1 INTRODUCTION TO YORNANING NATURE RESERVE

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Location and History

Yornaning Nature Reserve, No. A 18952, lies about 12 km west-north-west of Wickepin in the western-central Great Southern Agricultural District. It is named after Yornaning railway siding 18 km west of Yornaning Nature Reserve, occupies location Nos 70, 418, 439, 453 and 460 in the Shire of Wickepin and is shown on Lands and Survey Lithograph No. 2332—I & II (Woyerling and Yilliminning). Total area of the Reserve is 248 ha.

The land which is now Yornaning Nature Reserve was set aside for timber (mallet growing) in July 1925 and vested in the Minister for Lands. In 1961 an application was made for locations 418, 439, 453 and 460 to be made available for agriculture. A report by Warden Bowler on 13 December 1961 stressed the value of the Reserve for conservation. On 18 May 1962 the Reserve was gazetted for Conservation of Fauna and vested in The Fauna Protection Advisory Committee (now known as Western Australian Wild Life Authority).

In February 1970 Warden D.J. Mell carried out a brief survey and recorded five species of birds as well as making some notes on the vegetation. As far as is known no further studies were made until the Western Australian Museum survey during 19-27 April and 5-12 September 1975.

Physiography and Basic Geology

Yornaning Nature Reserve is situated on the granites and granitic gneisses of the Yilgarn Block. The present surface geology of the Reserve consists of exposed granites, pallid zone clays, laterites, and residual sands over pedogenic laterites. A contour map **(Fig. 1)** illustrates the flat nature of the Reserve. The highest part of the Reserve is 430 m above sea level and the lowest is 400 m above sea level. It therefore lies within an altitudinal range of 30 m. Two vegetation formations are well represented on Yornaning Nature Reserve—woodlands on granitic soils, pallid zones and breakaways; and heaths on laterites and sand over laterites.

Fire History

No records of fire are available except that Warden J. Noble in letter dated 23 August 1974 said that the Reserve had not been burnt since 1952 or 1954. Examination of aerial photographs taken in April 1962 and December 1972 show little discernable difference. From this it would seem that the Reserve has remained unburnt for a longer period than suggested by Noble. This is supported by a local farmer (Pauley) who considers that the Reserve has been unburnt for about 40 years.

