REPORT TO

ENVIRONMENTAL PROTECTION AUTHORITY

ON

VEGETATION OF OLDFIELD LOCATIONS

1015, 1016, 1017, 1018, 1087, 1090, 1093, 1097, 1098, 1099

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Study Brief

1. To provide information on the vegetation associations, vegetation condition, landforms and any additional factors relevant to proposed vegetation clearing on Oldfield locations 1015, 1016, 1017, 1018, 1087, 1090, 1093, 1097, 1098 & 1099.

2. To provide information on the degree to which vegetation of the areas proposed for clearing is adequately represented in exisiting or proposed conservation reserves of the Cascades/Munglinup district.

3. To comment upon the spatial distribution of areas proposed for clearing and existing/proposed conservation reserves particularly with regard to size and corridor links between areas of native vegetation.

Methods:

1. Literature survey including departmental files, records, management plans and exisiting reports.

2. Examination of aerial and satellite photography and existing vegetation and landform maps.

3. Field assessment - November (M Grant & C Robinson).

District Overview

Refer to Map 1 for location of areas proposed for clearing and location of existing and proposed conservation reserves.

DEPARTMENT OF LAND ADMINISTRATION, WESTERN AUSTRALIA
STOKES INLET MAP SHEET 3130 1:100000 SERIES
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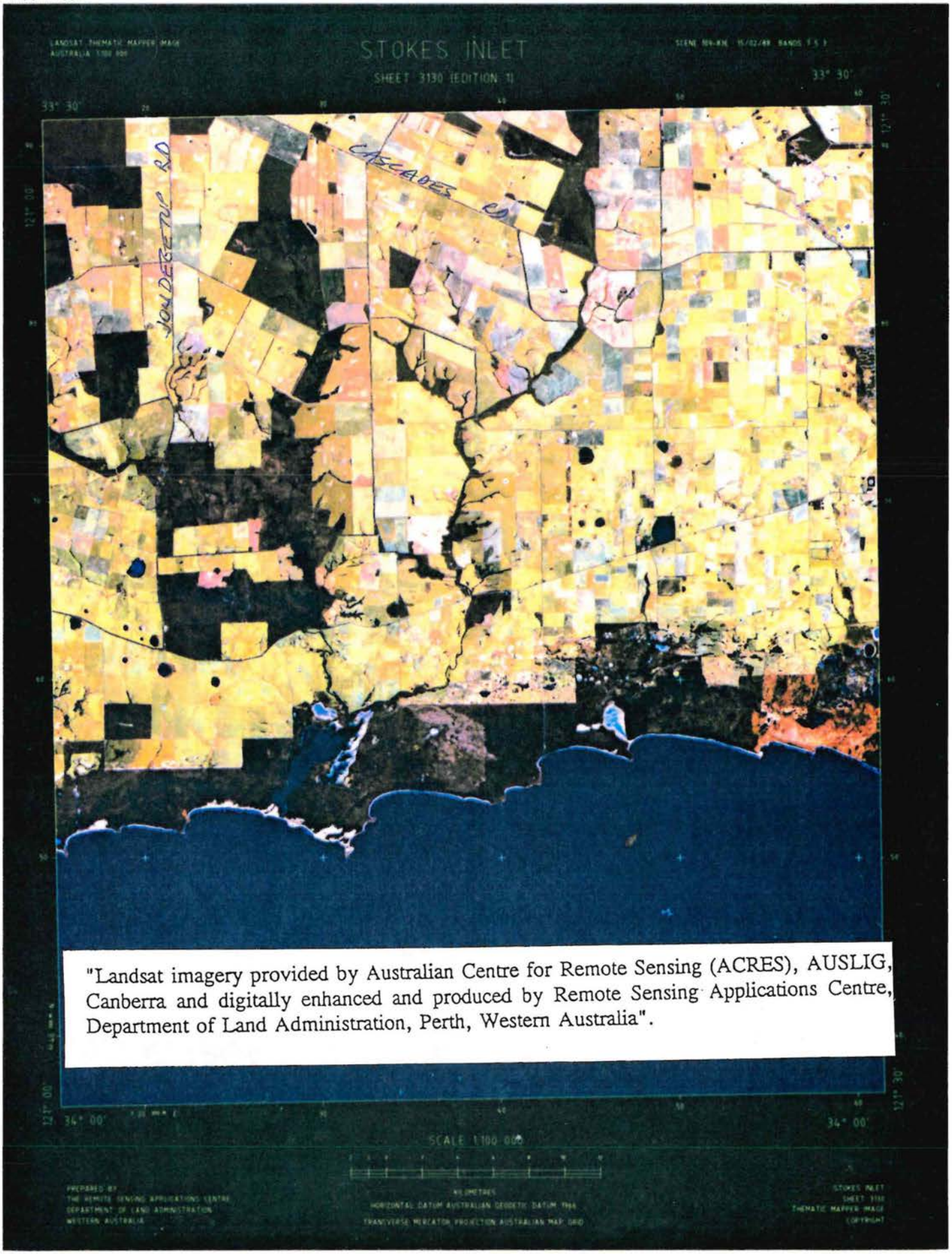
LANDSAT THEMATIC MAPPER 109-083E



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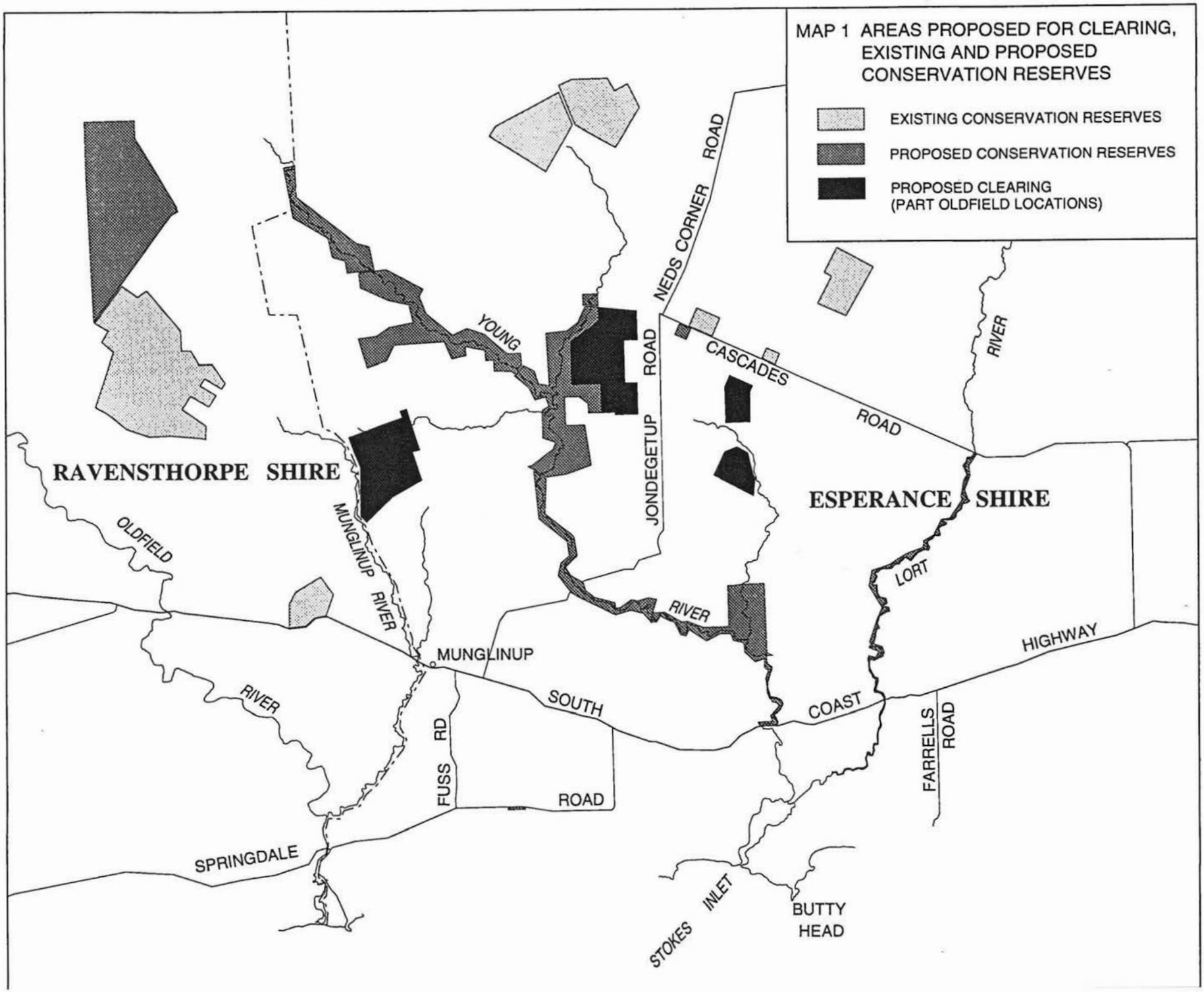

MAP 1 AREAS PROPOSED FOR CLEARING, EXISTING AND PROPOSED CONSERVATION RESERVES
EXISTING CONSERVATION RESERVES
PROPOSED CONSERVATION RESERVES
PROPOSED CLEARING (PART OLDFIELD LOCATIONS)
RAVENSTHORPE SHIRE
ESPERANCE SHIRE
YOUNG ROAD
NEDS CORNER ROAD
CASCADES ROAD
JONDEGETUP
RIVER
OLDFIELD
MUNGLINUP RIVER
MUNGLINUP
LORT RIVER
HIGHWAY
SOUTH COAST
FUSS RD
ROAD
FARRELLS ROAD
SPRINGDALE
STOKES INLET
BUTTY HEAD

Summary

All of the uncleared portions of the Oldfield locations are in pristine or excellent condition (assessment adapted from Trudgeon, 1990. Appendix 3). They are adequately fenced in order to restrict domestic stock grazing, have no exotic weed invasion away from external boundary access tracks and have limited internal access tracks.They display no symptoms of Phytophthora dieback disease within susceptible plant communities and, other than locations 1090 and 1093, are long unburnt .

Vegetation associations and component species described within the Oldfield locations 1015, 1016, 1017, 1018, 1087, 1093, 1097, 1098 and 1099 proposed for clearing are represented to varying degrees within the existing conservation reserve system and proposed conservation reserves as identified in the South Coast Region Management Plan 1992-2002.

Oldfield location 1090, however, contains a Dense heath association (characterised by Chittick and Christmas Tree) not represented within the existing and proposed conservation reserves of the local region.

The *Eucalyptus tetragona* (Blue mallee) dominant, Open shrub mallee/Low heath association is inadequately represented within the existing and proposed conservation reserves surveyed in the local region. Oldfield Loc 1093 did, however, contain an extensive (i.e. 2,000 ha.) expanse of a Blue Mallee open shrub mallee over low heath association on deep white sand. Oldfield locations 1017, 1018, 1090, 1098 and 1099 also contained this association but on shallow sands over clay with a reduced component of *Banksia media* and *Hakea cinerea.*

Landforms within the Oldfield locations proposed for clearing are not adequately represented within the existing and proposed conservation reserves of the local region. Existing conservation reserves within the Lort vegetation system (Beard 1973) are all located higher in the landscape profile away from the major river courses and as a result do not include adequate representation of the lower profile soil types and surface drainage patterns of the Lort system.

Existing conservation reserves within the local region surveyed are pristine to excellent in condition according to the assessment made (Trudgeon 1990). However, except for Cheadanup Nature Reserve, they are all now islands of remnant vegetation (some quite small) without major corridors. The only opportunity for terrestial fauna movement between them is via roadside verges which are often narrow and degraded.

Two species of Declared Rare Flora, and several other species on the Priority Flora list are known to occur within the study Region but not known within the areas inspected. The scope of this survey did not permit a detailed flora survey (Appendix 4).

Clearing on locations 1017 and 1018 has lead to a rising water table and salt damage in a drainage line linked to a *Eucalyptus occidentalis* woodland depression. This has occurred in a relatively short time (cleared since 1982) and illustrates the potential for this problem to develop with further reduction of native vegetation cover as all contain low lying areas or drainage lines.

