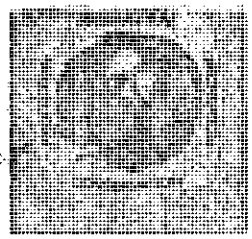

FORESTS DEPARTMENT

54 BARRACK STREET, PERTH, WESTERN AUSTRALIA 6000
TELEPHONE 258077

Address all correspondence: Conservator of Forests
Your ref:
Our ref: NR52.12
Inquiries: Mr. F. Batini
121 Todd Avenue
Como W.A. 6152.

8th December, 1977.

Dear Sir,

Draft Management Plan - Cocanarup Reserve
C30795

Attached please find draft Management Plan for your perusal and comment.

Would you please return this document with your comments to Mr. F. Batini (Forests Department, 121 Todd Avenue, Como 6152) by February 24th, 1978. Your comments will then be incorporated into a final draft, a copy of which will be sent to your organisation.

Yours faithfully,

B J Beggs for FB.

CONSERVATOR OF FORESTS

FB:DH

Distribution : Shire Clerk - Shire of Ravensthorpe
Chief Engineer - Public Works Department
Superintendent - Bush Fires Board
Curator - W.A. Herbarium
The Director - Dept. of Fisheries and Wildlife
The Director - National Parks
The Director - Department of Environment & Conservation

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DRAFT MANAGEMENT PLAN

COCANARUP TIMBER RESERVE

C 30795

Forests Department
Como
December 1977.

SUMMARY OF RECOMMENDATIONS

It is recommended

(a) that the Cocanarup Timber Reserve be managed primarily for the Conservation of Flora - especially the salmon gum, jam, and swamp yate associations.

(b) since wildfire poses a threat to this objective, a 6m firebreak should be established on the boundary of the Reserve. Protective strip burning should be carried out adjacent to the boundary, and on both sides of the main road and of the tourist road. Fire suppression strategies should be discussed between the management authority, the Shire, the local brigades and the regional liaison officer, Bush Fires Board. Capital cost ($6000) andmaintenance costs ($2600 pa) be provided to the Shire through the Bush Fires Board.

(c) cutting of fire killed jam and of green jam posts should continue until December 1980, subject to the constraints of the silvicultural prescriptions. Dead sandalwood may be pulled but no other utilisation (of green jam, sandalwood or salmon gum) will be permitted.

(d) a small picnic area be established along the tourist road in consultation with the Shire and the owner of Loc. 1863.

(e) an adequate all weather tourist and access road be maintained to the farm at Cocanarup spring. That all firebreaks be trafficable to vehicles in dry weather.

(f) that future gravel supplies be obtained primarily from the gravel reserve west of Cocanarup. Alternatively gravel

removal be at least 100m north of the Ravensthorpe-Albany road and that pits be rehabilitated after use.

(g) that seed collection by authorised persons or organisations be allowed to continue.

(h) that vermin and weed control be carried out (as required) in consultation between the management authority, the APB and the local farmers.

(i) that a management committee be formed comprising of two members of the Forests Department and a nominee from each of the following : Bush Fires Board, Shire of Ravensthorpe, National Parks Board and the Local Brigade.

(j) that, in the longer term, consideration be given to vesting this Reserve in the National Parks Board.

(k) that consideration be given to the inclusion of 3820 ha of Vacant Crown Land to the south of Cocanarup reserve either in

(i) the Cocanarup reserve, or

(ii) the Fitzgerald River National Park

COCANARUP TIMBER RESERVE C30795

INTRODUCTION

In its Conservation Reserves for Western Australia "Red Book" (1976), the Environmental Protection Authority recommended "inter alia" that :

1) Class C reserve 30795, for the purpose of Timber and unvested but managed by the Forests Department, should continue to be managed by the Forests Department but more attention be given to its multiple use for the conservation and management of flora and fauna as well as timber production.

2) That the Forests Department prepare a management plan in consultation with the Shire of Ravensthorpe, the Director of Fisheries and Wildlife, The W.A. Herbarium and the Director of Engineering, Public Works Department.

In accordance with these recommendations a draft management plan has been prepared by three officers of the Forests Department. This draft plan has been circulated for comment to the four organisations listed in recommendation (2), with a copy to the Department of Conservation and Environment, the Bush Fires Board and the National Parks Board.

Officers involved in the preparation of this plan were :

Mr. O.W. Loneragan, Silviculturist, Como

Mr. P.C. Richmond, O.I.C. Kalgoorlie

Mr. F.E. Batini, Regional Planning Officer, Como.

LOCATION

Cocanarup Reserve lies across the valley of the Phillips River, a small river flowing to the south coast of Western Australia, (figures 1.1, 1.2, 1.3). A section of the main highway passes through the Reserve and crosses the river at the road bridge, 15km. west of Ravensthorpe.

CLIMATE

Having a Mediterranean climate, 62 percent of the annual rainfall of 380mm (33 years average) falls in the wettest six months (May - October Table 1. The growing season is 5.7 months at Cocanarup and 6.2 months at Ravensthorpe. One quarter of all seasons open before 8th March. Dry spells of 7, 8 and 9 months may occur once in 3, 5 and 16 years respectively.

The mean isotherms for autumn, winter, spring and summer are respectively 17°C, 12°C, 15°C and 20°C. From 20 to 40 days a year may be hotter than 32°C, and frosts may occur on an average of four times a year.

SOIL

The Cocanarup Reserve is on the western edge of the Ravensthorpe "greenstone" comprised of basic igneous and metamorphic rocks. Granites and thin tertiary sediments are found in the northwestern portion. The elevation above sea level is about 300 metres.

The soil units were described by C.S.I.R.O. (1967). The main units (Va67) is on the greenstone; it lies between unit Uf3 (on granites) to the west and Unit MM15 (on greenstone) to the east.

Va67: Hard-setting loamy soils with mottled, yellow, clayey sub-soils and bleached A2 horizon. These soils are common with rocky outcrops on valley side slopes in undulating hilly topography.

MM15 : Self-mulching seasonal cracking clays, brown and grey becoming browner with depth. Of uniformly fine texture and found on rolling to undulating terrain, these soils are calcareous throughout the profile.

Uf3 : Hard-setting loamy soils with mottled, yellow, clayey sub-soils, bleached A2 horizon and ironstone gravels in their surface horizons. Found on flat to gently undulating ridge crests of the dissected plateau.

A more rudimentary classification of the soils-vegetation relationships has also been provided by the Lands and Surveys Department (Table 2). Of the five classes described, one (3B) is not present on the Cocanarup Reserve. The other four classes have more than one soil type represented in each class.

