

DEPARTMENT OF CONSERVATION
AND LAND MANAGEMENT

Form C.L.M. 80B

To..... Mr Ken Wallace Como Research Office,
..... 21st April, 1986
..... Regional Manager Wheatbelt Western Australia
..... Katanning Reference-H.O.
..... Local /2TH:MW.....

SUBJECT:..... Dieback survey results Lake Magenta Nature Reserve.....

Dear Ken

Here are the results from Greg Keighery's and my dieback survey of Lake Magenta Nature Reserve (No. 25113) on the 8/4/86. Thanks for your assistance during our stay.

Yours sincerely

Tom Hill
Tom Hill
Assistant Forester

OBJECTIVES

The objectives of the survey were to:

1. Survey East Road and firebreaks for dieback infections
2. Identify and describe vegetation types and landforms most likely to sustain a dieback infection.
3. On the basis of points 1 and 2, make suggestions for appropriate road and firebreak maintenance.

RESULTS/OBSERVATIONS

The attached map shows the tracks and firebreaks surveyed for dying vegetation. The route was chosen to cover areas of most susceptible vegetation (especially along East Road) and the perimeter breaks where vehicle use is highest.

Detailed site descriptions were made in three areas, which were considered to be at high risk in comparison with other vegetation types. Data was obtained on vegetation type and species composition, topography and soil profile.

Disease presence

We saw no areas of dying vegetation. There were a few, isolated plant deaths, the result of recent ploughing and raking.

Conditions of roads

The approach road to Lake Magenta Reserve (East Road) is well constructed, incorporating culverts, table and cross drains.

Within the reserve, East Road reverts to a track of gravelly sand and clay with considerable along-road drainage and some ponding.

Though obviously "dirty", the track's eroded surface reduces its use. Use is further discouraged by closure of the Lake Magenta section each winter.

The firebreaks have various surfaces of sand, loam, gravel and clay, though sandy surfaces predominate.

Vegetation, Topography and Soils.

The reserve is flat or gently undulating and mostly underlain by duplex soils. Depending on the amount of erosion, surface soils range from sand to sandy gravel to clay. A typical soil profile supporting Mallee or Mallee heath vegetation would consist of 15-25cm of yellowish orange, loamy sand over a thin (10cm) horizon of gravel. Below this there is an abrupt transition to dull yellow-orange, sandy clay.

The reserve is predominated by a variety of Mallee associations. The likelihood of establishment of a dieback infection is minimal because the understorey, when significant, is dominated by the Myrtaceae. Even fewer susceptible species are found in the Yate (E. Occidentalis) and Salmon gum (E. salmonophloia) woodlands.

The only vegetation type that may be susceptible is the E. tetragona Mallee-heath which contains substantial numbers of Proteaceous shrubs, namely Banksia media, Hakea multilineata, Dryandra pteridifolia, Isopogan polycephalus and Adenanthos argyraea.

Sizeable patches of Mallee-heath vegetation occur within the reserve, mainly in the south west corner and once along East Road.

Detailed information on the 3 Mallee-heath study sites is attached.

ASSESSMENT

It is difficult to predict the susceptibility of the reserve's Mallee-heath vegetation. Normally, the presence of an impeding clay layer heightens disease risk by ponding water and promoting lateral sub-surface flow. However, the reserve's even topography and low annual rainfall (~370mm) reduces this likelihood. Also, species abundance, especially of the Proteaceae, is much lower than for coastal heaths. Presumably, inoculum levels would remain low. Introduction and establishment of the fungus would most likely occur in the Mallee-heath community on East Road.

As mentioned earlier, the road's present state of disrepair, limiting use to the summer months, may well be advantageous.

Ploughing of firebreaks is not recommended. The deep ripping action would not only spread the fungus but also favours its survival in buried roots and plant material. Grading or use of herbicides is preferable.

The overall impression we gained was that the reserve is not threatened by dieback. A combination of factors is involved:

- lack of susceptible plant communities
- low rainfall
- minimal use
- isolation from the south coast (only by farm access roads)

The borderline conditions for establishment of P. cinnamomi are probably not met in the reserve, however a conservative strategy should be adopted. Areas to the south, such as Cockerup reserve (No. A26793) and the northern tip of the Fitzgerald River National Park, should be investigated to help delineate a boundary for dieback activity on the south coast.














1. A 25113

LAKE MAGENTA NATURE RESERVE

AREA: 94,170-3429 Ha.

