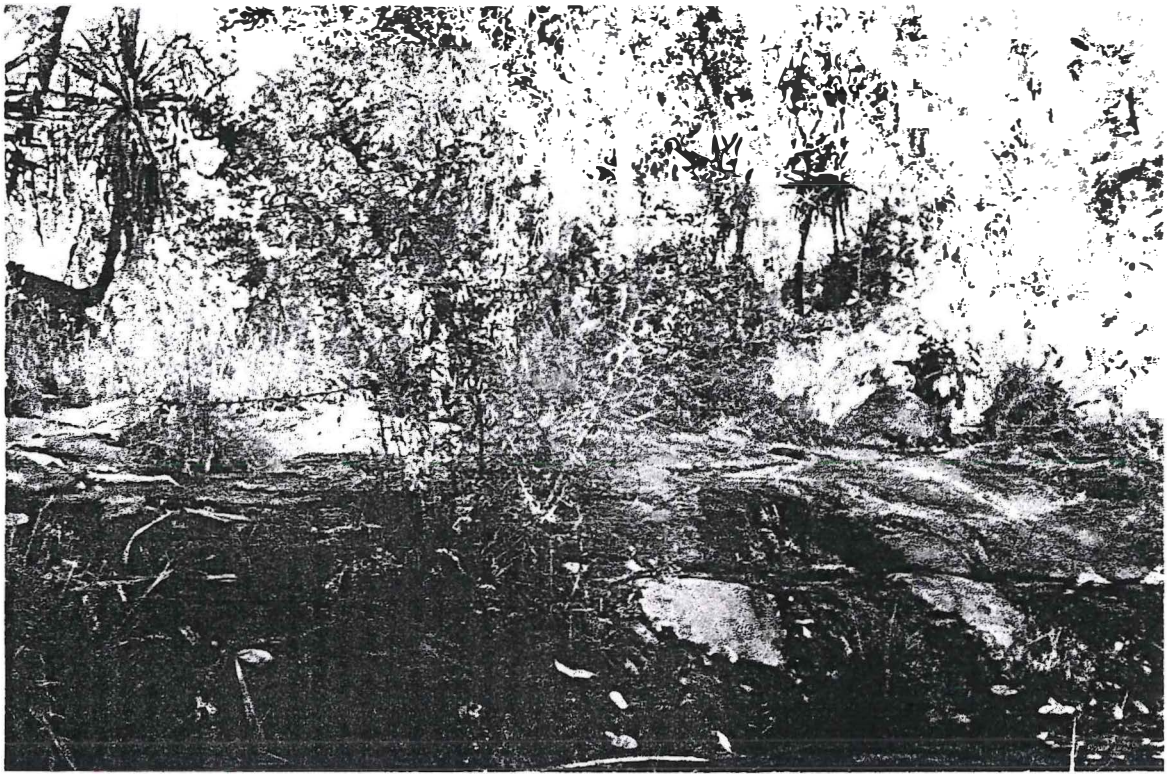
