

**INTERDEPARTMENTAL
INSPECTION OF
NATURE RESERVE
'A' 30191**

30 NOVEMBER 1979



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ITINERARY

(Intermediate times are approximate and based on three to five minute stops at each numbered stopping place)

- 0900 : Depart from Bullsbrook. (The party will have gathered at the corner of Great Northern Highway and Chittering Road where they will have transferred to four-wheel drive vehicles).
- 0930 : Moondyne Rd. access to western side of the Reserve complex. Stop here for description of route to be taken onto the Reserve.
- 0945 : (1)* Eastern edge of "Cyclone Alby" fire. The course and effect of this fire on the Reserve and adjacent Crown land will be described.
- 0953 : (2) Beginning of the northern boundary of the Nature Reserve itself and an example of where a buffer strip could be advantageous for fire protection purposes.
- 1008 : (3) North west corner of the Reserve.
- 1019 : (4) Corner of Plunkett Rd. This road provides a main access to the northern part of the Reserve complex.

* As numbered in Fig. 2.

1030 : (5) Corner of Plunkett and Sapper Rd. It is along this line of road that the southern proposed buffer strip would run.

OPTIONAL SECTION

1042 : (6) Junction of "37 mile break" and fire breaks along the summit of the Avon Valley Scarp. A buffer strip near the edge of the valley scarp might continue roughly along the line of firebreaks crossing "37 mile break" at this point if the idea was to be incorporated into the Avon Region 2 Fire Protection Plan as a whole.

1100 : (5) END OF OPTIONAL SECTION.

1105 : (7) Outlook over Avon Valley near eastern boundary of Nature Reserve.

1110 : (8) Tea and discussion.

1140 : (Approx). Return to Bullsbrook via northern boundary of Reserve noting the standard of firebreaks.

1230 : Bullsbrook : party disperse.

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THE RESERVE

1. Location size and relationships

Reserve No. "A" 30191 (1991 ha) is the principal Nature Reserve in the central, high rainfall (800 - 1 400 mm yr⁻¹) area of the Darling Range between about Chittering in the North and Mt. Cooke in the south (Fig. 1).

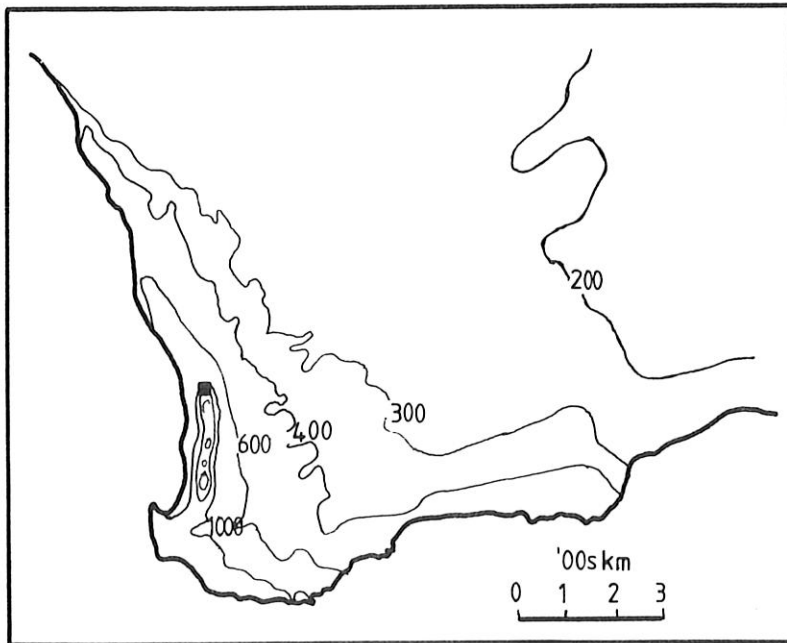


Fig. 1. Rainfall map of S.W. Australia (After the W.A. Year Book 1974) showing location of † 30191 (■)

The Reserve lies about the junction of Plunkett and Sapper Roads (31°35'S, 113°16'W) north of the Avon

River and Bald Hill and about 13 km east of Lower Chittering. It is bounded to the north and east by freehold farmlands mainly under cereal crops, pasture and some citrus orchards, to the south by the Avon Valley National Park (†A 30192) and to the west by Crown land covering mineral tenements held by Pacminex Ltd., representing a bauxite resource for a proposed smelter in the Perth area (Fig. 2).