CLASSIFICATION OF THE VEGETATION

The classification of vegetation, presented by Beard (1969 and sequels), parallels the Australian standard proposed by Specht (1970). The structure of a plant formation is described by the life-form and height (physiognomy) and foliage density of the tallest stratum (Table 3). The density as defined by Specht (1970) and adopted by Beard (1976) was also used in this study. By adding the floristic category, plant associations are then defined.

In his explanatory notes, Beard(1972)describes 8 formations in the Jerramungup System; and 2 formations in the Ravensthorpe System. These 2 systems, Jerramungup and Ravensthorpe, are included in 20 vegetation systems which Beard had delineated in the Eyre Botanical District of Western Australia. The vegetation system defined by Beard (1969) consists of a particular series of plant communities recurring in a mosaic pattern linked to topographic, pedological and geological features.

The plant associations, which were observed in the field could not be separated in mapping at the scale of 1:250,000 used by Beard (1972, Figure 2). Within the Cocanarup Reserve, at this scale, Beard mapped only 3 eucalyptus formations, a medium woodland (eMc), a mallee shrubland (eSc) and a mallee, mallee-heath mosaic (eSc/eSZ).

The capital letter signifies the plant formation; the prefix denotes the genus of the dominant stratum, and the suffix is the foliage density as defined by Specht (1970).

By using aerial photo interpretation in association with ground inspections, 10 plant associations were mapped by Loneragan (Figure 3 and Tables 4 and 4A). On the airphotos, medium-height open forest appears black and coarsely speckled, whereas low open forest of mallee appears black and finely speckled due to the smaller crowns. Acacia acuminata in mixture with other species appears irregularly grey with a speckled pattern dependent on the diversity of mixture with other species. Mallee, with shrubs over 2m appears coarsely speckled. The lithic complex with shrubs under 2m appears the palest grey. Flared boundaries and pale patches indicate recently burnt areas. About half of the reserve area has been burnt either once or twice during the past 10 years, leaving some 15-20 percent unburnt. Nevertheless, the delineation of plant associations should be reasonably reliable. Of the 10 plant associations delineated in the Reserve, six are classified in the Jerramungup vegetation system and 4 in the Ravensthorpe system.

VEGETATIVE TYPES

The area of the reserve is 8988ha. An outstanding feature in it is an open forest of salmon gum E. salmonophloia which originally covered an estimated 1460 ha. The repetition of wildfires appears to have reduced this area in 1967 and again in March 1977. At the time of this last fire, mature salmon gum trees carried a heavy crop of flower buds

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but no seed, and little regeneration of this species can be expected. Although the total extent of recovery in the burnt stands may not be gauged for a year or two, a provisional estimate of the area of surviving salmon gum stands is of the order of 400ha. Of this area, about 250ha. has been lightly burnt and 150ha does not appear to have been burnt or damaged by the recent fires (plates 1 and 2). The woodlands of jam (Acacia acuminata) are usually associated with other species, especially E. salmonophloia (plates 3 and 4). After the recent fire in the Reserve, good germination of jam was evident. Although commonly associated with jam, very little sandalwood (Santalum spicatum) now remains in this Reserve. Jam is associated with other species, notably in open woodlands with swamp yate (E. occidentalis) in the valley, in low open woodlands with Casuarina huegeliana on granites and in low woodland with mallee on hilly ridges (plate 5). Jam associations covers some 4850 ha. Neither salmon gum nor jam is present in the Fitzgerald River National Park, the largest reserve (234,315ha) in the district.

A formation of swamp yate woodland is shown by Beard (Figure 3) to reach its finest development in the Phillips River valley, extending from 1km. within the reserve to 5km. south of it within vacant crown land, once held as a temporary reserve. If possible, all of this unique stand should be added to the Cocanarup Reserve (Table 4A). This would supplement the rather unusual combination of salmon gum-swamp yate woodland of about 710ha. already in the reserve.

The other common formation in the reserve is low open forest of tall mallee, rich in Eucalyptus species(plate 6, table 5). These are found together with other shrubs and perennial herbs typical of these mallee regions. Several small granite outcrops in the northwestern part of the reserve carry a different vegetation, the species being typical of such outcrops. Granite exposures are rare in the Fitzgerald River National Park. A list of plant species recorded as present on the Reserve is shown in Table 5.

FAUNA

Reconnaissance and trapping during one week in November 1973, by Staff of the Fisheries and Wildlife Department confirmed the presence of the Little Bat (Eptesicus pumilus), the grey kangaroo (Macropus fuliginosus), two species of frogs and fourteen species of reptiles (Tables 6 and 7). The latter include the skinks (Morethia obscura, Hermiergis initialis and Tiliqua occipitalis, all of which are poorly represented in reserves elsewhere. Twenty three species of birds have been recorded from nearby areas (Table 8). A count of 50 emus (Dromaius novaehollandiae) was sighted in woodland and adjoining farm during one reconnaissance. Introduced species include the house mouse, rabbit and fox.

UTILISATION

a. Sandalwood (Santalum spicatum). In recent years the removal of green sandalwood has not been permitted and it is recommended that this practice be continued. There is however, no objection to the removal of dead sandalwood. The existing control system operating through the Forests Department's Kalgoorlie office should be retained.

b. Salmon gum (E. salmonophloia). No cutting of salmon gum is to be permitted.

c. Jam (A. acuminata) Jam is currently utilised to supply local fence post needs. Two cutters are employed and levels of production 1973-1977 are shown in Table 9. The licencee is currently operating largely on fire killed jam resulting from the March 1976 fire. This will continue until the supply is exhausted.

Cutting of green posts is only to be permitted north of the Ravensthorpe Albany road and should cease by the 31st December, 1980.

No jam trees less than 75mm at 1.50cm above the ground may be cut. In cut-over areas, at least 7 stems of jam must be retained within each 20m x 20m quadrat.

Fire

In recent years, this reserve has been burnt by a wildfire on a 7-10 year cycle. Severe damage to the vegetation has resulted, especially where a seed crop for regeneration was not present.

a. Firebreaks. There are no adequate firebreaks and it is estimated that some 60km of trafficable break 6m wide needs to be constructed. The break should be established as close to the actual boundary as is feasible, within the constraint that it also be trafficable. Capital ($6000) and maintenance costs ($1200 p.a.) should be provided by Government through the Bush Fires Board.

b. Prescribed burning. Hazard reduction options are as follows :

(i) aerial prescribed burning by Forests Department air crew on a 6 - 8 year cycle.

(ii) burning of protective strips (east-west) 100m wide and on both sides of the main road.

(iii) burning of protective strips 100m wide around the periphery of the reserve. This work to be carried out in cooperation between the Shire, the Bush Fires Board and the local bushfire brigade.

c. Fire suppression - fire procedures to be implemented on the authority of the Chief Fire Control Officer, Ravensthorpe Shire. Recommended that the Government, through the Bush Fires Board, make an annual grant to the Shire for prescribed burning,

and suppression activities. $1400pa should be adequate for this wor

ROADING

The current road system includes the main Ravensthorpe-Albany road, the former road location (now a scenic drive) which passes Loc. 1863 and through part of the salmon gum-jam association. A second grade road links Loc. 1863 to C.G. 255 and other areas of Private Property. Minor tracks are located in the north-western section and southwards of Loc. 1863.

