I INTRODUCTION TO DUROKOPPIN AND KODJ KODJIN NATURE RESERVES

B.G. MUIR

Location and History

Durokoppin Reserve (DR), A22921 is located *ca* 26 km due north of Kellerberrin approximately between lat. 117°42'E and lat. 117°48'E and long. 31°23'30"S and long. 31°25'30"S. It has an area of 1030 ha. Named after Durokoppin Well, situated *ca* 1.5 km NW of the Reserve, DR occupies Lands Department Locations no. 27312 and 18417 on lithographs no. 2435-11 and 2435-111 in the Shire of Kellerberrin. The Reserve was Crown Land until 27 August 1971 when it was declared an A-class reserve for Conservation of Flora and Fauna and vested in the Western Australian Wildlife Authority.

Kodj Kodjin Reserve (KKR), C23138 is located *ca* 20 km due N of Kellerberrin, approximately between lat. 117°47'E and lat. 117°49'E and long. 31°27'S and long. 31°28'S. It has an area of 204 ha. Named after Kodj Kodjin Well *ca* 13 km N of the Reserve, KKR occupies Lands Department Location no. 17794 on lithograph no. 2435-11. The Reserve was for 'Natives' and vested in the Minister for Lands until 12 November 1954 when it was declared a C-class Flora Reserve and put under the control of the Kellerberrin Shire.

Physiography and Geology

Situated on the granites and granitic gneisses of the Yilgarn Block, the present topographic form of the Reserves is the result of extensive erosion of the granites coupled with later pedogenic development of laterite. The laterite has resisted erosion, leaving low rounded hills standing above lowlands, some of which carry seasonal watercourses.

A contour map illustrating the gentle low relief and north-west to south-east slope of both Reserves, and the location of watercourses is shown in **Fig. 1.** The highest point on DR is *ca* 400 m above sea level, the lowest *ca* 325 m. The Reserve therefore lies within an altitudinal range of about 75 m. On KKR, the highest point is *ca* 360 m above sea level, the lowest point *ca* 315 m. It therefore lies within a range of about 45 m.

The lower areas of both Reserves tend to carry woodlands; the higher areas having either laterite with shrublands or a surface layer of sand with heath or shrubland. There is no permanent water on the Reserves although some pools may occur in the watercourses after rain.

