

DEPARTMENT OF FISHERIES AND WILDLIFERESERVE/PROPOSED RESERVE INSPECTION REPORT

NAME ... LOCKE ESTATE

REASON FOR SURVEY OWN INITIATIVE PROMPTED BY PREVIOUS CORRESPONDENCE

RESERVE NO. 23006... (NOW CANCELLED) FILE NO. 165/56

LAND DISTRICT SUSSEX..... LOCATION NO(S) 1580, 1579, 1578, 1577, 1576
..1582, 1581.....

LITHO ..412/80, 413A/40..... AREA (ha) 187.1822

PERSONNEL Wildlife Officer P. S. Lambert
From June 83..... Two evening surveys others

METHOD Vehicle, on foot. DATE to Nov 84... TIME daytime mild to hot condit

TEMPERATURE (°C) 20-28.... WIND DIRECTION West.... SPEED (km/h) 0-5.....

CLOUD ...p/cast-20%.....

ADJOINING LAND:

NORTH ... Caves Road, Camping+Rec. FENCE Ringlock & two barb Jarrah post
RESERVE

WEST Private, Parkland cleared. FENCE " " & one Barb, one Plain, star pi

SOUTH Private parkland cleared.. FENCE " "One Barb one plain Jarrah posts

EAST Buayanyup River Drain PWD and private property FENCE " " " " "

HUMAN USAGE

..... - SEE ATTACHED REPORT -

DAMAGE OR DEGRADATION

..... - SEE ATTACHED REPORT -

ST. NO. 58

①

C. W. S. J.

Dr Burbridge

.../12

②

Mr Powell

- see p. 91 &

pages listed on next page.

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HUMAN USAGE AND HISTORY.

Situated approximately three hundred metres south of caves road near the boundary of locations 1578 and 1577 a market garden was established during original settlement of the Locke Estate. The only evidence of this today is a soak, a small grassed area of Buffalo, Ryre and clovers and fig trees.

Reserve 23006 was originally set aside for the purpose of conservation of flora and fauna. In August 1961 50ha (now Sussex location 4324) was excised from the reserve and made available for selection^{to} adjoining landholders. The remainder of the reserve was made available for leasing for grazing purposes on an annual basis and the purpose reduced to "conservation of fauna". In November 1965 action for the cancellation of Reserve 23006 "Conservation of Fauna" was proceeded with by the Lands Department and it's status was further reduced to that of vacant crown land, so that it would enable the grazing lease to carry on.

Since 1965 attempts to have the Locke Estate reinstated as a flora and fauna reserve have been unsuccessful.

Two P.W.D. drains traverse the estate from east to west and from north to south. see attached diagram.

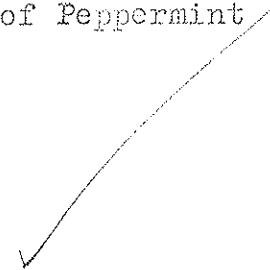
A grazing lease was granted to a Mr. G.P. Kealy on 1st January, 1962 on the Locke Estate involving an area of some 544 acres.

A grazing lease is still current on the Locke Estate, now held by Vasse Widow A.M. Armstrong. Cattle are grazed on the lease on a fairly casual basis, most access being during the drier summer months. Mrs Armstrong holds property adjoining the estate to the south.

Thirty to fifty years ago it is known locally that the Albany Pitcher Plant was collected from the estate (probably from along the wet depression which runs east-west through the estate) for the annual Vasse wildflower show. Evidence of it's present day existence on the estate could not be found.

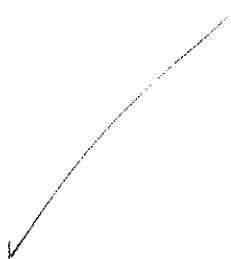
Occasional kangaroo hunting had occurred on the estate up until last year when the offenders, using dogs, were apprehended.

Bee hives have been placed on the estate during the months of October and November during good years of Peppermint blossom.



DAMAGE OR DEGRADATION

Documents indicate that the area has been subject to grazing stock since 1961. An area such as this of varying soil and vegetation types must suffer considerable damage under such conditions. The spreading of weeds and pasture grasses by stock throughout the reserve is evident in all association on the estate. The trampling and hoove damage to herbaceous layers of the vegetation by the formation of cattle pads, especially in the marshland and marginal sandy rises is quite evident. This damage is leading to erosion problems and the break down of the vegetation. The grazing of the understorey in the forested and wooded areas of the estate is noticeable. The understorey is absent in some areas where it has been replaced with pasture grasses. Trees are being ring barked by cattle, particularly the paperbarks. An example is shown in the accompanying photographs. The area has not been over grazed to a point where the damage is not irretrievable. The least affected area may be the Peppermint woodlands in the northern portion of the reserve. The Western Ringtail Possum has virtually disappeared from the estate's woodlands, once noted in the district for its large population of this species. Stock interference may have played a part in the decline of this rare species on the estate.



FIREBREAKS The leasee maintains firebreaks on the estate. A number
of tracks and firebreaks traverse the area. Boundary and internal
breaks are three metres wide with the exception of the break adjoining
Caves road which is five metres wide. (photo enclosed)

SOILS The wooded and forested areas are supported by well drained...
light to dark sandy loams over limestone. Marshlands and wet depressions
consist of peatty dark loams

PLANT FORMATIONS - SEE ATTACHED REPORT -

PLANT SPECIES - SEE ATTACHED REPORT -

NEST HOLLOWS A limited number of nest hollows exist in the Flooded.....
Cwm, and Menni forested areas

WEEDS Dock, Aurum, Lilly, Geranium, Sour Grass, Johnquills, Buffalo Grass,
Clovers, Cape Weed, Barley Grass, Wild Ryre Grass, Wild Oats, Scotch (Spear)
Thistle, Couch Grass,

FIRE HISTORY Eastern section: burnt autumn 1980 and patch burnt in
autumn 1984. Western section: burnt autumn 1981, scheduled for autumn...
1985:

MAMMALS - SEE ATTACHED REPORT -

VEGETATION DESCRIPTION LOCKE ESTATE

1. Low woodland A of Peppermint (*Agonis flexuosa*) over open Scrub of wattles, *Acacia dicapiens*, *A. cyclops*, *A. rostellifera* and shrubs *Pimelea argentea*, *Hibbertia cuneiformis*, *Spyridium globulosum*, *Leucopogon australis*, *Anthocercis littorea*, *Isoto ma hypocrat eriformis*, *Hardenbergia comptoniana*, *Calytrix* sp., a Dodder, *Olearia axillaris*, Bracken, Coastal Sword sedge (*lepidosperma gladiatum*), Sea spinach (*Tetragonia decumbens*), *Stylidium* sp.
2. Open Woodland of Flooded Gum (*Eucalyptus rudis*) over open Low Woodland A of Paperbarks (*Melaleuca raphiophylla*) *Banksia littoralis* and *Melaleuca incana*, *Hakea prostrata* over a parkland of pasture grasses and rushes.
3. Forest of Marri (*Eucalyptus calophylla*) over open Low Woodland A of Paperbarks (*Melaleuca raphiophylla*), *Agonis flexuosa*, *Hakea varia*. In addition there are rushes, *Juncus krausii* and pasture grasses.
4. Open expanses of Samphire marshland, during winter to 30cm deep. In addition there are rushes *Juncus krausii*, Water Buttons (*Cotula coronopifolia*)
5. Low Woodland A of Paperbarks (*Melaleuca raphiophylla*) over shrubs and rushes; *Oxyllobium lanciolum*, *Melaleuca incana*, Coastal Sword Sedge (*Lepidosperma gladiatum*) *Juncus krausii*, Spike-rush *Baumea articulata* and Samphires along east-west wet depression.
6. Low Woodland A of Paperbarks, *Melaleuca cuticularis*, *M. incana*, *M. raphiophylla* and *M. hamulosa* over sedges (*Gahrua trifida*) and pasture grasses.
7. Low Woodland A of Paperbarks, *Melaleuca hamulosa* and *M. raphiophylla*, Peppermints (*Agonis flexuosa*, *Banksia littoralis* over shrubs; *Pimelea argentea*, *Kunzea priessiana*, Bracken and pasture grasses.

MAMMALS

Grey Kangaroo are reasonably plentiful on the estate. They rely on the wooded shelter of the Peppermints during the day and move out on to the marshlands as evening approaches.

NIGHT SURVEY RESULTS: 13 NOVEMBER, 1984

Clear warm night, no moon, calm conditions, 8.30pm-11pm
Distance travelled using spotlight - 13 kilometres
1 Western Ringtail Possum
14 Grey Kangaroo
1 Rabbit
6 Foxes

Mr.K.R.Champion (ex Hon.Warden) reported a dead Wambenger on Caves road adjacent to the estate two years ago.

RINGTAIL POSSUM SURVEY (Declared rare species)

Two day traverses and a night survey were conducted in establishing the current status of this animal on the estate. The Peppermint woodlands adjoining Caves road was the main area involved in the survey although other areas were also studied. The results of the night survey is shown above. The two daylight surveys were carried out on foot on the 1 July and 24 October, 1984 concentrating on the Peppermint woodlands. The enclosed diagram of the estate shows the location of possum dreys or nests. Only one Ringtail Possum was recorded in the western section of Peppermints and seven un-occupied dreys. None were recorded in the eastern section.

DREYS

The Ringtail Possum usually chooses the top of a young Peppermint or an Acacia, sometimes using the vines of a Hardenbergia as a cradle, 3-5m from the ground. The dreys are constructed of woven twigs and matted leaves with the entrance near the top and off to one side of the construction.

In the mid 1960's I visited the Locke Estate finding the Ringtail Possum to be abundant throughout the Peppermint Woodlands. Warden K.D.Morrison in his report on the Estate in 1973 reports the Ringtail to be "extremely plentiful in general area". He also reports diggings and signs of the Quenda and the Brush Wallaby.

REPTILES

On the 24 October 1984 one Bobtail Shink and a Tiger Snake were recorded on the estate.

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INTRODUCED ANIMALS

Foxes are in high numbers throughout the district. Six were recorded during the night survey on the estate.
Rabbits sighted: one.

[illegible]

INSECTS, CRUSTACEANS, ETC. European bee

ST. NO. 59

BIRDS 1st & 7th July, 1984

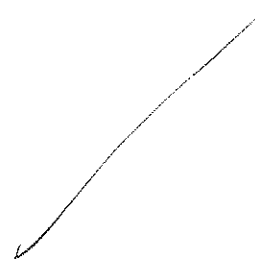
(4) Swans and 2 nests on central marshland. 16 Grey Teal, 2 Little Grebe, 21 Black Duck, 2 Little Pied Cormorant, 12 Mountain Duck, Common Bronze wing Pigeon, Western Magpie, Red Wattle-bird, Grey Butcherbird, Kookaburra.

24 October, 1984

(4) Little Pied Cormorant, 6 White - faced Heron, 3 White Ibis, 32 Black Duck, 50 Mountain Duck, 11 Cygnets, 2 Swan, 10 Pied Stilt, (showed signs of nesting), 20 Grey Teal and ducklings, Aust. Raven, Dusky Wood-swallow, Rainbow Bird, Nankeen Kestrel, Grey Butcherbird, Tree Martin, Kookaburra, Grey Fantail, Splendid Wren, Silvereye, Western Rosella, Red Wattle-bird, Striated Pardelotte, Black faced Cuckoo-shrike, Mudlark, Rufous Whistler, Willie Wagtail, Twenty Eight Parrot, Pallid Cuckoo, Yellow-tailed Thornbill.

Night Survey 13 November, 1984

6 Black Duck, 1 Tawny Frogmouth, 2 Grey Butcherbird, 2 White-faced Heron.



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SUMMARY AND RECOMMENDATION

The Locke Estate holds a diverse and valuable variation of habitats representative of the Vasse coastal plain. The Samphire marshes and sedgelands provide feeding and breeding sites for waterbirds and a variety of other wildlife. The woodlands and forest of the Flooded Gum and Marri provide nesting facilities and refuge for the wildlife in the area. Similarly the Melaleuca woodlands, Swamp Banksia and scattered scrublands provide breeding and refuge areas for wildlife. Along the northern most watercourse occurs an area of spike-rush (*Baumea articulata*). This rush is preferred by the Little Bittern, an attractive and intriguing waterbird which has recently come under close study by the Royal Australasian Ornithologists Union. The Albany Pitcher Plant was once collected from along this watercourse and it is thought that it may still occur here.

The Ringtail Possum, once plentiful in the Peppermint Woodland of the Locke Estate, is now in very low numbers. The Common Brushtail Possum was not recorded on the estate during the survey. This species was also plentiful in the area ten to twenty years ago. The present rate of degradation by the movement and grazing of cattle on the estate is such that it is having a deleterious effect on the habitat and its wildlife.

The Ringtail Possum was declared a rare species in April 1983. The Peppermint woodlands on the Locke Estate are unique to the area and to Western Australia as I know of no nature reserve containing a similar woodland nor do I know of any other crown land containing a similar stand.

