

ENVIRONMENTAL NOTE NO. 81

DCE File : 93/77

Location Ref. : SI50 2 2033 II

Date : 7 February, 1980

Reporting Officers : J. Arnold, B. Masters and
B. Knott

Part Cockburn Sound Location 16: 'Lowlands'

Comment has been sought about the Serpentine River as it passes through the 'Lowlands' property. A visit was made to the property on 21 January, 1980. A general description of the area, supported by photographs, follows.

I DESCRIPTION

The Serpentine River as it flows through 'Lowlands' can be divided into three sections:

1. the eastern section which, apart from a little clearing and the effects of light grazing, has been protected from heavy pressure by the large area of relatively undisturbed bush on either side and the concern of the owners of the property;
2. the untrained portion west of Lowlands Homestead which passes through cleared grazing land; and
3. the trained section which forms the south-western boundary of 'Lowlands' and which is part of the drainage network of the Peel Estate.

The area can best be described by direct reference to the photographs. (Section VI).

1. Eastern section of the River - photographs 1-7

1-4: The Serpentine River in the woodland area in the eastern section of 'Lowlands'. In January, 1980 the river consisted of a series of shaded pools. Water flow is managed by releases from the Serpentine Reservoir so that the pools are clear and well-aerated (see Section II). There is no evidence of algal blooms. The banks are stable and no evidence was seen of erosion. The fringing woodland is dominated by tall, dense Flooded Gum.

5-7: Low-lying areas outside the main watercourse (old river meanders). These areas would contain water during the winter and spring and would support a diverse fresh-water biota and provide good feeding grounds for water birds. Photograph 5 show a recently dried area within the sedge margin on one of these areas. The background of these photographs shows the fine stand of Flooded Gum along the watercourse. In places these areas

The area comprises part of Cockburn Sound Location 16, freehold land (owned by the Richardson family) and situated about 10 km west of Serpentine.

The Lowlands Property consists of an historic homestead, built from 1845 by Thomas Peel Jr., two significant sections of woodland, and meadowland. The Serpentine River flows through the property.

The eastern section contains a large area of woodland which, apart from a little clearing and the effects of light grazing, is relatively undisturbed. This section is very valuable since it is the only large area of its type remaining on the Coastal Plain between Perth and Bunbury. Its value is enhanced by the course of the Serpentine River which flows through it. The woodland, much of which is dense, is dominated by Banksia spp., of which four, slender, bull, holly-leaved and Menzies' banksia, are present. Marri and jarrah also occur in the woodland, an unusual feature of which is the large number of woody pear trees. Much of the understorey is in good condition. There are many shrub species, including the rare Brachyloma preissii, and blackboys and zamia are common. Moonah and swamp paperbarks are present in low-lying and swampy areas. The Serpentine River here is fringed by woodland of flooded gum, which is outstanding for its height and density; no similar area being known elsewhere. The river banks are stable, erosion being insignificant.

The south-western section also contains extensive woodland, much of it dense. Moonah and swamp paperbarks are common, the land being low-lying with a high water table. A significant feature is the abundance of Christmas trees. The Serpentine River Diversion, which forms the western boundary to the area, has a straight watercourse with high banks. There has been a considerable growth of flooded gum along the banks.

Fifty seven species of birds, both bush and water, have been recorded in the area. Pools in the Serpentine River in the eastern section provide a healthy fresh-water habitat, as shown by the presence of the fresh-water mussel and crayfish.

The Serpentine River has been subjected to considerable changes and pressures over the years, and very little of its original fringing vegetation remains. Because of this, every effort should be made to secure the eastern section of the Lowlands property, which has high conservation value, against developmental pressures.

RECOMMENDATIONS

1. The Government recognise the great importance of the historic homestead and the uncleared woodland of the Lowlands property.
2. The Government, in consultation with the owners, investigate ways and means of preserving and maintaining in perpetuity the homestead and the uncleared woodland.
3. In the interim, the W.A. Wildlife Authority provide assistance in the preparation of a management programme for the woodland areas.

support dense stands of *Melaleuca raphiophylla* with some *M. lateritia*.

