

A
FLORA
AND
VEGETATION
SURVEY
OF
'DONGOLOCKING SPRING RESERVE'
[RESERVE NO. 26005]

by
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A flora and vegetation survey of
Dongolocking Spring Reserve : reserve
no. 26005 / by Anna Napier for Dept.
Conservation and Land Management



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for

DEPARTMENT OF PARKS AND WILDLIFE

Dept. Conservation and Land Management

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1.0 INTRODUCTION

1.1 LOCATION

Dongolocking Spring Reserve (Reserve No. 26005) was created in July 1961 for the purpose of 'Recreation', presumably because of the small spring which arises within it. In 1983 the purpose was changed to the 'Conservation of Flora and Fauna' and the reserve vested in the Western Australian Wildlife Authority. It lies approximately 26 km north north-east of Dumbleyung (the nearest town) and is part of the Dongolocking group of nature reserves. Botanically it falls in the Avon District of the South-West Botanical Province, as defined by Beard (1980). A minor gravel road runs along two miles of the reserve.

1.2 REGIONAL AGRICULTURAL CLEARING

Much of the area surrounding Dumbleyung was originally taken up as pastoral leases by 1870 but it was not until the railway line reached Dumbleyung in 1907 that freehold agricultural land began to be taken up and cleared. It is likely then that prior to 1961 the Dongolocking Spring Reserve, may have been used for some time as a watering place in the winter and spring months and the central area, cleared deliberately or by grazing stock, as early as the turn of the century. The reserve is surrounded by cleared land, with the exception of a small area of bushland which adjoins the north-west corner.

1.3 PHYSICAL FEATURES OF THE RESERVE

The reserve is approximately 85 hectares in area and is at a height of about 320 metres above sea level. It is fairly flat with the central portion being slightly lower. A small creek known as Dongolocking Spring arises from the central, southern part of the reserve. In the southern quarter it has cut a channel up to one metre deep and two to three metres wide, on a north -

south bearing. The creek is 'summer-dry' and has little effect on the surrounding vegetation. A second small creek coming from the north of the reserve ends in a small dam near the northern boundary.

1.4 FENCES AND GRAVEL PIT

The entire reserve is fenced (4-strand). The remains of a fence surround two sides of this dam and two disused metal tanks are also present.

A wide, but disjunct gravel pit occurs in the south-east corner in an area of *Eucalyptus longicornis* / *Casuarina obesa* woodland. The trees have been left standing and the gravel removed from around them to a depth of approximately one metre. Gravel removal appears to have ceased.

1.5 CLIMATE

Dumbleyung has recorded an annual average rainfall of 401 mm. This occurs primarily in winter with 65% of precipitation in the months from May to September (Bureau of Meteorology, 1986). An average of 91 raindays per year are recorded with at least two raindays occurring in each month. It is likely that Reserve 26005 receives slightly less rainfall than Dumbleyung as it is north and east of the town. The temperature regime is one of mild winters and hot summers. At Lake Grace, some 50 kms to the east, mean maximum temperatures rise to 31.9°C in January with mean maximums in July being 15.8°C. Very cold winter minimum temperatures may be experienced with occasional light frosts occurring, especially in low lying areas.

1.6 SOIL TYPE

The soils of the outer parts of the reserve are hard setting loams with mottled yellow, clayey subsoils. In the central, lower lying part of the reserve the soils are poorly drained sandy clay loams, which also dry hard in summer.

1.7 FIRE AND GRAZING

The area appeared not to have been burnt for a considerable period of time. Many individuals of *Acacia acuminata* (Jam) were senescent, especially in the *Eucalyptus longicornis* woodland. Grazing was noted to be very heavy, presumably from kangaroos and rabbits, with the central, open woodland being particularly well used.

2.0 METHODS AND LIMITATIONS

Reserve 26005 was traversed on foot on April 18, 1986. Using a black and white aerial photograph at a scale of 1:15,000 areas of varying shade and texture were examined and their flora and structure recorded. Because of the small size of the reserve a fairly complete coverage of the area was possible. Vegetation site descriptions based on Muir (1977) were compiled.

