





A BIOLOGICAL SURVEY OF THE
SILENT GROVE AREA (MT HART
STATION) - KIMBERLEY REGION

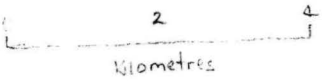
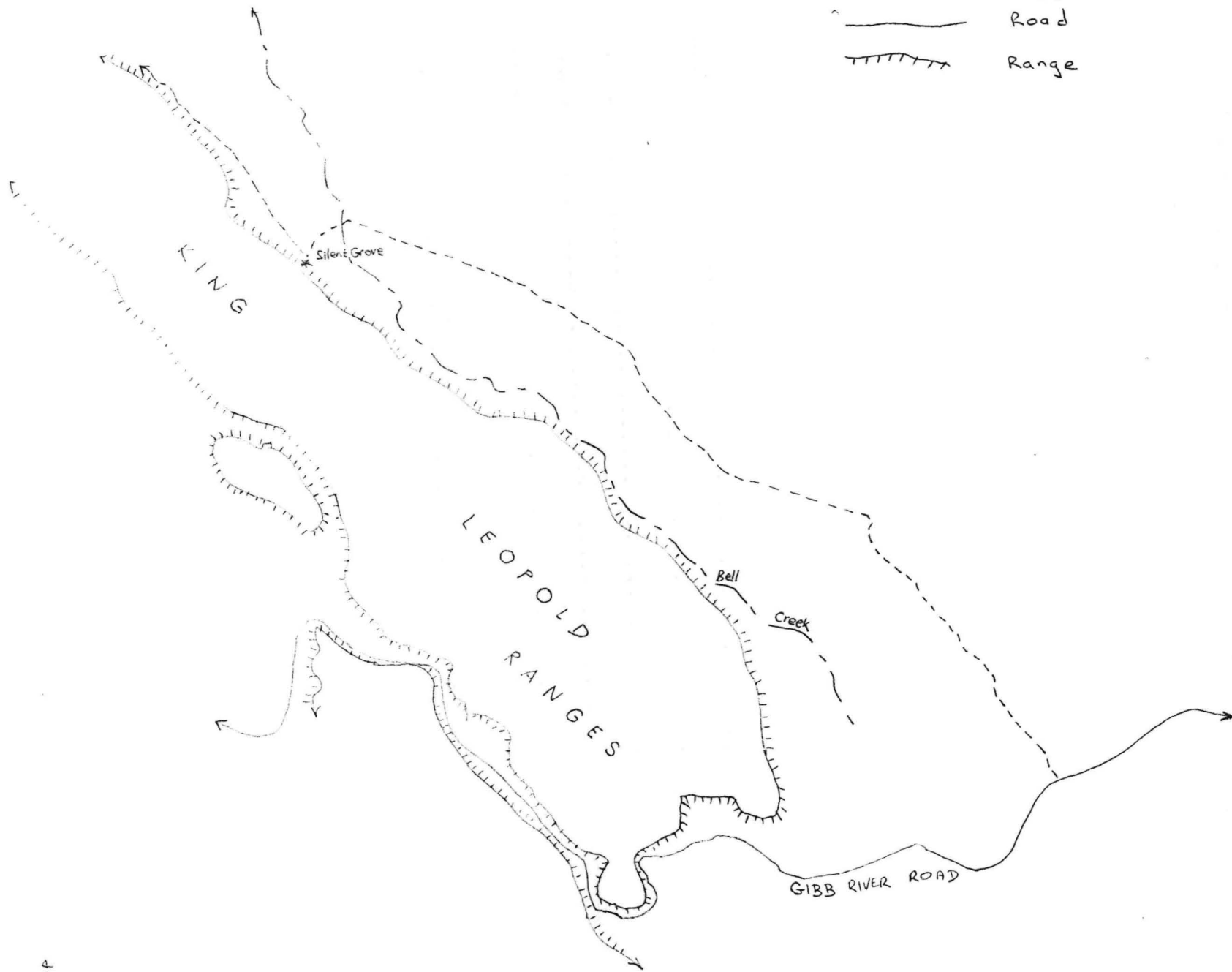
17-20 May 1992

G Graham

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-  Watercourse
-  Track
-  Road
-  Range



PEOPLE INVOLVED

Gordon Graham
Ecologist - Kimberley Region

(For part of the time):
Chris Done
Manager - Kimberley Region

Allan Grosse
District Manager - West Kimberley

ACKNOWLEDGEMENTS

For the identification of specimens - Ken Aplin (WA Museum), Darryl Kitchener (WA Museum) and Kevin Kenneally (WA Herbarium)

INTRODUCTION

Silent Grove is located approximately 180 kilometres east of Derby and 16 kilometres north of the Gibb River Road directly adjacent to the King Leopold Ranges. This area is in the shire of Derby - West Kimberley.