I suggest that the department present the strongest recommendation to the Lands Department to; cancel the existing grazing lease and to proclaim the Locke Estate an A class nature reserve for the conservation of flora and fauna, vested in the W.A.N.A.


Wildlife Officer
11 January 1985

I am familiar with the Locke Estate as a result of my 6 year term in Bunilton as D.W.O. It is very disappointing to learn of the extent of the degradation of this unique area, however as it appears that the Locke Estate is still not beyond saving, I wholeheartedly support W/O Lambert's recommendation.

 D. Lambert, W/O.
25/1/85.

①

C.S.O.

②

Mr Russell.

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MAP ATTACHED? YES/~~NO~~ If not, why not?

PHOTOGRAPHS ATTACHED? YES/~~NO~~ If not, why not?

IF INSUFFICIENT ROOM ATTACH EXTRA SHEETS.

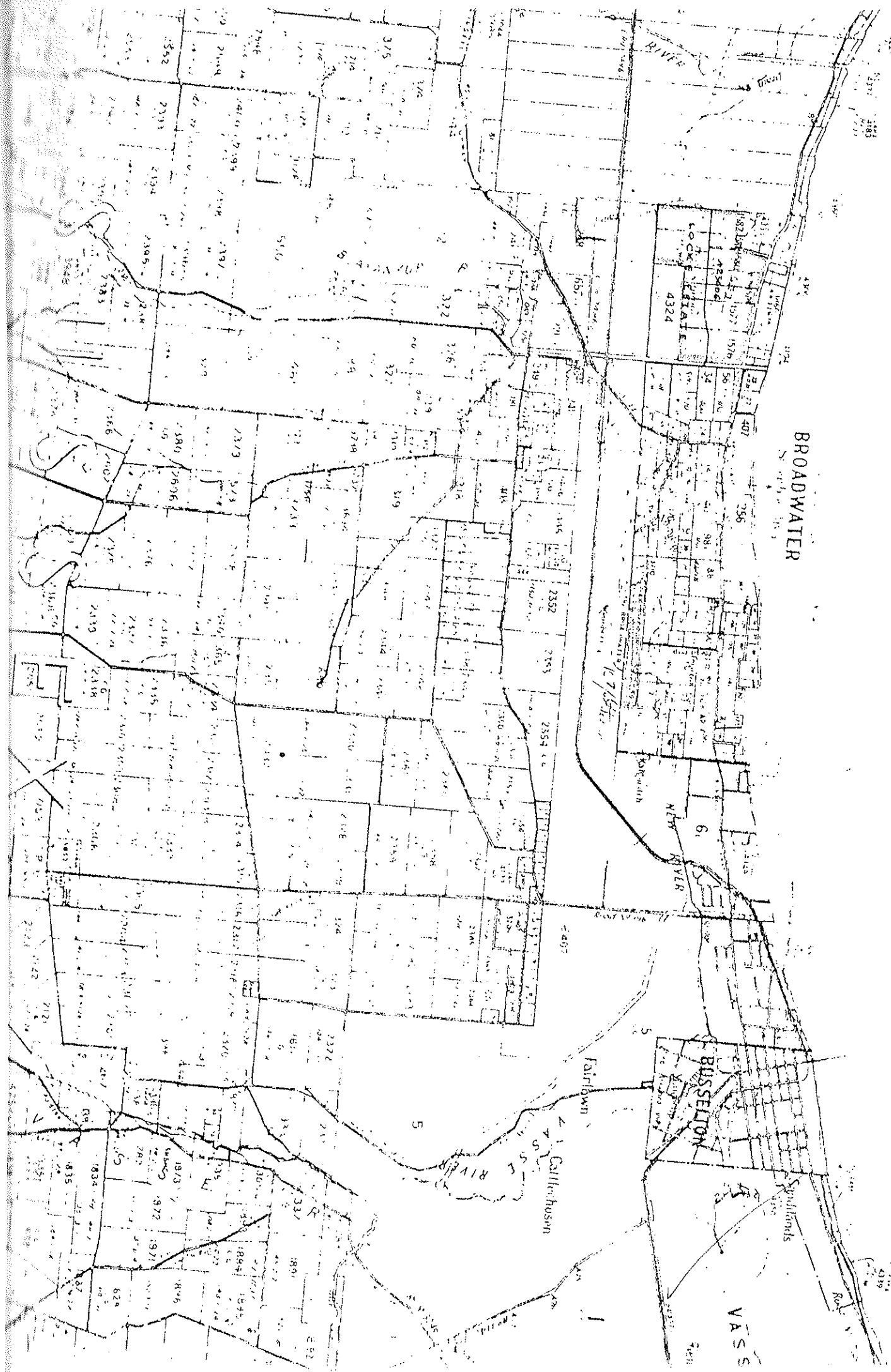
Robert

SIGNATURE

11 JAN, 1985.

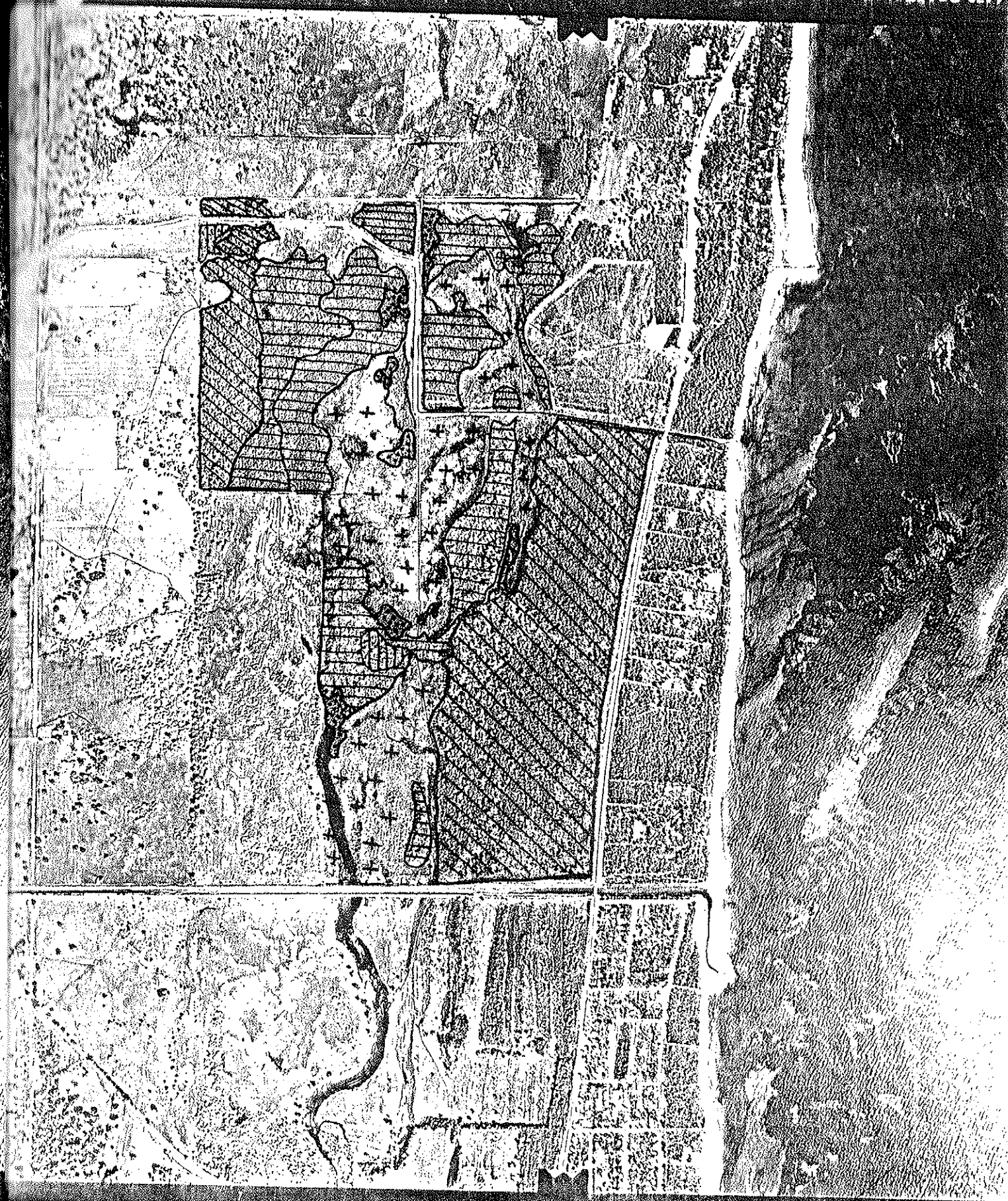
ST. NO. 59

Water Div.



NORTH OF
LINE A B IS
412/80





LOCKE ESTATE"

VEGETATION MAP

PEPPERMINT WOODLAND

MELALEUCA WOODLAND

SWAMP BANKSIA &
SCATTERED SCRUB

MARRI FOREST

FLOODED GUM

WOODLAND

SAMPHIRES & SEDGES

++ ++ ++



"LOCKE ESTATE"

BOUNDARIES OF
WETLANDS AND
WATERCOURSES

COASTAL RUN, MOORE RIVER - CAPE NATURALISTE
15001-51721 9CALR 1118840 182 88
15178-8871
4.9 4.9



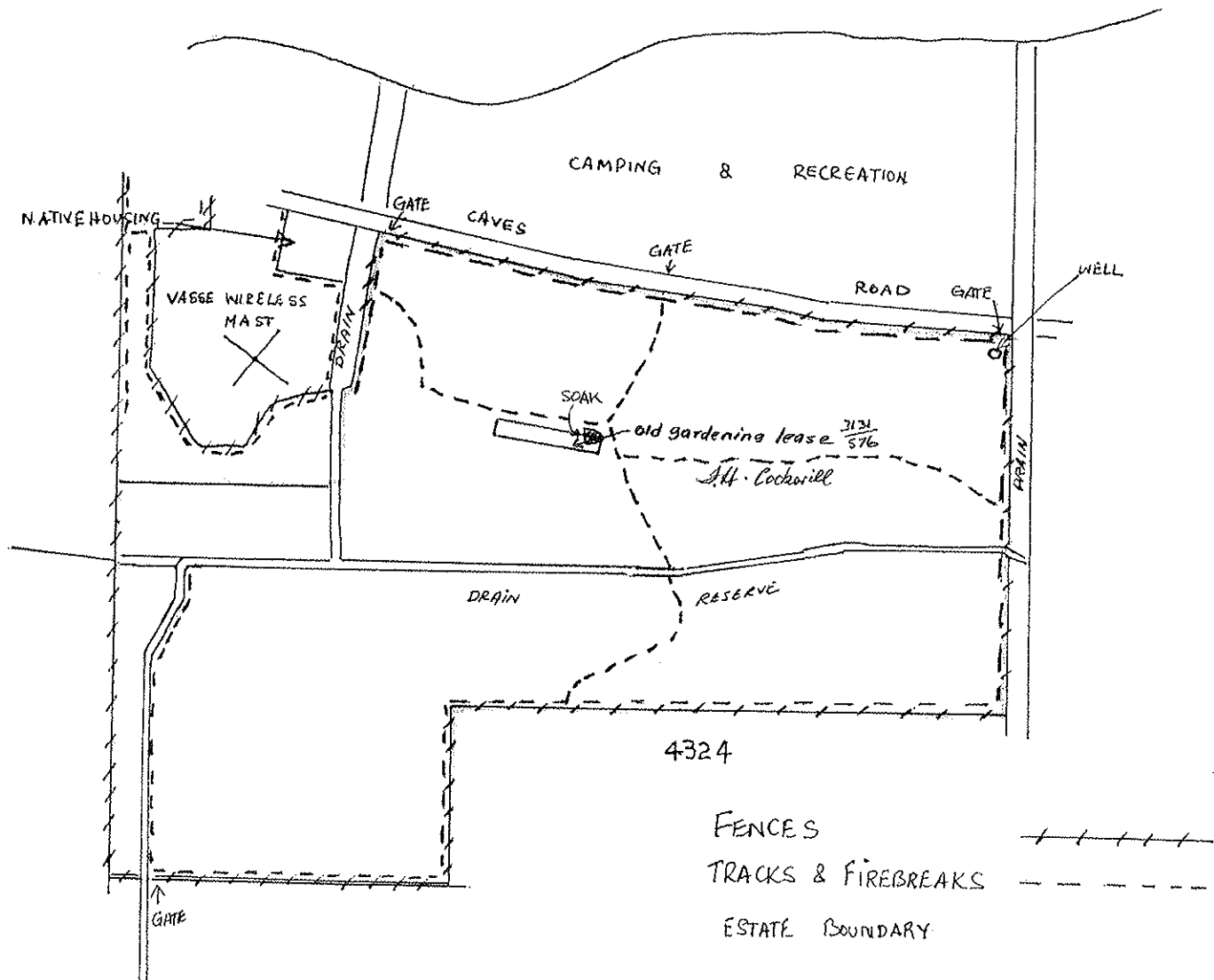
0 1 2 3 4 5
 x 100 metres
 SCALE (APPROX.)