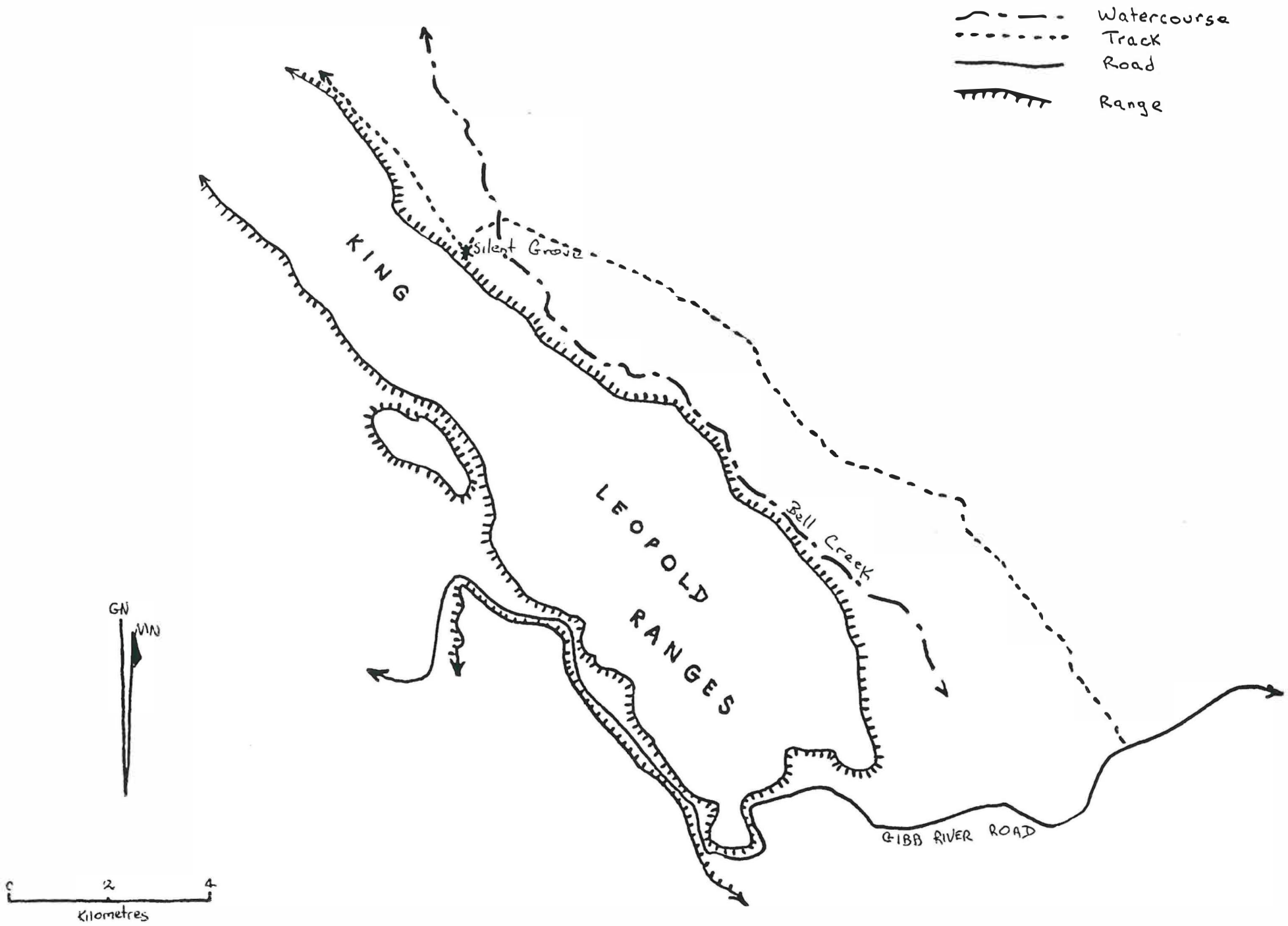