The most prominent feature of the Mt Hart area is the King Leopold Ranges with its steep sides and, in places, cliffs. The ranges stand out spectacularly in stark contrast to the flatter surrounds particularly when approached from the east. The area has many valleys, creek, permanent and semi-permanent water-holes and as such has a high recreational potential. An example is the increasing tourist visitation to the Bell Creek falls several kilometres north of Silent Grove.

The area has diverse assemblages of flora and fauna which require further study.

A proposal for a national park is mentioned in the Departmental publication 'Nature Conservation Reserves in the Kimberley' and all of the King Leopold Ranges are recommended for further study. (See attached maps)

The overall objectives of the survey were;

To add to the data base of the flora and fauna of the Kimberley;

Provide an introductory level of assessment of a particular area.

Begin to develop a resource data base for an area which will become part of the conservation estate.

AIM

To observe, collect and identify the species of plants and animals present in the study area.

TASKS

Flora:

General description of flora associations.

Collect flowering or distinctive flora.

Fauna:

Pit trapping

Opportunistic collection of reptiles

Bird survey

Netting for bats

Elliott traps were not available for this survey.

CLIMATE

Silent Grove lies between the 600 and 800mm isohyets. As with the general Kimberley region most of the rainfall occurs during the months of December to March with highest temperatures being recorded between October to April. The dry season is cooler with little or no rainfall.

Weather conditions during the survey were unexpectedly wet. There were constant showers and drizzle from the evening of Saturday 16 May 1992. Heaviest showers were on Monday 18 May 1992 with Tuesday 19 May 1992 having the longest rain periods.

GEOLOGY

The description of the geology of the area is taken from the 1:250,000 geological map series (Lennard River Sheet SE 51-8).

Soils in the vicinity of Silent Grove are sands and sandy soils. Further to the east there are residual black soils, however no collecting took place on these soils. The geology of the range adjacent to the site is described as 'white, buff and pale purplish brown medium quartz sandstone; minor coarse sandstone and granule sandstone.

All pit trap sites were in sand or sandy soils. A description of the sites is given in the methods section.

LANDUSE

Currently little is known about the Aboriginal cultural significance of the area.

The Mt Hart pastoral lease has recently been purchased by CALM with the intention of creating a national park in the area. The declaration of the park will take place after mining and pastoral interest in the area has been balanced against conservation and tourism requirements.