2. Topography soils and vegetation

The Nature Reserve lies on a gently sloping plateau 275-300 m a.s.l. which is part of a south-west leading ridge of the Darling Range separating the Avon and Brockman River Valleys. The Reserve is mainly a series of gently sloping ridges and gullies covering the heads of two catchments - one draining north and west into the Brockman River Valley and the other south and east into the Avon, the watershed lying north and west of Plunkett Road (Fig. 2). The southern part of the Reserve also contains limited areas of more steeply sloping land, being the upper slopes of the Avon River Valley, most of which lie within the bounds of the adjacent National Park.

The soils are predominantly exposed lateritic gravels and loams with some sandy loams. In the south-eastern corner, on the more steeply sloping edge of the Avon River Valley, outcrops of granite are partly covered by red loams.

The main vegetation formations found on the Reserve (Fig. 3) are open Jarrah/Marri forests and open forests of Powder-bark Wandoo with varying amounts

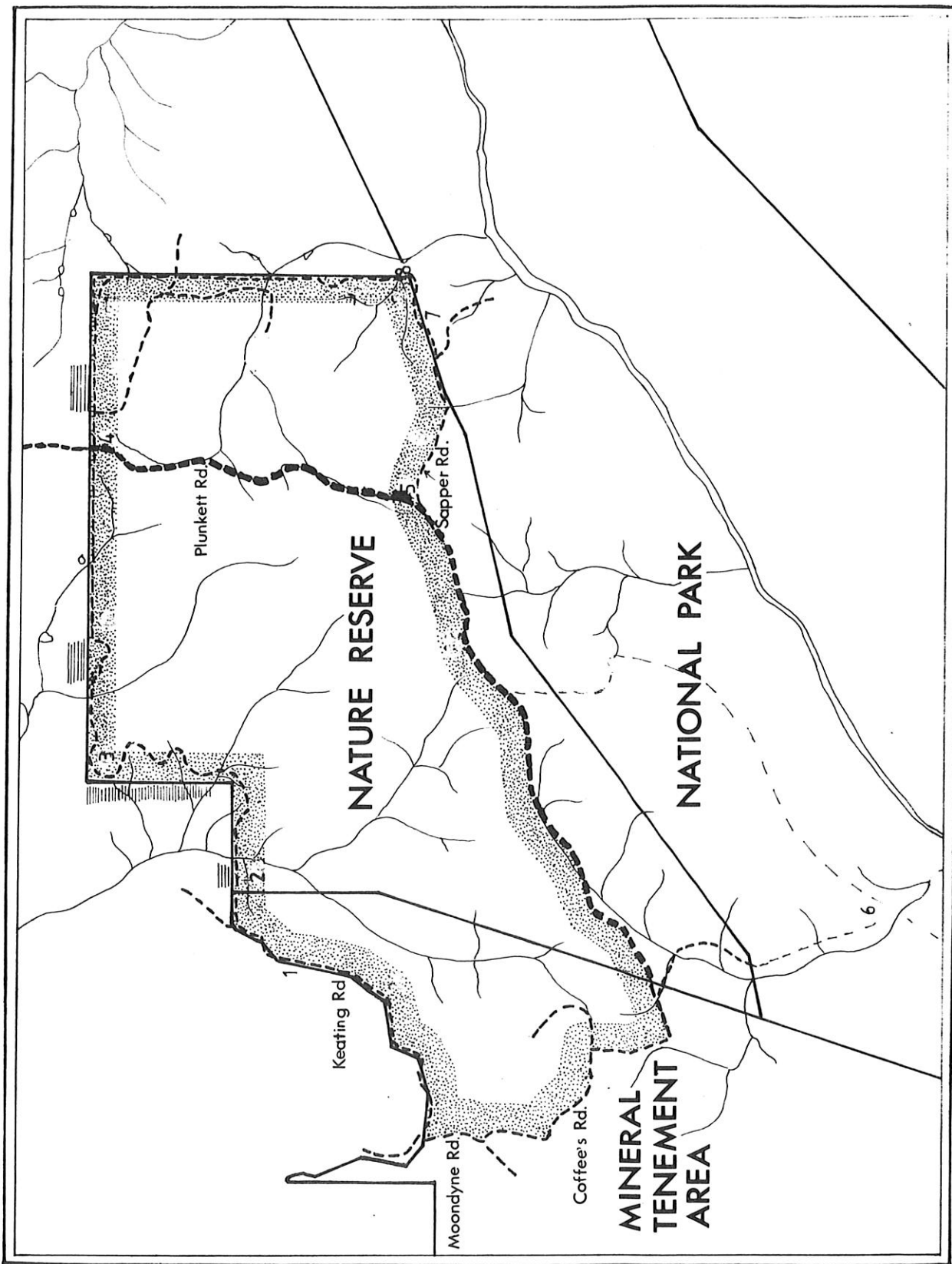


Figure 2. The Nature Reserve (solid black lines) and the "Nature Reserve Management Unit" of the Avon Region 2 Fire Protection Plan (stipled border) showing tracks and roads (dashed lines) and parts of the northern and eastern boundaries adjoining uncleared private lands (hatched).