A BIOLOGICAL SURVEY OF THE SILENT GROVE AREA (MT HART STATION) - KIMBERLEY REGION

17-20 May 1992

Gordon Graham
ECOLOGIST
KIMBERLEY REGION


Watercourse
Track
Road
Range
Silent Grove
KING
LEOPOLD
RANGES
Bell Creek
GIBB RIVER ROAD
GN
MN
0
2
4
Kilometres

CONTENTS

ACKNOWLEDGEMENTS

Assistance in placing the pit traps was received from Chris Done (Manager - Kimberley Region CALM) and Allan Grosse (District Manager - West Kimberley CALM).

Reptiles were identified by Ken Aplin (WA Museum), mammals by Darryl Kitchener (WA Museum) and plants by Kevin Kenneally (WA Herbarium).

INTRODUCTION

The Mount Hart Pastoral lease was purchased by CALM with a view to creating a conservation reserve which would encompass a large part of the attractive King Leopold Ranges. The need to create a national park in this area was mentioned in the Departmental publication 'Nature Conservation Reserves in the Kimberley'. The documentation of the areas flora and fauna needs to be undertaken. This report represents a small part of that on-going process.

The overall objectives of this survey were to add to the data base of the flora and fauna of the Kimberley and provide an introductory level of assessment of a particular area. A small area was selected around Silent Grove.

LOCATION

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.

FEATURES

The most prominent feature of the Mt Hart area is the King Leopold Range 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, creeks, 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.

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.

Average temperatures at Derby indicate minimums of around 14^{o} C in July and 26 ^{o} C in December. Mamimum temperatures range from 30 ^{o} C in June-July and 36^{o} C in November. Derby's temperature patterns are no doubt moderated because it is on the coast. From this it can be inferred that temperature variations are likely to be greater at Silent Grove. Rainfall for Derby varies from 180 mm. for January to none for September.

Weather conditions during the survey were 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.

LANDUSE

Further studies are required to document the Aboriginal cultural significance of the area.

As mentioned it is intended to create a conservation park in the area however the declaration of the park will take place after mining and pastoral interest in the area has been balanced against conservation and tourism requirements.

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 some environmental damage including localised impact on flora and potentially a reduction in the quality of the recreational experience being sought by the public.

SURVEY 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.

It is to be stressed that a small study area was selected due to resource and time constraints. Over time there are likely to be substantial additions to the flora and fauna data base.

FLORA

General descriptions of flora associations were undertaken and a species list was prepared by Chris Done. Some collections of the flowering and distinctive flora were taken from the general area for subsequent identification.

FAUNA

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.

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 at the sites and when travelling between the sites.

SITES

Detailed information on site descriptions, taps used and days trapped is given in the appendix.

Physical Characteristics

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.

Four of the six sites were located adjacent to a creek wwhich flows out of the ranges. This creek is fed by a permanent spring and there are pools of water to be found year round along its course.

Vegetation Structure

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 with this being reflected in the species list obtained.

FLORA LIST

ANACARDIACEAE	
Buchanania obovata Engl.	Wild Mango
APOCYNACEAE	
Carissa lanceolata R. Br.	Conkerberry
ARECECEAE	
Livistona loriphylla Becc.	
BIGNONIACEAE	
Dolichandrone heterophylla (R. Br.) F. Muell.	Lemonwood
BOMBACACEAE	
Adansonia gregorii F. Muell.	Boab
BORAGINACEAE	
Ehretia saligna R. Br.	Coonta
BURSERACEAE	
Canarium australianum F. Muell.	
CAESALPINIACEAE	
Erythrophleum chlorostachys (F. Muell.) Baillon	Cooktown Ironwood
Lysiphyllum cunninghamii (Benth.) de wit	Bauhinia
CARYOPHYLLACEAE	
Polycarpaea longiflora? F. Muell	
COCHLOSPERMACEAE	
Cochlospermum fraseri Planchon	Kapok tree

COMBRETACEAE

Terminalia canescens (DC.) Radlk. ex T. Durand
T. hadleyana? W. Fitzg.
T. latipes Benth.
T. platyphylla F. Muell.

EUPHORBIACEAE

Antidesma ghaesembilla Gaertner

Petalostigma quadriloculare F. Muell. — Quinine bush

GYROCARPACEAE

Gyrocarpus americanus Jacq. — Helicopter tree

LECYTHIDACEAE

Planchonia careya (F. Muell.) Knuth — Cocky Apple

MALVACEAE

Hibiscus spp.