FIGURE 1: MONTHLY AVERAGE TEMPERATURES
DERBY

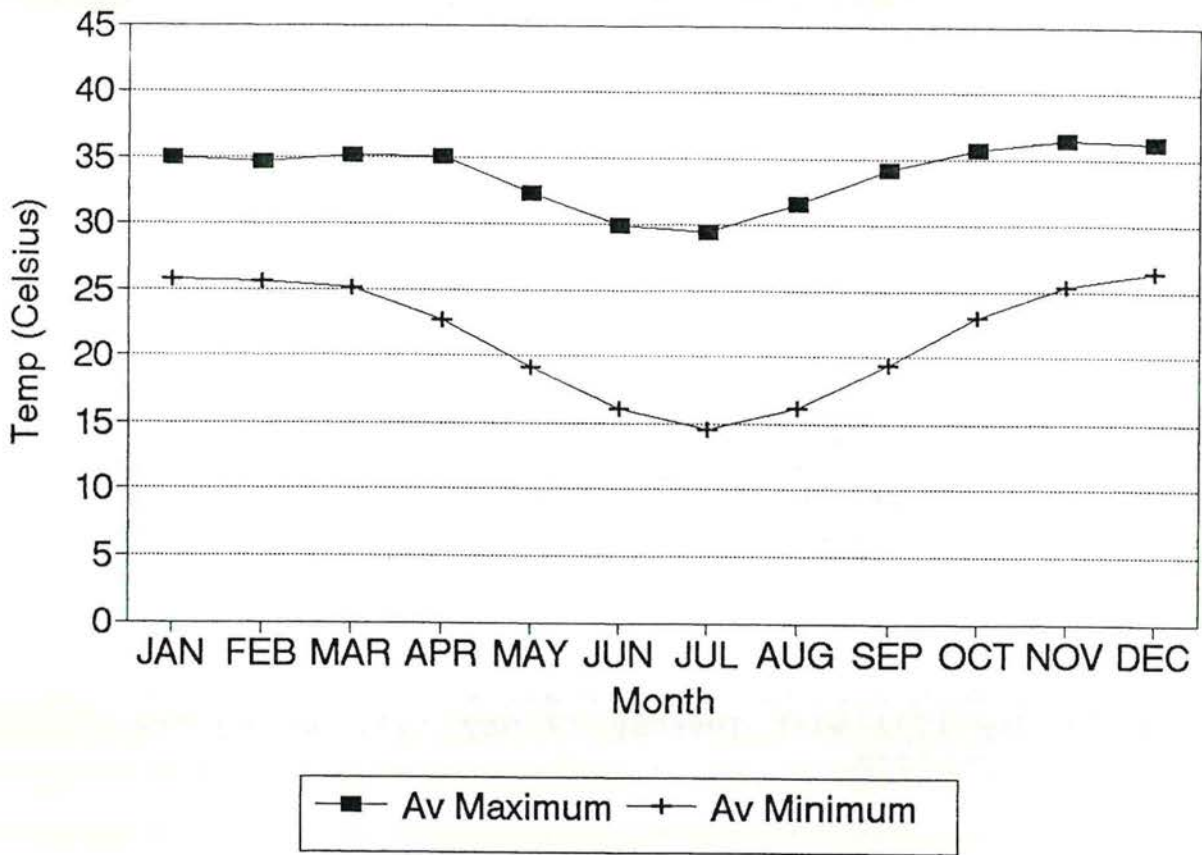


FIGURE 2: RAINFALL
DERBY

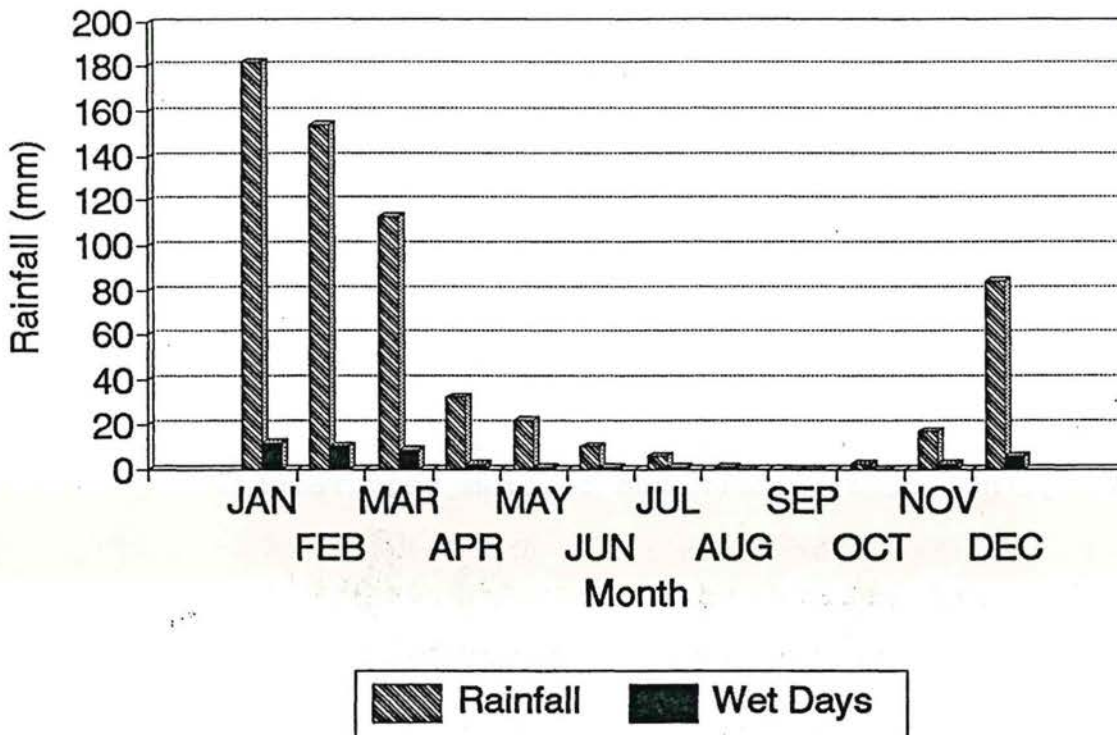


