

Herpetofauna of the Bungle Bungle Area

by
Nick Gambold

ANNOTATED SPECIES LIST

Nomenclature follows Storr *et al.* (1981, 1983, 1986, 1990) for reptiles and Tyler *et al.* (1984) for amphibians.

For Australian distribution: T = tropical northern Australia (Torresian zone), D = primarily desert (Eyrean zone), K = restricted to the Kimberley, C = continent-wide distribution.

The survey sites where species were recorded by CSIRO are listed after the scientific name. Numbers in brackets refer to the number of individuals (if any) recorded in quadrats for those sites.

The number of specimens collected is given after survey sites; all specimens are lodged in the Western Australian Museum with prefix R103...

Amphibia

FAMILY Leptodactylidae. Ground Frogs.

ORNATE BURROWING FROG *Limnodynastes ornatus* (Gray). T

1(3), 2(1), 4(1), 8(4), 9(4), 10(2).

Preferred land unit: Nelson frontage.

Preferred floristic group: *E. camaldulensis/Melaleuca-Aerva-Aristida*.

5 specimens.

Abundant in many habitats, particularly fluvial sands. Occurs on the Bungle Bungle plateau.

Ranidella bilingua (Martin, Tyler & Davies). T

2(5), 4(26), 5(2), 6(10), 7(31), 8(3).

Preferred land unit: Elder uplands.

Preferred floristic group: *E. ptychocarpa-Pandanus-Heteropogon*.

7 specimens.

Locally common, confined to permanently moist habitats associated with springs, soaks and plunge pools.

Uperoleia borealis Tyler, Martin & Davies. K
4(30), 10(56).

Preferred land unit: Buchanan frontage.

Preferred floristic group: *E. aspera-Acacia-Triodia*.
10 specimens.

Locally abundant around plunge pools and ephemeral creeks of the massif.

FAMILY Hylidae. Tree Frogs.

Cyclorana australis (Gray). T
10(4).

Preferred land unit: Buchanan frontage.

Preferred floristic group: *E. aspera-Acacia-Triodia*.
2 specimens.

Common, large numbers observed at temporary pools in ephemeral creeks running off the south-west face of the massif following heavy rain in November 1986.

Cyclorana longipes Tyler & Martin. T

Not recorded during this survey, but I recorded one specimen at Piccaninny Creek in November 1986.

GREEN TREE FROG *Litoria caerulea* (White). T
8(1), 10(2).

Preferred land unit: Buchanan frontage.

Preferred floristic group: *E. aspera-Acacia-Triodia*.
1 specimen.

Recorded co-occurring with *Litoria splendida* in rocky gorges. Also in woodlands and artificial structures within the Park.

COPLAND'S ROCK FROG *Litoria coplandi* (Tyler). T
1(4), 4(19), 5(9), 6(2), 7(13), 8(4), 10(10).

Preferred land unit: Elder uplands.

Preferred floristic group: *E. aspera-Acacia-Triodia*.
6 specimens.

Abundant in watercourses throughout sandstone.

Litoria meiriana (Tyler). T
4(127), 10(1).

Preferred land unit: Elder uplands.

Preferred floristic group: *E. aspera-Acacia-Triodia*.

Conspicuous and diurnal, often co-occurring with *L. coplandi* in pools in rocky gorges. Seasonally variable in abundance.

ROTH'S TREE FROG *Litoria rothii* (de Vis). T
5.
Recorded incidentally at Winnama Gorge and at Blue Holes.

DESERT TREE FROG *Litoria rubella* (Gray). C
1, 5.
1 specimen.
Probably common and widespread following rain.

Litoria splendida Tyler, Martin & Davies. K
8(7), 10(6).
Preferred land unit: Buchanan frontage. Preferred floristic group: *E. aspera-Acacia-Triodia*.
1 specimen.
Found commonly in sandstone gorges of the Osmand Valley and Bungle Bungle massif, often forming aggregations in caves and crevices.

Litoria wotjulumensis (Copland). T
6(3), 7(1), 8(10), 10.
Preferred land unit: Wickham rugged uplands.
Preferred floristic group: *E. Ptychocarpa-Pandanus-Heteropogon*.
5 specimens.
Moderately common, associated with tussock grass fringing watercourses.

Reptilia

FAMILY Crocodylidae. Crocodiles.

FRESHWATER CROCODILE *Crocodylus johnstoni* Krefft. T
2(2), 5(2), 7(10), 9.
Preferred land unit: Wickham rugged uplands.
Preferred floristic group: *E. Ptychocarpa-Pandanus-Heteropogon*.
Common in pools of the Ord River and Osmand Creek units. 56 were counted in one pool at Blue Holes.

FAMILY Chelidae. Turtles.

Chelodina sp. nov. T
7(3), 8(1).
Preferred land unit: Wickham rugged uplands.
Preferred floristic group: *E. Ptychocarpa-Pandanus-Heteropogon*.
1 specimen.
A large snake-necked turtle associated with sandstone watercourses. Also known from the north Kimberley and Northern Territory (Kennett⁵ personal communication).

Emydura australis (Gray). K
7(6), 9.
Preferred land unit: Wickham rugged uplands.
Preferred floristic group: *E. Ptychocarpa-Pandanus-Heteropogon*.
1 specimen.
Common short-necked turtle (with red temporal streak) throughout the major waterways of the area. Recorded also at Wulwuldji Spring.

FAMILY Gekkonidae. Geckoes.

CLAWLESS GECKO *Crenadactylus ocellatus* (Gray). D
8(1).
Preferred land unit: Wickham rugged uplands.
Preferred floristic group: *Lysiphyllum-Carissa-Heteropogon*.
1 specimen.
Recorded on cycads and from burning spinifex on sandstone. Specimen is of the subspecies *C. ocellatus rostralis*.

SPINY-TAILED GECKO *Diplodactylus ciliaris* Boulenger. T,D
10(1).
Preferred land unit: Buchanan uplands.
Preferred floristic group: *Acacia-Triodia*.
1 specimen.
Uncommon, although possibly underestimated because of cryptic arboreal habits. Specimen is of the subspecies *D. ciliaris ciliaris*.

FAT-TAILED GECKO *Diplodactylus conspicillatus* Lucas & Frost. D 9(3).
Preferred land unit: Nelson low rises.
Preferred floristic group: *Lysiphyllum-Acacia-Cenchrus*.
3 specimens.
On sandstone breakaway. All specimens gravid with two near term eggs (late November).

Diplodactylus stenodactylus Boulenger. T,D
1(4), 5(1), 8(6), 9(2), 10(1).
Preferred land unit: Buchanan sandplain.
Preferred floristic group: *E. collina-Acacia-Plectrachne*.
7 specimens.
Common, especially on deep sands.

NORTHERN DTELLA *Gehyra australis* Gray. T
1(2), 2(5), 3(2), 5(1), 6(1), 7(3), 8(6), 9(6).
Preferred land unit: Nelson frontage.
Preferred floristic group: *E. Ptychocarpa-Pandanus-Heteropogon*.
14 specimens.
Common and widespread other than on massif. Mostly recorded from beneath loose bark of eucalypts, also common in *Lysiphyllum* woodlands. Two distinct forms noted during this survey.

⁵ R. Kennett - Conservation Commission of the Northern Territory, Darwin.

Gehyra nana Storr. T
1(1), 3(6), 4(9), 5(1), 6(9), 7(2), 8(2), 9(13).
Preferred land unit: Nelson low rises.
Preferred floristic group: *E. cliftoniana-Cajanus-Plectrachne*.
9 specimens.
Common on sandstone and limestone throughout the Park.

PILBARA DTELLA *Gehyra pilbara* Mitchell. D
3(4), 9(16).
Preferred land unit: Nelson low rises.
Preferred floristic group: *Lysiphyllum-Acacia-Cenchrus*.
6 specimens.
Commonly recorded on termite mounds associated with sandstone cuestas and breakaways.

Gehyra sp. nov. K
1, 4(2), 7(2), 10.
Preferred land unit: Wickham rugged uplands.
Preferred floristic group: *E. cliftoniana-Cajanus-Plectrachne*.
16 specimens.
A large saxicoline DteLLa superficially resembling *Pseudothecadactylus*, found in deep cool gorges and caves of the Bungle Bungle massif, Osmand Ranges and 'Keep River Sandstone' (King⁶ personal communication).

BYNOE'S GECKO *Heteronotia binoei* (Gray). C
1(3), 2(17), 3(7), 5(8), 6(4), 7(8), 8(1), 9(13).
Preferred land unit: Nelson cracking clay plains.
Preferred floristic group: *E. camaldulensis/Melaleuca-Aerva-Aristida*.
14 specimens.
Ubiquitous, except on the massif. Often encountered in burrows and on termite mounds.

CAVE GECKO *Heteronotia planiceps* Storr. T
1, 4(1), 6(2), 7(2), 8(3).
Preferred land unit: Headley lower slopes.
Preferred floristic group: *Livistona-Acacia-Germania*.
12 specimens.
A common saxicoline gecko of sandstone, basalt and limestone environments. Some specimens were difficult to distinguish from *H. spelea* morphologically.