The locations proposed for clearing represent some of the largest remaining uncleared blocks within the Cascade and Munglinup localities and adjoin the Munglinup and Young River corridors.

The continuity of these blocks with the river corridors ensures that they fulfil an important function in maintaining the viability and nature conservation values of the corridors. In addition the evidence of recent salt encroachment and the potential for this problem to escalate with further clearing confirms that the current level of vegetative cover is contributing to the maintenance of existing ground water levels, thereby protecting not only those blocks but adjoining areas of the river corridors.

Table 2 : Vegetation Associations Occurrence within Surveyed Nature Reserves and Private Property Locations

Vegetation Association	A	B	C	D	E	F
Private Property						
Locations 1015-1018	+	+	+	+	+	
Locations 1087, 1097-1099			+	+	+	
Location 1090		+	+	+	+	+
Location 1093			+	+	+	
	+	+	+	+	+	
Existing Nature Reserves						
Cheadeanup, Reserve 31754						
East Naemup, Reserve 31755	+	+		+	+	
West Griffiths, Reserve 30583		+	+	+	+	
East Griffiths, 30583		+	+	+		
Cascades, Reserve 31744	+			+		
Cascades, Reserve 31743	+			+	+	
Fields, Reserve 31742	+		+	+	+	
	+			+		
Proposed Nature Reserves						
Cascades, Reserve 31745						
Young River, Reserves 31750, 31751	+	+	+	+	+	

A Woodland **B** Broombush thicket **C** Low Forest
D Shrub Mallee / heath **E** Open Shrub Mallee/heath **F** Dense Heath

Land Proposed for Clearing

OLDFIELD LOCATIONS 1015, 1016, 1017 & 1018

These four properties are located within the Lort vegetation system (Beard 1973) and contain five vegetation associations (Map 2). These are the Open shrub mallee/Low heath, Shrub mallee/heath, Low forest, Woodland and Broombush thicket associations according to the Muir classification (1977). This contiguous cluster of properties directly abuts the uncleared Munglinup River corridor along the western boundaries of locations 1015 and 1016. At this point the corridor consists of Reserve 30869, purpose Parklands, vested in the Shire of Ravensthorpe.

VEGETATION DESCRIPTION

Open shrub mallee/Low heath
This association predominantly exists on the plateau of low relief, demarcating the Young and Munglinup Rivers watershed boundary, dividing the locations 1015 & 1016 from locations 1017 &1018. The association is growing on shallow sand soils over clay. Localised scattering of this association away from this main feature occur where favoured soil type exists.

Shrub mallee/heath
This association is found lower in the profile on the poorly defined drainage lines and broad drainage line flanks, in combination with scattered occurrences of Low forest. The Shrub mallee/heath association dominates the majority of the uncleared native vegetation on the properties, particularly the eastern two thirds of locations 1017 & 1018. Low forest of *E platypus* is currently attaining a height of around 4 to 5 metres since the last fire.

Eucalyptus occidentalis Woodlands
This association also occur within the Shrub mallee/heath association on the properties. These Woodlands surround circular swampy depressions at the heads of the internal drainage lines and on the broad drainage line flanks .

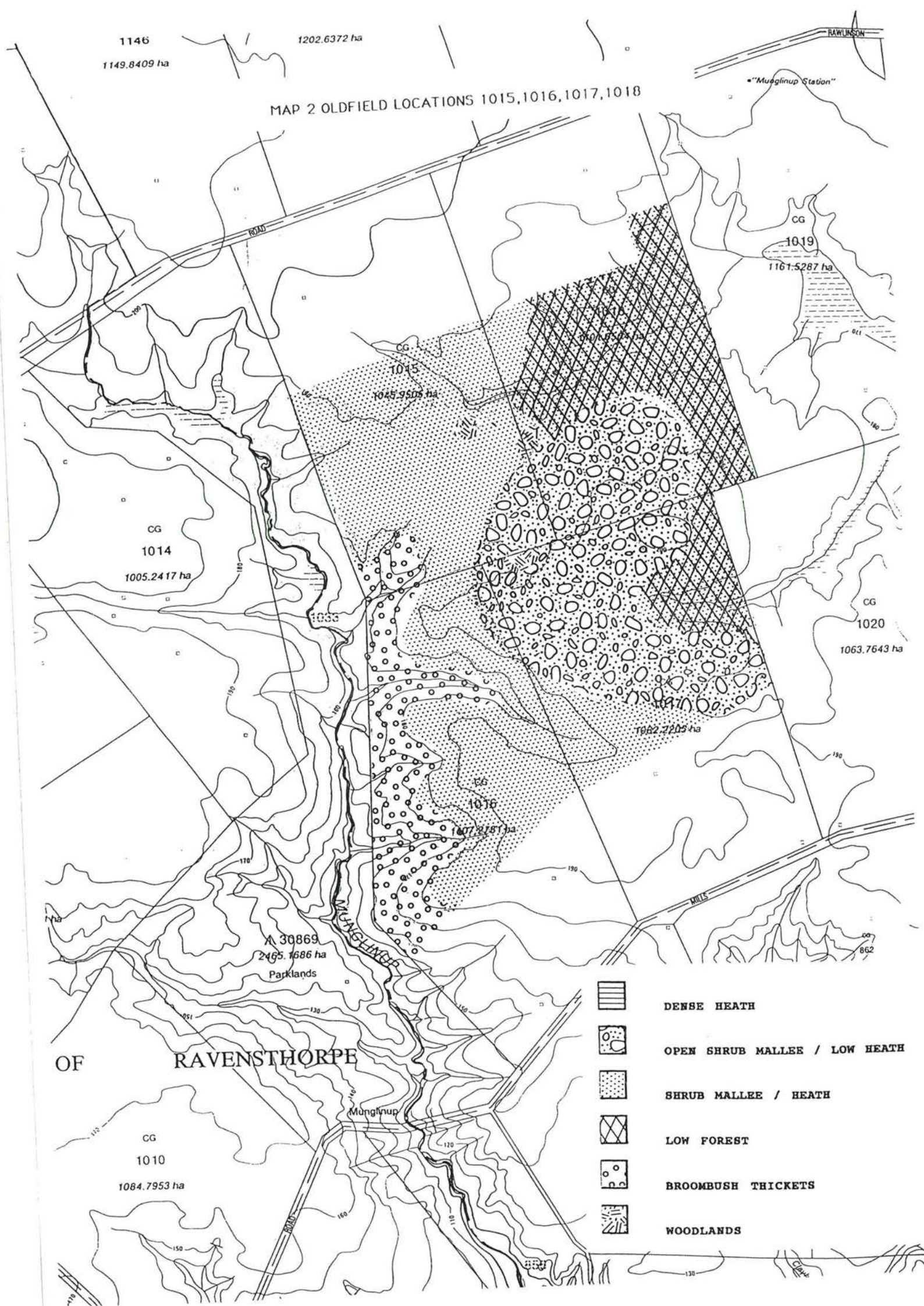
Broombush thickets
This association occurs low in the profile on moderately inclined valley flanks of the Munglinup river dominate the western halves of property locations 1016 & 1015. Granite outcropping features occur scattered over this valley flank.

Dominant species characterising vegetation asssociations from these properties are listed in Appendix 2 of this report.

GRAZING, EXOTIC WEEDS, FENCES AND INTERNAL ACCESS TRACKS

These properties are well fenced from the surrounding farmland and there is no evidence of domestic animal grazing. This may be a reflection on the abundance of poisonous plant species (*Gastrolobium spp*). There was no evidence of exotic species invading the core of the properties. Invasion on a very minor scale is apparent on the trafficable boundary track, adjacent to the farmland.

An old unused track within location 1016 leading to the river corridor boundary track has limited weed invasion along the alignment.


MAP 2 OLDFIELD LOCATIONS 1015,1016,1017,1018
1146
1149.8409 ha
1202.6372 ha
RAWLINSON
"Mueglinup Station"
ROAD
CG
1019
1161.5287 ha
CG
1015
1025.9505 ha
CG
1014
1005.2417 ha
1033
CG
1020
1063.7643 ha
1062.2205 ha
CG
1016
1007.2181 ha
MUNGLINUP
A 30869
2465.1686 ha
Parklands
MILLS
862
OF RAVENSTHORPE
Munglinup
CG
1010
1084.7953 ha
ROAD
DENSE HEATH
OPEN SHRUB MALLEE / LOW HEATH
SHRUB MALLEE / HEATH
LOW FOREST
BROOMBUSH THICKETS
WOODLANDS

Three sites of localised weed invasion occur along the northern boundary of property locations 1015 & 1018. Here surface drainage flows from the farmland into the uncleared native vegetation and has carried soil a distance of around 20 to 30 metres into the native vegetation.

Demarcation of proposed "not to be cleared" components of these property locations has recently occurred. This operation has flattened vegetation in a narrow, single pass, using a rubber tyred loader, under dry soil conditions. Vegetation and soil disturbance is minimal and does not appear to be sufficient to cause future soil erosion or significant vegetation impact.

SALT

Salt scalding is occurring along the drainage line tributary of the Young river within cleared farmland east of locations 1017 & 1018. This drainage feature is contained within an uncleared corridor of native vegetaion which is being progressively killed by salt due to a rising water table. This salt scald has progressed upslope along the drainage line into the uncleared native vegetation within property location 1017, killing a small *Eucalyptus occidentalis* woodland.

DIEBACK

There is no evidence of Phytophthora related dieback disease symptoms within susceptible species of the native vegetation, which are predominantly contained within the Open shrub mallee/Low heath association.

ADDITIONAL INFORMATION

There is an above ground storage site for empty farm chemical containers in combination with a below ground dead sheep dump located on a small 0.25 hectare cleared site some 150 metres into the vegetation off an internal farm access road on the eastern boundary of location 1017. There are no current signs of surrounding vegetation decline or obvious site contamination.

VEGETATION CONDITION

The vegetation condition assessment for these uncleared portions of locations 1015, 1016, 1017 & 1018 is rated as excellent (adapted from Trudgeon 1990) Appendix 3. There are no signs of recent fire through these locations or of exotic weed invasion. The recent boundary demarcation has resulted in the only disturbance of an otherwise intact and healthy large area of native vegetation.

Land Proposed for Clearing

OLDFIELD LOCATIONS 1087, 1097, 1098 & 1099

These four properties are located within the Lort system (Beard 1973) and contain five vegetation associatons. These are the Open shrub mallee/Low heath, Shrub mallee/heath, Low forest, Woodland and Broombush thicket associations (Map 3). This contiguous cluster of properties abuts the uncleared Cascade creek tributary and native vegetation corridor linked to the Young River corridor, along the western boundaries of locations 1087, 1097, 1098 & 1099.

VEGETATION DESCRIPTION

Open shrub mallee / Low heath

This association is found predominantly on the higher country along the eastern boundaries of 1087, 1097, 1098 and southern boundary of 1099. The soil in these areas are sands over a clay subsoil.

Shrub mallee/heath

This association is found lower in the profile on the flanks of the internal drainage in combination with scattered occurrences of the Low forest. This Shrub mallee/heath association dominates the majority of the uncleared native vegetation on the properties. Low forest of *Eucalyptus platypus* is currently attaining a height of around 4 to 5 metres since last the fire.

***Eucalyptus occidentalis* Woodlands**

This association also occurrs within the Shrub mallee/heath association on these properties. These woodlands surround circular swampy depressions in the landscape, usually at the heads of the broad internal drainage lines.