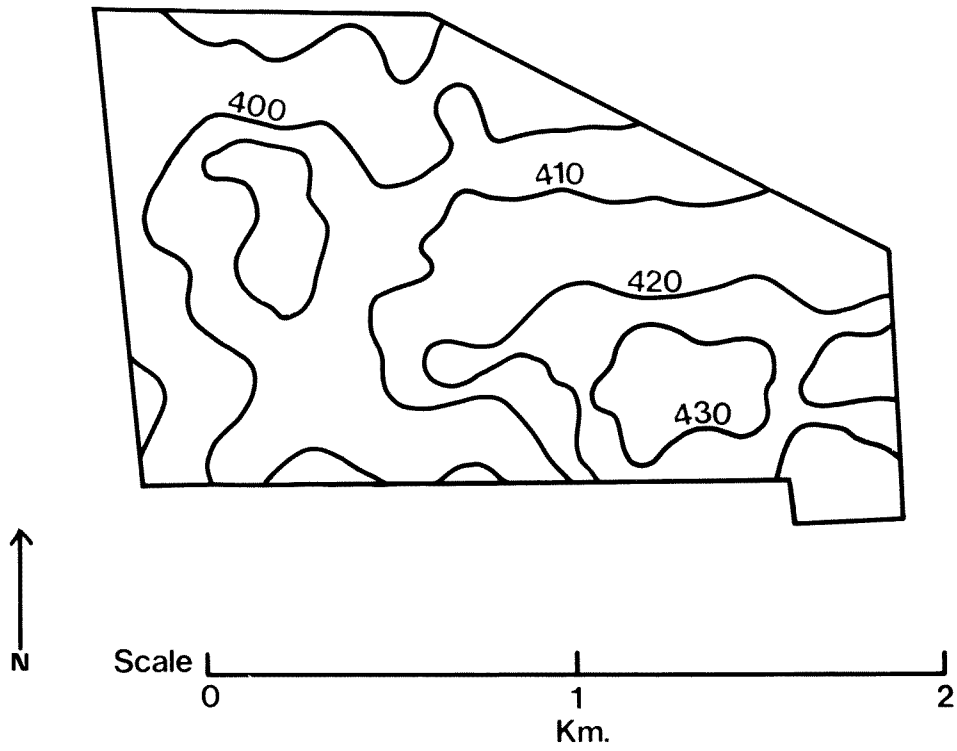

Fig. 1: Yornaning Nature Reserve showing contours. Reproduced from Lands and Survey Lithograph No. 2332-I, II. Contours in 10 m intervals.

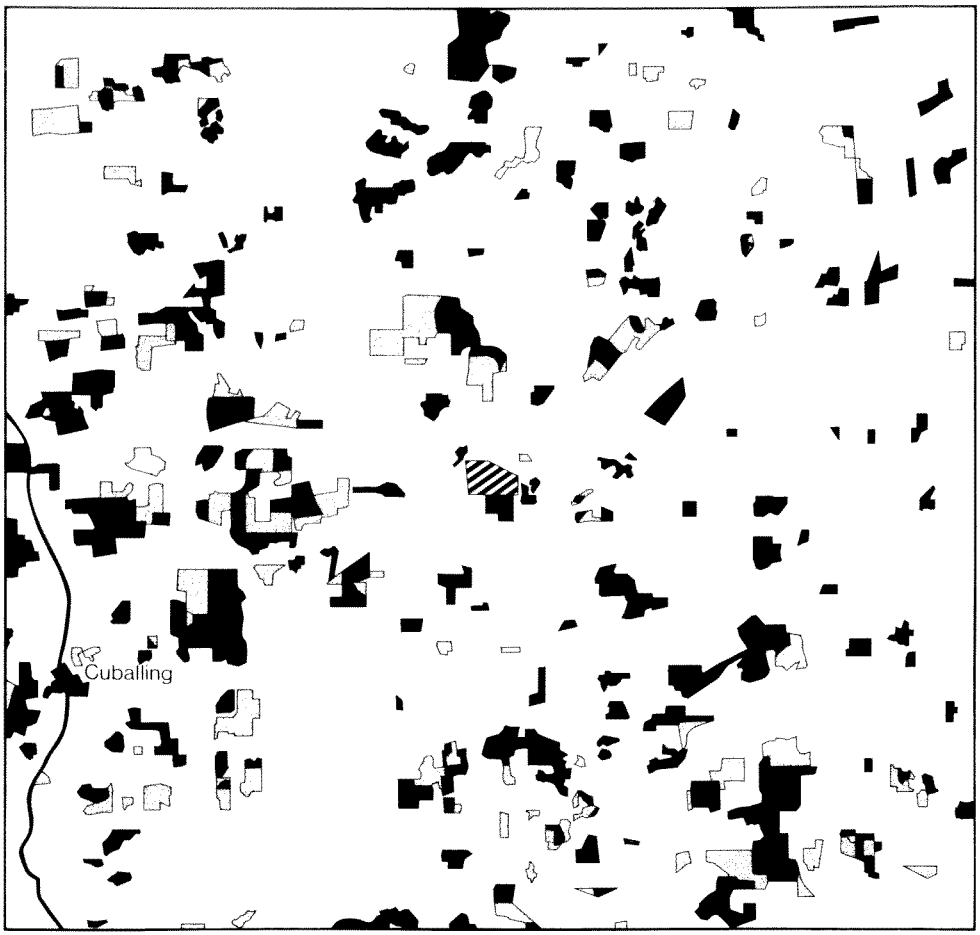

Fig. 2: Map showing amount of uncleared land in a 20 km radius of Yornaning Reserve. Map drawn from aerial photographs taken in April 1962 and December 1972.