The flora survey was carried out in conjunction with the vegetation survey. Plant specimens not identifiable in the field were collected and matched with specimens at the Western Australian Herbarium.

The timing of the work in Autumn resulted in a lack of identifiable material from a number of herbaceous species including grasses, introduced and natural herbs and possibly orchid species.

3.0 FLORA

Only twenty plant species were observed and of these five are introduced (see Appendix 1). This low number of species is a reflection of the small size of the reserve and its uniform soils and vegetation. Of the native species none were rare or geographically restricted. It is likely that examination of the reserve in Spring would result in the collection of extra herb species in the Asteraceae and perhaps Orchidaceae families at least. Five Gazetted Rare orchid species are found within 50 kms of the reserve and three of them (*Caladenia gemmata* forma *lutea*, *Caladenia triangularis* and *Thelymitra fuscolutea* var. *stellata*) generally occur in habitats similar to those available there.

One species of interest observed was the Sandalwood (*Santalum spicatum*). Only three individual trees were noted, the tallest being 3.5 metres high and quite old and spreading. The populations of this species have been diminishing in many areas throughout its range due to clearing for agriculture and cutting of the pungent wood for export.

4.0 VEGETATION

4.1 INTRODUCTION

The vegetation of the reserve consists of three forest/woodland associations with different dominants. These are *Eucalyptus loxophleba* (York Gum), *E. longicornis* (Morrel) and *E. salmonophloia* (Salmon Gum). The most common type, York Gum woodland, has a significant lower tree layer of *Acacia acuminata* (Jam) and all three associations have very open ground layers, largely of introduced and native grasses, the introduced ones being annual species. The three associations are detailed below and their distribution in the reserve shown graphically on Map 1.

Many areas of *Acacia acuminata* contained senescent trees and these provided a relatively dense litter layer of old trunks and branches.

4.2 VEGETATION ASSOCIATIONS

1. *Eucalyptus salmonophloia* (Salmon Gum) WOODLAND - OPEN FOREST

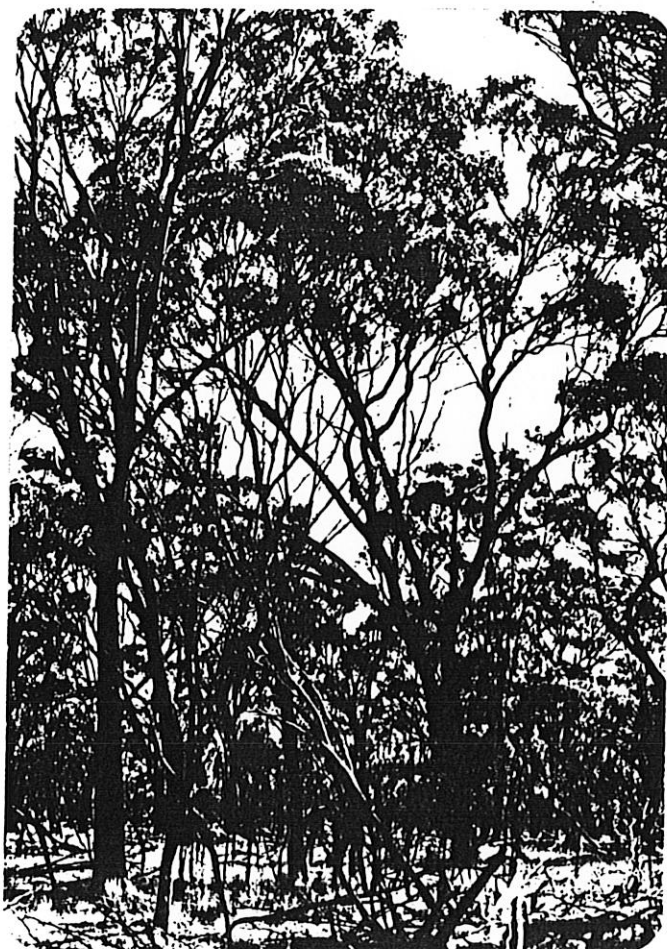
This association has *Eucalyptus salmonophloia* to 20 m and 20-50% cover, over scattered plants and isolated stands of *Hakea* sp. [AN773] to 3.5 m. Occasional trees of *Eucalyptus loxophleba* (10-14 m) are also present. Occasional shrubs of *Temetletonia sulcata* (1.5 m) and *Acacia* sp. [AN774] emerge from a dense ground cover, predominantly made up of grasses including *Stipa elegantissima* (5%), patches of wild oats (*Avena* sp.) to 80% cover together with the herb *Lomandra effusa*.