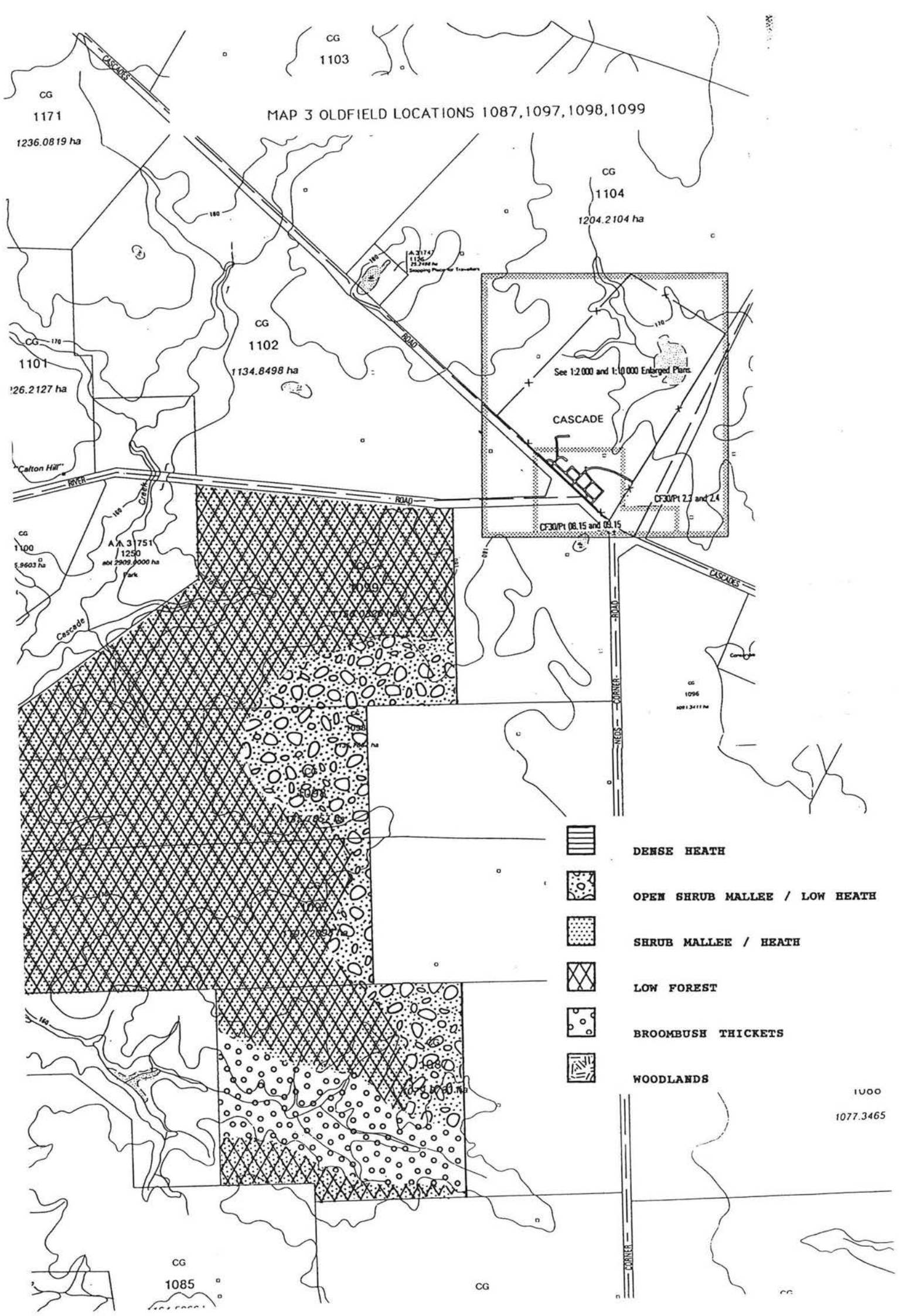
Broombush thickets

This association dominates the dissected landscape within location 1087. There are also granite outcropping features occurring within this location.

Dominant species characterising vegetation asssociations from these properties are listed in Appendix 2 of this report.

GRAZING, EXOTIC WEEDS, FENCES AND INTERNAL ACCESS

These locations are well fenced from the surrounding farmland and possess no evidence of animal grazing. Poisonous plant species were noted within the vegetation (*Gastrolobium spp*). There was no evidence of exotic species invasion within the bulk of the properties. Invasion on a minor scale is apparent along the trafficable boundary track, adjacent to the farmland. The only internal track, between locations 1087 and 1097, was inspected. No exotic weed invasion was noted. This track has been used under moist soil conditions and small bog holes were observed. This track crosses the Young River corridor and links with River road on the western side of the corridor.


MAP 3 OLDFIELD LOCATIONS 1087,1097,1098,1099
CG 1103
CG 1171
1236.0819 ha
CG 1104
1204.2104 ha
CG 1102
1134.8498 ha
CG 1101
126.2127 ha
CG 1100
CG 1099
CG 1096
CG 1085
CG
CASCADES
ROAD
CASCADE
See 1:2000 and 1:1000 Enlarged Plans
CF30/Pt 2.3 and 2.4
CF30/Pt 08.15 and 09.15
"Calton Hill"
RIVER
Creek
Cascade
CORNER
NEDS
DENSE HEATH
OPEN SHRUB MALLEE / LOW HEATH
SHRUB MALLEE / HEATH
LOW FOREST
BROOMBUSH THICKETS
WOODLANDS
1077.3465

DIEBACK

There were no signs of Phytophthora related dieback disease symptoms within susceptible species of native vegetation, which are predominantly contained within the Open shrub mallee/Low heath association.

ADDITIONAL INFORMATION

There is an above ground storage site of empty farm chemical containers in combination with a below ground dead sheep dump located on a small 0.25 hectare cleared site in the north eastern corner of location 1087. There are no current signs of surrounding vegetation decline or obvious site contamination.

VEGETATION CONDITION

The vegetation condition assessment for these uncleared portions of locations 1087,. 1097, 1098 and 1099 is rated as pristine (adapted from Trudgeon 1990) Appendix 3. The native vegetation is intact, displaying no signs of recent fire events or exotic weed invasion.

Land Proposed for Clearing

OLDFIELD LOCATION 1093

This location is within the Lort system (Beard 1973) and contains two vegetation associations, Open shrub mallee/low heath and Shrub mallee/heath (Map 4). The former association characterised by Blue mallee on very deep white sands is anamolous within the Lort system being more typical of the Esperance system (Beard 1973). On its southern edge this property abuts the northern boundary of uncleared native vegetation along the east branch of the Young River corridor which at this point is currently Reserve 31764, Park.

VEGETATION DESCRIPTION

Blue Mallee Open shrub mallee/low heath

This association dominates the native vegetation of location 1093. This association favours the higher, level landscape in the north comprising at least 80% of this location.

Shrub mallee / heath

This association occurs lower in the landscape at the south end of this location, where there is a dissected landscape.

Dominant species characterising vegetation asssociations from these properties are listed in Appendix 2 of this report.

FENCES AND INTERNAL ACCESS

This property is well fenced from the surrounding farmland and exhibits no evidence of domestic animal grazing. Poisonous plant species were noted within the vegetation associations (*Gastrolobium spp*). No internal vehicle access tracks were noted on this survey.

EXOTIC WEEDS

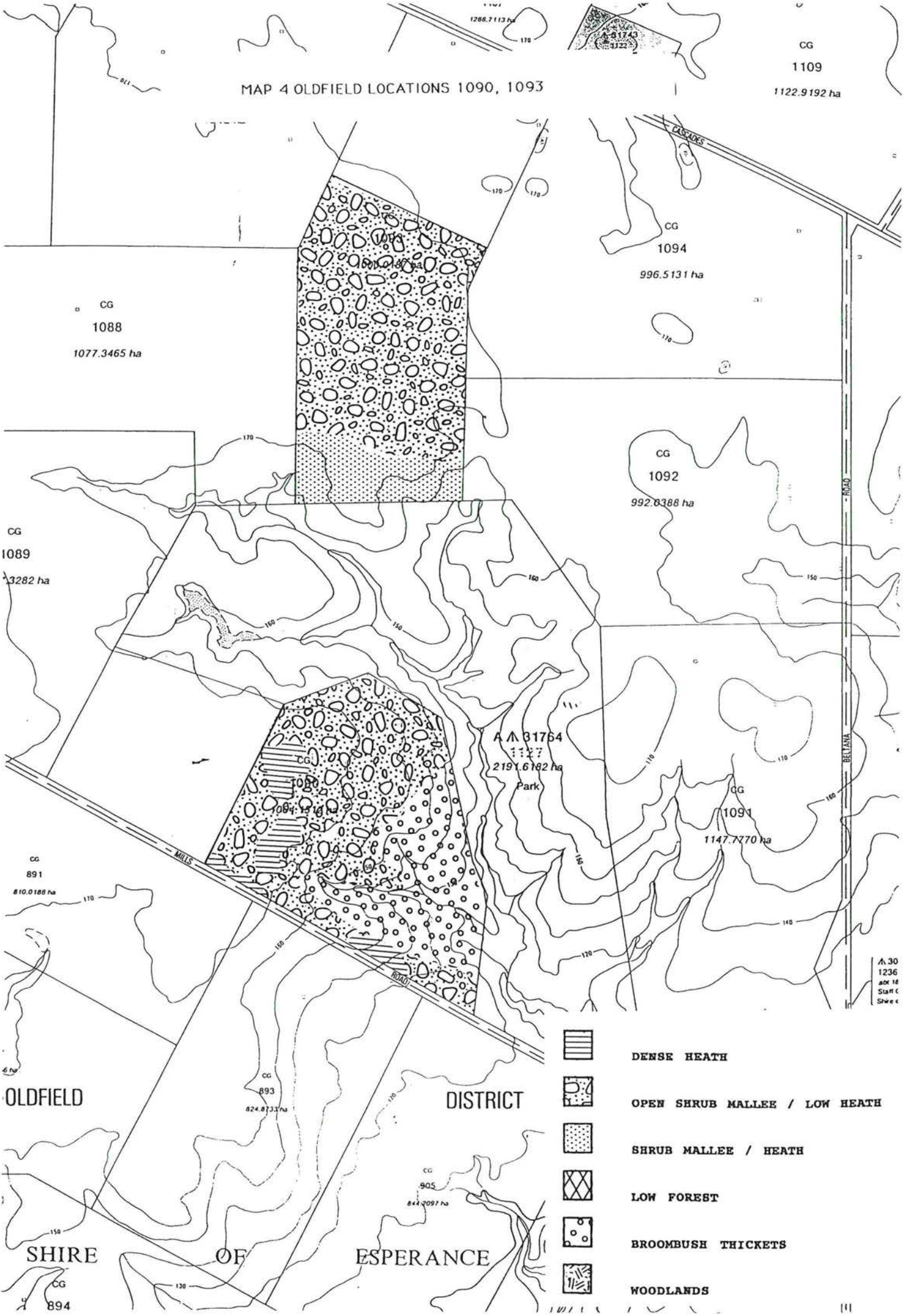
Weed invasion is occurring along the western and northern boundaries of this location. Wind has eroded soil from the adjoining farmland and created a 0.5 metre deep sand heap, ten metres wide on the internal boundary track. A dense cover of exotic weed species are now widespread on this windrow. There is no evidence of these exotic weed species colonising the native vegetation further into the uncleared property.

FIRE

This location was extensively burnt in a fire event around the mid 1980's (interpretation from aerial photography). Little of the location appears to have escaped this event. The native vegetation is now regenerating and appears in good health.

DIEBACK

There were no signs of Phytophthora related dieback disease symptoms within the susceptible species of the native vegetation.


MAP 4 OLDFIELD LOCATIONS 1090, 1093
CG
1109
1122.9192 ha
CASCADES
CG
1094
996.5131 ha
CG
1088
1077.3465 ha
CG
1092
992.6388 ha
ROAD
CG
1089
3282 ha
A A 31764
1127
2191.6182 ha
Park
CG
1091
1147.7770 ha
BELTANA
MILLS
ROAD
CG
891
810.0188 ha
OLDFIELD
DISTRICT
CG
893
824.8733 ha
CG
905
844.2097 ha
SHIRE
OF
ESPERANCE
CG
894
DENSE HEATH
OPEN SHRUB MALLEE / LOW HEATH
SHRUB MALLEE / HEATH
LOW FOREST
BROOMBUSH THICKETS
WOODLANDS

VEGETATION CONDITION ASSESSMENT

The vegetation condition assessment for this property is excellent (adapted from Trudgeon 1990) Appendix 3. Though the vegetation structure has been altered in the short term by the last fire there is no evidence that fire has been a regular event. Exotic weed species do not appear to be aggressive species as they are only growing on wind blown top soil from the farmland.