MARbled VELVET GECKO *Oedura marmorata* Gray. T,D
4(1).
Preferred land unit: Elder uplands.
Preferred floristic group: *E. cliftoniana-Acacia-Triodia*.
1 specimen.
Scarce - single specimen on sandstone from the top of the massif.

Oedura rhombifer Gray. T,D
6(1).
Preferred land unit: Headley lower slopes.
Preferred floristic group: *Hakea-Dodonea-Triodia*.
1 specimen.
Scarce - single juvenile specimen pit-trapped on a limestone ridge, with dense spinifex understorey.

BEAKED GECKO *Rhynchoedura ornata* (Gunther). D
2(1), 3(1), 9(4), 10(1).
Preferred land unit: Nelson frontage.
Preferred floristic group: *E. camaldulensis/Melaleuca-Aerva-Aristida*.
6 specimens.
Moderately common. In late November females were gravid with two near-term eggs.

FAMILY Pygopodidae. Pygopodids (Legless Lizards).

Delma borea Kluge. T,D
4(1), 5(1), 6(2), 7(1), 8(2), 10(3).
Preferred land unit: Buchanan uplands.
Preferred floristic group: *E. cliftoniana-Cajanus-Plectrachne*.
13 specimens.
Commonly pit-trapped or found within spinifex.

Delma nasuta Kluge. D
4(3), 8(1).
Preferred land unit: Elder uplands.
Preferred floristic group: *E. aspera-Acacia-Triodia*.
1 specimen.
Common only on the Bungle Bungle Plateau where it inhabited dense spinifex.

Delma tinctoria de Vis. T,D
8(1), 9(1).
Preferred land unit: Nelson frontage.
Preferred floristic group: *Livistona-Acacia-Germania*.
12 specimens.
Uncommon, generally occurring in more arid environments than *D. borea*. Damaged specimen from site 8 was not positively identified.

BURTON'S SNAKE-LIZARD *Lialis burtonis* Gray. C
9(2), 10(3).
Preferred land unit: Nelson frontage.
Preferred floristic group: *E. camaldulensis/Melaleuca-Aerva-Aristida*.
Only recorded during the 'wet season' survey, when it was moderately common.

⁶ M. King - Northern Territory Museum of Arts and Services, Darwin.

HOODED SCALY-FOOT *Pygopus nigriceps* (Fischer).
C

1.

1 specimen.

Scarce - a single specimen active at night among spinifex on red sand plain. Specimen is of the subspecies *P. nigriceps schraderi*.

FAMILY Agamidae. Dragons.

FRILL-NECKED LIZARD *Chlamydosaurus kingi* Gray.]
T

Not recorded during this survey, but sightings reported from Island Yard on the Ord River (Rogers and Butters⁷ personal communication).

RING-TAILED DRAGON *Ctenophorus caudicinctus*
(Gunther). T

3(4), 5(2), 7(2), 9(2), 10(2).

Preferred land unit: Elder cuestas.

Preferred floristic group: *E. brevifolia-Cassia-Plectrachne*.
4 specimens.

Moderately common in sandstone habitats, including low breakaways in the Ord River valley. Specimens are of the subspecies *C. caudicinctus macropus*.

MILITARY DRAGON *Ctenophorus isolepis* (Fischer).
D

1(18), 3(7), 10(42).

Preferred land unit: Buchanan sandplain.

Preferred floristic group: *E. collina-Acacia-Triodia*.

3 specimens.

Common and conspicuous on deep red sands surrounding much of the massif. Specimens are of the subspecies *C. isolepis isolepis*.

Diporiphora arnhemica Storr. T

5(9), 8(1).

Preferred land unit: Antrim rugged uplands.

Preferred floristic group: *E. opaca-Grevillea-Triodia*.

4 specimens.

Locally common. All records from open spinifex on stony rises.

Diporiphora lalliae Storr. D

3(1), 6(2), 9(13).

Preferred land unit: Nelson cracking clay plains.

Preferred floristic group: *Lysiphyllum-Acacia-Cenchrus*.
4 specimens.

Locally common, particularly in scattered open shrubs over tussock grasslands.

Diporiphora magna Storr. T

1(3), 3(3), 10(2).

Preferred land unit: Elder cuestas.

Preferred floristic group: *E. collina-Acacia-Triodia*.

5 specimens.

A small dragon moderately common on sandplains of the Buchanan and Elder systems.

Gemmatophora gilberti (Gray). T,D

2(10), 5(8), 6, 7(18), 8(2), 9(5). Preferred land unit: Nelson frontage.

Preferred floristic group: *E. ptychocarpa-Pandanus-Heteropogon*.

6 specimens.

Common in riparian habitats other than those directly adjacent to the massif. Specimens are of the subspecies *G. gilberti gilberti*.

Pogona minor (Sternfeld). T,D

10.

A bearded dragon skull, probably this species, was collected from underneath a raptor roost in a sandstone outlier. This species is uncommon throughout the Kimberley.

FAMILY Varanidae. Monitors (Goannas).

RIDGE-TAILED MONITOR *Varanus acanthurus*
Boulenger. T,D

3(1), 4(5), 6(2).

Preferred land unit: Elder uplands.

Preferred floristic group: *E. cliftoniana-Acacia-Triodia*.

2 specimens.

Very numerous among sandstone boulders on top of massif. Also common in most other rocky habitats in the Bungle Bungle area.

Varanus glauerti Mertens. T

8(1).

Preferred land unit: Wickham rugged uplands.

Preferred floristic group: *Livistona-Acacia-Germania*.

4 specimens.

All specimens from gorges in the Osmand and Bungle Bungle ranges. In congregations around persistent waterholes in 'wet season' survey.

LONG-TAILED ROCK MONITOR *Varanus glebopalma*
Mitchell. T

7(2), 8, 10.

Preferred land unit: Wickham rugged uplands.

Preferred floristic group: *E. cliftoniana-Cajanus-Plectrachne*.

Inconspicuous, but probably common in sandstone habitats throughout the Park.

⁷ A. Rogers and P. Butters - Department of Conservation and Land Management, Kununurra, W.A.

SAND GOANNA *Varanus gouldii* (Gray). T,D
10(8).

Preferred land unit: Buchanan uplands.

Preferred floristic group: *Acacia-Triodia*.

2 specimens.

The distinctive diggings of this species were common in all quadrats on red sand. Two adult specimens from spinifex on sandplain.

Varanus kingorum Storr. K

6(1).

Preferred land unit: Antrim rugged uplands.

Preferred floristic group: *E. brevifolia-Acacia-Triodia*.

1 specimen.

Scarce, one female pit-trapped on shattered, hard sandstone ridge in July was gravid with two well-formed eggs.

MERTEN'S WATER MONITOR *Varanus mertensi*
Glauert. T

4(1), 5(1), 7(2), 8(5).

Preferred land unit: Wickham rugged uplands.

Preferred floristic group: *Livistona-Acacia-Germania*.

Common in permanent pools of the Osmand Creek and gorges of the Bungle Bungle massif. One specimen was captured in a dry creek bed on top of the massif. Gravid females and neonates observed in November and December.

MITCHELL'S WATER MONITOR *Varanus mitchelli*
Mertens. T

2(1), 7(2), 8(1).

Preferred land unit: Wickham rugged uplands.

Preferred floristic group: *Livistona-Acacia-Germania*.

1 specimen.

Common along Osmand Creek and associated gorges.

NORTHERN SAND GOANNA *Varanus panoptes* Storr.
T

3(2), 9(3), 10(2).

Preferred land unit: Nelson frontage.

Preferred floristic group: *E. aspera-Acacia-Triodia*.

Reasonably abundant, especially near watercourses.

BLACK-HEADED GOANNA *Varanus tristis* Schlegel.
C

5(2), 8(3), 9(1), 10(1).

Preferred land unit: Nelson cracking clay plains.

Preferred floristic group: *Livistona-Acacia-Germania*.

2 specimens.

Moderately common, recorded under bark and in hollow limbs of eucalypts. Also caught in Elliott traps. Specimens are of the subspecies *V. tristis tristis*.

FAMILY Scincidae. Skinks.

Carlia amax Storr. T

4(6), 6(2), 8(7).

Preferred land unit: Elder uplands.

Preferred floristic group: *Livistona-Acacia-Germania*.

7 specimens.

Common on the harder sandstones of the Osmand Ranges and on the plateau of the Bungle Bungle massif, but absent from the fragile conglomerates of the massif's perimeter.

Carlia munda de Vis. T

7(9), 8(2).

Preferred land unit: Nelson cracking clay plains.

Preferred floristic group: *E. ptychocarpa-Pandanus-Heteropogon*.

2 specimens.

Isolated populations occurring on heavy cracking clays, rain forest patches and *Melaleuca* swamps.

Carlia triacantha (Mitchell). T,D

9(2).

Preferred land unit: Nelson low rises.

Preferred floristic group: *Lysiphyllum-Acacia-Cenchrus*.

1 specimen.

Scarce, very limited distribution within the Park: only recorded from spinifex and tussock grass on stony soils.