It is recommended that adequate all weather access be maintained to the historical farm at Cocanarup spring and that all firebreaks be constructed so as to be trafficable to conventional firefighting vehicles in dry weather. Adequate parking facilities should be provided at the proposed recreation area.

RECREATION

The portion of the reserve south of the main road is undulating and aesthetically pleasing, particularly in the salmon gum-jam woodland and in areas close to the Phillips river. One or two small picnic/barbecue areas could be established. Details of location, size, furniture, funding and maintenance can be provided after an on-site inspection and discussions with the Shire. Facilities would need to be maintained either by the Shire or a local service organisation, e.g. Lions.

Within the reserve on an area of private property is the historical farm (originally owned by Mr. Dunn and now owned and managed by Messrs. M. and G. Thomas). The farm, its buildings, historical items, household and farm machinery are suitable as a tourist attraction. Dunn's grave (deceased 1880) is adjacent to the farm.

Dunn's gold mine and smelter are located in Water Reserve 13272, 6km north east of Cocanarup. Current access is along a gazetted road which is only suited for four wheel drive vehicles. The large and interesting Fitzgerald River National Park is located to the south of Cocanarup.

OTHER REQUIREMENTS

Gravel - some gravel pits have been excavated in the past for M.R.D. and Shire needs. Any future gravel should be obtained from the gravel reserve west of Cocanarup. Alternatively gravel pits be at least 100m from the main road and preferably in the portion of the reserve north of this road. When removal is complete, the pits should be rehabilitated to the satisfaction of the management authority.

Seed - the Forests Department or other authorised bodies should be permitted to obtain seed, as required, even if this involves the felling of an occasional tree. Adequate supervision of this operation may be required, and this will be arranged at the time of issuing each licence.

Vermin Control - as the reserve is unvested Crown Land, vermin control is carried out by the Agricultural Protection Board under a Government grant provided for this work. The initiation for instigating vermin control and recommending specific constraints rests with the managing authority.

ADJOINING TENURES

a. Within the reserve's boundaries (i) Cocanarup farm, approximately 87ha cleared land (loc. 1863, 1864, 801, 802 and G.G. 33)

(ii) surveyed road to Loc. 1863 (approximately 22ha).

b. Other reserves within 6km of Cocanarup boundaries include

(i) 31881 (179ha) Conservation of Flora and Fauna

(ii) 31425 (250ha) Conservation of Flora and Fauna

(iii) 31154 (98ha) Gravel

(iv) 32303 (93ha) Government requirements

(v) 13272 (70ha) Water

(vi) 3820ha of Vacant Crown Land extending across the valley of the Phillips River and adjoining Cocanarup on the southern boundary (Figure 4).

MANAGEMENT

In the short term, management responsibility rests with the Forests Department. It is recommended that a Management committee be formed, which should meet at least annually, and be comprised of two persons from the Forests Department and one person from each of the following organisations :

Shire of Ravensthorpe

Bush Fires Board

National Parks

Local Brigade

In the longer term, once the current commitment to jam post production has been satisfied, the situation should be reviewed. Possibly the reserve could then be vested in the National Parks Board so as to consolidate boundaries and management responsibilities.

POSSIBLE ADDITIONS TO THE RESERVE

The 3820 ha of vacant crown land to the south of the Cocanarup reserve extends across the valley of the Phillips River. Salmon gum, jam, mallee and an excellent woodland of swamp yate (E. occidentalis) occur in this area. Consideration should be given whether this area should also be reserved, so as to conserve the plant associations, further protect the river and consolidate the management boundaries.

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LIST OF TABLES, PLATES, AND FIGURES

TABLE 1

AVERAGE MONTHLY AND ANNUAL RAINFALL (mm)

RAVENSTHORPE (Beard 1973)

55 years	Jan.	Feb.	Mar.	Apr.	May	Jun.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Average	20	23	33	33	44	44	48	43	41	38	38	23	418
Highest	168	179	117	114	119	118	129	137	145	122	105	140	179
Lowest	Nil	nil	nil	3	8	16	12	9	7	4	nil	nil	nil
Highest one day	103	63	44	51	63	28	40	40	31	47	53	94	103
Average no. wet days	6	6	7	8	11	13	14	13	11	10	8	5	112

COCANARUP

33 years (Bureau of Meteorology 1962)													
Average (mm)	15	27	24	32	42	40	40	39	38	36	24	23	380

TABLE 2

LANDS DEPARTMENT CLASSIFICATION - COCANARUP RESERVE

2A	Salmon gum, gimlet, jam Loam to sandy loam.
2B	Mallee, blue mallee, broombush, ti-tree, moort, banksia, needlebush, claybush. Sand on clay 4" - 12". 40% of 2B is shallow sand (2") on domed clay.
3A	Mallee, blue mallee, broombush, blackboy, banksia Sand on clay 12" - 36". Sand on gravel 4" - 36".
3B	Blue mallee, banksia, scrub. Sand over 36"
3C	Rock or ironstone.
	Scattered box poison throughout entire area

TABLE 3

PLANT FORMATIONS (after Specht 1970)

Life form and height of tallest stratum	Projective Foliage Cover of Tallest Stratum			
	Dense (d) (70-100%)	Mid-dense (m) (30-70%)	Sparse (i) (10-30%)	Very sparse (t) (< 10%)
Trees > 30m	Tall closed-forest	Tall open-forest	Tall woodland	Tall open woodland
Trees 10-30m	Closed-forest	Open-forest	Woodland	Open-woodland
Trees 5-10m	Low closed-forest	Low open-forest	Low woodland	Low open-woodland
Shrubs 2-8m	Closed-scrub	Open-scrub	Tall shrubland	Tall open-shrubland
Shrubs 0-2m	Closed-heath	Open-heath	Low shrubland	Low open-shrubland
Hummock grasses 0-2m	-	-	Hummock grassland	Open-hummock grassland
Herbs (including moss, ferns, hemicryptophytes, geophytes, therophytes, hydrophytes, helophytes)	Closed-herbland Closed-tussock grassland	Herbland Tussock grassland	Open-herbland	Ephemeral herbland

Notes: Isolated trees (emergents) may project from the canopy of some communities, e.g. emergent Araucaria, Acacia, or Eucalyptus species.

A tree is defined as a woody plant more than 5m tall, usually with a single stem.

A shrub is a woody plant less than 8m tall, frequently with many stems arising at or near the base.