DRAINS
 TRACKS

LOCKE ESTATE

GEOGRAPHE

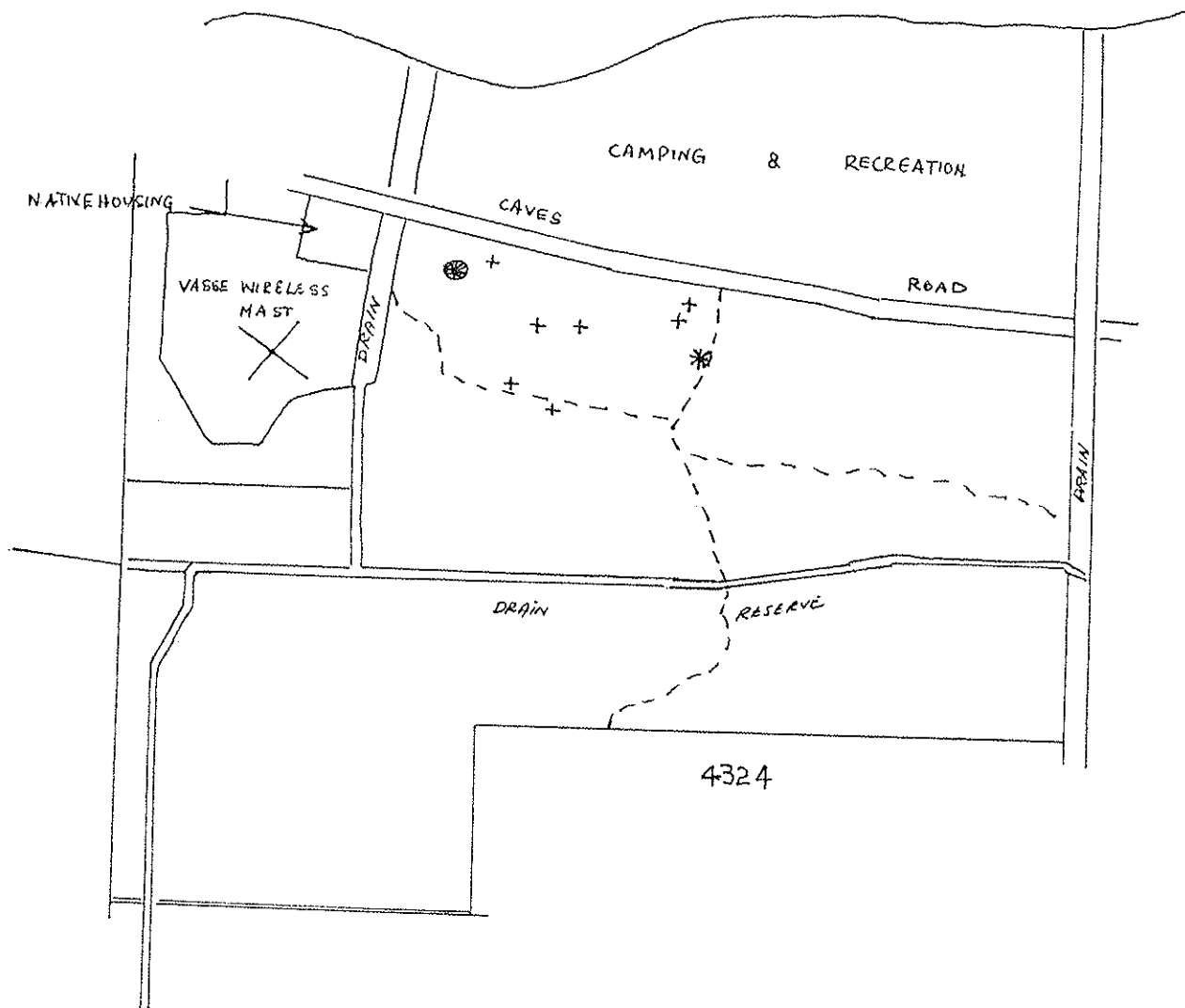
BAY



LOCKE ESTATE

GEOGRAPHE

BAY



LOCATION OF RINGTAIL POSSUM SIGHTINGS AND DREYS.