Land Proposed for Clearing

OLDFIELD LOCATION 1090

This property is located within the Lort systems (Beard 1973) and contains three vegetation associations, Open shrub mallee/low heath, Broombush heath and Dense heath (Map 4). One of these associations, the Dense heath association (characterised by Chittick and Christmas Tree) appears to be anamolous within the Lort system, being more typical of the Esperance system (Beard 1973). This property abuts the eastern branch of the Young River and adds significant width to an other wise narrow river corridor reserve at this point (Map 1).

VEGETATION DESCRIPTION

Open shrub mallee/ low heath and Dense heath

This association dominates the majority of this location and occurs in combination with an association not encountered before on this survey, the Dense heath association. *Eucalyptus tetragona* is the characteristic species of the Open shrub mallee/low heath association, whilst *Nuytsia floribunda* and *Lambertia inermis* characterise the dense heath. This Dense heath association is restricted in occurrence within this location. An interesting feature is that the dense heath is growing on gravel soils, not on the sandy gravel combinations favoured by the Open shrub mallee/low heath association.

Broombush heath

This association is located within the dissected landscape of the only internal drainage system on this location. Granite outcropping features occur scattered along this drainage line.

Dominant species characterising vegetation asssociations from these properties are listed in Appendix 2 of this report.

FENCES, EXOTIC WEEDS AND INTERNAL ACCESS

This property is well fenced from the surrounding farmland and there is no evidence of animal grazing. Exotic weed invasion is occurring in association with wind eroded and subsequent deposition of farmland soil along the western boundary of the location. This has resulted in a windrow feature, some 25 metres in width, occurring along the trafficable track on the boundary of the location. Native vegetation species are being smothered by the exotic species where there is depth to the transported soil. There is no evidence of exotic species colonising the areas of the reserve remote from this site.There is no evidence of internal tracks within this location.

GRAVEL PIT

A 5 ha gravel pit exists along the southern boundary of this location adjacent to Mills road. The pit is currently being used and extended, with gravel soil pushed up within the pit. This gravel pit occurrs on the gravel soils favoured by the Dense heath.

DIEBACK DISEASE

The gravel pit site and property location were inspected for evidence of Phytophthora related dieback disease symptoms. No evidence was found, however the gravel pit is posing a risk to the Dense heath association at the site. This Dense heath association is vulnerable to dieback disease and will undergo a significant structural change if infected.

FIRE

As with location 1093 this location was also extensively burnt in the same fire event around the mid 1980's (interpreted from aerial photography). Little of this location appears to have escaped this event. The native vegetation is now regenerating and appears in good health.

VEGETATION CONDITION

The vegetation condition assessment for this location is excellent (adapted from Trudgeon 1990) Appendix 3. Though the vegetation structure has been altered in the short term by the last fire there is no evidence that fire has been a regular event. Exotic weed species do not appear to be aggressive species as they are growing on wind blown and deposited soil from the farmland.

Existing Conservation Reserves Within Proximity

RESERVE 31755, EAST NAEMUP

This nature reserve is located within the Esperance system (Beard 1973) and contains four vegetation associations (Appendix 1). These are the Open shrub mallee/Low heath, Shrub mallee/heath, Woodland and Broombush thicket associations according to the Muir classification (1977) (Map 5). This reserve is not linked to any other conservation reserve. There is a large proportion of Oldfield location 739 due south of the reserve existing in an uncleared state.

VEGETATION DESCRIPTION

Open shrub mallee/Low heath

This association has restricted occurrence within the reserve, occurring along the southern boundary of the reserve adjacent to the highway and on the high plateau between the two drainage lines. This association favours the higher landscape position.

Shrub mallee / heath

This association dominates the vegetation within the reserve occurring on the gently inclined valley flanks.

Broombush thicket

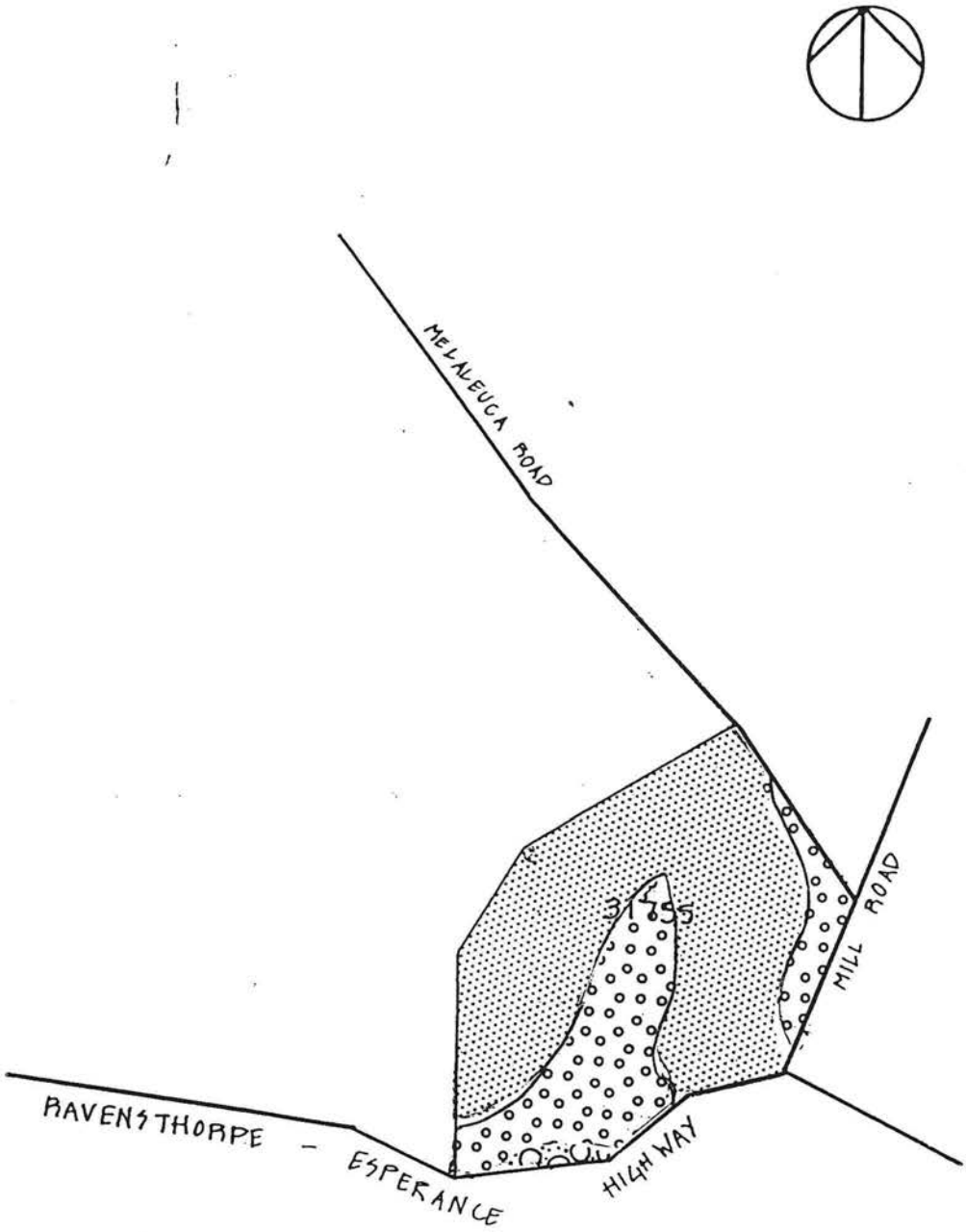
This association occurs in combination with the previous Shrub mallee / heath association. The Broombush thickets favour shallow soil sites over exposed and partially submerged granite on the gently inclined valley flanks.

***Eucalyptus occidentalis* Woodlands**

This association occurs low in the profile along the central drainage line dissecting the reserve. The woodlands are not extensive but occur as small scattered pockets.

Dominant species characterising vegetation asssociations from this reserve are listed in Appendix 2.

MAP 5 RESERVE 31755, EAST NAEMUP



DENSE HEATH

OPEN SHRUB MALLEE / LOW HEATH

SHRUB MALLEE / HEATH

LOW FOREST

BROOMBUSH THICKETS

WOODLANDS

0 1 2 3 4 5km

RESERVE 31754, CHEADANUP

This extensively dissected reserve is located within the Oldfield system (Beard 1973) and contains five vegetation associations (Appendix 1). These are the Open shrub mallee/Low heath, Shrub mallee/heath, Low forest, Woodland and Broombush thicket associations (Map 6). This nature reserve is linked to and abuts large areas of vacant crown lands in the north of the reserve. This reserve was extensively burnt in a wildfire event summer 1990 /1991.

VEGETATION DESCRIPTION

Open shrub mallee / Low heath

This association dominates the high plateau in the south eastern corner of the reserve.

Shrub mallee / heath

This association occurs mid to upper slope on the moderately inclined valley flanks and also on the slightly less dissected country in the north west of the reserve. There is sufficient depth to the soils at these mid to upper slope valley locations to support the association.

Broombush thicket

This association occurs from lower slope to upper slope on the moderately inclined valley flanks. Here soils are shallow in nature and occur in combination with regular outcropping of granite. This association tends to dominate extensive valley flanks within the reserve.

***Eucalyptus occidentalis* Woodland**

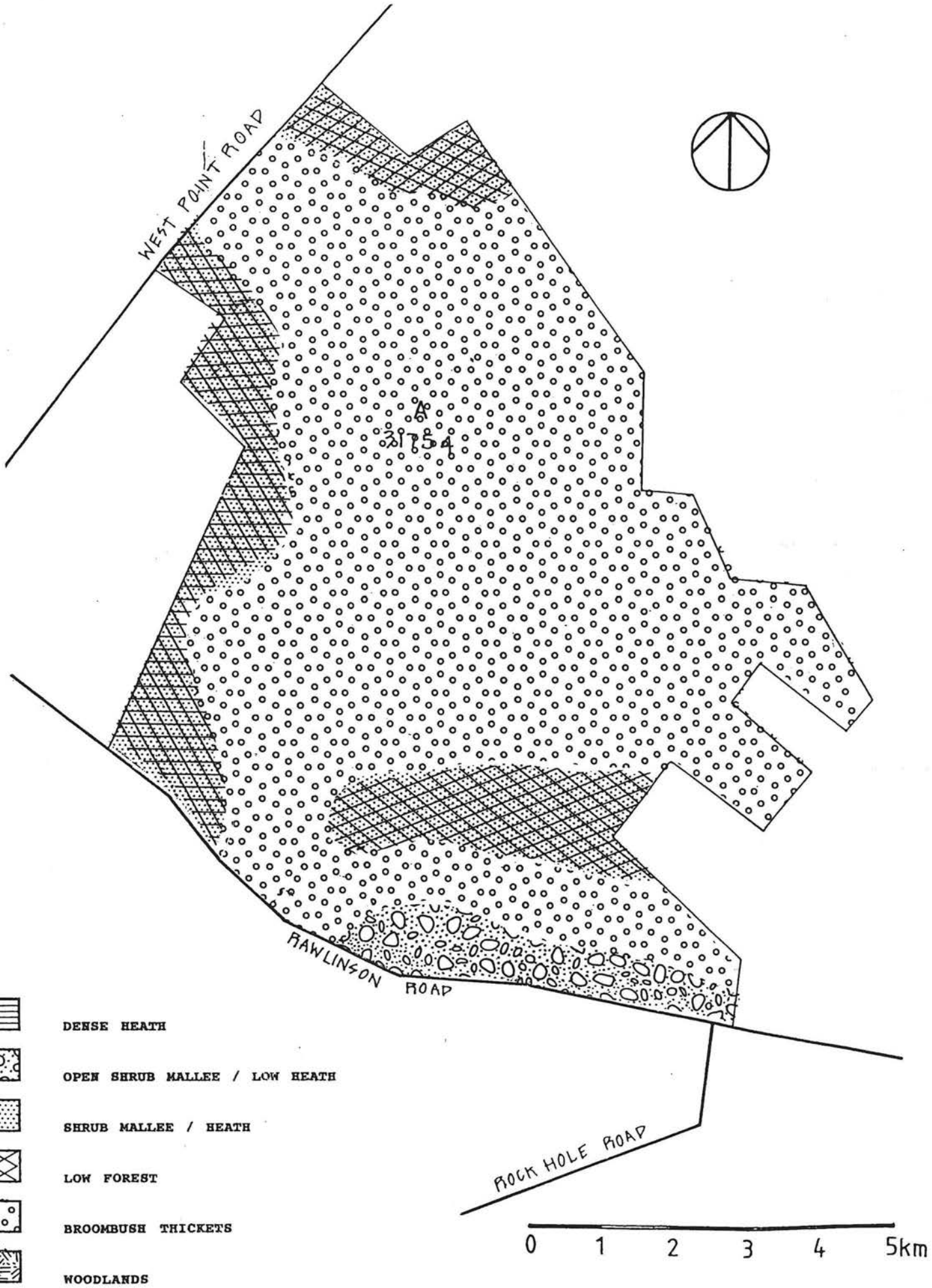
This association occurs along the valley floors within this reserve where there is sufficient depth to soils.