SCALE 2 km

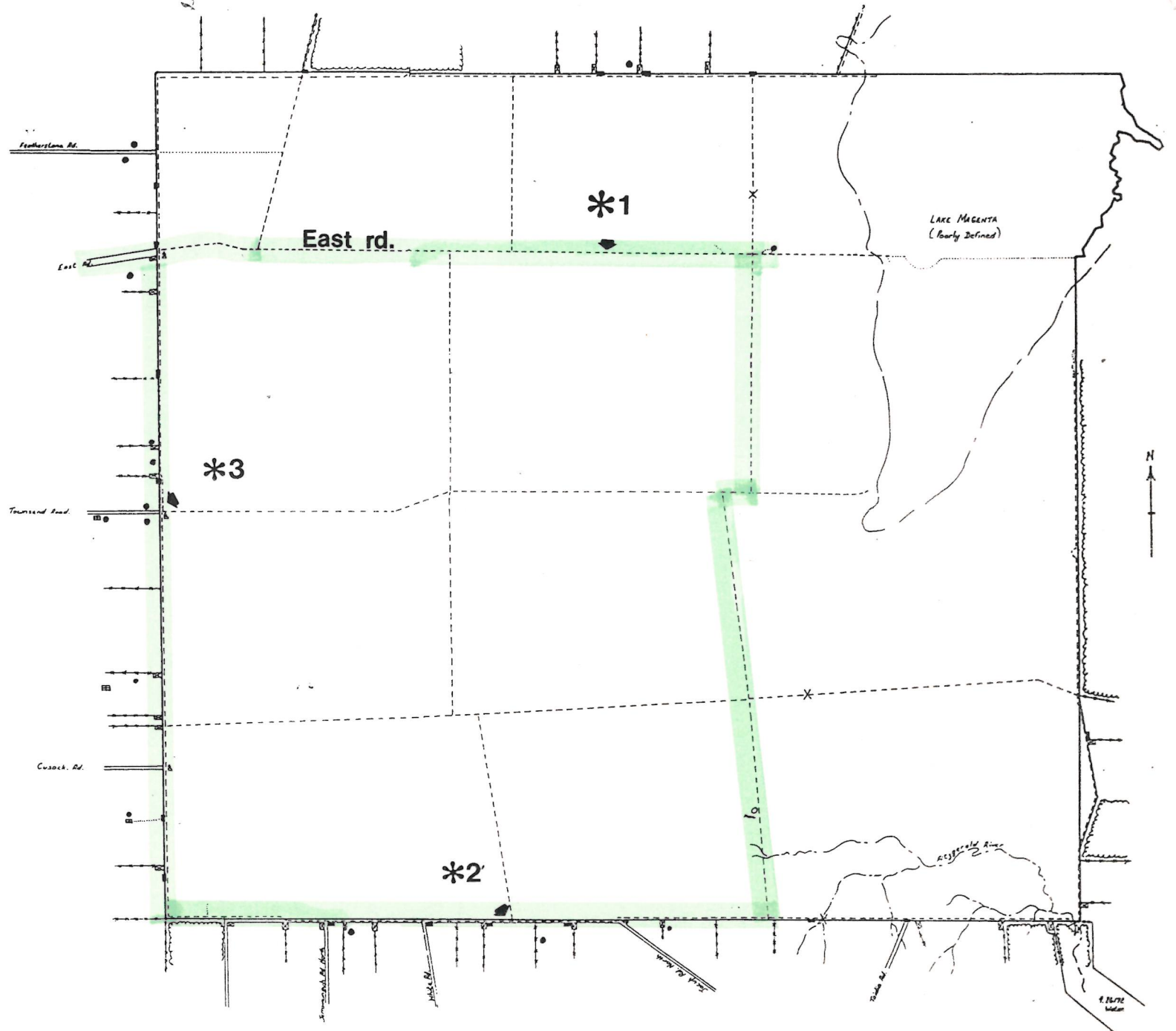
LEGEND

-  Reserve Boundary
-  Road Reserve
-  Firebreak
-  Track
-  Fenceline
-  Gate onto Reserve
-  Gate: Private Access
-  Dam
-  Farm House / Buildings
-  Watercourse
-  Difficult Access (Varies with Seasonal Conditions)
-  Bushland Adjoining Reserve
-  Nature Reserve Sign

Surveyed tracks

Study sites

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STUDY SITES

Site: Lake Magenta 1

Location: East rd, 6.3km west of the Government dam.

Vegetation type: Eucalyptus tetragona mallee over low open heath.