FIGURE 3: MONTHLY AVERAGE TEMPERATURES
FITZROY CROSSING

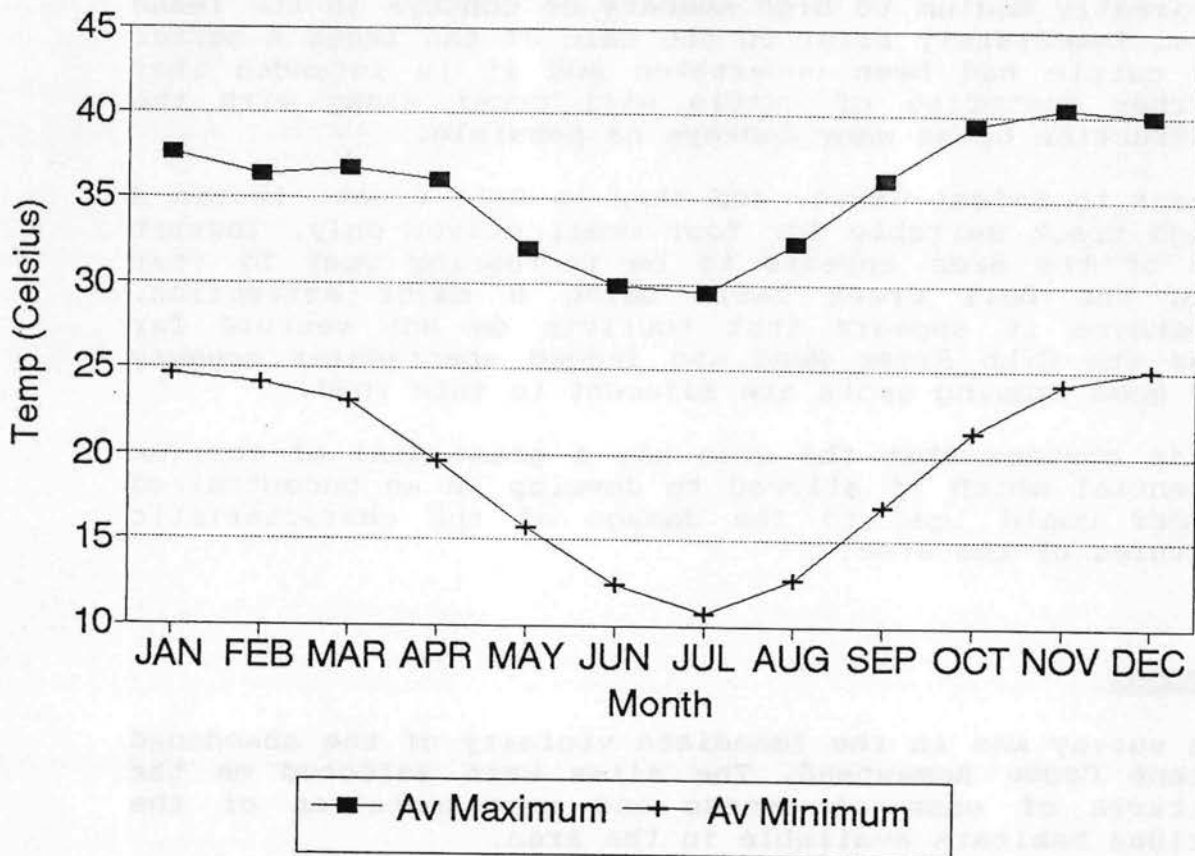
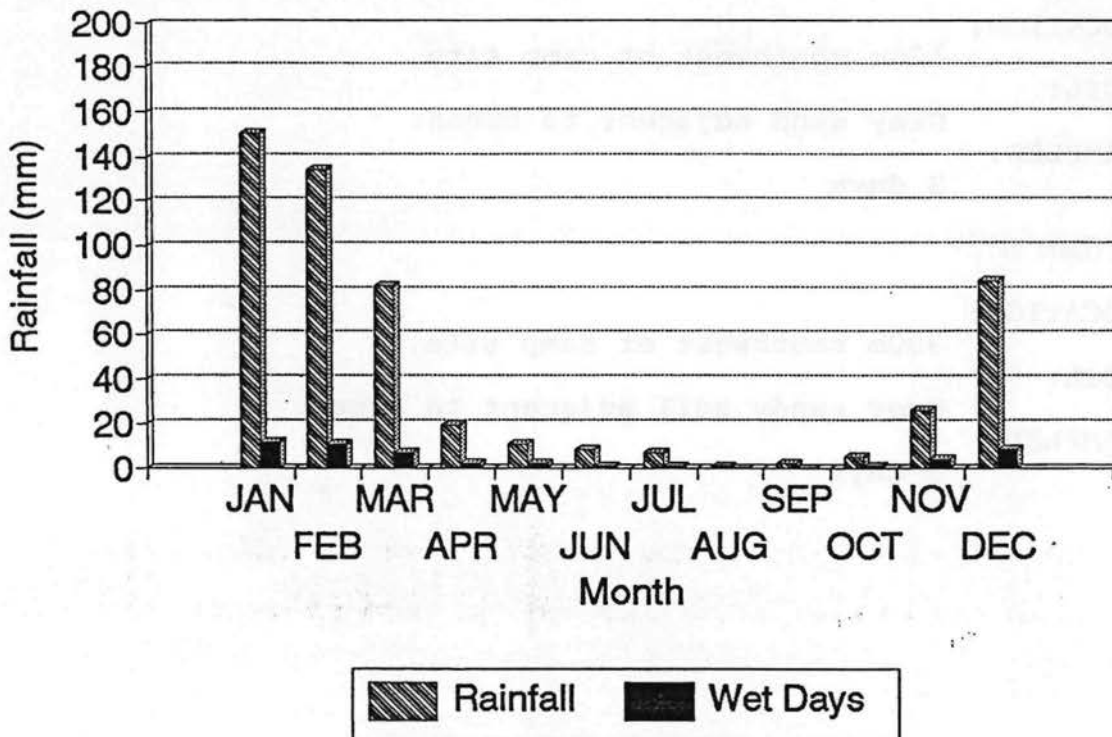