Low forest

This association occurs on ridge crests in the north of the reserve in combination with the Shrub mallee/ eath. Large areas of this association were burnt in the last fire. The dead trees are still standing and provide evidence of the height the low forest achieved before the fire. There are now extensive areas of young regenerating eucalypts beneath the dead stands.

Dominant species characterising vegetation associations from this reserve are listed in Appendix 2 of this report.

MAP 6 RESERVE 31754, CHEADANUP



RESERVE 30583, EAST AND WEST GRIFFITHS

WEST GRIFFITHS

This Nature Reserve is within the Lort system (Beard 1973) and is on a gently undulating plain of little relief (Appendix 1).There are four vegetation associations Shrub mallee/heath, Eucalyptus grossa Shrub mallee/heath, Broombush thickets and Low forest associations (Map 7). Interpretation from aerial photography shows the reserve was extensively burnt in the late 1970's to early 1980's.

VEGETATION DESCRIPTION

Shrub mallee/heath

This association favours the sandy clay soils within the reserve and would comprise around 60 % of the reserves vegetation .

***Eucalyptus grossa* Shrub mallee / heath**

This association is restricted in occurence within the reserve, favouring rocky sandy soils on a low rise.

Broombush thickets

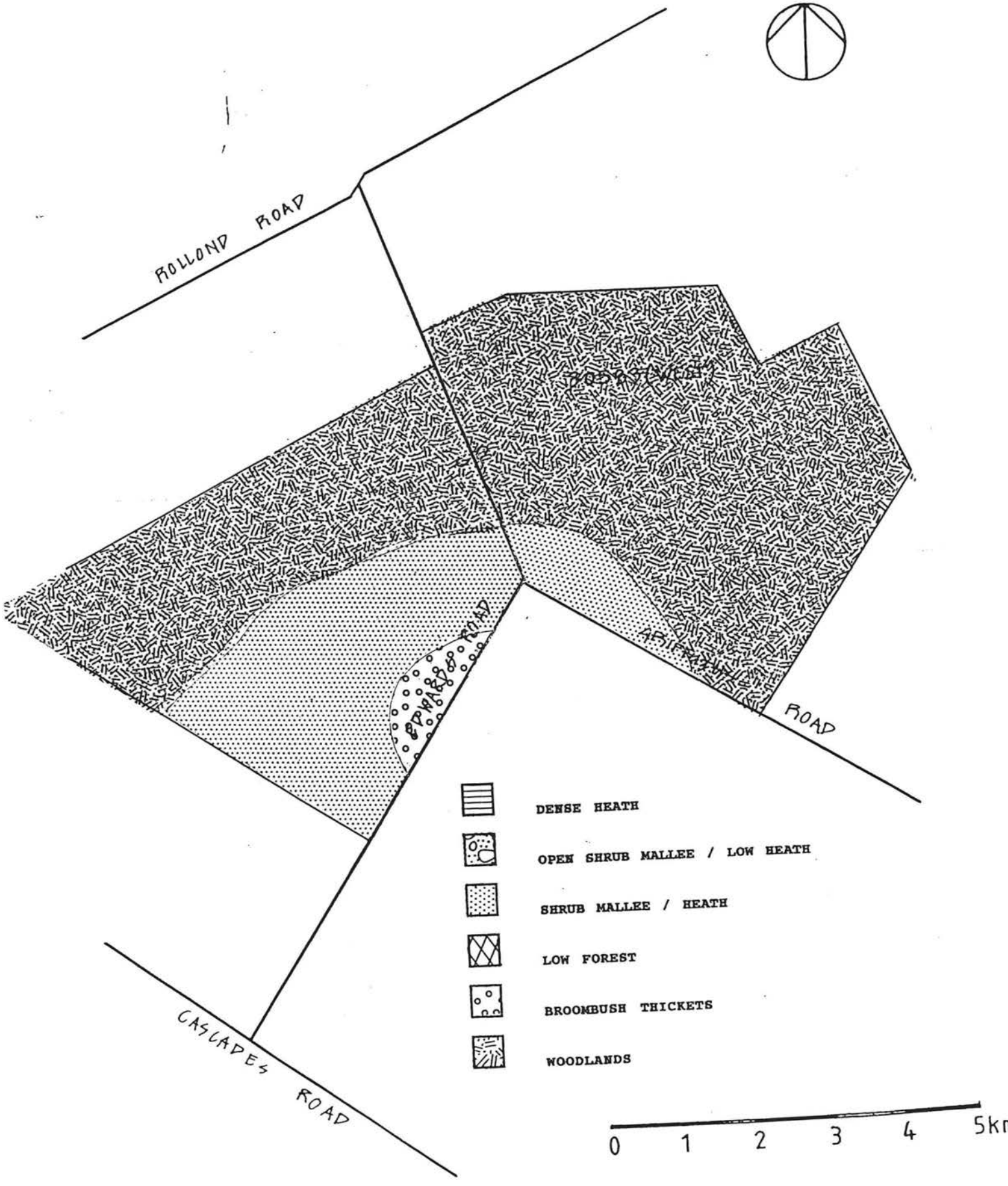
This association is confined to an exposed granite formation within the reserve on a very gently inclined drainage line flank. The association has restricted occurrence within the reserve.

Low forest

This association comprises the other major component within the reserve, favouring the heavy clay soils of the plain. This Low forest of *Eucalyptus forrestiana* is currently very low, 1.5-2.5 metres in height and regenerating successfully in typical thicket fashion.

Dominant species characterising vegetation asssociations from this reserve are listed in Appendix 2 of this report.

MAP 7 RESERVE 30583, WEST GRIFFITHS



EAST GRIFFITHS

This Nature Reserve is within the Lort system (Beard1973) and is also on a gently undulating plain of little relief (Appendix 1).There are three vegetation associations within this reserve Shrub mallee/heath, Low forest and Broombush thickets (Map 8). This reserve appears to have been burnt at a similar time to the West Griffiths reserve.

VEGETATION DESCRIPTION

Shrub mallee / heath, Low forest

These two vegetation associations tend to occur in combinations within this reserve, rather than in distinct communities.The Low forest asssociation is again very low in height 1.5-2.5 metres in height and regenerating successfully in typical thicket fashion

Broombush thickets

This vegetation association is restricted in occurrence within the reserve and is found on the shallow soils over granite outcroppings.

Dominant species characterising vegetation asssociations from this reserve are listed in Appendix 2 of this report.

RESERVE 31742, FIELDS

This reserve is within the Lort system (Beard 1973) and is on a gently undulating plain of little relief with the occasional circular depression (Appendix 1). There are four vegetation associations within the reserve, these are Open shrub mallee/low heath, Shrub mallee/heath, Low forest and *Eucalyptus occidentalis* Woodlands (Map 9).

VEGETATION DESCRIPTION

Open shrub mallee /low heath

This association is found on the southern end of the reserve where there is increased sand over the clay soil.

Shrub mallee / heath and Low forest combination

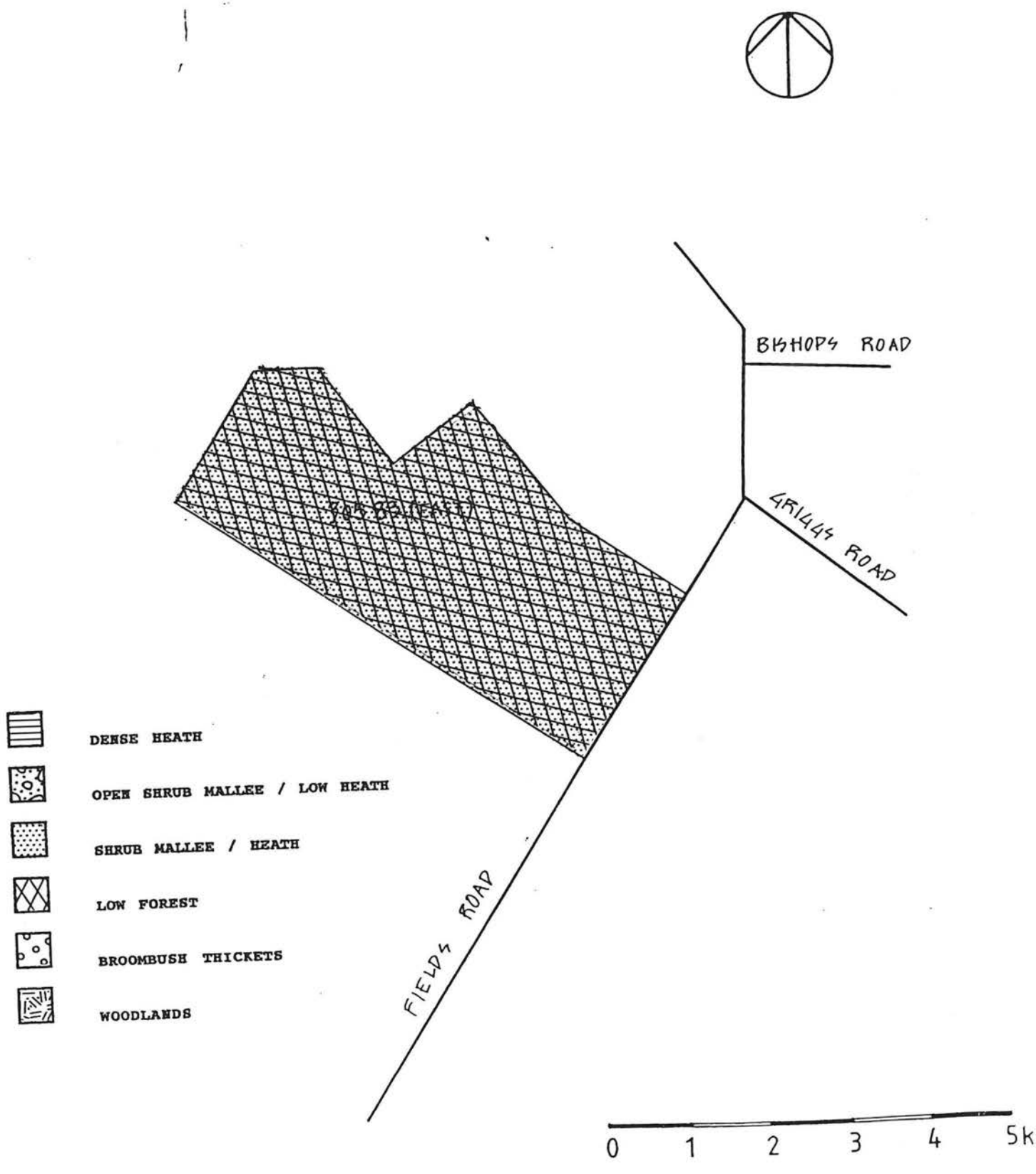
These two associations dominate the majority of the reserve. The Low forest favours the heavier clay soils.