Cryptoblepharus megastictus Storr. T

4(1), 7(4), 8(4), 10(3).

Preferred land unit: Buchanan frontage.

Preferred floristic group: *E. aspera-Acacia-Triodia*.

2 specimens.

Moderately common on sandstone of the Osmand Ranges and Bungle Bungle massif.

Cryptoblepharus plagiocephalus (Cocteau). C

1(2), 2(2), 6(3), 8(3), 9(2).

Preferred land unit: Headley lower slopes.

Preferred floristic group: *E. ptychocarpa-Pandanus-Heteropogon*.

4 specimens.

Moderately common in most woodland and open forest habitats.

Ctenotus decaneurus Storr. T

1(1), 8(1).

Preferred land unit: Buchanan sandplain.

Preferred floristic group: *E. collina-Acacia-Plectrachne*.

2 specimens.

One specimen was collected from an extensive sandplain (where sympatric with *C. piankai*), but normally on shaley substrates.

Ctenotus inornatus Storr. T.
Ctenotus saxatilis (Gray). D.
1(12), 2(1), 3(4), 4(21), 5(4), 6(4), 7(5), 8(3), 9(16),
10(92).

Preferred land unit: Buchanan uplands.
Preferred floristic group: *Acacia-Triodia*.
39 specimens.

Very abundant and widespread. These taxa were not differentiated as their morphological patterns appear to intergrade extensively in this area.

SOLDIER SKINK *Ctenotus militaris* Storr. K
9(14).

Preferred land unit: Nelson low rises. Preferred floristic group: *Lysiphyllum-Acacia-Cenchrus*.
4 specimens.

Locally abundant on sandstone breakaways and cracking clays adjacent to the Ord River at Kitty's Knob.

OCELLATED SKINK *Ctenotus pantherinus* Peters. T
3(3), 5(10), 6(6), 7(3), 8(5), 9(1).

Preferred land unit: Antrim rugged uplands.
Preferred floristic group: *E. brevifolia-Acacia-Triodia*.
8 specimens.

Common in most spinifex habitats, except those on the massif. Specimens are of the subspecies *C. pantherinus calx*.

Ctenotus piankai Storr. D
1(5), 3(4), 5(1), 10(9).

Preferred land unit: Buchanan uplands.
Preferred floristic group: *Acacia-Triodia*.
6 specimens.

Reasonably common on red sands with spinifex.

Ctenotus tantillus Storr. K
1(1).

Preferred land unit: Buchanan sandplain.
Preferred floristic group: *E. collina-Acacia-Plectrachne*.
1 specimen.

Scarce, the Park may represent its local southern range limit. Pit-trapped on sandplain with *Eucalyptus collina* woodland.

Egernia slateri Storr. D
4(5).

Preferred land unit: Elder uplands.
Preferred floristic group: *E. cliftoniana-Acacia-Triodia*.
3 specimens.

Confined to the plateau of the Bungle Bungle massif, where numerous and colonial. Their conspicuous burrows (often with multiple openings) were placed at the base of spinifex clumps on shallow sandy soils. Specimens are of the subspecies *E. slateri slateri*, which also occurs in the south of the Northern Territory.

BROAD-BANDED SAND-SWIMMER *Eremiascincus richardsonii* (Gray). D
5(1), 9(1).

Preferred land unit: Nelson frontage.
Preferred floristic group: *Acacia-Aerva-Aristida*.
1 specimen.

Two were pit-trapped on silty soils of levee banks of the Ord River. Vegetation and impact of feral animals were very different at these sites.

Sphenomorphus isolepis (Boulenger). T
8(3).

Preferred land unit: Wickham rugged uplands.
Preferred floristic group: *Livistona-Acacia-Germania*.
2 specimens.

Recorded from sheltered gullies supporting closed forests in the Osmand Valley (Winnama Gorge, Bream Gorge).

Lerista aericeps (Storr). D
1(2).

Preferred land unit: Buchanan sandplain.
Preferred floristic group: *E. collina-Acacia-Triodia*.
2 specimens.

Both raked from sandy soil beneath logs in *Eucalyptus collina* open woodland over spinifex. Previously known in Western Australia from only one specimen collected about 100 km south of the Park at Gordon Downs. Specimens are of the subspecies *L. aericeps taeniata*.

Lerista borealis Storr. K
2(1), 8(4).

Preferred land unit: Wickham rugged uplands.
Preferred floristic group: *E. ptychocarpa-Pandanus-Heteropogon*.
1 specimen.

Collected from sandy or loamy substrates. This species is typically associated with more humid habitats than for the other *Lerista* species recorded.

Lerista greeri Storr. K
1(26), 2(5), 3(3), 9(21), 10(21).

Preferred land unit: Nelson frontage.
Preferred floristic group: *E. camaldulensis/Melaleuca-Aerva-Aristida*.
45 specimens.

Abundant in sandy soils throughout the Park. Gravid females collected in November and December. There was great variation in colour and dorsal pattern of specimens collected.

Lerista sp. nov.
10(2).

Preferred land unit: Buchanan frontage.
Preferred floristic group: *E. aspera-Acacia-Triodia*.
1 specimen.

Pit-trapped and observed in fluvial sands with dense *Triodia microstachya*. Distinguished from the closely related *Lerista desertorum* by lack of lateral stripe and nasals in contact.

Menetia greyii Gray. C

2(3), 6(4), 8(1), 9(7).

Preferred land unit: Headley lower slopes.

Preferred floristic group: *Hakea-Dodonea-Triodia*.

8 specimens.

Moderately common, being most often recorded in dense leaf litter or beneath spinifex.

Menetia maini Storr. T,D

8(1), 9(8).

Preferred land unit: Nelson low rises.

Preferred floristic group: *Lysiphyllum-Acacia-Cenchrus*.

6 specimens.

Locally common, sympatric with *M. greyii* at some sites and with similar micro-habitat.

FIRE-TAILED SKINK *Morethia ruficauda* (Lucas & Frost). T,D

1(1), 2(6), 3(1), 4(3), 7(4), 8(7), 9(1), 10(3).

Preferred land unit: Wickham rugged uplands.

Preferred floristic group: *E. ptychocarpa-Pandanus-Heteropogon*.

5 specimens.

Widespread in many habitats, particularly riparian and sandstone environments.

Notoscincus wotjulum (Broom). T

2(3), 8(5).

Preferred land unit: Wickham rugged uplands.

Preferred floristic group: *Melaleuca-Acacia-Aristida*.

6 specimens.

Locally common, mainly associated with riparian habitats.

Omolepida branchialis (Gunther). D

1(2), 3(7), 10(1).

Preferred land unit: Nelson low rises.

Preferred floristic group: *Acacia-Aerva-Aristida*.

3 specimens.

Common, sheltering under spinifex. One specimen observed swallowing large *Ctenotus saxatilis*.

Proablepharus reginae (Glauert). D

10(3).

Preferred land unit: Buchanan uplands.

Preferred floristic group: *Acacia-Triodia*.

1 specimen.

Restricted, active among spinifex on a stony substrate. This species has a very patchy distribution across arid Western Australia.

Proablepharus tenuis (Broom). T

3(2), 5(3), 6(3), 8(1), 9(3), 10(1).

Preferred land unit: Headley lower slopes.

Preferred floristic group: *Hakea-Dodonea-Triodia*.

6 specimens.

Common in debris beneath spinifex.

CENTRALIAN BLUE-TONGUE *Tiliqua multifasciata* Sternfield. D

10(6).

Preferred land unit: Buchanan uplands. Preferred floristic group: *Acacia-Triodia*.

Only encountered at one site, though probably widespread throughout Park. Activity seasonal.

NORTHERN BLUE-TONGUE *Tiliqua scincoides* White. T

7(1), 8(1).

Preferred land unit: Wickham rugged uplands.

Preferred floristic group: *E. cliftoniana-Cajanus-Plectrachne*.

1 specimen.

Recorded from dissected sandstone habitats, where it was reasonably common. Specimen is of the subspecies *T. scincoides intermedia*.

FAMILY Typhlopidae. Blind Snakes.

Ramphotyphlops guentheri (Peters). T

7(1).

Preferred land unit: Wickham rugged uplands.

Preferred floristic group: *E. opaca-Grevillea-Triodia*.

1 specimen.

Pit-trapped on compact shaley substrate.

FAMILY Boidae. Pythons.

BLACK-HEADED PYTHON *Aspidites melanocephalus* (Krefft). T,D

9(1).

Preferred land unit: Nelson cracking clay plains.

Preferred floristic group: *Lysiphyllum-Acacia-Cenchrus*.

One record from heavy cracking clay with dense tussock grass and *Acacia farnesiana*.

CHILDREN'S PYTHON *Morelia childreni* Gray. T

5(1), 9(2).

Preferred land unit: Nelson cracking clay plains.

Preferred floristic group: *Lysiphyllum-Acacia-Cenchrus*.

2 specimens.

Locally common on heavy cracking clays adjacent to the Ord River, also recorded from the northern face of the massif.