of Jarrah and Marri. The predominantly Jarrah forest covers most of the main ridge system and the south-facing slopes, Powder-bark Wandoo being mostly on north-west facing slopes. Less extensive are areas of open Wandoo forest and *Casuarina huegliana*/*Acacia acuminata* woodland in the eastern part of the Reserve. In all cases the forests have been cut-over for Jarrah and Wandoo sawlogs.

The understoreys of the forest associations are generally of low shrubs, averaging 0.5-1.0 m in height, and sparse in density, consisting of species such as *Grevillea bipinnatifida*, *Leptospermum erebescens*, *Dryandra nivea*, *Adenanthos barbiger*, *Petrophyle* and *Hibbertia* spp. with varying amounts of eucalypt regeneration, *Xanthorrhoea* and *Macrozamia* palms.

In the Jarrah/Marri forests pockets of denser and taller *Dryandra* and *Dryandra/Banksia* scrub (*Dryandra sessilis*, *Dryandra armata* sp. group and *Banksia grandis*) occur, particularly on the highest land. The most extensive stands are found about Sapper and Plunkett Roads and in the Crown land west of the Reserve, where *Banksia grandis* is most prominent (Fig. 3).

The *Acacia acuminata*/*Casuarina huegliana* woodland in the south-eastern corner is a generally different kind of vegetation to those elsewhere on the Reserve, occupying more steeply sloping land round the head of a small, spring-fed creek. Below the spring the woodland grades into a picturesque stand of river