Eucalyptus occidentalis Woodlands

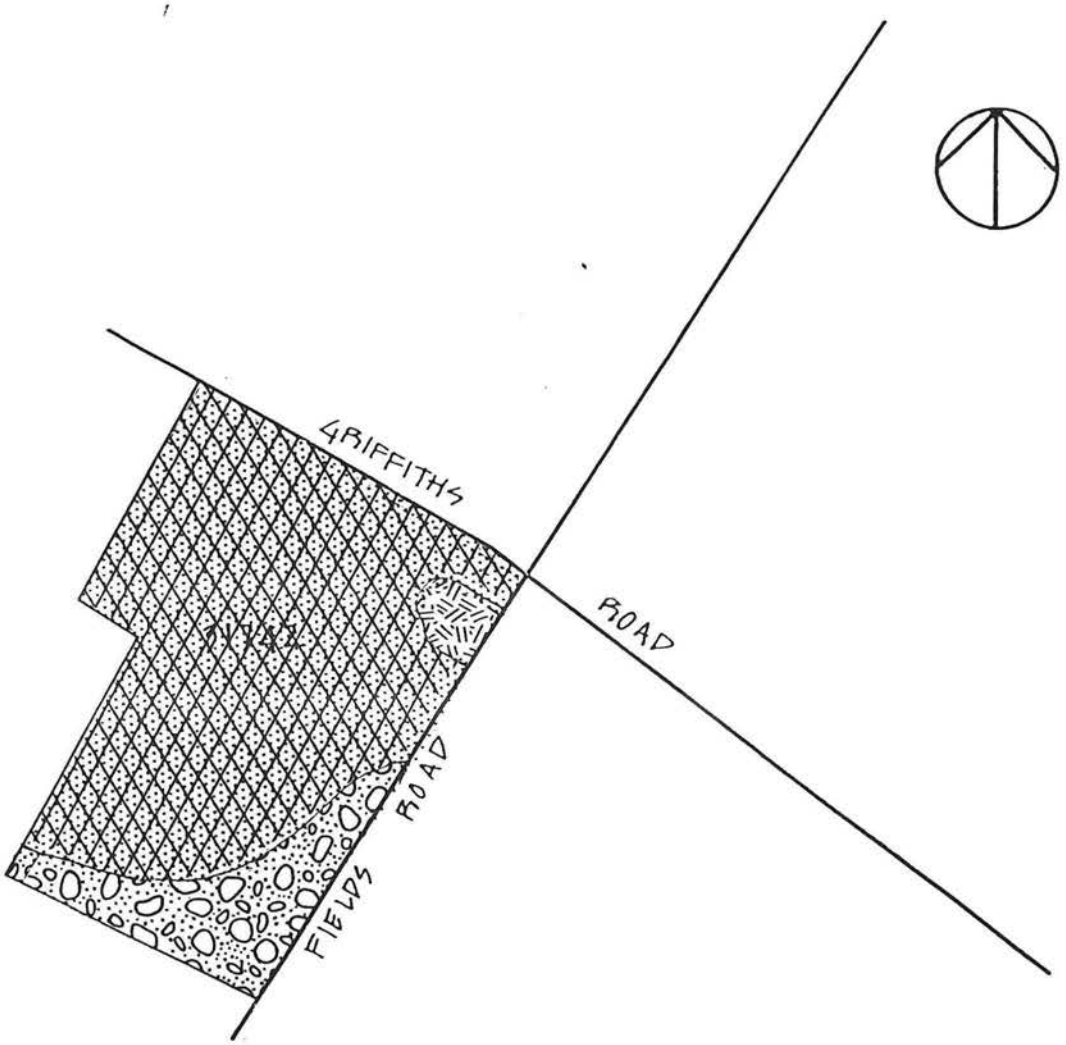
This association is restricted in occurrence to the circular clay pan depressions within the reserve.

Dominant species characterising vegetation asssociations from this reserve are listed in Appendix 2.

MAP 8 RESERVE 30583, EAST GRIFFITHS



MAP 9 RESERVE 31742, FIELDS



DENSE HEATH

OPEN SHRUB MALLEE / LOW HEATH

SHRUB MALLEE / HEATH

LOW FOREST

BROOMBUSH THICKETS

WOODLANDS

0 1 2 3 4 5km

RESERVE 31744, Cascades
This reserve is within the Lort system (Beard 1973) and is on a gently undulating plain of little relief containing a large clay pan depression (Appendix 1).There are two vegetation association occurring on this reserve, Shrub mallee/heath and *Eucalyptus occidentalis* Woodland (Map 10).

VEGETATION DESCRIPTION
Shrub mallee/ heath
This association occurs around the perimeter of the clay pan depression within the reserve

***Eucalytpus occidentalis* Woodland**
This association occurs in and around the perimeter of the clay pan depression

Dominant species characterising vegetation asssociations from this reserve is listed in Appendix 2 of this report.

RESERVE 31743, CASCADES
This reserve is within the Lort system (Beard 1973) and is on a gently undulating plain of little relief containing a large clay pan depression (Appendix 1).There are three vegetation associations within the reserve Open shrub mallee/heath, Shrub mallee/heath and *Eucalyptus occidentalis* Woodland (Map 11).

VEGETATION DESCRIPTION
Open shrub mallee /Low heath
This association occurs on the sandy soils in the drainage line depression leading into the clay pan, particularly on the western, northern and eastern boundaries of the reserve.

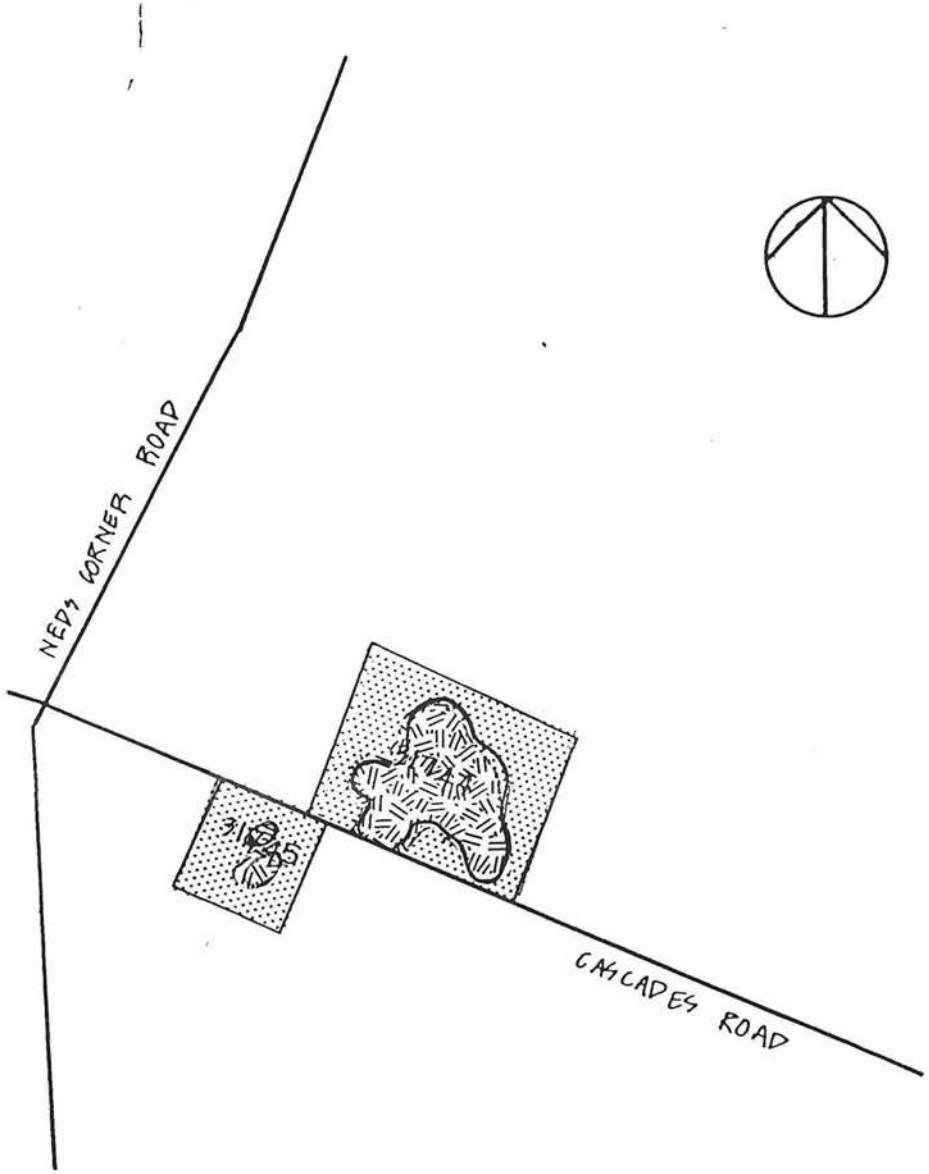
Shrub mallee / heath
This association occurs on the clay soils of the reserve surrounding the clay pan and comprises the majority of the reserves vegetation.

***Eucalyptus occidentalis* Woodland**
This association occurs within and surrounding the circular clay pan depression within the reserve.

Dominant species characterising vegetation asssociations from this reserve are listed in Appendix 2 of this report.

MAP 10 RESERVE 31744, CASCADES

31745



DENSE HEATH

OPEN SHRUB MALLEE / LOW HEATH

SHRUB MALLEE / HEATH

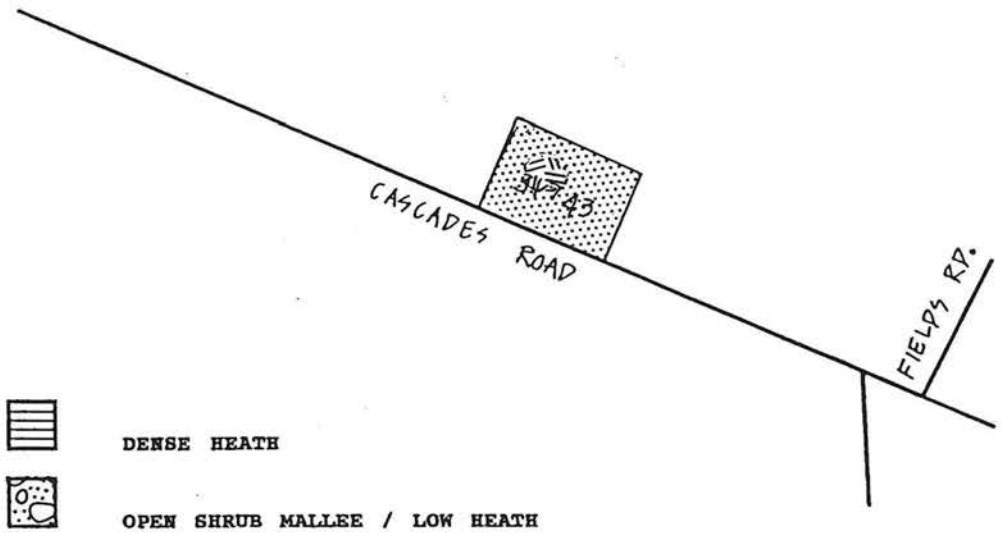
LOW FOREST

BROOMBUSH THICKETS

WOODLANDS

0 1 2 3 4 5km

MAP 11 RESERVE 31743, CASCADES



DENSE HEATH

OPEN SHRUB MALLEE / LOW HEATH

SHRUB MALLEE / HEATH

LOW FOREST

BROOMBUSH THICKETS

WOODLANDS

0 1 2 3 4 5km

Proposed Conservation Reserves Within Proximity (South Coast Region Management Plan 1992-2002)

RESERVE 31745, Conservation of flora and fauna. Unvested
This reserve is located within the Lort system (Beard 1973) and is on a gently undulating plain of little relief containing a large clay pan depression (Appendix 1). There are two vegetation associations within the reserve Shrub mallee/heath and *Eucalyptus occidentalis* Woodland (Map 10).

VEGETATION DESCRIPTION
Shrub mallee/heath
This association occurs on the clay soils of the reserve surrounding the clay pan and comprises the majority of the reserves vegetation.

***Eucalyptus occidentalis* Woodland**
This association occurs within and surrounding the circular clay pan depression within the reserve.

Dominant species characterising vegetation asssociations from this reserve are listed in Appendix 2 of this report.

RESERVE A31751 Park, unvested and A31750 Park, unvested
This reserve is located within the Lort system (Beard 1973) and comprises the native vegetation corridor along the West branch of the Young River. Two sites along this corridor were surveyed, these were at the River Road and Mills Road crossings.

River Road Crossing
Three vegetation association were noted at this location, Open shrub mallee/heath, Shrub mallee/heath and a Riparian association (Map 11). The vegetation was noted as healthy and long unburnt at this site. The river has only gently dissected the landscape and is a narrow feature at this point consisting of separated long pools.