OLIVE PYTHON *Morelia olivaceus* Gray. T 8(1).
Preferred land unit: Wickham rugged uplands.
Preferred floristic group: *Livistona-Acacia-Germania*.
Common in sheltered gullies of the Osmand valley (e.g. Winnama Gorge, Bream Gorge), apparently absent from the Bungle Bungle massif.

CARPET PYTHON *Morelia spilota* (Lacepede). T 8.
Sloughed skin found at Bream Gorge was almost certainly from this species. Carpet Pythons are recorded rarely from the Kimberley region.

FAMILY Colubridae. Colubrid snakes.

BROWN TREE SNAKE *Boiga fusca* (Merrem). T 8(2).
Preferred land unit: Wickham rugged uplands.
Preferred floristic group: *Livistona-Acacia-Germania*.
Common in the sheltered gullies of the Osmand Valley (e.g. Winnama Gorge, Bream Gorge); not recorded from the Bungle Bungle massif.

COMMON TREE SNAKE *Dendrolaphus punctulatus* (Gray). T 4(1), 8(1).
Preferred land unit: Elder uplands.
Preferred floristic group: *E. aspera-Acacia-Triodia*.
Common in the sheltered gullies of the Osmand valley and gorges of the Bungle Bungle massif.

FAMILY Elapidae. Elapid snakes.

NORTHERN DEATH ADDER *Acanthophis praelongus* Ramsay. T
Only one record during this survey, adjacent to the western face of the massif (Herold⁸ personal communication). Rangers provided numerous other records from close to the massif (A. Rogers personal communication).

BLACK WHIP SNAKE *Demansia atra* (Macleay). T 7(1).
Preferred land unit: Wickham rugged uplands.
Preferred floristic group: *E. ptychocarpa-Pandanus-Heteropogon*.
Recorded in *Eucalyptus ptychocarpa* forest adjacent to creek of sandstone gorge.

OLIVE WHIP SNAKE *Demansia olivacea* (Gray). T 6(2).
Preferred land unit: Wickham rugged uplands.
Preferred floristic group: *Lysiphyllum-Carissa-Heteropogon*.
2 specimens.
Caught in hard sandstone range in the south-east of the Conservation Reserve. It probably also occurs in similar habitat in the Osmand Range.

MOON SNAKE *Furina ornata* (Gray). T,D 7(1), 9(1).
Preferred land unit: Nelson cracking clay plains.
Preferred floristic group: *Lysiphyllum-Acacia-Cenchrus*.
3 specimens.
Recorded from a wide range of habitats, including gorges in the Bungle Bungle massif.

[KING BROWN SNAKE *Pseudechis australis* (Gray).] C
Not recorded during this survey, but reported from cracking clays in the east of the Park near Ord River Station (D. Haddon personal communication) and near Piccaninny Gorge (Johnston⁹ personal communication) in April 1989.

RINGED BROWN SNAKE *Pseudonaja modesta* (Gunther). D 3(1), 10(1).
Preferred land unit: Elder cuestas.
Preferred floristic group: *E. brevifolia-Cassia-Plectrachne*.
2 specimens.
Gravid female (with 9 well-formed eggs) from red soils of the Ord River basin in July, and specimen from creek bed in Piccaninny Gorge.

LITTLE SPOTTED SNAKE *Rhinoplocephalus punctatus* Boulenger. T,D 1(2), 2(2), 3(1), 5(1), 9(1), 10(1).
Preferred land unit: Nelson cracking clay plains.
Preferred floristic group: *E. collina-Acacia-Plectrachne*.
4 specimens.
Common in a wide variety of habitats throughout the Park.

NORTHERN SHOVEL-NOSED SNAKE *Vermicella roperi* (Kinghorn). T 8(4).
Preferred land unit: Wickham rugged uplands.
Preferred floristic group: *Livistona-Acacia-Germania*.
1 specimen.
Locally common in riparian vegetation at Bream Gorge.

⁸ B. Herold - (private individual) Darwin

⁹ F. Johnston - (private individual) Darwin

Notable species

The fossorial skink *Lerista* sp.nov. is known from a single specimen pit-trapped on a sand drift in Cathedral Gorge. This species is the most northerly member of the *Lerista desertorum* group and will be formally described by the Western Australian Museum in the near future.

Two specimens of the burrowing skink *Lerista aericeps taeniata* may represent a new species record for Western Australia (Greer¹⁰ personal communication.), although one previous record, of '*Lerista orientalis*', from Gordon Downs may actually be of this taxon.

The nocturnal burrowing skink *Egernia slateri slateri*, colonies of which were discovered on the plateau of the Bungle Bungle massif, is a new record for Western Australia, with a range extension of over 900 km. The nearest known populations are of the same subspecies (L. Smith personal communication) and occur on the alluvial plains of the Finke, Palmer and Todd Rivers in central Australia. The specimens from the Bungle Bungle area lack the dark pigmentation normally characteristic of this species.

Another skink with its local northern range limit within the Park is *Prooblepharus reginae*. It is distributed patchily over much of arid Western Australia and adjacent parts of South Australia and the Northern Territory. Wilson and Knowles (1988) consider it to be common only on Barrow Island.

Seldom recorded in the Kimberley region, the Carpet Python (*Morelia spilota variegata*) was provisionally identified during this survey from a sloughed skin found at Bream Gorge in the Osmand valley. The dense riparian vegetation at this site could be suitable habitat for this snake. The previous most southerly record from the Kimberley is at Wyndham, several hundred kilometres to the north (Smith 1981).

A skull and mandible from a small bearded dragon (probably *Pogona minor mitchelli*) was found at an owl roost near Cathedral Gorge. Although seldom recorded from the eastern Kimberley, it is known from nearby Bedford Downs (Wilson and Knowles 1988) and El Questro (personal observation) Stations.

A large saxicoline *Dtella* (*Gehyra* sp.nov.) was found mostly in deep cool recesses of the Bungle Bungle massif and appears to be ecologically and morphologically distinct from the related *Gehyra australis*. The taxonomic status of these specimens is now being considered by Max King (N.T. Museum).

Possibly a second undescribed *Dtella*, similar in appearance to '*Gehyra* sp.1' from Lissadell pictured in Wilson and Knowles (1988) as Figure 170, was recorded in this survey in riparian habitats and adjacent areas of *Lysiphyllum* woodland. In the field they were not distinguished from *G. australis*, and they are combined in analyses here.

Although not yet formally described, the Snake-necked Turtle (*Chelodina* sp.nov.) is known to occur in drainage units of sandstone plateaux from the Kimberley to western Arnhem Land (R. Kennett personal communication).

Additional species

The present herpetospecies list for the Bungle Bungle area is undoubtedly incomplete, particularly for snakes and frogs. This is supported by the high number of species (33 per cent) first recorded in the last third of the survey period.

There are few records from other sources adjacent to the Bungle Bungle area. Dames and Moore (1982) recorded 12 species from the Argyle area (about 50 km to the north) that we did not record in this survey and which may be present in the Bungle Bungle area. These are the Northern Spade-footed Frog (*Notaden melanoscaphus*), the frogs *Limnodynastes depressus* and *Litoria pallida* (listed as *Litoria* cf. *latopalmata*), Northern Knob-tailed Gecko (*Nephrurus asper*), the gecko *Diplodactylus taeniatus*, Central Notted Dragon (*Ctenophorus inermis*), the dragon *Diporiphora bennetti*, Storr's Monitor (*Varanus storri*), Spotted Tree Monitor (*Varanus scalaris*), the skink *Ctenotus schomburgkii*, and the blind snakes *Ramphotyphlops ligatus* and *R. unguirostris*. Of this group, the rare frog *Limnodynastes depressus* is noteworthy as much of its known range was inundated in the construction of Lake Argyle (Tyler *et al.* 1984). No remaining populations are known from conservation reserves.

There are records from the Western Australian Museum from the vicinity of the Ord River. These include the following species not recorded during our survey: the frogs *Limnodynastes convexiusculus*, *Litoria inermis*, *Litoria nasuta*, *Litoria pallida*, *Megistolotis lignarius*, the dragon *Tympanocryptis lineata*, the skink *Egernia douglasi*, Northern Small-eyed Snake (*Cryptophis pallidiceps*), Keelback Snake (*Amphiesma mairii*), Western Brown Snake (*Pseudonaja nuchalis*) and the blind snake *Ramphotyphlops diversus*. All of these species may be distributed along the Ord River valley as far upstream as the Purnululu National Park.

¹⁰ A. Greer - Australian Museum, Sydney

Two further species of snake may occur on black-soil plains of the Ord River valley within the National Park. Both the Eastern Brown Snake (*Pseudonaja textilis*) and Ord River Snake (*Denisonia ordensis*) have been recorded from this habitat at Gordon Downs, 90 km south of the Park (Homer¹¹ personal communication).

Distributional patterns within the Bungle Bungle area

The number of reptile and frog species recorded per site varied from 16 at site 2 on Osmand Creek to 42 at Bream Gorge (Table 17). Many species were recorded only from either Bream Gorge or the Cathedral Gorge/Buchanan sandplain site 10.