FIGURE 4: RAINFALL
FITZROY CROSSING



The area has been used for pastoral purposes with, at the time of the survey, there being low numbers of cattle and apparently medium to high numbers of donkeys in the lease area. Immediately prior to the sale of the lease a muster for cattle had been undertaken and it is intended that further mustering of cattle will occur along with the destruction of as many donkeys as possible.

Access to Silent Grove, and then to Bell Creek, is via a rough track suitable for four wheel drives only. Tourist use of the area appears to be increasing year by year with the Bell Creek falls being a major attraction. Elsewhere it appears that tourists do not venture far from the Gibb River Road and indeed spectacular scenery and good camping spots are adjacent to this road.

It is obvious that the area has a great deal of tourism potential which if allowed to develop in an uncontrolled manner could lead to the damage of the characteristic features of the area.

METHODS

The survey was in the immediate vicinity of the abandoned Silent Grove homestead. The sites were selected on the criteria of ease of access and representation of the various habitats available in the area.

All sampling sites were within a radius of 1 kilometre of the camp-site. Access to the sampling sites was by vehicle and on foot. The description of the sites and days sampled are as follows:

Camp-site: 'Silent Grove Homestead' (Photo 1)

*LAT: 17° 04' 05"S

LON: 125°14'52"E

SITE 1 (Photo 2)

LOCATION: 100m southwest of camp site.
 SOIL: Grey sand adjacent to creek.
 SAMPLED: 3 days

SITE 2 (Photo 3)

LOCATION: 300m southwest of camp site.
 SOIL: Grey sandy soil adjacent to creek.
 SAMPLED: 3 days

SITE 3 (Photo 4)

LOCATION: 400m southwest of camp site.
SOIL: Grey sandy soil with a higher humus content than at site 2 adjacent to creek.
SAMPLED: 3 days

SITE 4 (Photo 5)

LOCATION: 150m northeast of camp site.
SOIL: Orange sand.
SAMPLED: 3 days

SITE 5 (Photo 6)

LOCATION: 250M northeast of camp site.
SOIL: Pale yellow to brown clayey sand. Adjacent to dampland extension of creek.
SAMPLED: 3 days

SITE 6 (Photo 7)

LOCATION: 100m northwest of camp site.
SOIL: Coarse white to grey sand (white dominant) at the base of range. The sand has the appearance of being alluvial in source.
SAMPLED: 3 days

The latitude and longitude were set using a Trimble Transpak II GPS.

At each of the sample sites a single pit line was put in place using a fence 5 metres long with a pit at either end comprised PVC piping 150mm diameter by 50 cm deep.

Bird observations were made and flora specimens were collected at the sample sites and when travelling between the sites.