2. Section of the river west of 'Lowlands homestead - Photographs 8-10

8-10: This section of the river passes through cleared grazing land. Although the river retains a little fringing vegetation its diversity has clearly been reduced by grazing and there is some bank erosion.

3. Western section of the River - Photographs 11-18

11: Looking along the Serpentine River to the point where it enters the PWD drain to become the Serpentine River Diversion.

12-13: The Serpentine River Diversion on the western boundary of 'Lowlands'. Note the straight watercourse with high banks. There has been considerable growth of Flooded Gum along the banks and regeneration continues. A large number of ducks were resting and feeding in this area at the time of inspection.

14-15: Low-lying land in meadowland south of the Serpentine River Diversion. The presence of *Melaleuca preissiana* indicates that the water table is high and that the area may be covered by surface water for part of the year.

16: Water lily (*Ottelia ovalifolia*) pond south of the Serpentine River Diversion.

17-18: Margins of the woodland area on the south-west of 'Lowlands'. This low-lying land with dense vegetation and high water table is probably useful waterfowl habitat in winter and spring.

II THE FAUNA

1. Fresh-water fauna of the eastern section

The pools in the relatively undisturbed section of the Serpentine River as it passes through the 'Lowlands' woodland provide a healthy fresh-water habitat. This is shown by the presence of the fresh-water mussel (*Westralunio*) and the fresh-water crayfish or gilgie (*Cherax*) in abundance. The presence of the mussel, in particular, indicates good water quality and its distribution in local streams has been greatly reduced by increases in stream salinity over recent years¹. The presence of feeding areas and bird droppings along the stream containing gilgie shells shows that the fresh-water fauna is sufficient to provide a food source for some predators.

2. The birds

A list of 57 species of bush birds and water birds has been compiled by an officer of Department of Fisheries and Wildlife in 1970 (file 227/74/79.49) and during the brief inspection of 21 January 1980 24 species were sighted. A further 20 species were named by the owners as occurring in the area (see Section VII).

It was not possible, during the time available, to investigate the mammal and other vertebrate fauna of the area. The presence of a fresh-water stream within a considerable area of woodland suggests that a trapping programme would be worthwhile to investigate thoroughly the fauna of the area.

III DISCUSSION

The Serpentine River has been subjected to many changes and pressures: the upper reaches have been dammed to form the Serpentine Reservoir; bauxite mining takes place within the river catchment; the middle reaches have been trained to fulfil a drainage function; the lower reaches through Lake Goegrup and downstream from that lake are subjected to heavy pressure for recreational use and by the increasing number of small-holdings in the area (see Map 1). The section of the river between the South-West Highway, and the eastern boundary of 'Lowlands', while it retains good fringing vegetation and is protected to some extent by foreshore reserves, is nevertheless subject to some pressure from small-holding subdivisions, and other developments such as a proposed caravan park, on land directly adjoining the reserves.

The section of the Serpentine River in the woodland area on the eastern side of 'Lowlands' has conservation value for protection of the fresh-water fauna habitat and for protection of the fringing vegetation. Map 2 shows areas of uncleared land along the Serpentine. The 'Lowlands' woodland is a rare case of a large area of uncleared land along any of the watercourses of the coastal plain.

Therefore every effort should be made to secure it from developmental pressures such as could arise if the woodland north and south of the River were cleared and the land subdivided and subjected to intense agricultural uses.

In addition to the conservation value of the area, the land could have considerable interest as a study area for management. The history of the area is well known because the land has been held by the one family for many years and that family has shown a good deal of concern for the area. Observations on the rate of recovery of the vegetation from the relatively light grazing pressure to which it has been subjected would be of considerable interest. The area would also provide an opportunity for research into methods of vegetation management.

IV RECOMMENDATION

It is recommended that the eastern section, being Lot 2 of Part Cockburn Sound Location 16 be acquired for the purposes of conservation and research.

V REFERENCES

1. Kendrick, G.W. 1976. The Avon: Faunal and other Notes on a Dying River in South-western Australia. *W.A. Naturalist* 13: 97-113.