On average, twice as many species were recorded during the second survey period (mean of 38.3 per site) as during the first survey period (19.1 per site). This suggests that many species were inactive during the initial sampling period, probably because of relatively low temperatures (especially at night) and lack of rain.

The distribution of reptile and frog taxa in the Bungle Bungle area is closely associated with land units and, less closely, with floristic groups (Tables 18 and 19).

There is considerable variation in reptile species diversity between land unit (Table 20). Nelson frontage, Nelson low rises, Buchanan uplands and Nelson cracking clay plains had the highest number of reptile species per quadrat. The least diverse were Nelson lower slopes, Antrim uplands and lowlands, and Headley lower slopes.

Torresian species dominated in Wickham, and most Nelson and Antrim units. A total of 51 reptile species were recorded in the Wickham unit, of which eleven were not recorded in other units. This community (including the Olive Python, Carpet Python, Black Whip Snake, Brown Tree Snake, the skink *Sphenomorphus isolepis* and the turtle *Chelodina* sp.nov.) is typical of the north-eastern Kimberley, with many Torresian species reaching their local southern range limits in the humid gullies and gorges of the Osmand Range. Some mesic species persist along the major water courses of the Park which flow through the Antrim lowland and Nelson frontage land units. These species include the Freshwater Crocodile, Short-necked Turtle, Mitchell's Water Monitor and the fossorial skink *Lerista borealis*. The riparian influence is also marked by

the abundance of nine other species, of which the Beaked Gecko and the Broad-banded Sand-swimmer are interesting examples for their affinity with alluvial soils in the north of their range.

Eyrean species were relatively more diverse in Buchanan units and Elder cuestas. Of the nineteen species which reached their highest abundance in the Buchanan land units, over 50 per cent are predominantly Eyrean species (e.g. Military Dragon, Centralian Blue-tongue, the skink *Ctenotus piankai* and three *Lerista* species).

Adjoining the Buchanan sandplains are the Elder upland sandstones which form the Bungle Bungle massif. Few species are shared between these two environments. The seasonally dry chasms of the massif support a community characterized by the Common Tree Snake, Merten's Water Monitor, Glauert's Monitor and the frogs *Litoria splendida* and *Ranidella bilingua*. This assemblage generally persists on the topographically isolated plateau, though here the Desert Skink is present and *Lerista* species were notably absent.

Along the northern and western valley of the Ord River, low sandstone cuestas (breakaways), cracking clay plains and footslopes of the Nelson land unit form a complex environment. Herpetospecies here are diverse, with a notable abundance of snakes. Characteristic lizards include the Soldier Skink, Pilbara Dtella, Ring-tailed Dragon and the skink *Carlia triacantha*.

A group of species occurred widely throughout the Bungle Bungle area, being present in most land units. Such species included the Northern Dtella, Bynoe's Gecko, Fire-tailed Skink, *Lerista greeri*, *Ctenotus saxatilis*, *Cryptoblepharus plagiocephalus* and the Ornate Burrowing Frog.

The mean number of reptile species per quadrat varied from a low of 1.2 in the floristic group *E. brevifolia* low open woodland-*Acacia-Triodia* to a high of 6.2 in *Lysiphyllum* low woodland-*Acacia-Cenchrus* (Table 21). Torresian species were especially abundant in the taller forest of *Livistona-Acacia-Germania* and *E. ptychocarpa-Pandanus-Heteropogon* groups. Eyrean species were absent from these floristic groups, but outnumbered Torresian species in *E. brevifolia* open woodland-*Cassia-Plectrachne*, *E. collina* woodland-*Acacia-Triodia*, *E. collina* woodland-*Acacia-Plectrachne* and *Acacia* spp. tall shrubland-*Triodia* groups.

¹¹ P. Homer - Northern Territory Museum of Arts and Sciences, Darwin

Biogeographic patterns

The Bungle Bungle area encompasses a broad environmental gradient from the subhumid to semi-arid environments of north-western Australia. The taxonomic composition and species richness of the area's reptile fauna reflect these influences, and includes a distinctive mixture of Torresian (40 per cent) and Eyrean (25 per cent) species. The frog fauna is a less diverse subset of Kimberley species, although the lack of ground hylids and burrowing species recorded may be a consequence of the dry period during which the survey took place.

Eighty-one species of reptiles and twelve species of amphibians are known to occur in the Bungle Bungle area, representing thirteen families and 48 genera. Compared with other surveyed areas of north-western Australia, only Kakadu National Park and the Hamersley Range have greater species richness (Figs 12 and 13). Within the

Bungle Bungle area, genera that were well-represented include *Varanus*, with nine species, *Ctenotus*, with seven species, and *Gehyra*, with between four and six species.

The reptile species composition of the Bungle Bungle area is most similar to those of Argyle, and the relatively distant Lower MacArthur, Katherine Gorge and Kakadu Stage III (Fig. 14). The strong latitudinal trend evident broadly follows the rainfall gradient, and suggests that moisture availability is a major factor affecting the distribution of reptile species in north-western Australia.

In contrast, the frog fauna of the Bungle Bungle area was most similar to that of the Kimberley in general, and as such reflects a high degree of regional endemism (Fig. 15).

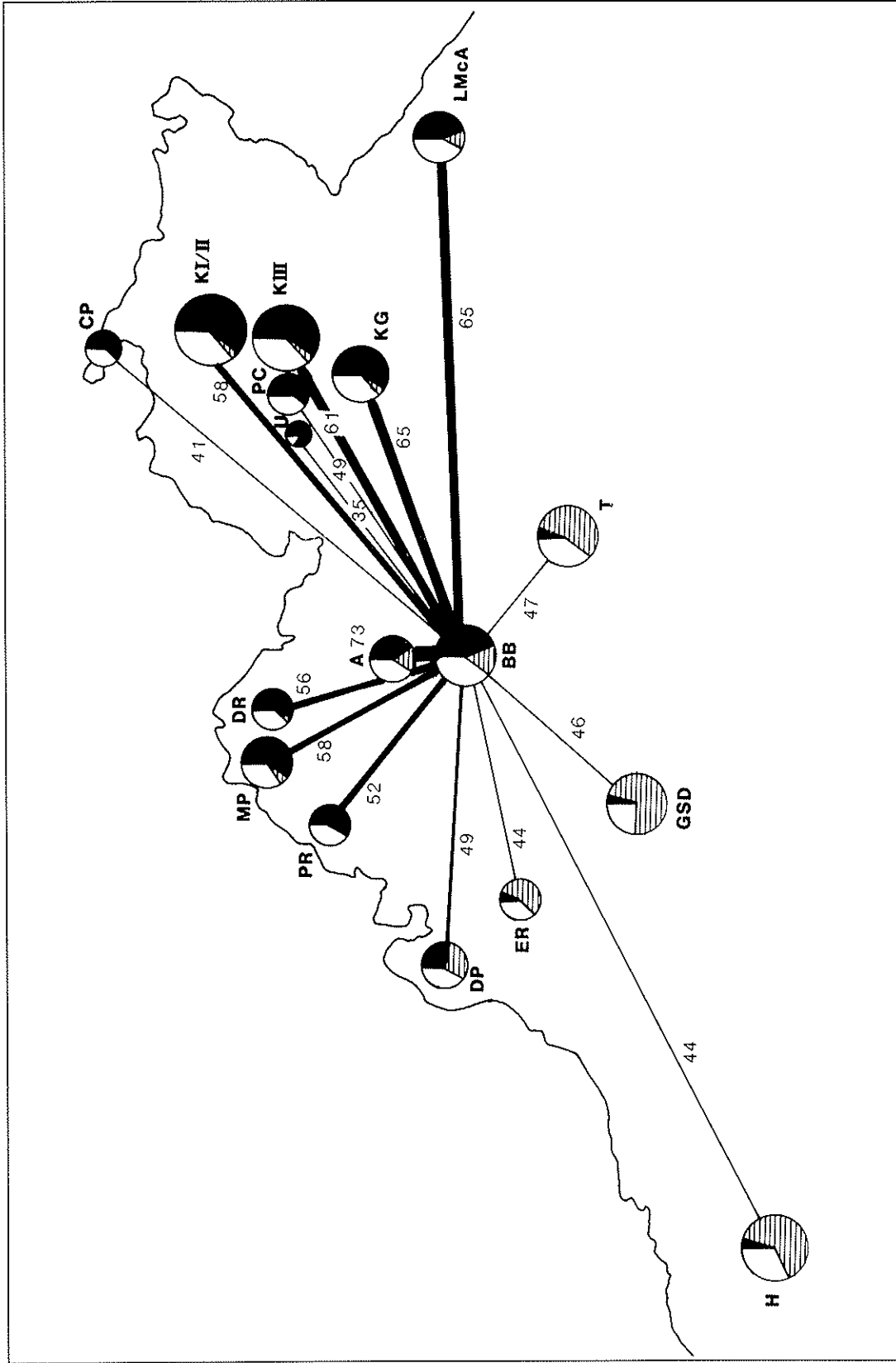


Figure 12

Network diagram showing similarity of the terrestrial reptile fauna of the Bungle Bungle area with other surveyed regions of north-western Australia. Conventions as for Figure 8. Number of species recorded: H (Hammersley) = 84; DP (Dampier Peninsula) = 55; ER (Edgar Ranges) = 49; GSD (Great Sandy Desert) = 78; PR (Prince Regent River) = 48; MP (Mitchell Plateau) = 63; DR (Drysdale) = 42; BB (Bungle Bungle) = 79; A (Argyle) = 59; T (Tanami) = 77; U (Umdrawara) = 25; KG (Katherine Gorge) = 73; PC (Pine Creek) = 40; KIII (Kakadu Stage III) = 86; KI/II (Kakadu Stages I & II) = 93; CP (Cobourg Peninsula) = 38; LMCA (Lower MacArthur) = 60.