ANIMALS RECORDED = *

OCCUPIED DREYS = ⊗

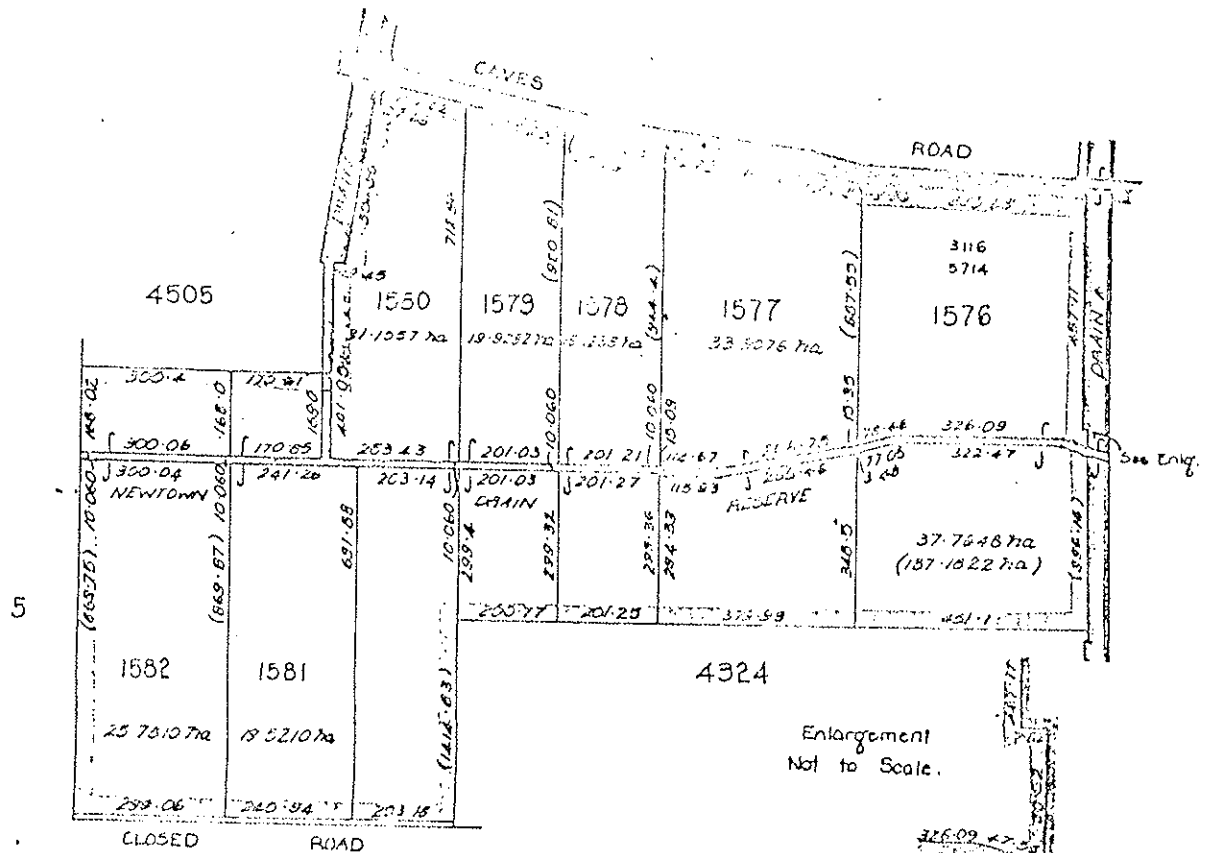
UN OCCUPIED DREYS = +

1:15000



PLAN HEREIN REFERRED TO

ALL DIMENSIONS IN METRES



Pans : Dawson 1:2000 B.F. 29/18-33; 18-34; 18-35; 19-34; 19-35.

O.Ps: 1628

3841

9294

Diagrams: 40655

69510

71990

73902

Corr : 2686/74

Acc No : S.L. 3522

Drawn : C.A.M.

Ex'd: *[Signature]*

Scale 1:15000

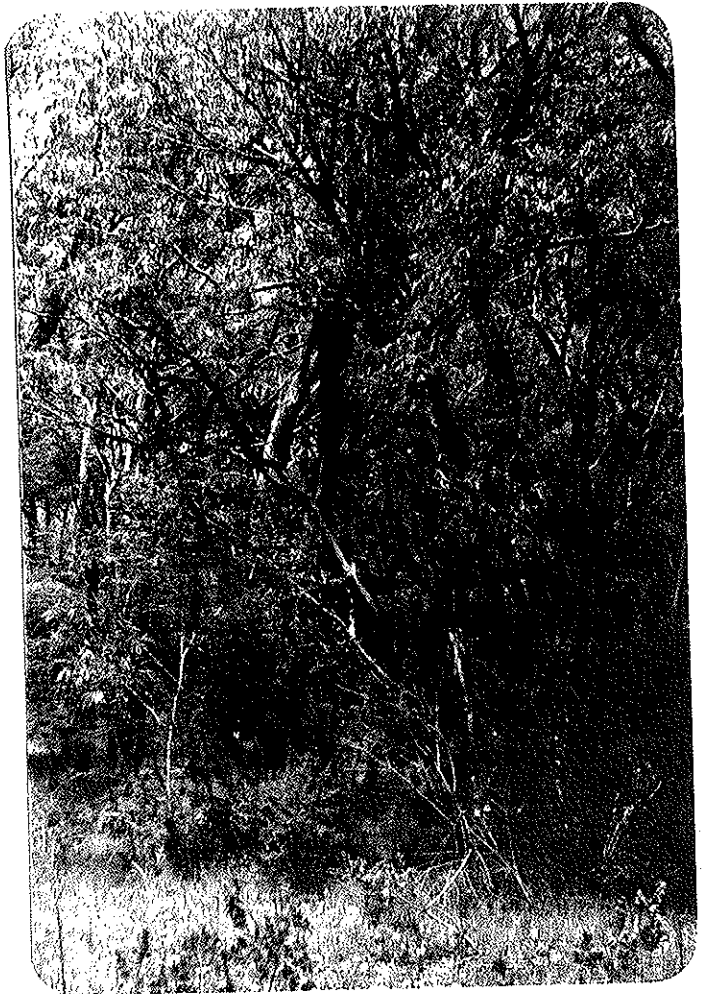
Kilometres

The area and measurements on the above plan are more or less.

IN WITNESS whereof we have caused Our said Minister for Lands to affix hereto his seal and set his hand. Dated this fourth day of September 1980.

[Signature]
An Officer authorised in this behalf by the Governor,
By order of the Minister for Lands.

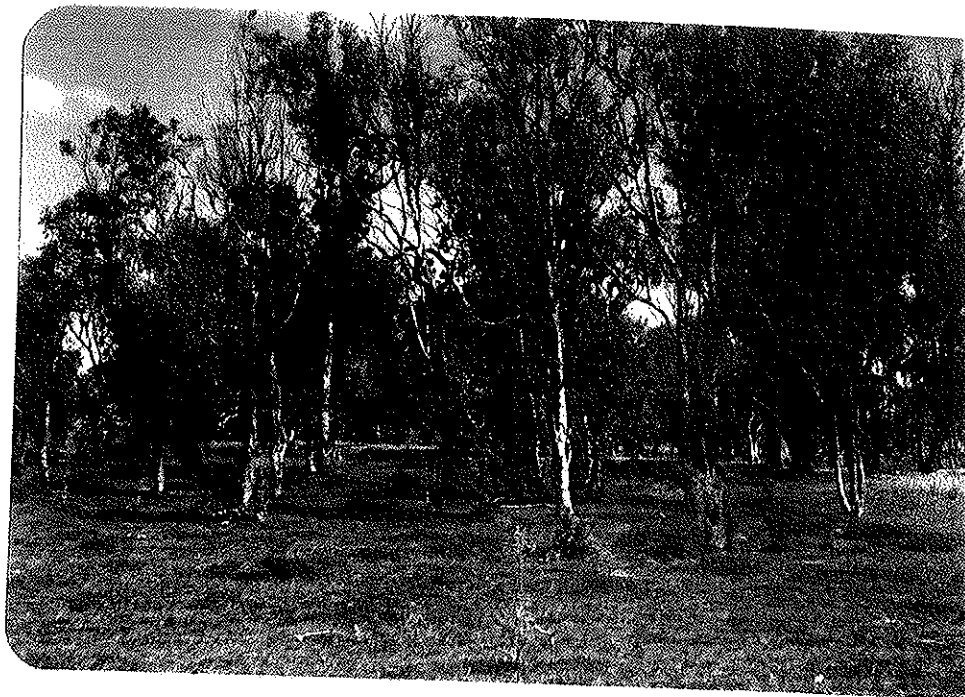
Low Woodland of Peppermint (Agonis flexuosa) on well drained light sandy soils. Pimelea argentea and Hibbertia pumila in foreground.