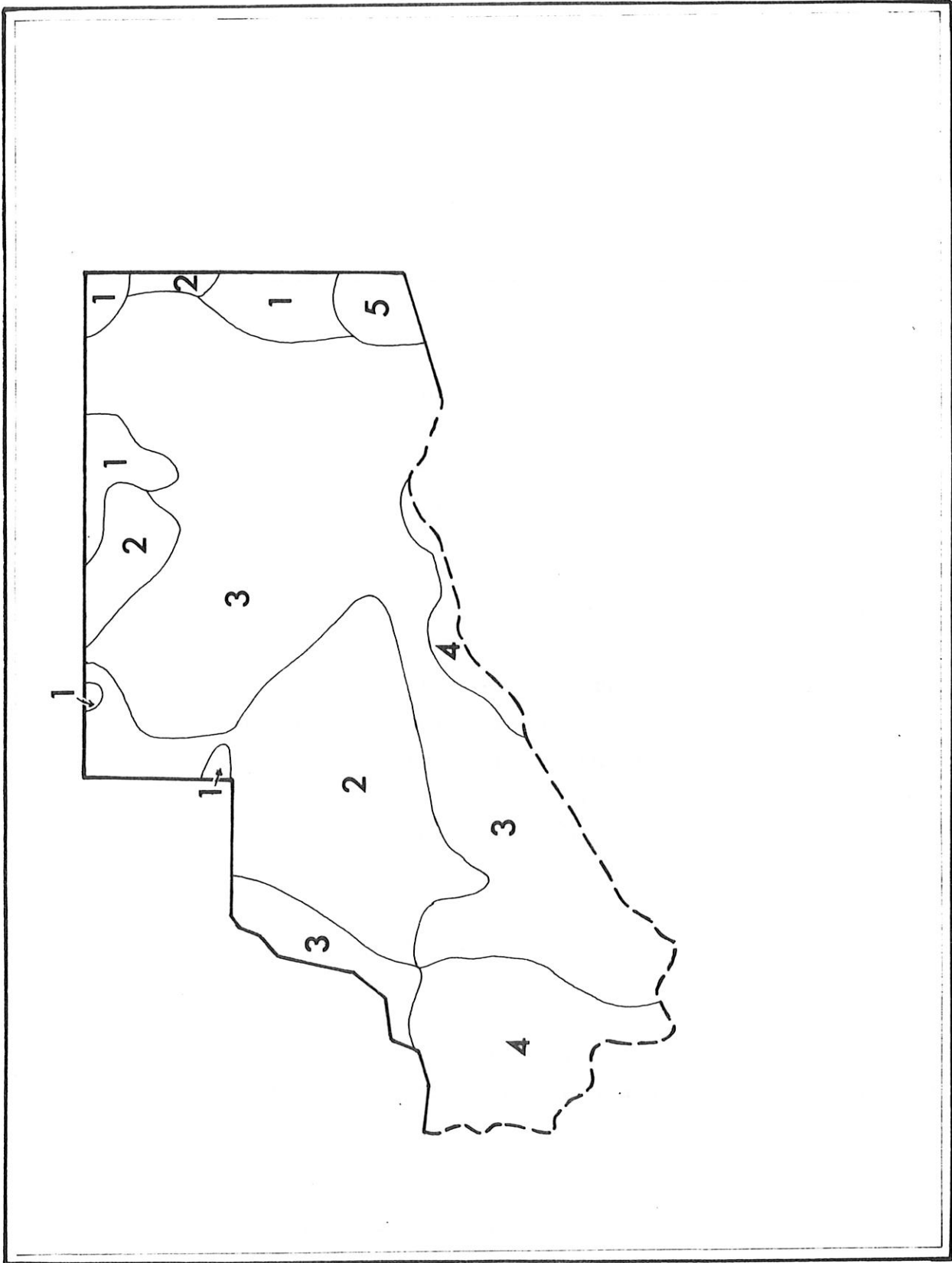


Fig. 3. Vegetation of the "Nature Reserve" management unit. 1. Wandoo forest; 2. Predominantly Powder Bark Wandoo forest; 3. Jarrah/Marri forest with dwarf shrub understorey; 4. Jarrah/Marri forest with *Dryandra/Banksia* understorey; 5. *Casuarina huegiana/Acacia acuminata* woodland.

gums (probably hybrids of *E. rudis* and *E. camaldulensis*) on near level ground. *Acacia acuminata*, particularly, continues as an understorey beneath the eucalypts, the whole area having a ground cover of close-grazed herbs and grasses.