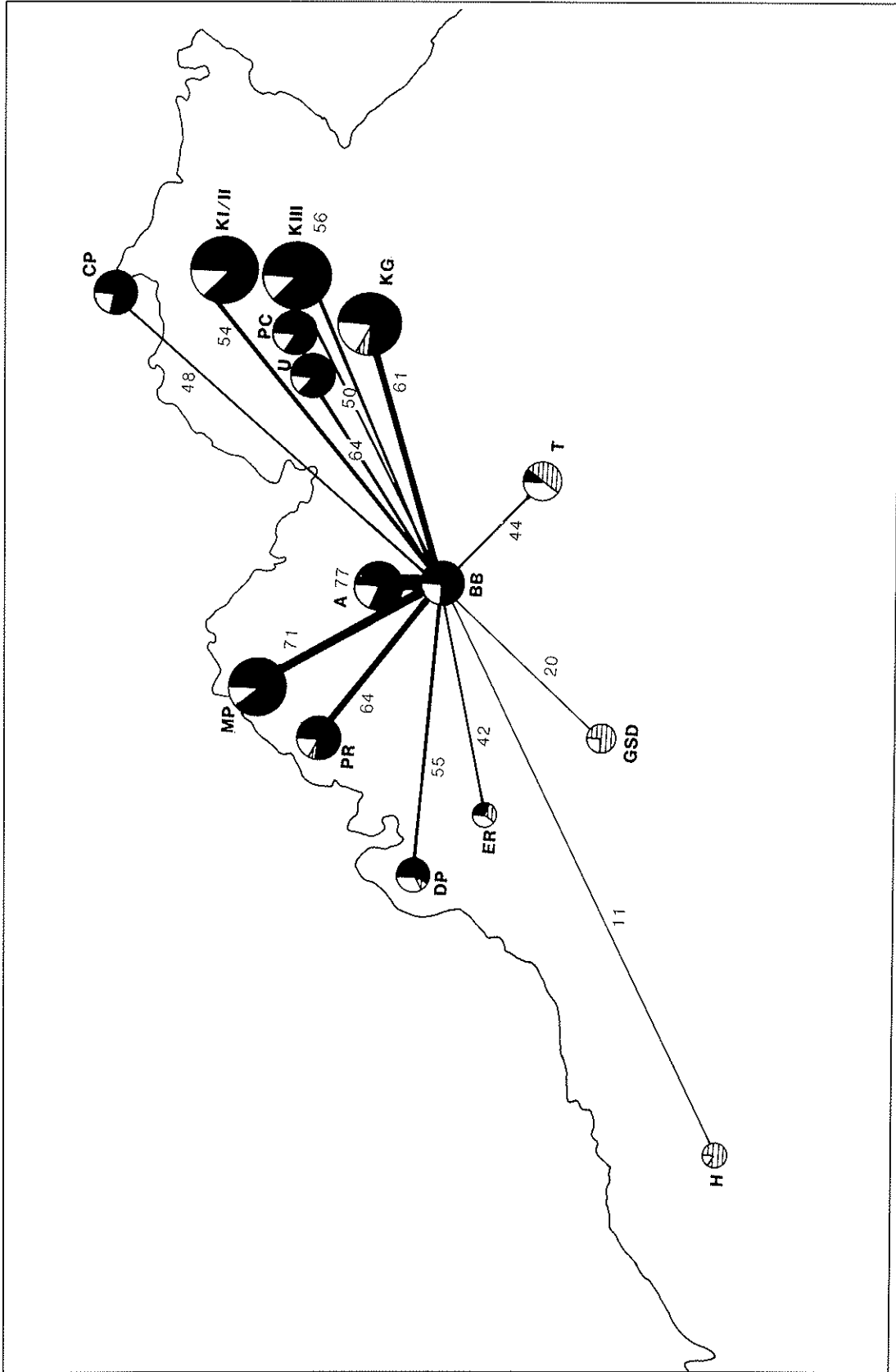


Figure 13

Network diagram showing similarity of the frog fauna of the Bungle Bungle area with other surveyed regions of north-western Australia. Conventions as for Figure 8. Number of species recorded: H (Hammersley) = 6; DP (Dampier Peninsula) = 10; ER (Edgar Ranges) = 7; GSD (Great Sandy Desert) = 8; PR (Prince Regent River) = 13; MP (Mitchell Plateau) = 19; A (Argyle) = 14; BB (Bungle Bungle) = 12; T (Tanami) = 11; U (Umbravara) = 13; KG (Katherine Gorge) = 21; PC (Pine Creek) = 12; KII (Kakadu Stage II) = 12; KIII (Kakadu Stage III) = 12; KI/II (Kakadu Stages I & II) = 25; CP (Cobourg Peninsula) = 13.

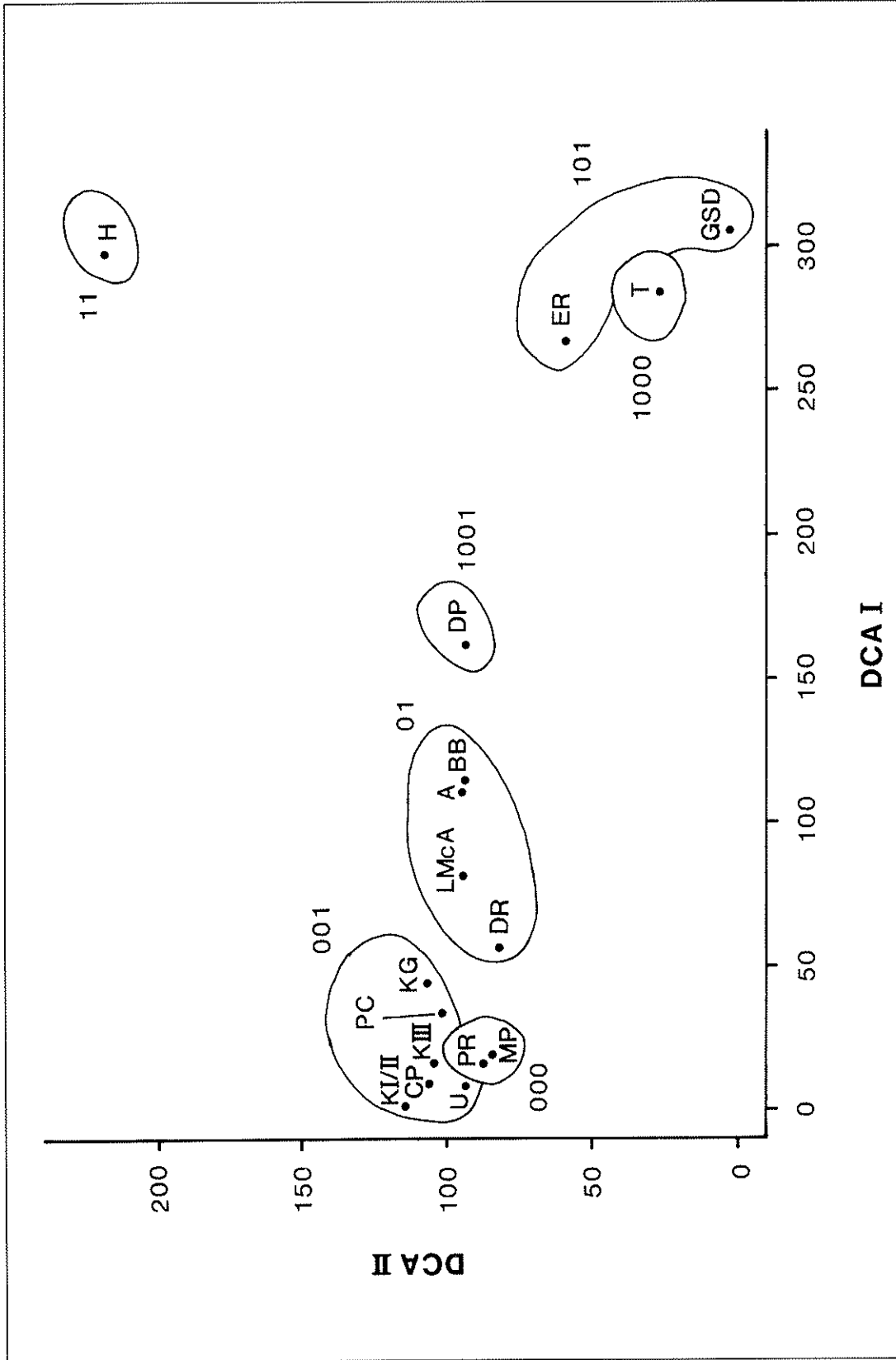


Figure 14

Ordination of the terrestrial reptile fauna of 17 areas surveyed in north-western Australia. Lines enclosing points represent TWINSpan groups. Symbols as for Figure 12. Eigenvalues for DCA 1 0.57, for DCA 2 0.33.