Data is presented in this report in comparison to seven other areas which have been surveyed in the past. Some feel for where this area fits into the regional context may be gained from this. The data was compared to specific surveys rather than comprehensive lists of species which are or might be present because similar techniques have been used.

Reports have been prepared for the areas compared and are under the following titles:

1

Bulletin 12 Wildlife of the Great Sandy Desert,
Western Australia.

2

Bulletin 10 Wildlife of the Edgar Ranges Area,
South-west Kimberley, Western Australia.

3

Bulletin 11 Wildlife of the Dampier Peninsula,
South-west Kimberley, Western Australia.

4

Bulletin 3 A Biological Survey of The Prince Regent
River Reserve, North-west Kimberley, Western
Australia.

5

Biological Survey of Mitchell Plateau and Admiralty
Gulf, Kimberley, Western Australia

The numbers in bold above conform with the numbers at the top of the species lists in the various sections which follow.

VEGETATION

The broad vegetation association as shown on Beard's mapping of the 'Vegetation of Western Australia (1977) is 'high grass savannah - white grass, ribbon grass Sehima nervosum, Chrysopogon spp. The site characteristics are somewhat different to this because of the proximity to the ranges and the creek which runs out of the range near Silent Grove and this is reflected in the species list obtained.

FLORA LIST

Chris Done

(Family in alphabetical order)	1	2	3	4	5
ANACARDIACEAE <i>Buchanania obovata</i>				■	■
APOCYNACEAE <i>Carissa lanceolata</i>	■	■			
ARECEACEAE <i>Livistona loriphylla</i>					
BIGNONIACEAE <i>Dolichandrone heterophylla</i>	■	■	■		
BOMBACACEAE <i>Adansonia gregorii</i>			■	■	■
BORAGINACEAE <i>Ehretia saligna</i>		■			
BURSERACEAE <i>Canarium australianum</i>			■	■	■
CAESALPINIACEAE <i>Erythrophleum chlorostachys</i> <i>Lysiphyllum cunninghamii</i>	■	■	■	■	■
CARYOPHYLLACEAE <i>Polycarpaea longiflora(?)</i>			■		■
COCHLOSPERMACEAE <i>Cochlospermum fraseri</i>			■	■	■
COMBRETACEAE <i>Terminalia canescens</i> <i>Terminalia hadleyana(?)</i> <i>Terminalia latipes</i> <i>Terminalia platyphylla</i>		■	■	■	■
EUPHORBIACEAE <i>Antidesma ghaesembilla(?)</i> <i>Petalostigma quadriloculare</i>					■
GYROCARPACEAE <i>Gyrocarpus americanus</i>		■	■		
LECYTHIDACEAE <i>Planchonia careya</i>			■		■
MALVACEAE <i>Hibiscus sp.</i>					

MELIACEAE

Owenia vernicosa

MIMOSACEAE

Acacia gracillima
Acacia holosericea
Acacia pellita(?)
Acacia plectocarpa
Acacia suberosa
Acacia (?) tumida

MORACEAE

Ficus hispida
Ficus leucotricha
Ficus opposita

MYRTACEAE

Calytrix exstipulata
Eucalyptus confertiflora
Eucalyptus foelscheana
Eucalyptus houseana
Eucalyptus miniata
Eucalyptus papuana
Eucalyptus perfoliata
Eucalyptus polycarpa
Eucalyptus ptychocarpa
Eucalyptus rupestris(?)
Eucalyptus tectifera
Eucalyptus terminalis
Lophostemon sp.
Melaleuca minutifolia
Melaleuca viridiflora
Syzygium sp.

NYMPHAEACEAE

Nymphaea sp.

PANDANACEAE

Pandanus aquaticus
Pandanus spiralis

PAPILIONACEAE

Crotalaria novae-hollandiae
Sesbania formosa
Sesbania grandiflora

POACEAE

Aristida hygrometrica(?)
Heteropogon contortus

PROTEACEAE

Banksia dentata
Grevillea agrifolia
Grevillea pteridifolia
Grevillea pyramidalis
Hakea sp.