Muir Description - Woodland/Forest over Open Low Grass on brown loam. (Site 1)

Comment - This type only occurs in the north-east corner of the reserve.

2. *Eucalyptus longicornis* (Morrel) OPEN FOREST

Eucalyptus longicornis to 24 m is the dominant tree species with a canopy cover of 30-40%. This occurs in most of the association over mature to senescent Jam (*Acacia acuminata*) to 4 m and < 5% cover (living trees only). The ground cover is usually native (*Stipa elegantissima*, *Stipa* sp.) and introduced grasses (*Alvaca* sp.) < 0.5 m tall and with 30-40% cover and including species of Asteraceae. (Photograph 1).



Photograph 1 - *Eucalyptus longicornis* Open Forest [Site 5]

Muir Description - Forest over Open Low Woodland B over Open Low Grass on gravelly brown loam. (Sites 4 and 5)

Comments - This type is found on the southern and western sides of the reserve.

3. *Eucalyptus loxophleba* (York Gum) OPEN WOODLAND - WOODLAND

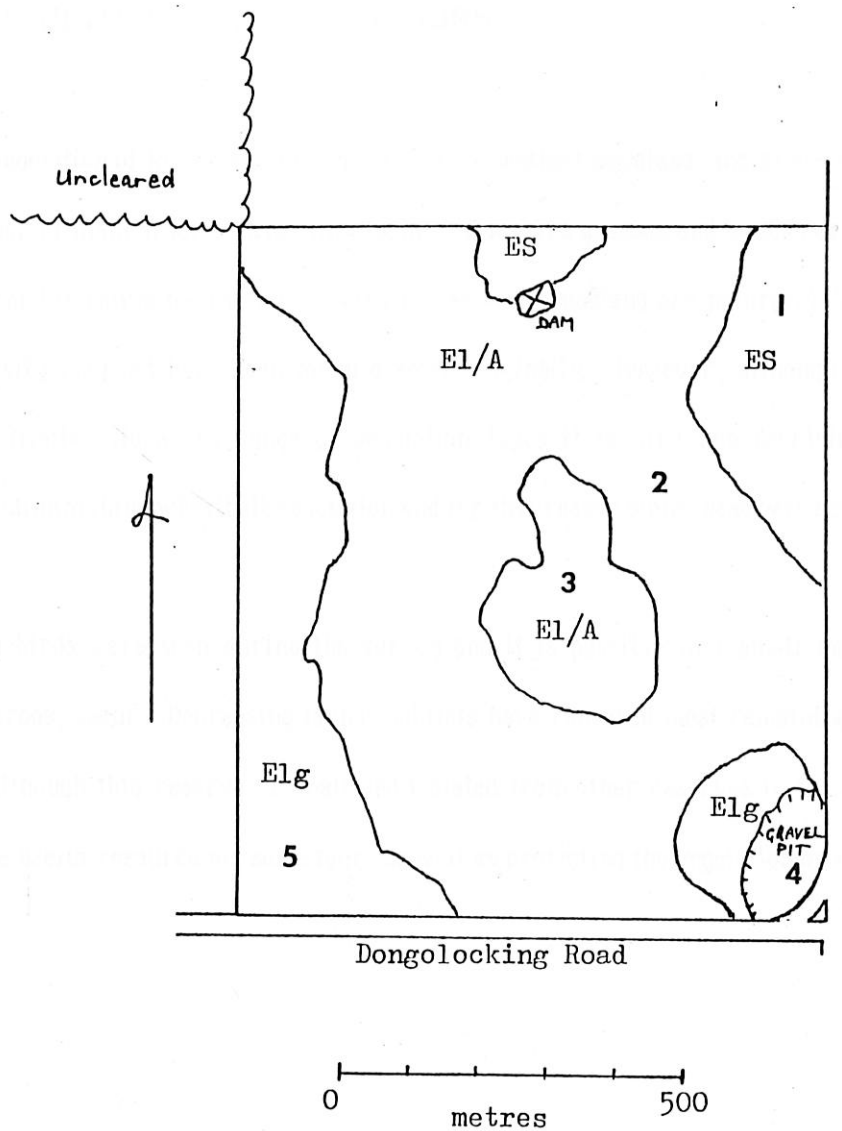
This association has variable densities and dominance of *Eucalyptus loxophleba* (14-16 m, 1-20% cover) and *Acacia acuminata* (6m, 20-80% cover). The patches of Jam can be very dense but in the centre of the reserve the vegetation is very sparse and may have a cover of only 5%. Occasional *Acacia microbotrys* (4 m) and *Hakea* sp. [AN773] (6 m) occur as well as a small stand of *Santalum spicatum* (Sandalwood). Ground cover is mostly native and introduced grasses including *Stipa* sp., *Araena* sp. and *Vulpia* sp. with the asteraceae *Waltzia acuminata* (Photograph 2)