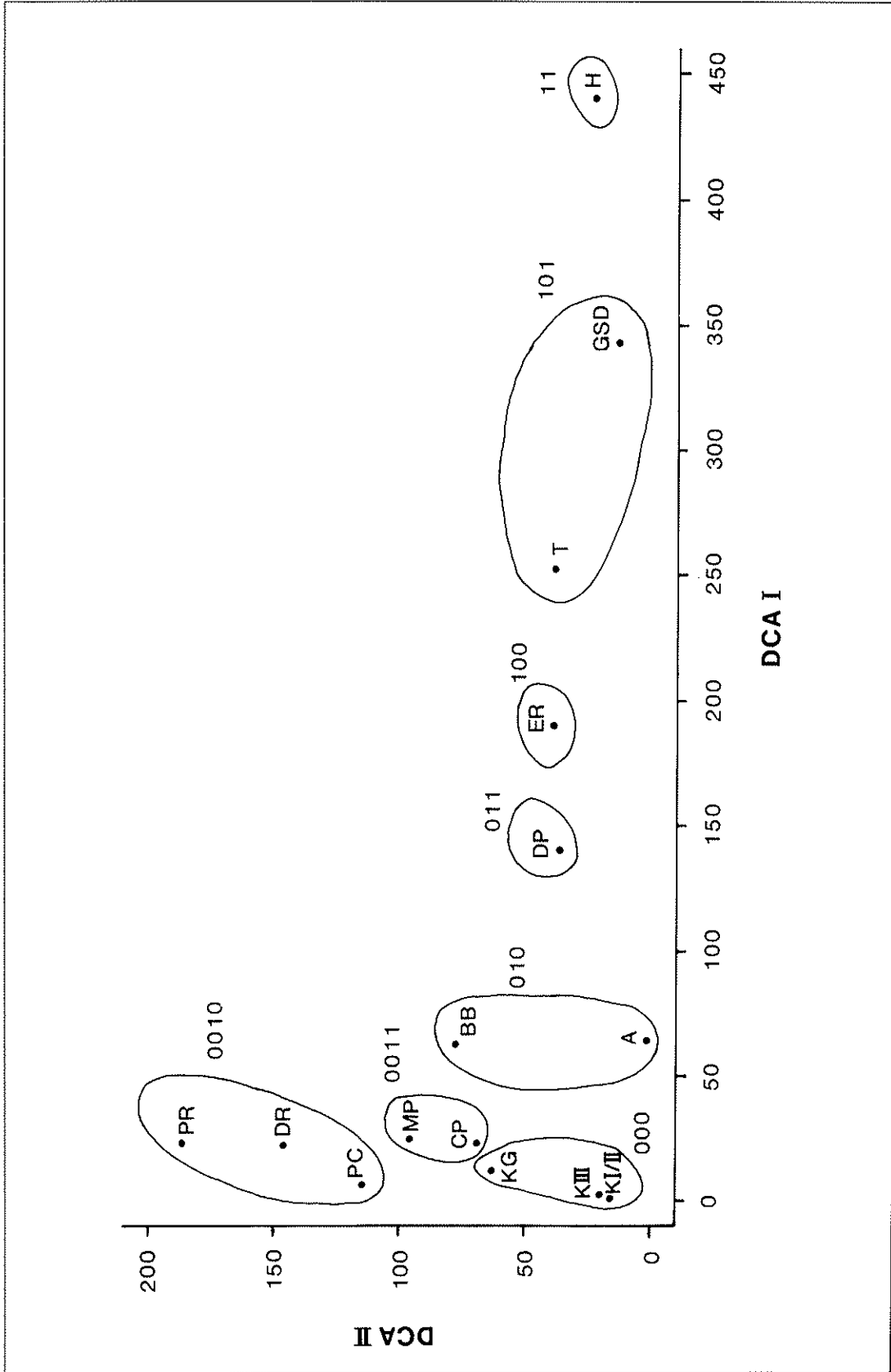


Figure 15

Ordination of the frog fauna of 15 areas surveyed in north-western Australia. Lines enclosing points represent TWINSpan groups. Symbols as for Figure 13. Eigenvalues for DCA I 0.72, for DCA 2 0.15.

Table 17

The number of herpetospecies recorded per study site and the number of these recorded for only one site.

SITE	NO. REPTILE SPP.	NO. FROG SPP.	NO. RESTRICTED SPP.	
1	15	3	3	<i>Pygopus nigriceps</i> , <i>Lerista aericeps</i> , <i>Ctenotus tantillus</i>
2	14	2	0	
3	19	0	0	
4	13	5	2	<i>Oedura marmorata</i> , <i>Egernia slateri</i>
5	16	2	1	<i>Litoria rothii</i>
6	16	3	3	<i>Oedura rhombifer</i> , <i>Demansia olivacea</i> , <i>Varanus kingorum</i>
7	23	3	2	<i>Ramphotyphlops guentheri</i> , <i>Demansia atra</i>
8	36	6	7	<i>Crenadactylus ocellatus</i> , <i>Sphenomorphus</i> <i>isolepis</i> , <i>Varanus glauerti</i> , <i>Morelia</i> , <i>Morelia spilota</i> , <i>Boiga fusca</i> , <i>Vermicella roperi</i>
9	34	2	4	<i>Diplodactylus conspicillatus</i> , <i>Carlia</i> <i>triacantha</i> , <i>Ctenotus militaris</i> , <i>Aspidites</i> <i>melanocephalus</i>
10	28	9	8	<i>Cyclorana australis</i> , <i>Cyclorana longipes</i> , <i>Diplodactylus ciliaris</i> , <i>Pogona minor</i> , <i>Varanus gouldii</i> , <i>Tiliqua multifasciata</i> , <i>reginae</i> , <i>Lerista</i> sp. nov.

Table 18

Distribution of herpetospecies across land units ^(a). Values in the body of the table are average abundance per quadrat. Bold type denotes highest value for each species.

SPECIES	LAND UNITS												
	Wk	Eu	Au	Al	Hi	Ns	Nf	Nr	Bu	Bf	Bp	El	Nl
<i>Varanus glauerte</i>	0.03												
<i>Emydura australis</i>	0.17												
<i>Chelodina</i> sp. nov.	0.11												
<i>Ramphotyphlops guentheri</i>	0.03												
<i>Crenadactylus ocellatus</i>	0.03												
<i>Vermicella roperi</i>	0.11												
<i>Sphenomorphus isolepis</i>	0.09												
<i>Gehyra</i> sp. nov.	0.06												
<i>Tiliqua scincoides</i>	0.06												
<i>Varanus glebopalma</i>	0.09												
<i>Morelia olivaceus</i>	0.03												
<i>Demansia atra</i>	0.03												
<i>Demansia olivacea</i>	0.06												
<i>Boiga fusca</i>	0.06												
<i>Litoria woijulumensis</i>	0.40												
<i>Varanus mertensi</i>	0.20												
<i>Varanus mitchelli</i>	0.09			0.05									
<i>Crocodylus johnstoni</i>	0.29		0.19	0.05							0.06		
<i>Lerista borealis</i>	0.11		0.05	0.14									
<i>Notoscincus woijulum</i>	0.14												
<i>Morelia ruficauda</i>	0.31	0.18	0.29			0.08		0.29	0.12	0.10			
<i>Egernia slateri</i>		0.31											
<i>Oedura marmorata</i>		0.06											
<i>Dendrolaphis punctulatus</i>	0.03	0.06											
<i>Ranidella bilingua</i>	1.26	1.62	0.17	0.24									
<i>Delma nasuta</i>	0.03	0.19											
<i>Carlia amax</i>	0.23	0.38			0.20								
<i>Litoria coplandi</i>	0.54	1.25	0.08	0.38				0.71	1.14				
<i>Litoria meiriana</i>		7.94								0.14			
<i>Varanus acanthurus</i>	0.03	0.31			0.20						0.10		
<i>Varanus kingorum</i>			0.08										
<i>Diporiphora arnhemica</i>	0.03	0.75											
<i>Ctenotus pantherinus</i>	0.29	1.08	0.10					0.25					0.10
<i>Oedura rhombifer</i>					0.20								
<i>Heteronotia planiceps</i>	0.14	0.06			0.20								
<i>Menetia greyii</i>	0.06			0.14	0.20								
<i>Proablepharus tenuis</i>	0.06		0.25		0.60	0.50	0.33	0.33					
<i>Cryptoblepharus plagiocephalus</i>	0.17	0.06		0.10	0.40	0.40	0.33	0.33	0.14				
<i>Rhinoplocephalus punctatus</i>				0.14	0.40	0.25	0.33	0.08					
<i>Furina ornata</i>	0.03			0.14		0.25	0.08	0.08					
<i>Aspidites melanocephalus</i>						0.25	0.08	0.08					
<i>Morelia childreni</i>				0.05		0.25	0.08	0.08					

Table 18 (cont.)