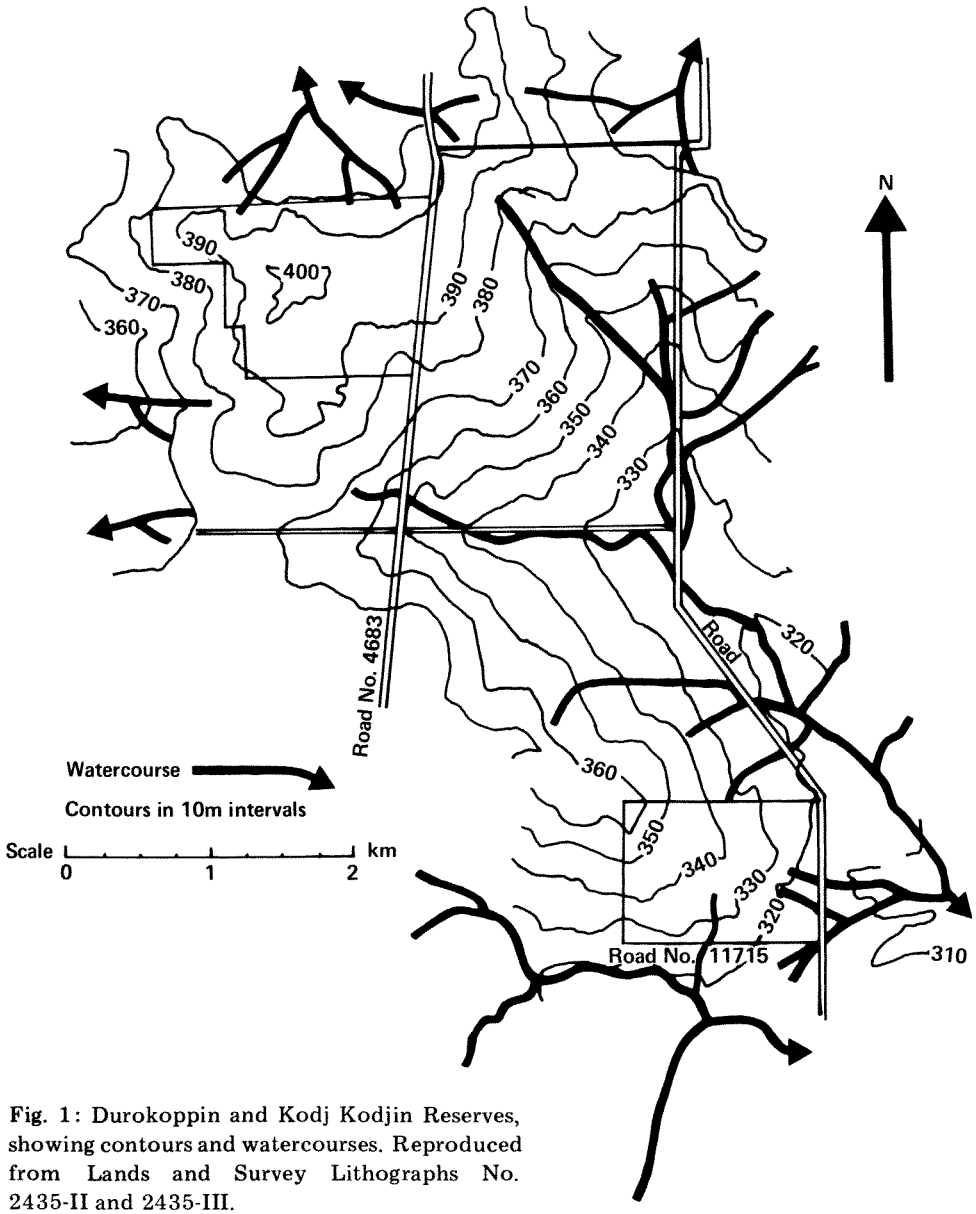

Fig. 1: Durokoppin and Kodj Kodjin Reserves, showing contours and watercourses. Reproduced from Lands and Survey Lithographs No. 2435-II and 2435-III.

Fire History

Prior to 1930 no records were available on frequency or distribution of fires on the Reserves. From about 1930 Mr K. Leake, whose farm adjoins the western boundary of Durokoppin Reserve, has noted that the only fires on DR since that time have been occasional small burns arising from rubbish dumped on the eastern side of the Reserve. These burns affected only very small areas.

The 1962 airphotos of Kodj Kodjin Reserve reveal no evidence of burn patterns and the appearance of its vegetation is similar to that of DR. It is therefore assumed that the vegetation on both Reserves is older than about 45 years.

Isolation

The Kellerberrin area was first selected by graziers for pastoral settlement in the early 1860s (Leake 1962). Clearing for agriculture was slow until after the establishment of the Northam to Southern Cross railway about 1890-1893. The railway allowed much greater access to the area and probably greatly encouraged clearing and establishment of new farms. By the time of the first airphotos (1962) the majority of the land near Durokoppin and Kodj Kodjin Reserves was cleared (see **Fig. 2**) and between 1962 and 1972 very little further clearing took place. This was largely due to the remaining uncleared land being reserved, granitic, excessively gravelly, or salt marsh and so unsuitable for agriculture.

Fig. 2 shows an area of about 2000 km^2 centred on the Reserves and its clearing status in 1962 and 1972. It also illustrates the juxtaposition of the Reserves and surrounding uncleared land.

In 1962 DR had *ca* 220 ha of uncleared land contiguous to it. This was reduced to 112 ha by 1972 and there has been very little clearing since then. In 1962 KKR was completely isolated except for 5 ha of uncleared land contiguous to its western boundary. This land was still uncleared at the time of the Museum survey. The two Reserves are connected by a densely vegetated road verge 40 m wide and about 2.7 km long.

Climate

Data were extracted from Anon. (1958), Anon. (1963) and Anon. (1975). Wherever possible, data is from Kellerberrin Weather Station (Bureau of Meteorology No. 010073, lat. 117°43'E, long. 31°38'S, altitude 247.2 m above sea level).

Briefly, the region of the Reserves is characterised by an average yearly rainfall of 339 mm, the rainfall being reliable and predominantly in winter.