The vegetation is predominantly immature with considerable evidence of old fires, particularly in woodlands.

In September 1976, 9 km of 6 m wide firebreaks were constructed around the entire Reserve boundary with two north-south breaks across the Reserve.

Isolation

The Reserve is completely isolated by cleared farmland. Air photographs taken in 1962 and 1972 show that the only contiguous uncleared land is a small area of mainly woodland, totalling *ca* 210 ha, on the southern edge of the Reserve. **Fig. 2** drawn from air photographs taken in 1962 and 1972 shows amount of uncleared land in a radius of *ca* 20 km from the external boundary of the Reserve. Patches of uncleared land are small and interspersed with paddocks. It is difficult to calculate percent of uncleared land because the map is too small to show small uncleared areas, nor does it show the extent of road-verges. However, the amount of uncleared land in 1962 was *ca* 8%; this was reduced to *ca* 6% by 1972.

Climate

Data are extracted from a regional climatic survey (Anon. undated). Data is used for Wickepin, *ca* 12 km east of the Reserve.

Rainfall: Mean yearly rainfall is 420 mm of which 329 mm falls in April to September **(Table 1).**

J	F	M	A	M	J
10 (30)	15 (76)	18 (71)	27 (50)	57 (83)	80 (58)
J	**A**	**S**	**O**	**N**	**D**
75 (42)	55 (34)	35 (35)	25 (26)	12 (30)	12 (81)

TABLE 1

The mean monthly rainfall (and the highest daily rainfall recorded in each month in brackets).

From **Table 1** it can be seen that the heaviest daily falls occur in December and from February to June, and the lightest falls in October, November and January. Anon (*op. cit.*) shows that falls in May to August are more reliable, and these months have the highest totals.

Humidity: No figures are available for Wickepin. The nearest recording station is Corrigin, *ca* 75 km northeast of Yornaning Nature Reserve. Here the average index of mean relative humidity is 59% (compiled over 13 years). The highest humidity is in June (79%) and the lowest is December and January (42%). At Katanning (*ca* 100 km south of Yornaning Nature Reserve) the average index of mean relative humidity is 68% (data over 57 years).

Evaporation: No data is available for the area but an estimate from charts in Anon (undated) is 1375 mm.

Temperature: Mean daily maximum temperature for the year at Narrogin (*ca* 20 km southwest of Yornaning Nature Reserve) is 22.2°C, and mean daily minimum temperature is 8.9°C. The mean temperatures for each season are: autumn (March to May) 16.4°C; winter (June to August) 11.4°C; spring (September to November) 16.6°C; and summer (December to February) 21.4°C. Mean daily maximum for the coldest month is 5°C in August. The highest recorded temperature is 43.7°C in January and the coldest is -3.3°C in September. An average of 7 days of frost are recorded each year, these occur between May and October. The earliest recorded frost is 25 April and the latest is 11 December.

Winds: Data in Anon (undated) show that generally the strongest winds at Corrigin occur from December to March. During this period the highest number of wind recordings were in the 13-18 kph grouping and were from the east or southeast. During winter (May to August) winds were lighter and more variable, although the most frequent readings were from the west or northwest.

Biological Survey

From 19-27 April 1975 a Museum Survey team consisting of D.J. Kitchener (19-20 April), K.D. Morris, M. Jackson and G. Harold examined the Reserve. They used 10 mammal traplines (for location see Muir, this report), collected reptiles and made observations on birds. Morris, Jackson and Harold did a repeat survey during 5-12 September 1975. Dell recorded birds on the Reserve during 24-25 April 1975, 11-12 September 1975 and 13 February 1977. Muir recorded the vegetation during 11-12 September 1975 and 13 February 1977.

Results of the above surveys are included as separate papers in this report.