RHAMNACEAE						
Alphitonia excelsa(?)				■		■
RUBIACEAE						
Gardenia sp.						
Nauclea orientalis				■		■
Timonius timon						■
RUTACEAE						
Boronia sp.						
SANTALACEAE						
Exocarpos latifolius			■	■		■
SAPINDACEAE						
Atalaya sp.						
STERCULIACEAE						
Brachychiton paradoxum						■
Brachychiton populanum(?)						
TILIACEAE						
Grewia sp.						
ULMACEAE						
Celtis phillippensis			■	■		■
VERBENACEAE						
Vitex glabrata				■		■
TOTAL:	71	10	15	28	32	39

FAUNA

Fauna collection data is as follows;

DATE	SITE	SPECIES	NO.
18.5.92	1	<u>Pseudomys delicatulus</u>	2
	1	<u>Limnodynastes ornatus</u>	1
	1	<u>Uperoleia lithomoda</u>	3
	2	<u>Pseudomys delicatulus</u>	1
	5	<u>Pseudomys delicatulus</u>	4
	5	<u>Limnodynastes ornatus</u>	1
19.5.92	2	<u>Limnodynastes ornatus</u>	1
	3	<u>Pseudomys delicatulus</u>	1
	5	<u>Pseudomys delicatulus</u>	1
	5	<u>Rattus tunneyi</u>	2
	5	<u>Limnodynastes ornatus</u>	1
	6	<u>Heteronotia binoei</u>	1

17.5.92

Heteronotia binoei

Found under tin at the camp-site

18.5.92

Miniopterus schreibersii

Collected with a hand net from abandoned house at the camp site.

19.5.92

Canis familiaris dingo

Two seen in woodland savannah north of camp site near the track which leads to Bell Creek Falls.

Bos taurus

As for dingo

Gehyra australis

Found in the abandoned house at the camp site.

20.5.92

Cryptoblepharus plagiocephalus

Found on the exterior wall of the abandoned house at the camp site.

Previous Records

Sus scrofa

Seen on Mt Hart pastoral lease. A. Grosse per comm.

Equus asinus

Estimates of numbers vary markedly but generally acknowledged as 'numerous' on the Mt Hart pastoral lease.

Onychogalea unguifera

A. Grosse, C. Done per comm.

Chlamydosaurus kingii

A. Grosse per comm.

MAMMALS

	1	2	3	4	5
Miniopterus schreibersii			█	█	█
Onychogalea unguifera	█		█	█	█
Pseudomys delicatulus	█	█	█	█	█
Rattus tunneyi				█	█
Canis familiaris dingo	█	█	█	█	█
Sus scrofa					
Bos taurus		█	█	█	
Equus asinus		█	█		
TOTAL: 8	3	4	6	5	4

BIRDS

	1	2	3	4	5
Little Eagle	█		█		█
Brolga		█		█	
Peaceful Dove			█		
Bar-shouldered Dove				█	
Crested Pigeon	█	█	█		█
White-quilled Rock-Pigeon				█	█
Spinifex Pigeon	█	█			
Little Corella			█	█	█
Red-collared Lorikeet				█	
Red-winged Parrot					█
Budgerigar	█	█			
Blue-winged Kookaburra					█
Rainbow Bee-eater					█
Pheasant Coucal					█
Tawny Frogmouth					█
Australian Owlet Nightjar	█			█	
Richard's Pipit					█
Black-faced Cuckoo-shrike				█	
White-bellied Cuckoo-Shrike				█	█
White winged Triller	█	█	█		
Rufous Whistler	█	█	█		
Northern Fantail					█
Willie Wagtail	█	█	█		
Grey-crowned Babbler					█
Weebill					█
Black-tailed Treecreeper					█
Silver-crowned Friarbird					█
Little Friarbird		█	█	█	
Yellow-throated Miner	█	█	█	█	
Grey-fronted Honeyeater				█	
Brown Honeyeater	█	█	█	█	
White-throated Honeyeater					█
Blue-faced Honeyeater				█	█

Red-browed Pardalote					
Long-tailed Finch					
Double-barred Finch					
Crimson Finch					
Great Bowerbird					
Australian Magpie Lark					
Masked Woodswallow					
Pied Butcherbird					
Australian Magpie					
Torresian Crow					
TOTAL: 43	24	29	33	35	38

REPTILES

	1	2	3	4	5
<i>Gehyra australis</i>					
<i>Heteronotia binoei</i>					
<i>Chlamydosaurus kingii</i>					
<i>Morethia ruficauda</i>				?	
<i>Cryptoblepharus plagiocephalus</i>					

AMPHIBIA

	1	2	3	4	5
<i>Limnodynastes convexiusculus</i>					
<i>Limnodynastes ornatus</i>					
<i>Uperoleia lithomoda?</i>					
<i>Litoria pallida</i>					
<i>Litoria rothi</i>					

DISCUSSION

At the time of arrival at Silent Grove and prior to the onset of rain the creek was found to be flowing at the abandoned homestead.

