentrated in two survey areas, chosen to provide access to the widest variety of landforms. The Mt Manning Range survey area (29°59'S 119°37'E) was situated on the southern boundary of the Study Area while the Mt Elvire survey area (29°30'S 119°36'E) was located in the north-western part of the Study Area on the edge of Lake Barlee (Figure 2).

Vertebrates were sampled in the Mt Manning Range survey area (MM) and the Mt Elvire survey area (ME) during July and August 1979, September 1980 and March 1981. Ten vertebrate quadrats were selected in the two survey areas (MM1-5 and ME6-10) to sample relatively homogeneous areas of the most extensive surface types distinguished by Walker and Blight (1983).

The landforms, vegetation and fauna immediately adjacent to the south-western corner of the Study Area have been studied by Youngson and McKenzie (1977). Their descriptions apply to vegetations within the Barlee-Menzies Study Area which were not visited during the present survey (see Keighery et al. this publication).

The main access to the Study Area is by a sparse network of unsealed, graded roads and station tracks. Access is either from Menzies westwards to Diemals or from Bullfinch northwards, passing over the Die Hardy Range at the entrance to the Study Area before joining the Menzies-Diemals Road. The Study Area has several rough tracks constructed for mineral exploration as well as those used for access to pastoral leases. All tracks in the Study Area vary in condition. Many are impassable following rain and some have patches of deep sand hazardous for travelling when loose and dry. The western third of the Study Area in particular has few tracks and is largely inaccessible.

An account of previous exploration in the Barlee-Menzies Study Area can be found in Beard (1972, 1976). The Study Area is very sparsely settled and contains no townsites. A number of old abandoned mining settlements, no longer inhabited, are scattered throughout the Study Area. Permanent habitation is confined to a number of pastoral leases, supporting a sheep grazing industry. The Study Area also contains two large expanses of Crown land, one in the west and south-west and the other in the south extending northward to east of Lake Giles. In the past, parts of the Study Area were cut over for timber used in mining operations (Beard 1972).

The only significant nature conservation reserve within the Study Area is the Mt Manning Range Nature Reserve (153 293 ha). This substantial reserve (No. 36208) is located in the southern part of the Study Area and extends south into the adjacent Jackson-Kalgoorlie Study Area. However, the entire Mt Manning Range is excluded from the Nature Reserve by a Mining Act Ministerial Temporary Reserve (TR 1971H). A number of small water reserves

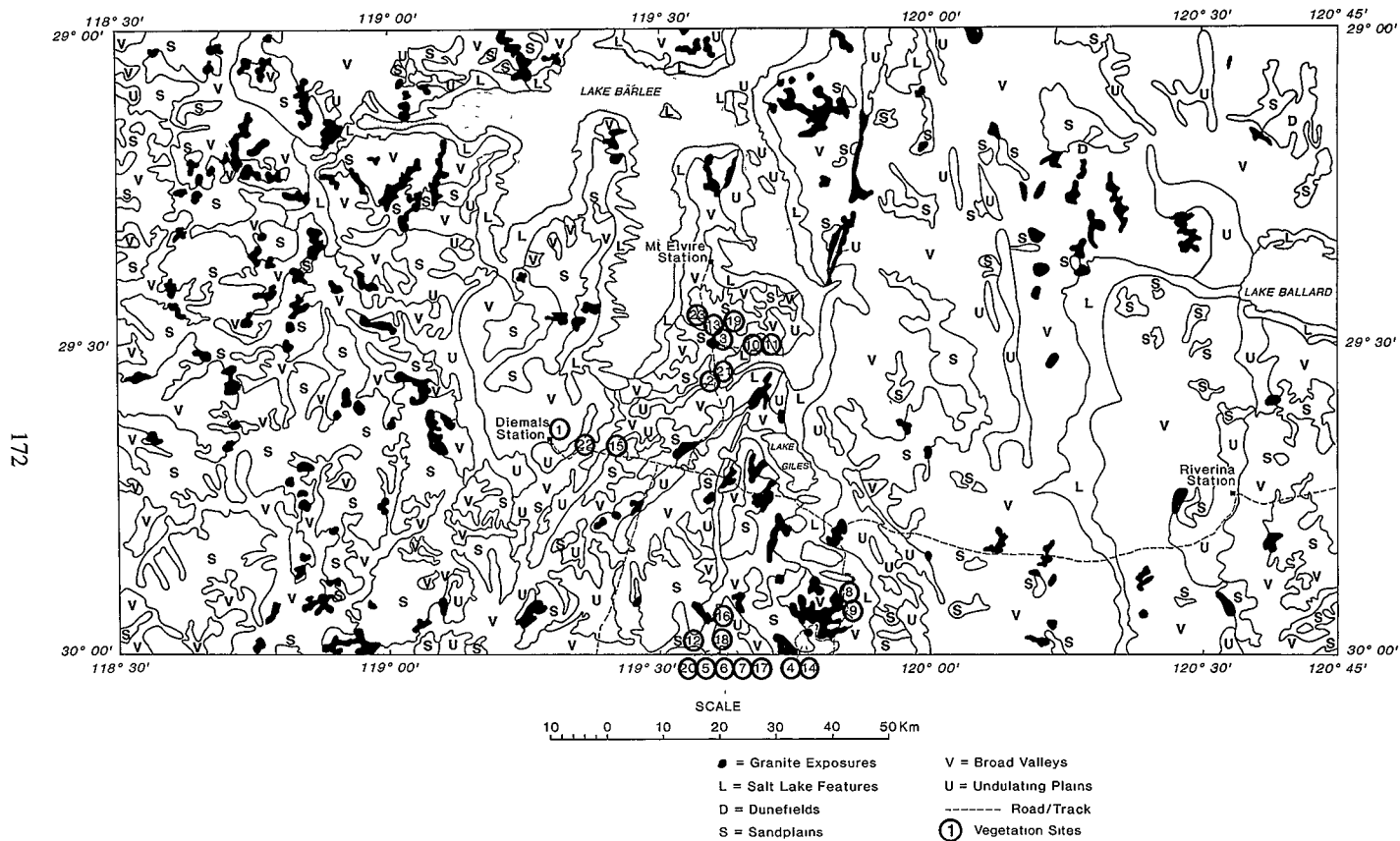


Figure 2 The main landform units of the Barlee-Menzies Study Area. Numbers indicate the vegetation sites described in Appendix 1.

are centred on granite rocks scattered throughout the Study Area (Pigeon Rock, Olby Rockhole and Waglin Soak). The Mt Elvire Pastoral Lease is now owned by the Department of Conservation and Land Management and is proposed to be declared as State forest (CALM 1992).

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