TABLE 4

PLANT ASSOCIATIONS AND FORMATIONS

COCANARUP RESERVE

Area (ha)	Formation		Plant Association	Soil Types
	Specht	Beard		
	TREES ABOVE 10m			
1460	Medium open forest	e_8Mc	E. salmonophloia A. acuminata	Brown clay loam on bottomland and gentle slopes.
710	Medium woodland	e_7Mi	E. occidentalis E. salmonophloia A. acuminata	Heavy loam or clay on valleys and terraces.
710	Medium open woodland	e_7Mr aSi	E. occidentalis A. acuminata	Silty loam on lower slopes and depressions.
	TREES 5 - 10m			
1630	Low open forest	eLc	E. gracilis E. oleosa E. annulata - E. spathulata E. gardneri - E. nutans	Loam over clay on sideslopes.
820	Low woodland	eLi aSi eLSc	E. oleosa - E. flocktoniae A. acuminata	Sandy loam over clay on side-slopes.
1150	Low open woodland	cLSi	C. huegeliana - A. acuminata	Loamy sand or sandy loam.
	SHRUBS 2 - 8m			
168	Open scrub	eSc	E. anceps - E. ovularis E. redunca - E. uncinata	Shallow sandy clay loam on hilly ridges and steep gullies.
80	Tall shrubland	eSZc	E. tetragona - E. incrassata E. foecunda	Sand on gravel lateritic soils.
	SHRUBS UNDER 2m			
720	Open heath	mSc	Melaleuca spp. - C. campestris	Sand on clay.
1540	Lithic complex	xXZi	Lichens (Boryanitida) and Dwarf shrubs	Rock or ironstone and shallow sand.
	Mosaic of open heath and lithic complex	SXZ	Lithic complex and heath.	
8988				

TOTAL

PLANT ASSOCIATIONS AND FORMATIONS

TEMPORARY RESERVE

Area (ha)	Formation		Plant Association	Soil Types
	Specht	Beard		
	TREES ABOVE 10m			
28	Medium open forest	e_8Mc	E. salmonophloia A. acuminata	Brown clay loam on bottomlan and gentle slopes.
862	Medium woodland	e_7Mi	E. occidentalis E. salmonophloia A. acuminata	Heavy loam or clay on valley and terraces.
	Medium open woodland	e_7Mr aSi	E. occidentalis A. acuminata	Silty loam on lower slopes and depressions.
	TREES 5 - 10m			
1390	Low open forest	eLc	E. gracilis E. oleosa E. annulata - E. spathulata E. gardneri - E. nutans	Loam over clay on sideslopes
1540	Low woodland	cLi aSi eLSc	E. oleosa - E. flocktoniae A. acuminata	Sandy loam over clay on side-slopes.
	Low open woodland	cLSi	C. huegeliana - A. acuminata	Loamy sand or sandy loam.
	SHRUBS 2 - 8m			
	Open scrub	eSc	E. anceps - E. ovularis E. redunca - E. uncinata	Shallow sandy clay loam on hilly ridges and steep gullies.
	Tall shrubland	eSZc	E. tetragona - E. incrassata E. foecunda	Sand on gravel lateritic soils.
	SHRUBS UNDER 2m			
	Open heath	mSc	Melaleuca spp. - C. campestris	Sand on clay.
	Lithic complex	xXZi	Lichens (Boryaphitida) and Dwarf shrubs	Rock or ironstone and shallow sand.
	Mosaic of open heath and lithic complex	SXZ	Lithic complex and heath.	
TOTAL 3820				

TABLE 5

SPECIES RECORDED BY R. EDMISTON - COCANARUP RESERVE, PHILLIPS RIVER

November 1973 (* = specimens identified by W.A. Herbarium

* Acacia affin. sulcata
* " acuminata
* " glaucoptera
* Astartea fascicularis
* Beyeria leschenaultii
* Billardiera lehmanniana
Borya nitida
Callistemon phoeniceus
* Calothamnus quadrifidus
* Calytrix brachyphylla
* " tetragona
* Cassytha melantha
* Casuarina campestris
" huegeliana
* Cheiranthera filifolia
* Daviesia chrdophylla
* " pachyphylla
* Eremophila decipiens
* Eucalyptus anceps
" annulata
" calycogona
* " foecunda
" gracilis
" incrassata
" loxophleba
" longicornis
" nutans
" occidentalis
* " oleosa
* " ovularis
" platypus
" reduncа
" salmonophloia

Eucalyptus spathulata
" tetragona
" uncinata
* Gahnia decomposita
* Gastrolobium hookeri
Grevillea pauciflora
* Guichenotia ledifolia
* Hakea commutata
" erinaceae
" incrassata
* " marginata
* " verrucosa
* Halgania lavandulacea
* Hibbertia gracilipes
* Jacksonia sp.
* Lepidosperma resinosum
* " tubercalatum
Leptospermum ellipticum
" spinescens
* Melaleuca (cuticularis?)
" elliptica
* " pentagona
* " scabra
* " sp.
" uncinata
* " viminea
* Microcorys exserta
* Mirbelia ovata
* Olearia muelleri
Oxylobium parviflorum
Petrophile (divaricata?)
* Phyllanthus calycinus
* Prostanthera campbellii
* Santalum acuminatum
" spicatum

* Templetonia retusa
* Thryptomene australis
* Verticordia pennigera
* Wilsonia humilis

TABLE 6

PHILLIPS RIVER - FROGS AND REPTILES

NOVEMBER 1973

LEPTODACTYLIDAE

Litoria cyclorhyncha
Crinia sp.

GEKKONIDAE

Phyllodactylus marmoratus
Crenadactylus ocellatus
Phyllurus milii
Diplodactylus vittatus

AGAMIDAE

Amphibolurus ornatus
Amphibolurus maculatus griseus
Amphibolurus barbatus minor

SCINCIDAE

Morethia obscura
Hemiergis peronii
Hemiergis initialis
Lerista distinguenda
Tiliqua occipitalis

ELAPIDAE

Demansia affinis
Denisonia gouldii

TABLE 7

PHILLIPS RIVER MAMMAL LIST

NOVEMBER 1973

NATIVE

Grey Kangaroo	*Macropus fuligenosus*
Little Bat	*Eptesicus pumilus*

INTRODUCED

House Mouse	*Mus musculus*
European rabbit	*Oryctolagus cuniculus*
European fox	*Vulpes vulpes*

TABLE 8

KENT RIVER BIRD LIST

NOVEMBER 1973

Emu	Dromaius novaehollandiae
Brown Hawk	Falco berigora
Common bronzewing	Phaps chalcoptera
White-tailed Black Cockatoo	Calyptorphyncus baudini
Western Rosella	Platycerus icterotis
Port Lincoln Parrot	Barnardius zonarius
Kookaburra	Dacela gigas
Australian pippit	Anthus novaeseelandiae
Black-faced Cuckoo-Shrike	Coracina novaehollandiae
Broad-tailed Thornbill	Acanthiza apicalis
Yellow-rumped Thornbill	Acathiza chrysorrhoa
Red-capped Robin	Petroica goodenovii
Grey Fantail	Rhipidura fuliginosa
Restless Flycatcher	Seisura inquieta
Golden Whistler	Pachycephala pectoralis
Yellow-rumped Pardalote	Pardalotus zanthopygus
Purple-gaped Honeyeater	Meliphaga cratitua
White-naped Honeyeater	Melithreptus lunatus
Tawny-crowned Honeyeater	Gliciphila melanops
Black-faced Wood Swallow	Artamus cinereus
Grey Currawong	Strepera versicolor
Western Magpie	Gymnorhina dorsalis
Australian Raven	Corvus coronoides

TABLE 9

PRODUCTION OF JAM POSTS FROM COCANARUP RESERVE.