Open shrub mallee/Low heath
This association was confined to the east side of the river where there are deep sand soils.

Shrub mallee / heath
This vegetation association was confined to the west side of the river where there are clay sand soils.

Riparian
This association is confined to the edges of the river banks and the immediate overflow areas alongside the river pools.

Dominant species characterising vegetation asssociations from this reserve are listed in Appendix 2 of this report.

Mills Road Crossings.
Three vegetation associations were noted at this location, Shrub mallee/heath, Broombush Thicket and a Riparian association (Map 12). The vegetation was noted as healthy and long unburnt at this site. The river has moderately dissected the landscape exposing the granite bedrock in numerous locations. The river is a wider feature at this point consisisting of long wide pools.

VEGETATION DESCRIPTION

Shrub mallee / heath

This association is present on the upper slopes of the valley flanks where there is depth to the soil.

Broombush Thicket

This association dominates the river valley vegetation at this location with vast areas of the valley flanks covered in a mature trees of *Allocasuarina huegeliana* and *Acacia acuminata*.

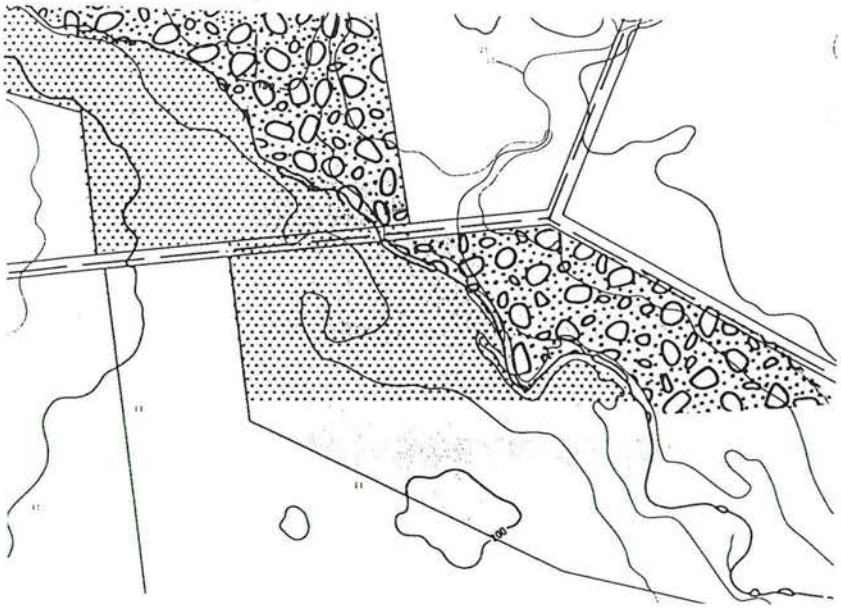
Riparian

This riverine association is confined to the river banks and overflow locations adjacent to the river bank.

Dominant species characterising vegetation asssociations from this reserve are listed in Appendix 2 of this report.

MAP 12 YOUNG RIVER CORRIDOR

RIVER ROAD CROSSING



DENSE HEATH

OPEN SHRUB MALLEE / LOW HEATH

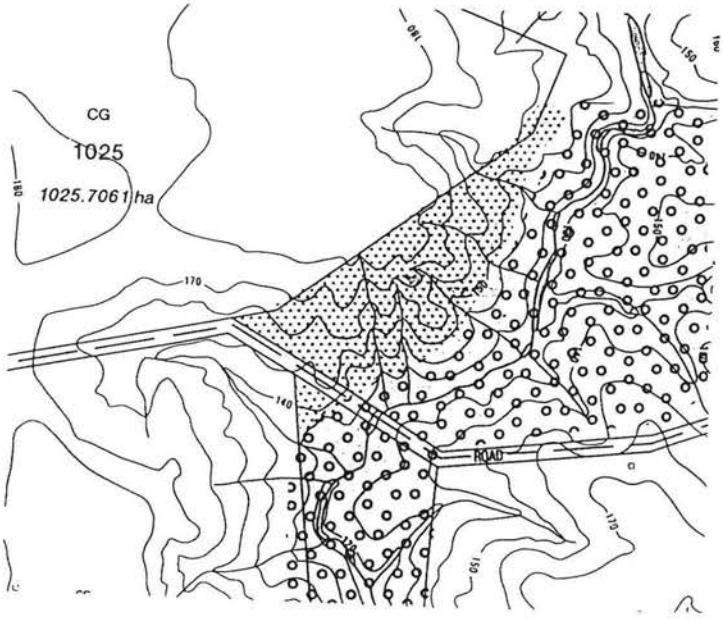
SHRUB MALLEE / HEATH

LOW FOREST

BROOMBUSH THICKETS

WOODLANDS

MILLS ROAD CROSSING



Comparison of Vegetation Occurrence

Assessment of the extent to which the vegetation on the areas proposed for clearing is represented in the existing or proposed conservation reserve system is presented in tables 1 & 2

Table 1 : Vegetation System Occurrence within Surveyed Nature Reserves and Private Property Locations

Vegetation Systems	Lort	Oldfield	Esperance
Private Property			
Locations 1015-1018	+		
Locatons 1087, 1097-99	+		
Location 1093	+		
Location 1090	+		
Existing Nature Reserves			
Cheadanup, Reserve 31754		+	
East Naemup, Reserve 31755	+		
West Griffiths, Reserve 30583	+		
East Griffiths, 30583	+		
Cascades, Reserve 31744	+		
Cascades, Reserve 31743	+		
Fields, Reserve 31742	+		
Proposed Nature Reserves			
Cascades, Reserve 31745	+		
Young River, Reserves 31750, 31751	+		

Table 2 : Vegetation Associations Occurrence within Surveyed Nature Reserves and Private Property Locations

Vegetation Association	A	B	C	D	E	F
Private Property						
Locations 1015-1018	+	+	+	+	+	
Locations 1087, 1097-1099			+	+	+	
Location 1090		+	+	+	+	+
Location 1093			+	+	+	
	+	+	+	+	+	
Existing Nature Reserves						
Cheadeanup, Reserve 31754						
East Naemup, Reserve 31755	+	+		+	+	
West Griffiths, Reserve 30583		+	+	+	+	
East Griffiths, 30583		+	+	+		
Cascades, Reserve 31744	+			+		
Cascades, Reserve 31743	+			+	+	
Fields, Reserve 31742	+		+	+	+	
	+			+		
Proposed Nature Reserves						
Cascades, Reserve 31745						
Young River, Reserves 31750, 31751	+	+	+	+	+	

A Woodland **B** Broombush thicket **C** Low Forest
D Shrub Mallee / heath **E** Open Shrub Mallee/heath **F** Dense Heath

Table 1 identifies that the locations surveyed, other than Cheadanup Nature Reserve, are all located within the Lort Botanical system (Beard, 1973). The vegetation associations and characteristic species likely to occur within the Lort Botanical system, as described by Beard (Appendix 1), are represented within existing reserves, proposed reserves and property locations surveyed (Table 2 and Appendix 2).

Although Table 2 records the occurrence of vegetation associations in the lands surveyed it does not indicate the extent to which the associations are represented over the different areas. The Blue mallee Open shrub mallee/Low heath is one association occurring in the Lort system not adequately represented in any large areas within existing or proposed conservation reserves in the local region (Maps 5-10). This association does, however, occur over considerable areas within Oldfields Locations 1017, 1018, 1090, 1093, 1098 and 1099 (Maps 2-4).

Oldfield location 1090 contains a Dense heath association which is not represented within the existing and proposed conservation reserves of the local region. This association is comprised of flora species not represented in the existing and proposed conservation reserves (Table 2).

Appendix 1- Botanical Systems, landform and Soil Descriptions

Eyre Botanical District

These following vegetation systems are units of the Eyre Botanical District.
A vegetation system is described by Beard (1973) as consisting of a particular series of plant communities recurring in a catenary sequence or mosaic pattern linked to topographic, pedological and or geological features. The following descriptions are extracts from Beards report on the Ravensthorpe 1:250 000 scale mapping sheet (Beard, 1973).

Lort system

The Lort system occupies the flat plain lying about the 180 metre and above sea level which succeeds the gently rising coastal plain of the Esperance system. This plain, due to its flatness is, winter-wet, the soil with its sand over clay to white clay nature becomes readily water logged in winter. Circular clay pans with internal surface drainage are a feature of the landscape. Six distinct vegetation association occur in this system, these are Scrub heath, Open shrub mallee/heath, Shrub mallee/heath, Low forest, Broombush thickets and *Eucalyptus occidentalis* Woodland.

Scrub heath
This association occurs on the crests of ridges of the original plateau where there are deep yellow sandy soils. Vegetation is characterised by the presence of *Grevillea excelsior*, *Casuarina acutivalvis, Banksia elderiana* and *Verticordia picta*.

Open shrub mallee / heath
This association occurs on the broad ridges where there is undissected remnants of the original duricrust surface. Soils are bleached white sandy clay admixtures. The vegetation is characterised by the open nature of the community with regular occurrences of *Eucalyptus tetragona*, *E tetraptera* and *E incrassata* over a thick heath of Proteacea species.

Shrub mallee / heath
This association in combination with the Low forest dominate the Lort system. The Shrub mallee/heath occurs on the "gilgai" white clay soils of the plain. There is generally a thin bleached sandy surface to these soils. Vegetation is typified by a cloth of mallee species, namely *Eucalyptus eremophila*, *E uncinata* , *E incrassata* and *E kessellii,* with an understorey of Melaleuca species forming a heath.

Low forest
This association as mentioned occurs in combination with the Shrub mallee/heath, however it tends to favour the heavier clay soil sites which have less sand surface to them.

The vegetation is typified by seedling regenerated thickets of low forest constituted of *Eucalyptus forrestiana, E stoatei* and *E platypus* with a limited understorey of scattered Melaleuca species.

Broombush thickets
This association occurs on the shallow skeletal soils over granite. Granite exposure does occur in the dissected river valleys of the Young and Lort Rivers, it is not a common feature though on the plain. Vegetation is typified by a thicket of *Allocasuarina huegeliana*, *Acacia acuminata* and *Calothamnus quadrifidus*.

***Eucalyptus occidentalis* Woodland**
This association occurs in two locations within this system, the first is in the valley floors and secondly surrounding the circular clay pan depressions on the plain surface. This Woodland occurs in virtually pure stands with no associated trees or shrubs and little ground cover.

Oldfield system

This system occurs where the old land surfaces have been extensively breached by the upper courses of rivers, giving rise to broken country with a close mosaic of different soil and vegetation types. This is principally the case in the headwaters of the Jerdacuttup and Oldfield Rivers, but is also seen on the Young and to a minor extent on the Lort. Six vegetation associations occur within this system, these are Scrub heath, Open shrub mallee/heath, Shrub mallee/heath, Low forest, Broombush thickets and *Eucalyptus occidentalis* Woodland.

Scrub heath
This association occurs on the crests of ridges of the original plateau where there are deep yellow sandy soils. Vegetation is characterised by the prescience of *Grevillea excelsior*, *Casuarina acutivalvis, Banksia elderiana* and *Verticordia picta*.

Open shrub mallee/heath
This association occurs on the broad ridges where there is undissected remnants of the original duricrust surface. Soils are bleached white sandy clay admixtures. The vegetation is characterised by the open nature of the community with regular occurrences of *Eucalyptus tetragona*, *E tetraptera* and *E incrassata* over a thick heath of Proteacea species.

Shrub malleeheath
This association in combination with the Low forest dominate the Lort system. The Shrub mallee/heath occurs on the "gilgai" white clay soils of the plain. There is generally a thin bleached sandy surface to these soils. Vegetation is typified by a cloth of mallee species, namely *Eucalyptus eremophila, E uncinata , E incrassata* and *E kessellii*, with an understorey of Melaleuca species forming a heath.

Low forest
This association as mentioned occurs in combination with the Shrub mallee/heath, however it tends to favour the heavier clay soil sites which have less sand surface to them. The vegetation is typified by seedling regenerated thickets of low forest constituted of *Eucalyptus forrestiana, E stoatei* and *E platypus* with a limited understorey of scattered Melaleuca species.