VI PHOTOGRAPHS

(See attached)

VII BIRD LISTS

'Lowlands' - 21 January 1980

Seen:-

Splendid Wren
 Western Magpie
 Grey Fantail
 Thornbill (2 unidentified species)
 Streated Pardalote
 Scarlet Robin
 Twenty Eight Parrot
 Kookaburra
 Black Duck
 Western Silvereye
 Honeyeater (1 unidentified species)
 Australian Raven
 Magpie Lark
 Pied Cormorant
 Black Fronted Dotterel
 Little Pied Cormorant
 Kestrel or Kite (1 unidentified species)
 Mountain Duck
 Willy Wag Tail
 Welcome Swallow
 Straw Necked This
 Richards Pipit
 Dusky Woodswallow

24 Species

Reported by Owners:-

White Faced Heron
 White Necked Heron
 White Egret
 Nankeen Night Heron
 Western Swamp Hen
 Little Grebe
 Red Wattle Bird
 Rainbow Bird
 Golden Whistler
 Australian Pelican
 Black Swan
 Rufous Whistler
 Grey Butcher Bird
 White Tailed Black
 Cockatoo
 Sacred Kingfisher
 Black Faced Cuckoo
 Shrike
 Pallid Cuckoo
 Boobook Owl
 Common Bronzewing
 Banded Plover

20 Species

VIII MAPS

(see Attached)



1.



2.



3.

VI PHOTOGRAPHS (Continued)



4.

River Road - Lowlands.

System 6
photos

VI PHOTOGRAPHS (Continued)

5.



6.

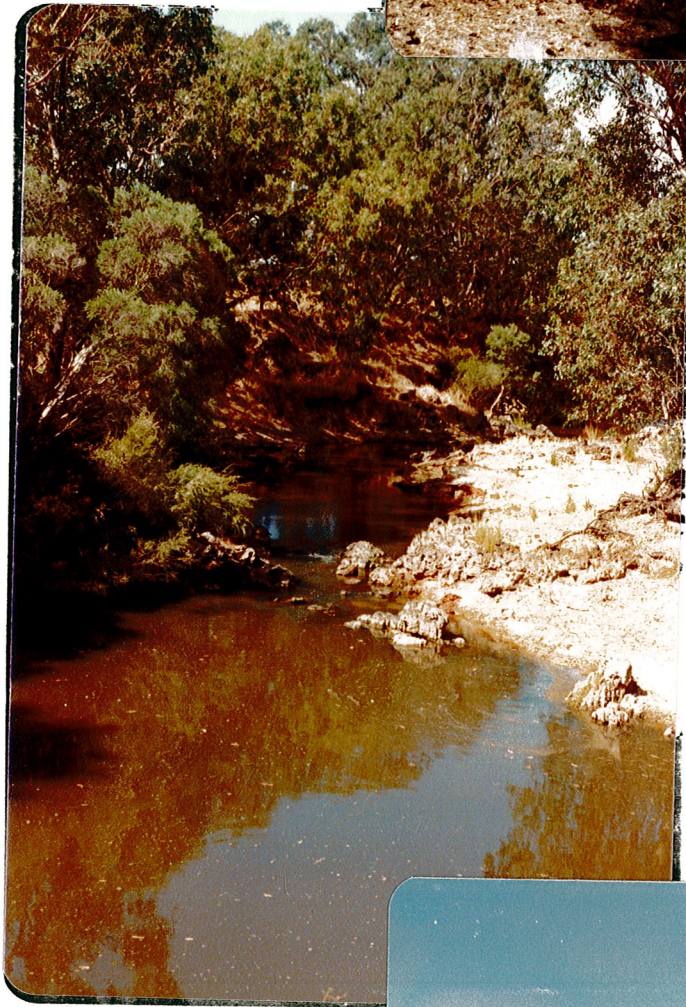


7.



VI. PHOTOGRAPHS (Continued)

8.



9.

10.





11.



12.



13.

VI PHOTOGRAPHS (Continued)

14.



15.



16.