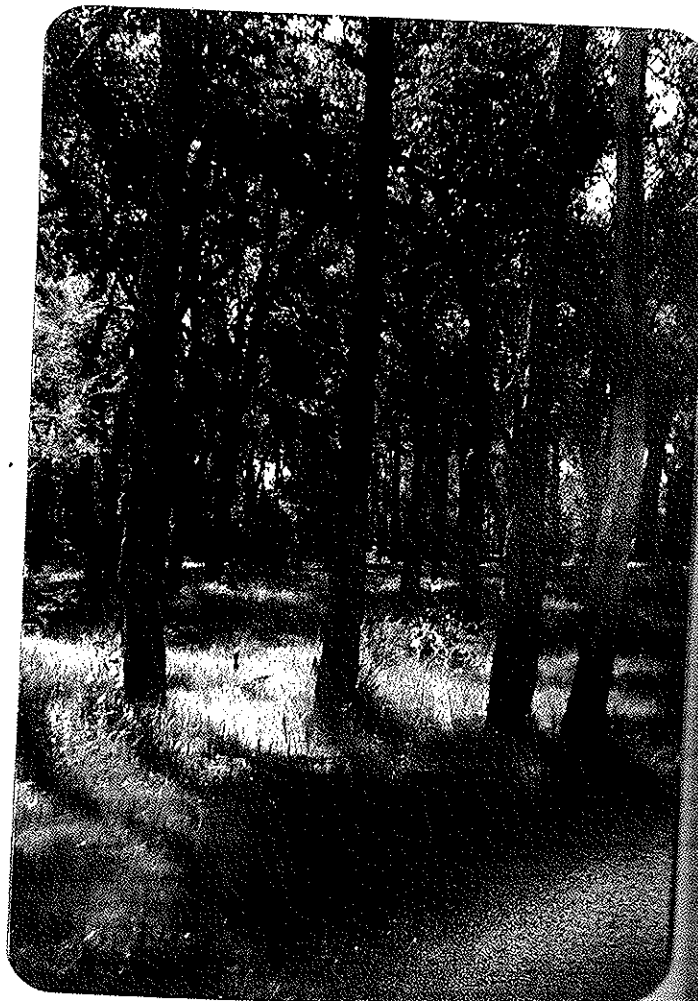
Low Woodland of Peppermint (Agonis flexuosa) on lower darker soils supporting a denser understorey association. Narrow firebreak and stock path in foreground.



Open Woodland of Flooded
Gum (*Eucalyptus rudis*)
over Swamp Banksia,
Paperbarks and Hakea.
Pasture parkland in
foreground.



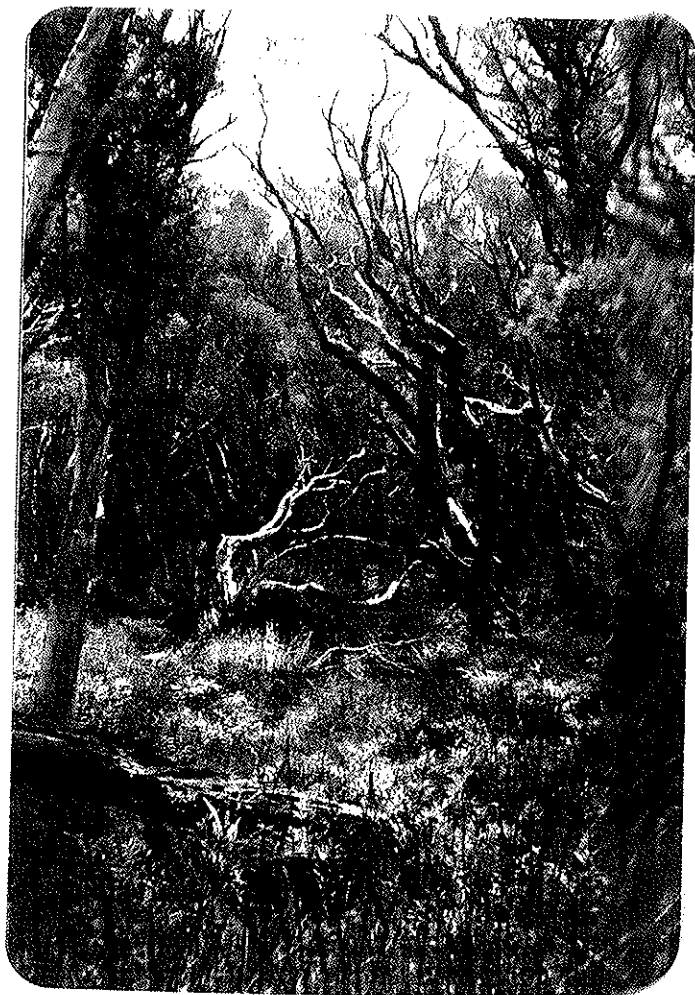
Forest of Marri (*Eucalyptus calophylla*)
over Paperbarks, Peppermint and Hakea.
Parkland grasses in foreground.



The central expanse of
samphire wetland fringed
on rising sandy ground by
Melaleuca woodlands.



Wet depression running east-west
across the estate of Paperbark
Woodland over Oxylobium, sedge and
spike-rush.





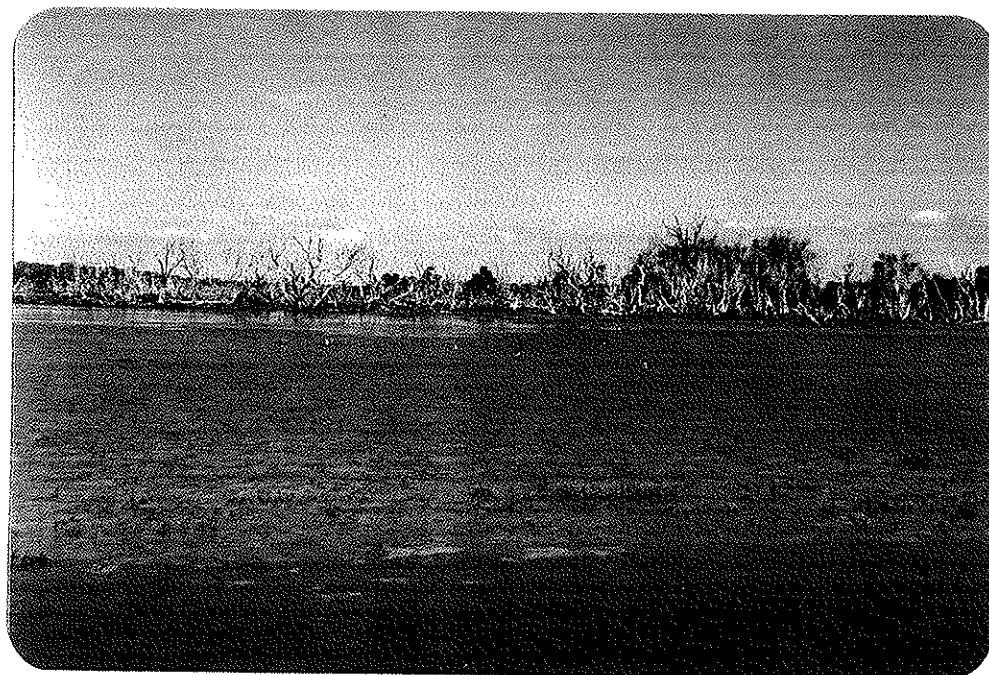
Small dense stands of Melaleuca hamulosa over a ground cover of Samphire fringe the open wetland areas.