MELIACEAE

Owenia vernicosa F. Muell. — Emu Apple

MIMOSACEAE

Acacia gracillima Tind.
A. holosericea Cunn. ex don — Candelabra Wattle
A. pellita? O. Schwarz
A. plectocarpa Cunn ex Benth.
A. suberosa Cunn ex Benth. — Corky bark Wattle
A. tumida F. Muell. ex Benth. — Pindan Wattle

MORACEAE

Ficus hispida L.f.
F. leucotricha (Miq.) Miq. — Rock Fig
F. opposita Miq. — Sandpaper Fig

MYRTACEAE

Calytrix exstipulata DC. — Kimberley Myrtle

Eucalyptus byrnesii? D.J. Carr & S.G.M. Carr (Identified in survey as *E. foelscheana*)	
E. confertiflora F. Muell.	Roughleaf Cabbage Gum
E. houseana W. Fitzg. ex Maiden	Kimberley White Gum
E. miniata Cunn. ex Schauer	Northern Woollybutt
E. opaca D.J. Carr & S.G.M. Carr	
E. polycarpa F. Muell.	Longfruit Bloodwood
E. ptychocarpa F. Muell	Spring Bloodwood
E. rupestris? Brooker & C.C. Done	
E. tectifica F. Muell.	Darwin Box
E. sp. ***E.***	Ghost Gum
E. sp. ***J.***	Twinleaf Bloodwood
Lophostemon spp.	
Melaleuca minutifolia F. Muell.	
M. viridiflora Sol. ex Gaertner	
Syzygium spp.	
NYMPHAEACEAE	
Nymphaea spp.	
PANDANACEAE	
Pandanus aquaticus F. Muell.	Water Pandan
P. spiralis R. Br.	Screw Palm
PAPILIONACEAE	
Crotalaria novae-hollandiae DC.	New Holland Rattlepod
Sesbania formosa (F. Muell.) N. Burb.	White Dragon Tree
POACEAE	
Aristida hygrometrica? R. Br.	Northern Kerosene Grass
Heteropogon contortus (L.) P. Beauv. ex Roemer & Schultes	Bunch Speargrass
PROTEACEAE	
Banksia dentata L.f.	Tropical Banksia
Grevillea agrifolia Cunn. ex R. Br.	Blue Grevillea
G. pteridifolia Knight	Silky Grevillea
G. pyramidalis Cunn. ex Benth.	Caustic Tree
Hakea spp.	
RHAMNACEAE	
Alphitonia excelsa (Fenzl) Reissek ex Benth.	Red Ash
RUBIACEAE	
Gardenia megasperma F. Muell.	

Nauclea orientalis (L.) L. Leichhardt Pine

Timonius timon (Sprengel) Merr.

RUTACEAE

Boronia spp.

SANTALACEAE

Exocarpos latifolius R. Br. Mistletoe Tree

SAPINDACEAE

Atalaya spp.

STERCULIACEAE

Brachychiton spp.

TILIACEAE

Grewia spp.

ULMACEAE

Celtis phillippensis Blanco

VERBENACEAE

Vitex glabrata R. Br.

69 species of plants were recorded during the survey. Generally the species are widespread `Kimberley' species. Several species have a range which extends south of the Kimberley region examples of which are *Carissa lanceolata, Dolichandrone heterophylla* and *Terminalia canescens*. Because of the presence of the creek line there were seveal species found which are associated with wetter areas for example *Ficus hispida* is recorded as being found in vine thickets and *Lophostomon grandiflorus*, *Melaleuca viridiflora* and *Antidesma ghaesembilla* are found in damp areas.