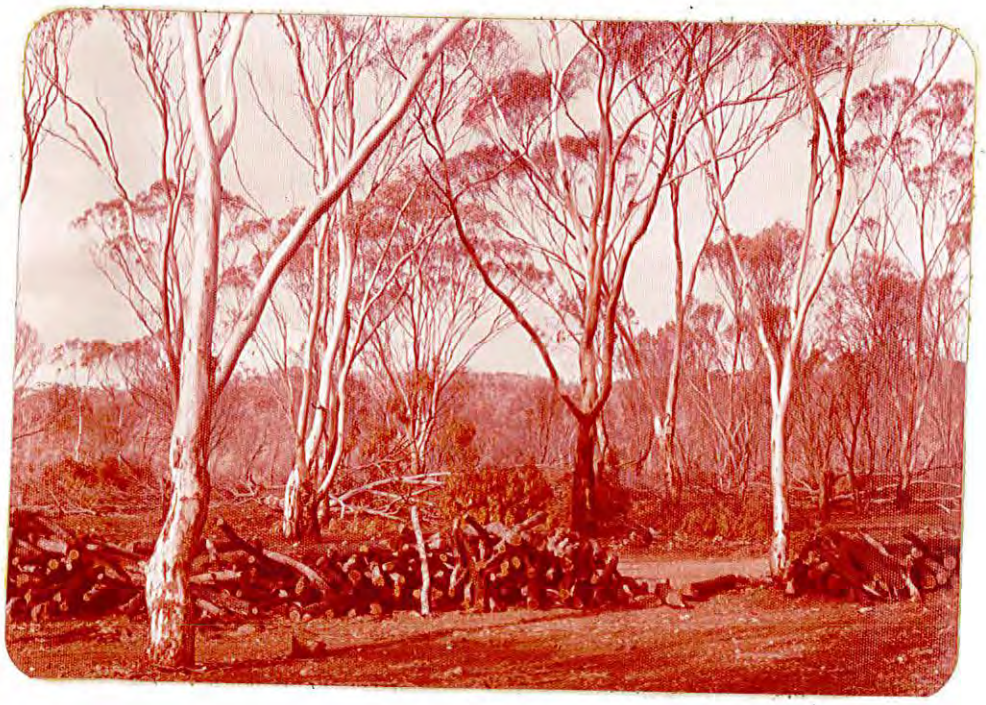
YEAR	NO. OF JAM POSTS	
1973	14620	
1974	14680	
1975	10200	
1976	14832	
1977	10000	(6000 fire killed (4000 green January - October

Salmon gum woodland

(E. salmonophloia)

Plate 1. Before 1977 Wildfire

Plate 2. After 1977 Wildfire



Jam thicket (A. acuminata)

Plate 3. Before wildfire

Plate 4. After wildfire

Mallee eucalyptus and jam

Plate 5. Before wildfire

Plate 6. After wildfire

Open Woodland and scrub
(Unburnt)

Plate 7.