The weather conditions during the survey no doubt affected what type of animals were caught, particularly in the pit traps with, no doubt an increase in the frog species and a decrease in lizard species, particularly skinks. No animals were collected from the traps on 20 May 1992.

Miniopterus schreibersii, Onychogalea unguifera and Pseudomys delicatulus are toward the south western edge of their respective distributions at this location. Rattus tunneyi is tending toward its inland distribution boundary.

Gehyra australis and Chlamydosaurus kingii are toward the south western end of their northern Australian distribution whilst the remaining reptile species have relatively widespread distributions.

Limnodynastes convexiusculus is a species not often collected however its occurrence at Silent Grove is within the potential distribution. The existence of Uperoleia lithomoda requires confirmation because this represents a substantial, westward extension of its known range.

Litoria pallida has been known only from the lower Fitzroy Valley in Western Australia but is otherwise distributed across northern Australia. If correct this then represents an eastward extension of its distribution in W.A..

Limnodynastes ornatus and Litoria rothi are widely distributed in the Kimberley.

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PHOTO 1 - [Illegible text]



PHOTO 2 - [Illegible text]

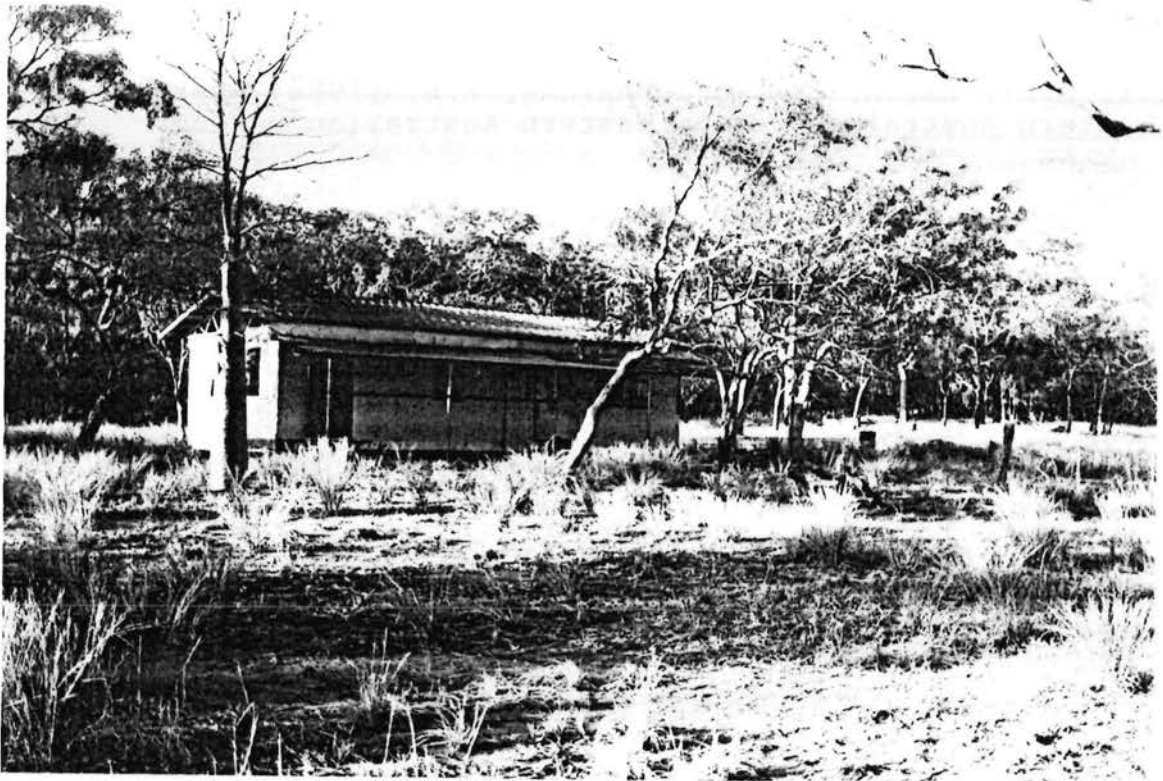


PHOTO 1 - CAMPSITE Looking southwest



PHOTO 2 - SITE 1 Looking southwest



PHOTO 3 - SITE 2

Looking southwest



PHOTO 4 - SITE 3

Looking southwest



PHOTO 5 - SITE 4 Looking north



PHOTO 6 - SITE 5 Looking northeast



PHOTO 7 - SITE 6

Looking south