Photograph 2 - *Eucalyptus loxophleba* Woodland [Site 2]

Muir Description - Low Woodland A / Low Forest A over Dense Low Grassland / Dense Herbs on grey-brown sandy loam. (Sites 2 and 3)

Comments - This association covers the majority of the reserve, particularly the central area but varies considerably in density. Open areas are heavily grazed.



Site Nos. 2, 3

Elg = Eucalyptus longicornis

ES = Eucalyptus salmonophloia

El/A = Eucalyptus loxophleba/Acacia acuminata

5.0 SUMMARY AND CONCLUSIONS

The vegetation of Reserve 26005 is typical 'wheatbelt woodland' and as such has a very limited number of plant species. The introduction of pasture grasses and weeds has probably displaced some of the native herbaceous species but as such woodlands are naturally depauperate, species diversity may not have been much greater originally. However, although this reserve has a very limited flora and range of vegetation types it is still representative of some of the ever-diminishing wheatbelt vegetation and for that reason alone, deserves reserve status.

Many birds were seen during the survey and it is possible that small mammals, as well as kangaroos, occur. Decreasing faunal habitats have rendered most remaining bushland valuable and although this reserve is small and isolated from other reserves in the area it is probably still a useful resource for some fauna as well as protecting the vegetation on it.

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APPENDIX ONE

FLORA LIST - RESERVE 26005 'DONGOLOCKING SPRING RESERVE'

POACEAE

- * *Aira cupaniana*
- * *Avena* sp.
- * *Briza maxima*
- Stipa elegantissima*
- Stipa* sp.
- * *Vulpia* sp.

LILIACEAE

Lomandra effusa

CASUARINACEAE

Casuarina obesa

PROTEACEAE

Hakea sp. [AN773]

SANTALACEAE

Santalum spicatum

MIMOSACEAE

Acacia acuminata
Acacia bidentata
Acacia microbotrya

PAPILIONACEAE

Templetonia sulcata

MYRTACEAE

Eucalyptus longicornis
Eucalyptus loxophleba
Eucalyptus salmonophloia

ASTERACEAE

Podolepis capillaris
Waitzia acuminata

Family indeterminate (1 introduced species)

* = introduced species