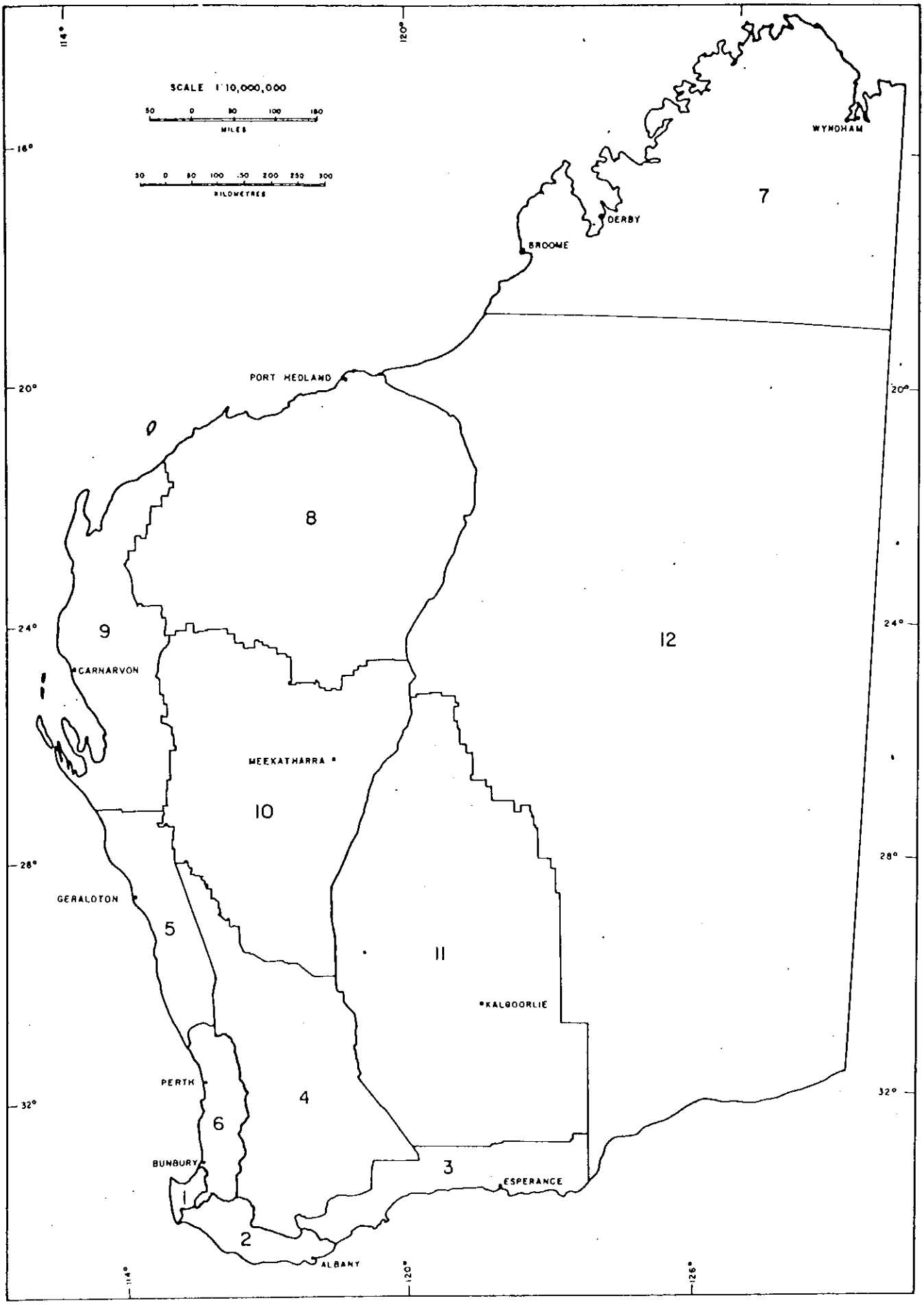


Figure 1.1 Systems

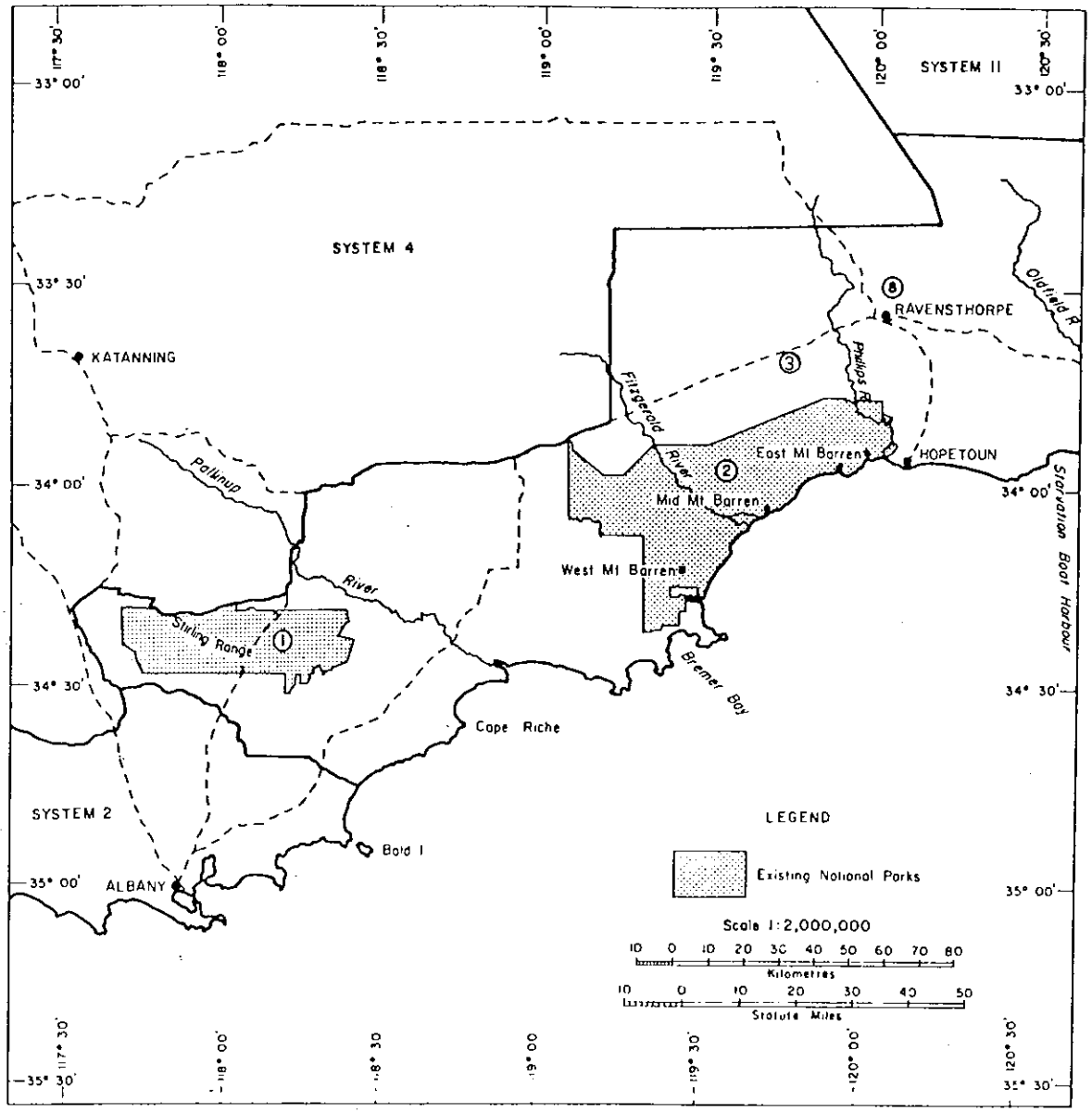


Figure 1.2 System map. Circled numbers denote areas discussed, location of Cocanarup Reserve shown as area 3. See also Figure 1.3