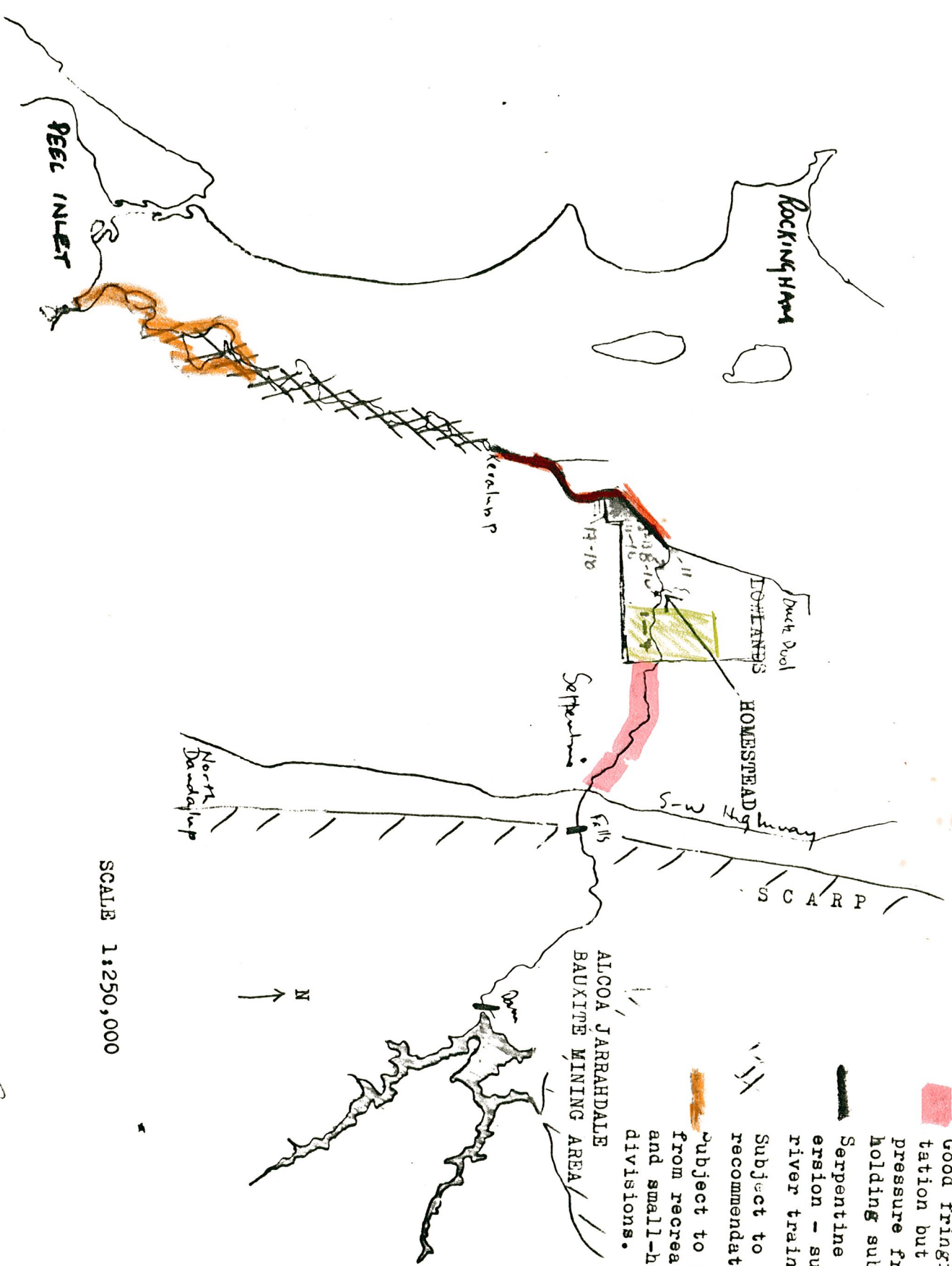
Lowlands -
White Gun

17.

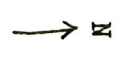


18.





SCALE 1:250,000



1-18 Locations of photograph

- 'Lowlands' woodland
- Good fringing vegetation but under pressure from small-holding subdivisions
- Serpentine River Division - subject to river training.
- Subject to System 6 recommendation.
- Subject to pressure from recreational use and small-holding subdivisions.

ALCOA JARRAHDALE
BAUXITE MINING AREA

Duck Pool
DOWLANDS
HOMESTEAD

SCARP

Serpentine

Keralup P

S-W Highway

North Dardakulp

PEEL INLET

Rockingham