3. Biological values

The landforms and vegetation of the Nature Reserve are particularly representative of those of the high rainfall areas on the Darling scarp, and the presence of plants such as *Conostylis setosa* indicates that the Reserve may be a significant refuge for species endemic to the region. Being situated near the northern limit of this forested area the Reserve is also likely to support species more characteristic of the northern sand-heaths and woodlands. The population of probable *Eucalyptus camaldulensis/rudis* hybrids is a subject of further study and, as closer examination continues, there seems little doubt that such a relatively large area of northern Jarrah forest will be found to contain other similarly valuable features.

Mainly covering the upland area, however, all the landforms, soils and vegetation present in the Avon reserve complex as a whole are not well represented in the Nature Reserve. It may also lack a permanent water supply. It should therefore continue to be considered as part of a larger unit and management of the Nature Reserve should continue to recognise the integrity of the area as a whole.

This inspection is aimed to provide the Government Agencies concerned with management of lands in the area with the opportunity to examine the major proposals for management of the Reserve and to ensure that these can be integrated with the management objectives of other parts of the Reserve complex, individually and together, as presently expressed in the provisions of the Avon Region 2 Fire Protection Plan.

PRIMARY MANAGEMENT OBJECTIVES

1. FIRE PROTECTION

Consistent with the need to protect the assets of adjacent landholders, to prevent or suppress fires which may jeopardise the biological values of the Nature Reserve.

2. PUBLIC USE

To limit public use of the Reserve to passive recreation at a low intensity.

3. RESEARCH

To encourage research of a non-destructive nature which may increase our understanding of the consequences of maintaining such Nature Reserves fire-free for periods possibly longer than may be prescribed solely for the purposes of fire protection.

THE PROPOSED MANAGEMENT PRESCRIPTION

Proposals for management of the Reserve aimed at meeting these objectives were advanced in the report by I.G. Crook and T. Evans of 8 August 1979 entitled: "Avon Valley Nature Reserve († A 30191). A Reassessment of Management Requirements". These covered the general areas of:

- prescribed burning
- standards of access tracks and roads
- strategic fire control measures

1. Prescribed burning:

Following consultation with the Bushfires Board it is proposed to lengthen the period between prescribed burns of the "Nature Reserve Management Block" (see Fig. 2) of the Avon Region 2 Fire Protection Plan in order to:

"...maintain fuel loadings below agreed safe maximum levels, these levels to be determined by liaison from time to time between the Department of Fisheries and Wildlife and the Bushfires Board, but in any event to be not less than 8-10 tonnes/ha."

2. Standards of tracks and roads:

The above report suggested that tracks and roads on the Nature Reserve may be of a standard higher than is desirable to maintain a level and type of public use consistent with the objectives of Nature Reserves.

There are two levels of roads on the Reserve:

- a main access (Plunkett Rd - broad-dashed line on Fig. 2) which needs to be maintained to a standard adequate for the passage of a low-loader carrying a bulldozer.
- secondary roads (the remainder - thin-dashed line on Fig. 2) which must provide adequate access to fire-fighting vehicles.

The inspection will include a tour of the roads on the Reserve as a basis to discussion of maintenance requirements that should be written into the Reserve Management Plan.

3. Strategic fire control measures:

The Crook/Evans report recommended installation of a buffer of frequently burned vegetation close to and parallel with the edge of the Avon River valley scarp slope. An opportunity to examine this proposal and the additional possibility of installing similar buffers against the northern boundary of the Reserve, in places where bush on adjoining private land has not been cleared (Fig. 2) will also be provided during the inspection.

A MANAGEMENT PLAN FOR THE RESERVE

Following this inspection and discussion a management plan for the Nature Reserve will be prepared for the Western Australian Wildlife Authority and as an adjunct to the Avon Region 2 Fire Protection Plan.