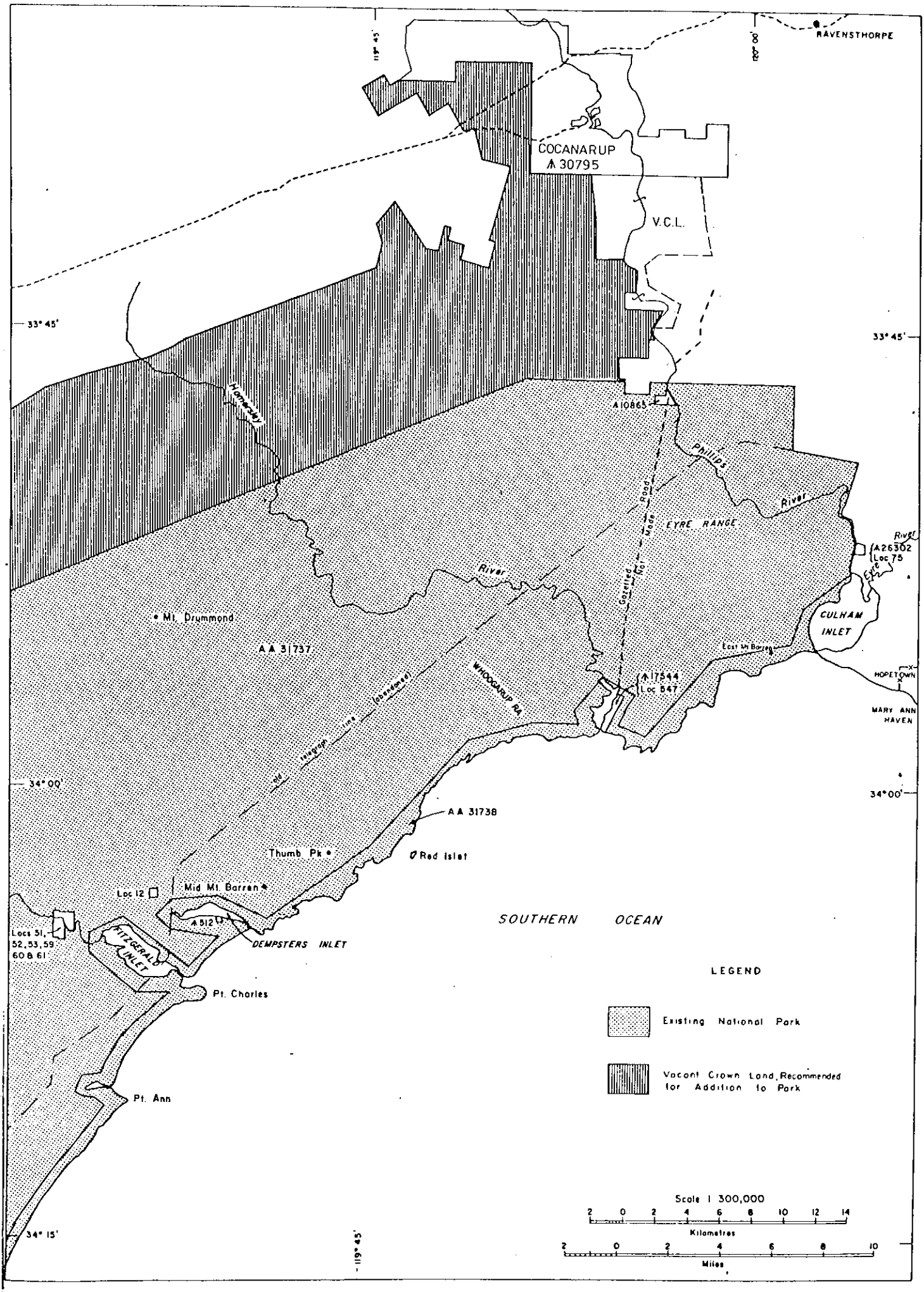


Figure 1.3 Cocanarup Reserve (30795) across Phillips River valley.

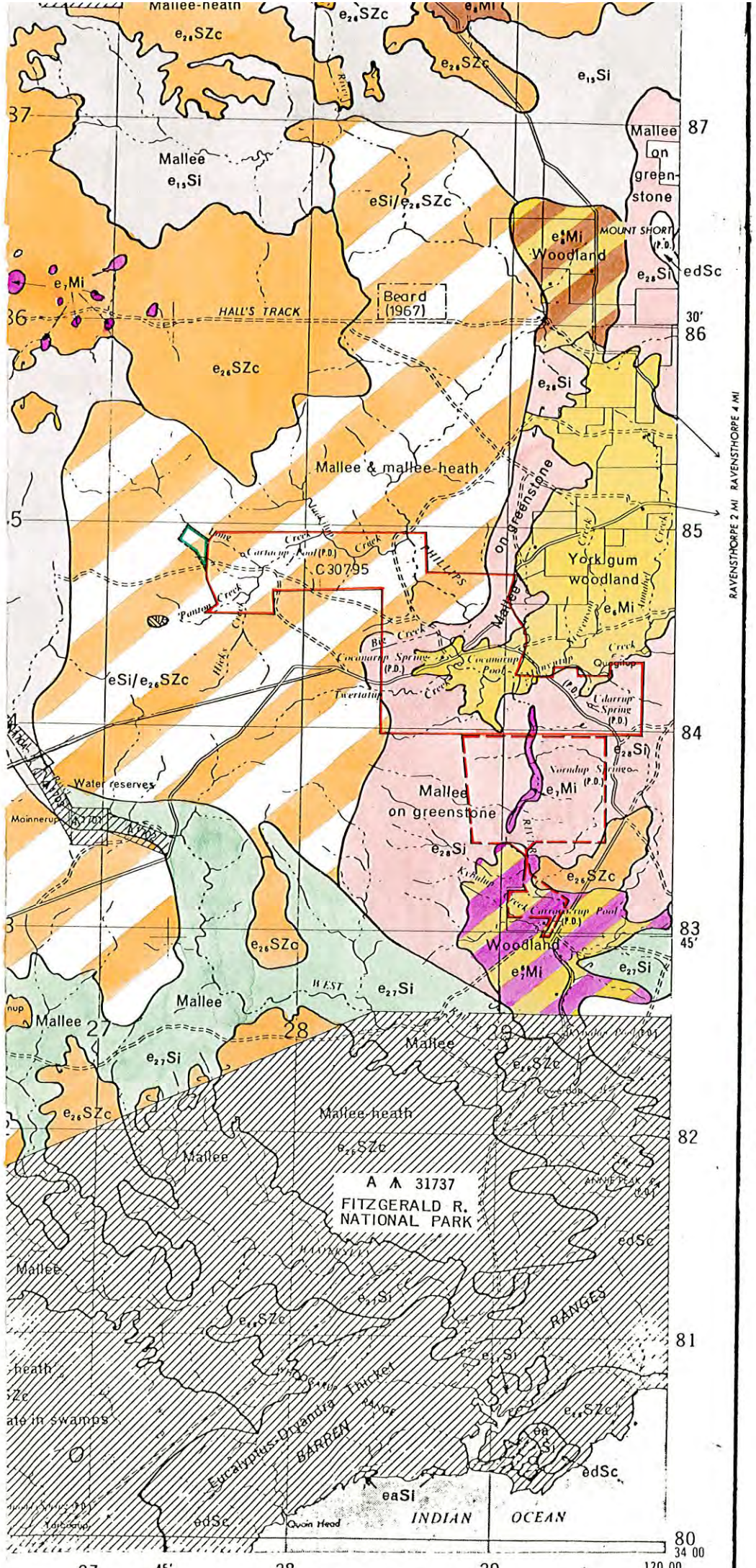


Figure 2

KEY

Shrublands

xSZc	Scrub heath	*Mixed Proteaceae—Myrtaceae*
e_{26}SZc	Mallee-heath	*Eucalyptus tetragona community*
e_{15}Si	Mallee on lateritic soil	*E. eremophila—E. oleosa association*
e_{27}Si	Mallee on granite loam	*E. redunca—E. uncinata association*
e_{28}Si	Mallee on greenstone	*E. nutans—E. gardneri association*
eaSi	Coastal scrub on driftsand	*E. angulosa—Acacia spp. assocation*
m_1Si	Boree scrub	*Melaleuca thyoides community*
m_2Si	Paperbark scrub	*Melaleuca parviflora community*
edSc	Barren Ranges thicket	*E. preissiana—Dryandra quercifolia association*