Soil profile:

Depth (cm)	Horizon	Description
surface		scattered, weathered gravel. Discontinuous surface crust.
0-12	A1	yellowish brown clayey sand.
12	A2	60% gravel within a matrix of bright yellowish brown, clayey sand. Limonite gravel contains a central clast of quartz fragments and sand.

Principle Profile Form = Dy 1. - -
 From the method of K.H. Northcote, Factual key for the
 Recognition of Australian Soils. 1979. Rellim.

Species composition:

Species	Life form/ size class	%Contribution to this class
<i>Allocasuarina pinaster</i>	SA/SB	60
<i>Hakea multilineata</i>	SA/SB	10
<i>Hakea</i> sp I	SA/SB	5
<i>Hakea</i> sp II	SA/SB	5
<i>Santalum murrayanum</i>	SA/SB	2
<i>Petrophile ericifolia</i> SA/SB	2	
<i>Persoonia striata</i>	SA/SB	2
<i>Persoonia</i> sp	SA/SB	2
<i>Melaleuca uncinata</i>	SA/SB	2
<i>Exocarpus sparteus</i>	SA/SB	2
<i>Grevillea aff hookerana</i>	SA/SB	5
<i>Dryandra armata</i>	SA/SB	2
<i>Dryandra</i> sp	SA/SB	2

Species	Life form/ size class	%Contribution to this class
Dryandra erythrocephala	SC	5
Daviesia sp	SC	5
Dryandra pteridifolia	SD	90
Synaphaea sp	SD	2
Petrophile teretifolia	SC	5
Hakea ? falcata	SC	10
Hakea pritzellii	SC	10
Boronia crassifolia	SD	2
Olx benthamiana	SC	3
Adenanthos argyraea	SC	20
Oxylobium sp	SC	4
Isopogon ? polycephalus	SC	20
Leptospermum spinesceus	SC	20
Drummondita hassellii	SD	2
Lepidosperma sp	VL	9
Caustis dioica	VL	60
Lomandra mucronata	VL	10
Chamaexeros serra	VL	10
Calectasia grandiflora	VL	10

Site: Lake Magenta 2

Location: Junction of South Perimeter firebreak and left middle firebreak.

Landscape: flat sandplain

Vegetation type: Open shrub mallee over mid-dense heath.

Soil profile:

Depth (cm)	Horizon	Description
surface		discontinuous surface crust
0-4	A1	greyish, yellow brown sand.
4-30	A1	48% gravel in a matrix of dull yellow orange sand. Conglomerate gravel bonded with limonite. Clasts of sand bonded with haematite.
30>	B	dull, yellow orange sandy clay

Principle Profile Form Dy 1.5-

Species composition:

Species	Life form/ height	% contribution to this class
<i>Eucalyptus tetragona</i>	KS	60
<i>Eucalyptus redunca</i>	KS	24
<i>Eucalyptus eremophila</i>	KS	15
<i>Banksia media</i>	SB	70
<i>Banksia caleyi</i>	SB	29
<i>Melaleuca holosericea</i>	SC	85
<i>Dryandra calophylla</i>	SC	4
<i>Isopogon trilobum</i>	SC	5
<i>Hakea prostrata</i>	SC	5
<i>Calectasia grandiflora</i>	VL	99

Site: Lake Magenta 3

Location: Junction of west boundary firebreak and middle firebreak.

Landscape: Flat sandplain

Vegetation type: Mapped as scrub heath on Management Plan but is very open shrub mallee over low mid-dense heath.

Soil Profile:

Depth	Horizon	Description
surface	-	occasional weathered gravel, surface crust.
0-5	A1	greyish, yellow brown sand.
5-31	A2	51% gravel in matrix of loamy sand. Gravel of bonded sand. Laminations of limonite and other iron oxides.
31-	B	orange, sandy clay with red mottles.

Principle Profile Form

Dy 1.2-

Species composition:

Species	Life form/ size class	% contribution to this class
Eucalyptus tetragona	KS	95
Eucalyptus redunca	KS	2
Eucalyptus eremophila	KS	2
Banksia media	SB	60
Hakea multilineata	SB	39
Dryandra cirsioides	SC	2
Banksia caleyi	SC	2
Melaleuca uncinata	SC	2
** Melaleuca holosericea	SC	80
Melaleuca sp	SC	2
Oxylobium parviflorum	SC	2
Leptospermum spinescens	SC	2
Bossiaea spinescens	SC	2
Platysace commutata	SC	1
Isopogon buxifolius	SC	3
Harperia lateriflora	VL	99