Small dense stands of Melaleuca incana occur in few areas throughout the estate. The introduced weed Dock and other grasses in foreground.



Open woodland of Melaleuca harmulosa and Melaleuca rhaphiophylla on a flat south east of the central wetland, over sedge and grasses



A wetland south-west of the Vasse radio mast, dead. Melaleucas in the background. The vegetation in the water is Water Buttons (Cotula coronopifolia) Pied Stilts feeding central picture.



Soak on location 1578 at the site of the old market gardens. Dense ground cover of Buffalo Grass in foreground.



P.W.D drain, western boundary of Locke Estate adjoining the radio mast and Native housing locations.



Eastern boundary, adjoining location 4324 (left of picture). Low Woodland of Paperbarks. Sedge Gahnia trifida in foreground. Stock track left of picture



Northern margin of central wetland comprising of a Low Woodland of Melaleucas, Peppermints and Banksia over shrubs and grasses. Open heath of Samphire and Water Buttons (Cotula coronopifolia) in foreground.

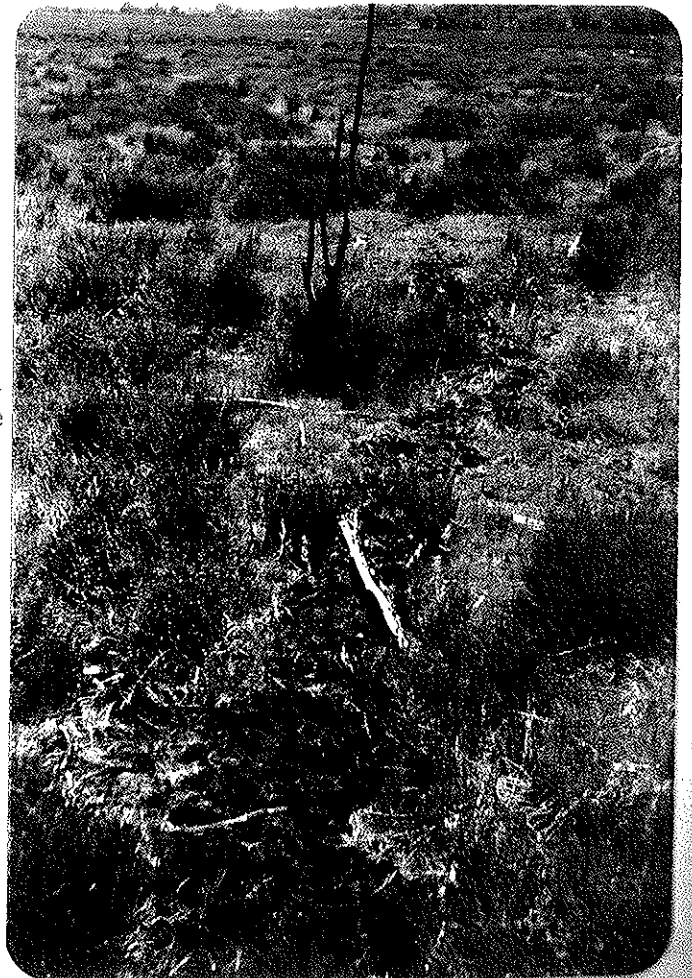


Firebreak along the northern boundary of Locke Estate
Caves road on left out of photo.

Damage caused to Paperbarks by stock



• A stock path across a wet samphire flat causing degradation and break down of the habitat.



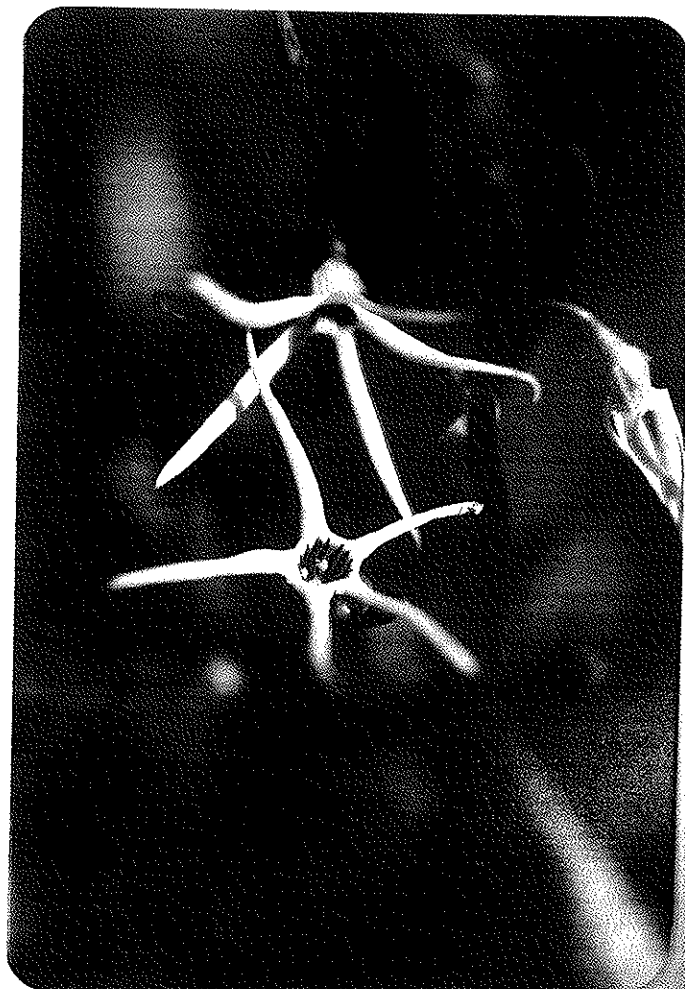
Acacia diciptiens.

A member of the Peppermint understorey



Anthocercis littorea

A common coastal species forming part of the Peppermint understorey



Pimelea argentea
Silvery Leaved Pimelea



Hibbertia cuneiformis
Cutleaf Hibbertia



Hardenbergia comptoniana
Wild Sarsparilla





Pseudocheirus peregrinus occidentalis Western Ringtail
(Declared Rare Species) photo taken on Locke Estate
in Peppermint (Agonis) woodland.