FAUNA

BIRD LIST

Hieraaetus morphnoides	Little Eagle
Grus rubicundus	Brolga
Geopelia placida	Peaceful Dove
Geopelia humeralis	Bar-shouldered Dove
Ocyphaps lophotes	Crested Pigeon
Petrophassa albipennis	White-quilled Rock-Pigeon
Petrophassa plumifera	Spinifex Pigeon
Cacatua sanguinea	Little Corella
Trichoglossus rubritorquis	Red-collared Lorikeet
Aprosmictus erythropterus	Red-winged Parrot
Melopsittacus undulatus	Budgerigar
Dacelo leachii	Blue-winged Kookaburra
Merops ornatus	Rainbow Bee-eater
Centropus phasianinus	Pheasant Coucal
Podargus strigoides	Tawny Frogmouth
Caprimulgus guttatus	Spotted Nightjar
Anthus novaeseelandiae	Richard's Pipit
Coracina novaehollandiae	Black-faced Cuckoo-shrike
Coracina papuensis	White-bellied Cuckoo-shrike
Lalage sueurii	White-winged Triller
Pachycephala rufiventris	Rufous Whistler
Rhipidura rufiventris	Northern Fantail
Rhipidura leucophrys	Willie Wagtail
Pomatostomus temporalis	Grey-crowned Babbler
Smicrornis brevirostris	Weebill
Climacteris melanura	Black-tailed Treecreeper
Philemon argenticeps	Silver-crowned Friarbird
Philemon citreogularis	Little Friarbird
Entomyzon cyanotis	Blue-faced Honeyeater
Manorina flavigula	Yellow-throated Miner
Lichenostomus plumulus	Grey-fronted Honeyeater
Melithreptus albogularis	White-throated Honeyeater
Lichmera indistincta	Brown Honeyeater
Pardalotus rubricatus	Red-browed Pardalote
Neochmia phaeton	Crimson Finch
Poephila bichenovii	Double-barred Finch
Poephila acuticauda	Long-tailed Finch
Chlamydera nuchalis	Great Bowerbird
Grallina cyanoleuca	Australian Magpie-lark
Artamus personatus	Masked Woodswallow
Cracticus nigrogularis	Pied Butcherbird
Gymnorhina tibicen	Australian Magpie
Corvus orru	Torresian Crow

43 species of avifauna were recorded during the survey. As with all facets of this survey substantial additions could be made over time. All species are widespread species within the Kimberley region. The white-quilled rock-pigeon, *Petrophassa albipennis*, is a mainly Kimberley species being confined to sandstone gorges near permanent water.

AMPHIBIANS

Limnodynastes convexiusculus

Collected at the camp site during the day

Limnodynastes ornatus [4] **Ornate Burrowing Frog**
1(1), 2(1), 5(2)

Uperoleia lithomoda [3]
1(3)

Litoria meiriana

Very active frog seen around edges of pools particularly with sandstone boulder surrounds.

Litoria pallida

Collected adjacent to creek line during the day.

Litoria rothii **Roth's Tree Frog**

Collected adjacent to creek line during the day.

REPTILES

GEKKONIDAE

Gehyra australis **Northern Dtella**

Found in the abandoned house at the camp site.

Heteronotia binoei [1] **Bynoe's Gecko**
6(1)

Also found under sheets of tin at the camp site.

AGAMIDAE

Chlamydosaurus kingii **Frilled Lizard**

Seen in the area previously (A. Grosse per comm.).

SCINCIDAE

Cryptoblepharus plagiocephalus

Found on the exterior wall of the abandoned house at the camp site.
Morethia ruficauda **Fire-tailed Skink**

Seen on a number of occasions in the leaf litter adjacent to the creek.

MAMMALS

Onychogalea unguifera **Northern Nailtail Wallaby**

Seen in the area previously (A. Grosse, C. Done per comm.).

Miniopterus schreibersii **Common Bent-wing Bat**

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

Pseudomys delicatulus [9] **Delicate Mouse**
1(2), 2(1), 3(1), 5(5).

Rattus tunneyi [2] **Pale Field-Rat**
5(2)

Canis familiaris dingo **Dingo**

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

Sus scrofa **Feral Pig**

Seen on the Mt Hart pastoral lease previously (A. Grosse per comm.).

Equus asinus **Donkey**

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

Bos taurus **Cattle**

Often seen in the area.

COMMENTS

The weather conditions during the survey no doubt affected the number and type of animals caught. For the pit traps it is likely that there may have been an increase in frog species over skink species due to the wet conditions. The proximity to permanaent water would have also conrtributed to this. It is difficult to define this as the pit traps were only able to be left open for three days because of localised flooding. On the final day no animals were collected from the pit traps (20 May 1992).

From the WA Museum series of publications on reptiles and snakes it appears that *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.

From the publication 'The Complete Book of Australina Mammals' it appears that *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.

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