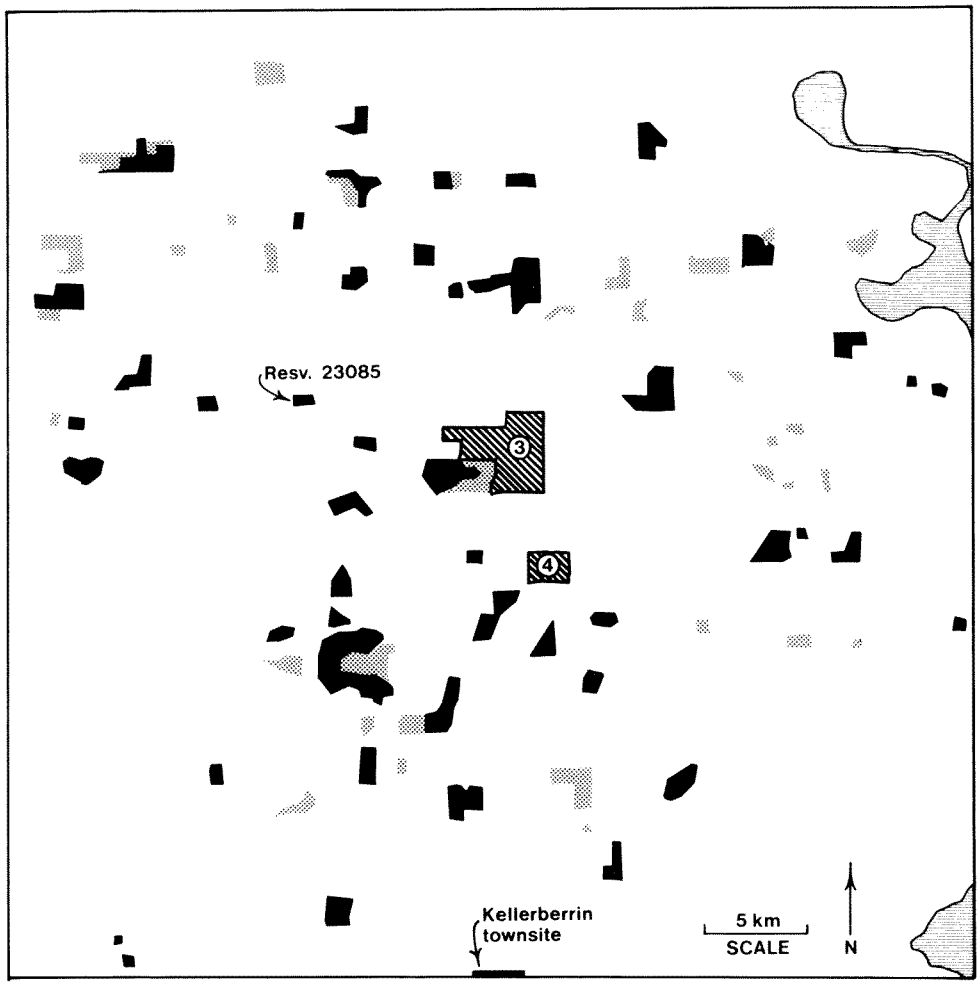

Fig. 2: Map of Durokoppin and Kodj Kodjin Nature Reserves and surrounds showing land cleared between 1962 and 1972. Blank areas were cleared prior to 1962.

TABLE 1

Average monthly rainfall and effective rainfall (in mm).

	J	F	M	A	M	J	J	A	S	O	N	D
Actual rainfall	11	13	23	22	44	59	55	42	27	19	11	13
Effective rainfall	76	74	67	47	35	26	23	28	37	50	64	78

There are about four months where actual rainfall exceeds effective rainfall.

Average relative humidity for the year is 62% at 0900 hours, and 38% at 1500 hours. Evaporation is thought to be about 2300 mm per year at Kellerberrin. The hottest months are usually January and February, with an average maximum temperature of 33.5°C.

The seasonal daily averages for Kellerberrin are as follows:

Spring (September to November) daily average	17°C
Summer (December to February) daily average	25°C
Autumn (March to May) daily average	18.7°C
Winter (June to August) daily average	11.7°C
Yearly average	18.2°C

W.A. Museum Surveys

Faunal surveys were conducted on 8-17 October 1975 by A. Chapman, J. Dell, G. Harold, M. Jackson and K. Morris; 8-15 April 1976 by G. Barron, A. Chapman, J. Dell and D. Kitchener; and 26-27 January 1977 by J. Dell. Vegetation surveys were conducted by B. Muir on 8-14 April 1976 and 26-27 January 1977.