Broombush thickets
This association occurs on the shallow skeletal soils over granite. There are extensive occurrences of granite exposure in sheet form and as rocky formations on flanks of the heavily dissected river valleys of the Oldfield and Jerdacuttup Rivers. Vegetation is typified by a thicket of *Allocasuarina huegeliana, Acacia acuminata, Calothamnus quadrifidus* and scattered occurrences of *Eucalyptus perangusta.*

***Eucalyptus occidentalis* Woodland**
This association occurs on the valley floors in virtually pure stands with few associated trees or shrubs and little ground cover. They develop to form large open woodlands park like in nature.

Esperance system

This system is the sand plain rising gently from the coast to an altitude of around 180 metres above sea level inland to 30 kilometres from the coast. The surface of the plain is comprised of lateritic gravel sandy soils of varying depth over a layer of ironstone nodules on a mottled clay subsoil. Four distinct vegetation associations occur in this system, these are Dense Heath, Open shrub mallee/heath, Shrub mallee/heath and *Eucalyptus occidentalis* Woodland.

Dense Heath
This association occurs on the deeper sand soils of the plain and is characterised by the lack of *Eucalyptus tetragona* in favour of *Banksia speciosa, B baxterii, B coccinea, Lambertia inermis* and *Nuytsia floribunda* over a dense heath of predominantly Proteacea species.

Open shrub mallee/Low heath
This association occurs on the shallower sandy gravel soils than the previous association. The vegetation is characterised by the open nature of the community with regular occurrences of *Eucalyptus tetragona, E tetraptera and E incrassata* over an often thick heath of Proteacea species.

Shrub mallee/heath
This association occurs on the gravel clay soils of the valley slopes. It is characterised by the thick mallee community over a heath of Melaleuca species.

***Eucalyptus occidentalis* Woodland**
This association occurs on the valley floors in virtually pure stands with no associated trees or shrubs and little ground cover.

Appendix 2- Dominant Species Characterising Vegetation Associations in Area

Oldfield locations 1015-1018

Shrub mallee/heath
Mallee : *E uncinata, E incrassata, E leptocalyx, E Kessellii, E spathulata, E flocktoniae*

Heath : *Banksia media, Dryandra cuneata, D falcata, Hakea florida, H laurina, Melaleuca undulata, M glabberrimma, M pentagona, M uncinata, M scabra, Petrophile fastiagata*

Low forest
Eucalyptus eremophila, E kesselii, E spathulata, E platypus

Heath : *Melaleuca undulata, M glabberrimma, M pentagona, M uncinata, M scabra, M cucculata*

Broombush thicket
Acacia sp (broom), *Allocasuarina huegeliana, Calothamnus quadrifidus; Melaleuca acuminata, Eucalyptus anceps, E perangusta, Melaleuca glabberimma,*

Woodland
Eucalyptus occidentalis

Oldfield locations 1087, 1097-1099

Open shrub mallee/Low heath
Open shrub mallee : *Eucalyptus tetragona, E tetraptera, E incrassata*

Low heath : *Hakea trifurcata, H corymbosa, H prostrata, H florida, H cinerea, Isopogon longifolius, Leptospermum spinossum, Verticordia chrysantha*

Shrub mallee / heath
Mallee : *E uncinata, E incrassata, E leptocalyx, E Kessellii, E spathulata, E tumida*

Heath : *Beaufortia schaurii, Hakea florida, H laurina, Melaleuca undulata, M glabberrimma, M uncinata,*

Low forest
Eucalyptus eremophila, E kesselii, E spathulata, E platypus, E forrestiana, E quadrans

Broombush thicket

Acacia accuminata (broom), *Allocasuarina huegeliana, Calothamnus quadrifidus, Melaleuca acuminata, Eucalyptus anceps, E perangusta, Melaleuca glabberimma,*

Oldfield location 1090

Dense heath
Overstorey : *Dryandra sessillis, Lambertia inermis, Nuytsia floribunda*

Understorey : *Adenanthos cuneatus, Banksia violaceae, Caustis dioca, Allocasuarina humilis, Dryandra cirsiodes, D cuneatus, Hakea trifurcata, Isopogon trilobus, Petrophile media, Xanthorrhoeae platyphylla*

Open shrub mallee / Low heath
Open shrub mallee : *Eucalyptus tetragona, E tetraptera, E incrassata*

Low heath : *Goodenia scapegeria, Hakea trifurcata, H corymbosa, H prostrata, H florida, Isopogon longifolius, Leptospermum spinossum, Verticordia chrysantha*

Broombush thicket
Acacia sp (broom), *Allocasuarina huegeliana, Calothamnus quadrifidus, Melaleuca acuminata, Eucalyptus anceps, E perangusta*

Oldfield location 1093

Open shrub mallee / Low heath
Open shrub mallee : *Eucalyptus tetragona, E tetraptera, E incrassata, Banksia media*

Low heath : *Acacia ingratta, Dryandra pteridifolia, D aff nivea,Chamelacaucium megapetulam, Goodenia scapegeria, Hakea trifurcata, H corymbosa, H prostrata, H florida, H cinirea, H pandanacarpus, Isopogon longifolius, Leptospermum spinossum, L maxwellii, Melaleuca pentagona, M pulchella, M glabberrimma, Verticordia chrysantha*

Shrub mallee / heath
Shrub mallee : *E uncinata, E incrassata, E leptocalyx, E kessellii, E spathulata*

Heath : *Grevillea pectinata, Hakea laurina, Melaleuca uncinata, M glabberimma, M undulata*

Reserve 31754, Cheadanup

Open shrub mallee / Low heath
Open shrub mallee : *Eucalyptus tetragona, E tetraptera, E incrassata*

Low heath : *Banksia media, Callitris roeii, Davesia pachyphylla, Goodenia scapegeria, Hakea trifurcata, H corymbosa, H prostrata, H florida, Isopogon longifolius, Leptospermum spinosum, Verticordia chrysantha*

Shrub mallee / heath
Mallee :
Heath : *Dryandra cirsiodes, Hakea florida, Melaleuca undulata, M glabberrimma, M uncinata, M subtrigona, M pulchella, petrophile fastigata*

Low forest
Eucalyptus eremophila, E kesselii, E spathulata, E platypus

Broombush thicket
Acacia sp (broom), *Allocasuarina huegliana, Eucalyptus perangusta, Hakea commutata, Melaleuca acuminata, M glabberimma,*

Woodlands
Eucalyptus *occidentalis, Allocasuarina huegeliana, Melaleuca acuminata, M eluthrystachya*

Reserve 31755, East Naemup

Open shrub mallee / Low heath
Open shrub mallee : *Eucalyptus tetragona, E tetraptera, E incrassata*

Low heath : *Goodenia scapegeria, Hakea trifurcata, H corymbosa, H prostrata, H florida, Isopogon longifolius, Leptospermum spinossum, Verticordia chrysantha*

Shrub mallee / heath
Mallee : *E uncinata, E incrassata, E leptocalyx, E Kessellii, E spathulata, E tumida, E falcata*

Heath : *Acacia ingratta, Dryandra falcata, D pteridifolia, Grevillea nudiflora, Hakea trifurcata, Leptospermum maxwellii, Melaleuca undulata, M glabberrimma, M uncinata, M scabra, Petrophile fastigata*

Broombush thicket
Acacia sp (broom), *Allocasuarina huegeliana, Calothamnus quadrifidus, Melaleuca acuminata, Melaleuca glabberimma, M fulgens, M elliptica*

Woodland
Eucalyptus occidentalis

Reserve 30583, West Griffiths

Open shrub mallee / Low heath
Open shrub mallee : *EUCALYPTUS GROSSA, E TETRAGONA, E TETRAPTERA, E INCRASSATA*

Low heath : *Goodenia scapegeria, Hakea trifurcata, H corymbosa, H prostrata, H florida, Isopogon longifolius, Leptospermum spinossum, Verticordia chrysantha*

Shrub mallee / heath
Mallee : *E uncinata, E incrassata, E leptocalyx, E Kessellii, E spathulata, E flocktoniae*

Heath : *Melaleuca undulata, M glabberrimma, M uncinata, M scabra, M subtrigona*

Low forest
Eucalyptus eremophila, E kesselii, E spathulata, E platypus

Broombush thicket
Acacia sp (broom), *Allocasuarina huegeliana, Calothamnus quadrifidus, Melaleuca acuminata, M uncinata, Eucalyptus perangusta, Melaleuca glabberimma, Santalum spicatum*

Reserve 30583, East Griffiths

Shrub mallee/heath
Mallee : *E uncinata, E incrassata, E leptocalyx, E Kessellii, E spathulata*

Heath : *Melaleuca undulata, M glabberrimma, M uncinata*

Low forest
Eucalyptus eremophila, E kesselii, E spathulata, E platypus

Broombush thicket
Acacia sp (broom), *Allocasuarina huegeliana, Calothamnus quadrifidus, Melaleuca acuminata, Eucalyptus perangusta, Melaleuca glabberimma,*

Reserve 31744, Cascades

Shrub mallee / heath
Mallee : *E uncinata, E incrassata, E leptocalyx, E Kessellii, E spathulata, E forrestiana, E eremophila, E flocktoniae, E anceps*

Heath : *Melaleuca undulata, M glabberrimma, M uncinata*

Low forest
Eucalyptus eremophila, E kesselii, E spathulata, E platypus

Woodland
Eucalyptus occidentalis

Reserve 31743,Cascades

Open shrub mallee/Low heath
Open shrub mallee : *Eucalyptus tetragona, E tetraptera, E incrassata*

Low heath : *Banksia media, Hakea trifurcata, H corymbosa, H prostrata, H florida, Isopogon longifolius, Leptospermum spinosum*

Shrub mallee / heath
Mallee : *E uncinata, E incrassata, E leptocalyx, E Kessellii, E spathulata*

Heath : *Hakea cinerea, Grevillea pectinata, Melaleuca undulata, M uncinata, M scabra*

Woodland
Eucalyptus occidentalis

Reserve 31750 & 31751, Young River

Open shrub mallee / Low heath
Open shrub mallee : *Eucalyptus tetragona, E incrassata*

Low heath : *Goodenia scapegeria, Hakea trifurcata, H corymbosa, H prostrata, H florida, Isopogon longifolius,*

Shrub mallee/heath
Mallee : *E uncinata, E incrassata, E leptocalyx, E Kessellii, E spathulata*

Heath : *Melaleuca undulata, M glabberrimma, M uncinata*

Broombush thicket
Acacia sp (broom), *Allocasuarina huegeliana, Calothamnus quadrifidus, Hakea florida, Melaleuca elliptica, M glabberrimma, Eucalyptus anceps, E perangusta, E spathulata, Melaleuca glabberimma,*

Woodland
Eucalyptus occidentalis

Reserve 31745, Cascades

Shrub mallee / heath
Mallee : *E uncinata, E incrassata, E leptocalyx, E Kessellii, E spathulata, E forrestiana, E eremophila, E flocktoniae, E anceps*

Heath : *Melaleuca undulata, M glabberrimma, M uncinata*

Low forest
Eucalyptus eremophila, E kesselii, E spathulata, E platypus

Woodland
Eucalyptus occidentalis

Appendix 3- Vegetation Condition Scale

This following table has been adapted from Trudgeon (1990) for assessment of vegetation condition on these properties and reserves.

Vegetation Condition Scale

P = Pristine
Pristine or nearly so, no obvious signs of disturbance.

E = Excellent
Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.

VG = Very Good
Vegetation structure altered, obvious signs of disturbance.

G = Good
Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate to it.

D = Degraded
Basic vegetation structure severly impacted by disturbance. Scope for regeneration but not to astate approaching very good condition without intensive management.

CD = Completely Degraded
The structure of the vegetation is no longer intact and the area is completely or almost completely without native species.

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Appendix 4 Declared Rare and Priorityn Species Located Within Area of Study

Declared Rare Flora

Eremophila denticulata
Conostylis lepidospermoides

Priority 2 Species

Gastrolobium heterophyllum
Daviesia pauciflora
Davesia campephylla
Caladenia tentaculata

Priority 3 Species

Calandrinia porifera
Chorizema ulotropis