Woodlands

e_6Mi	York gum	*Eucalyptus loxophleba*
e_7Mi	Yate	*Eucalyptus occidentalis*
e_8Mi	Salmon gum	*Eucalyptus salmonophloia*
e^{1}_{3}Mi	Mixed woodland in lakes country	*E. salmonophloia, E. longicornis, E. salubris, E. kondininensis*

Mosaic Units

eSi/e_7Mi, eSi/e^{1}_{3}Mi	Mallee with small patches of woodland
eSi/e_{26}SZc	Mallee & mallee-heath
	Granite rock
	Salt lake
	Drift sand
	Crown Reserve
	Area interpreted by Beard (1967)
	Cocanarup Reserve C30795
	Previous Tempy Reserve
	Proposed for release

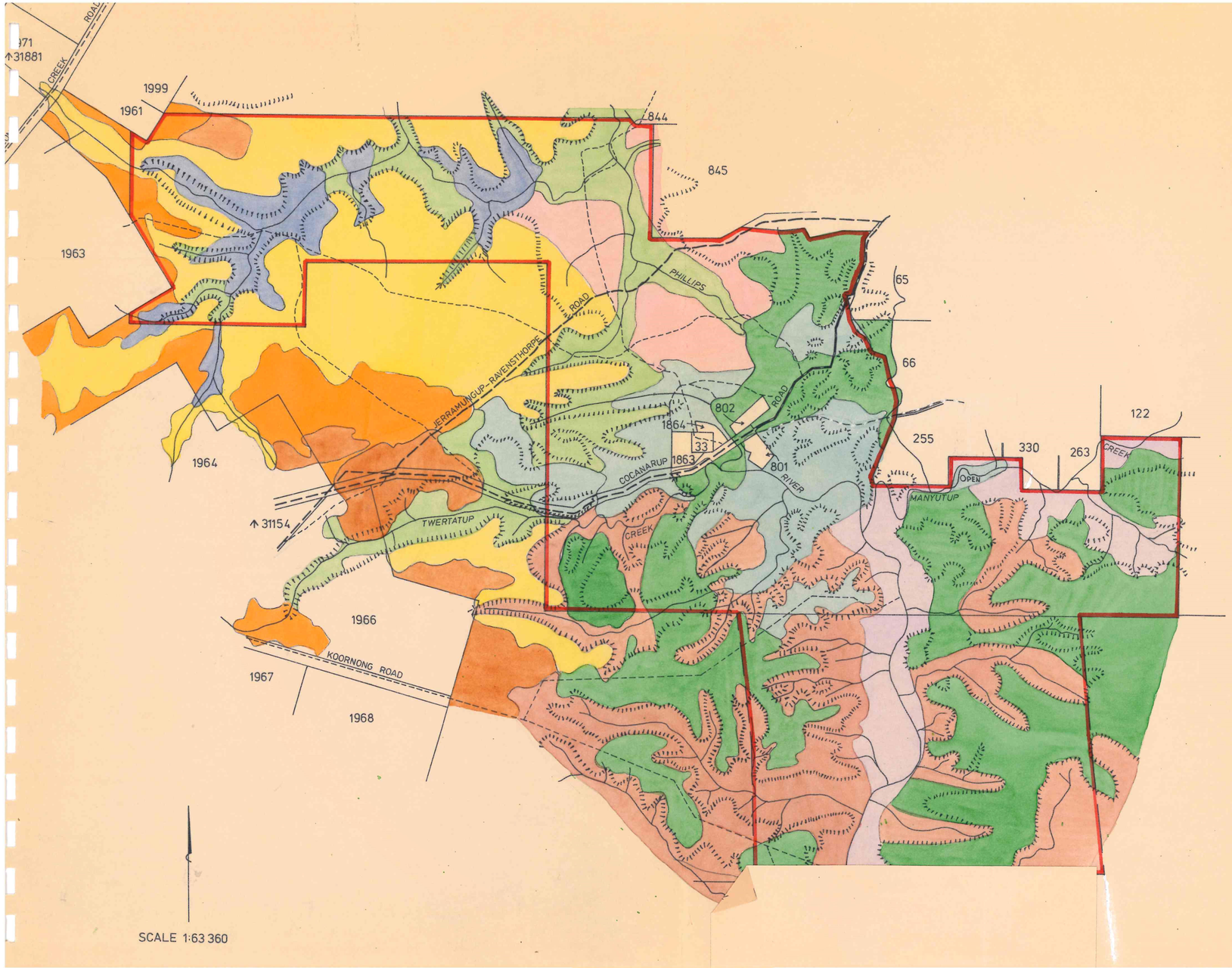
NEWDEGATE

VEGETATION MAP

SHEET SI 50-8

BEARD 1972

Scale 1: 250000



PLANT ASSOCIATIONS AND FORMATIONS IN RAVENSTHORPE AND JERRAMUNGUP VEGETATION SYSTEMS

Colour Code	Formation		Plant Association	Soil Types
	Specht	Beard		
	TREES ABOVE 10m			
	Medium open forest	e_8Mc	E. salmonophloia A. acuminata	Brown clay loam on bottomland and gentle slopes.
	Medium woodland	e_7Mi	E. occidentalis E. salmonophloia A. acuminata	Heavy loam or clay on valleys and terraces.
	Medium open woodland	e_7Mr aSi	E. occidentalis A. acuminata	Silty loam on lower slopes and depressions.
	TREES 5 - 10m			
	Low open forest	eLc	E. gracilis E. oleosa E. annulata - E. spathulata E. gardneri - E. nutans	Loam over clay on sideslopes.
	Low woodland	eLi aSi eLSc	E. oleosa - E. flocktoniae A. acuminata	Sandy loam over clay on side-slopes.
	Low open woodland	cLSi	C. huegeliana - A. acuminata	Loamy sand or sandy loam.
	SHRUBS 2 - 8m			
	Open scrub	eSc	E. ancèps - E. ovularis E. reduncа - E. uncinata	Shallow sandy clay loam on hilly ridges and steep gullies.
	Tall shrubland	eSZc	E. tetragona - E. incrassata E. foecunda	Sand on gravel lateritic soils.
	SHRUBS UNDER 2m			
	Open heath	mSc	Melaleuca spp. - C. campestris	Sand on clay.
	Lithic complex	xXZi	Lichens (Boryanitida) and Dwarf shrubs	Rock or ironstone and shallow sand.
	Mosaic of open heath and lithic complex	SXZ	Lithic complex and heath.	

FIG.3

FIG. 4

COCANARUP RESERVE
SCALE 1:63 360

KEY

LAND ACT RESERVE
PRIVATE PROPERTY
LEASEHOLD PROPERTY
VACANT CROWN LAND
V.C.L. RECOMMENDED FOR ADDITION TO FITZGERALD RIVER NATIONAL PARK
PREVIOUS TEMPY RESERVE ON PLAN 420/80