SPECIES	LAND UNITS												
	Wk	Eu	Au	Al	HI	Ns	Nf	Nr	Bu	Bf	Bp	El	Nl
<i>Varanus tristis</i>	0.09		0.17			0.50			0.14				
<i>Diporiphora lalliae</i>	0.03		0.08			1.25	0.67	0.58					
<i>Heteronotia binoei</i>	0.26	0.06	0.17	1.01	0.80	1.50	1.00	0.83		0.29			
<i>Carlia munda</i>	0.31					0.75	0.33						
<i>Limnodynastes ornatus</i>	0.11	0.06		0.05		1.33	1.33		0.29	0.43			
<i>Delma tincta</i>	0.03					0.33	0.33						
<i>Gehyra australis</i>	0.26		0.08	0.24		0.50	1.90	0.08		0.14	0.06	0.20	
<i>Lialis burtonis</i>						0.33	0.33	0.08			0.06		
<i>Gemmatophora gilberti</i>			0.50	0.57			1.33	0.08					
<i>Varanus panoptes</i>	0.57					0.25	0.33			0.29		0.20	
<i>Rynchoedura ornata</i>				0.05			0.33	0.33			0.06		
<i>Eremiascincus richardsoni</i>				0.05			0.33						
<i>Lerista greeri</i>				0.24		6.33	6.33	0.75	1.14	1.14	1.82	0.30	
<i>Gehyra nana</i>	0.14	0.63	0.58					1.17				0.50	
<i>Menetia maini</i>	0.03					0.25		0.58					0.60
<i>Ctenotus militaris</i>								0.67					
<i>Gehyra pilbara</i>								1.33				0.40	
<i>Diplodactylus conspicillatus</i>								0.25					
<i>Carlia iriacaantha</i>								0.17					
<i>Orolepida branchialis</i>			0.08					0.58		0.29	0.06		
<i>Ctenotus inornatus/saxatilis</i>	0.29	1.50	0.33	0.10		1.00	0.33	1.17	6.14	4.71	1.65	0.10	
<i>Delma borea</i>	0.14		0.08						0.29				
<i>Diplodactylus ciliaris</i>									0.14				
<i>Varanus gouldii</i>									0.71		0.18		
<i>Tiliqua multifasciata</i>									0.43		0.18		
<i>Ctenotus piankai</i>									0.86	0.14	0.35	0.40	
<i>Prooblepharus reginae</i>			0.08						0.43				
<i>Cyclorana australis</i>										0.57			
<i>Litoria caerulea</i>	0.03								0.14	0.14			
<i>Litoria rubella</i>									0.14	0.14			
<i>Cryptoblepharus megastictus</i>									0.43	0.43			
<i>Uperoleia borealis</i>	0.23	0.06							4.29	4.29			
<i>Litoria splendida</i>		1.88							0.86	0.86			
<i>Lerista sp. nov.</i>									0.29	0.29			
<i>Lerista aericeps</i>										0.12			
<i>Diplodactylus stenodactylus</i>	0.17			0.05				0.17		0.29			
<i>Ctenophorus isolepis</i>									0.71	0.14	3.18		
<i>Ctenotus decaneurus</i>	0.03									0.06			
<i>Ctenotus tantillus</i>										0.06			
<i>Ctenophorus caudicinctus</i>	0.06			0.10				0.17	0.29			0.40	
<i>Diporiphora magna</i>									0.14	0.24		0.30	
<i>Pseudonaja modesta</i>												0.10	

(c) Land systems: Eu = Eider uplands, Bf = Buchanan frontage, Bu = Buchanan uplands, Au = Antrim rugged uplands, Bp = Buchanan Sandplain, HI = Headley lower slopes, Ns = Nelson cracking clay plains, Al = Antrim lowlands, El = Eider cuestas, Wk = Wikham rugged uplands, Nl = Nelson interfluvial lower slopes, Nf = Nelson frontage, Nr = Nelson rises, Wk = Wikham rugged uplands, Nl = Nelson interfluvial lower slopes, Nf = Nelson frontage.

Table 19

Distribution of herpetospecies across floristic groups. Values in the body of the table are average abundance per quadrat. Bold type denotes highest value for each species.

SPECIES	FLORISTIC GROUPS																
	1	2	14	4	12	16	15	13	5	3	9	6	7	17	10	8	11
<i>Sphenomorphus isolepis</i>	0.60																
<i>Boiga fusca</i>	0.40																
<i>Morelia olivaceus</i>	0.20																
<i>Varanus mitchelli</i>	0.20			0.06													
<i>Varanus mertensi</i>	1.00	0.40				0.06											
<i>Varanus tristis</i>	0.20			0.06	0.14	0.06		0.08				0.15					
<i>Carlia amax</i>	1.20					0.38		0.17				0.08					0.20
<i>Delma tincta</i>	0.20											0.08					
<i>Varanus glauerti</i>	0.20											0.08					
<i>Vermicella roperi</i>	0.20			0.06				0.17									
<i>Heteronotia planiceps</i>	0.40					0.06		0.08									0.20
<i>Lerista borealis</i>	0.40	0.20		0.06				0.08									
<i>Demansia atra</i>	0.20	0.20															
<i>Chelodina</i> sp. nov.	0.60																
<i>Emydura australis</i>	1.00			0.06													
<i>Crocodylus johnstoni</i>	1.00			0.30													
<i>Ranidelta bilingua</i>	0.60	2.80		0.83	0.14	1.25	2.00	1.42		0.05							
<i>Morethia ruficauda</i>	0.20	0.80	0.33	0.44		0.19	0.33	0.17			0.09	0.08		0.09	0.29		
<i>Gehyra australis</i>	0.20	0.40		0.39	0.07			0.33		0.25	0.18	0.39			0.18		
<i>Litoria wojulumensis</i>	0.80	1.40						0.25									
<i>Carlia munda</i>	2.00							0.08				0.31					
<i>Cryptoblepharus plagiocephalus</i>	0.60			0.17				0.17			0.09	0.15					0.40
<i>Gemmatophora gilberti</i>	1.60			0.889	0.43			0.33		1.25		0.15					
<i>Gehyra</i> sp. nov.			0.33														
<i>Tiliqua scincoides</i>			0.17														
<i>Varanus glebovalina</i>			0.33														
<i>Delma borea</i>		0.20	0.25		0.14	0.13							0.14			0.14	
<i>Notoscincus wojulum</i>				0.44													
<i>Ramphotyphlops guentheri</i>					0.07												
<i>Diporiphora arnhemica</i>					0.64												
<i>Oedura marmorata</i>						0.06											
<i>Egernia slateri</i>					0.31												
<i>Varanus acanthurus</i>					0.31												
<i>Lerista</i> sp. nov.							0.67									0.09	0.20
<i>Cryptoblepharus megastictus</i>	0.80		0.67			0.06	1.00										
<i>Dendrolaphis punctulatus</i>	0.20						0.33										
<i>Litoria meiriana</i>						3.56	23.67										
<i>Delma nasuta</i>						0.13	0.33										

Table 19 (cont.)

SPECIES	FLORISTIC GROUPS																
	1	2	14	4	12	16	15	13	5	3	9	6	7	17	10	8	11
<i>Litoria caerulea</i>							0.33		0.08								
<i>Uperoleia borealis</i>						1.13	13.33							0.29			
<i>Litoria splendida</i>							1.33							0.29			
<i>Cyclorana australis</i>							0.67							0.29			
<i>Litoria coplandi</i>	0.80	0.60			0.14	0.56	4.67		1.00	1.75	0.09			0.86	0.27		
<i>Varanus panoptes</i>							0.67			0.25		0.07		0.18			
<i>Varanus kingorum</i>								0.22									
<i>Ctenopus pantherinus</i>				0.06	0.93			1.00	0.50			0.08	0.25		0.09		
<i>Crenadactylus ocellatus</i>								0.08									
<i>Demansia olivacea</i>								0.17									
<i>Limnodynastes ornatus</i>	0.40			0.17		0.06				0.75		0.08		0.29	0.27		
<i>Liais burtonis</i>					0.07	0.06				0.25				0.14		0.14	
<i>Rynchoedura ornata</i>				0.06						0.25		0.23	0.13			0.14	
<i>Lerista greeri</i>				0.28						2.25	1.91	1.54		1.14	0.55	2.00	
<i>Heteronotia binoei</i>		0.20		1.33	0.36				0.08	1.50	0.18	0.92	0.63		0.09		0.80
<i>Ctenopus decaneurus</i>									0.08		0.09						
<i>Ctenopus tantillus</i>											0.09						
<i>Rhynoplocephalus punctatus</i>				0.11	0.07	0.06					0.18	0.08	0.13				
<i>Diplodactylus stenodactylus</i>				0.17					0.25		0.36	0.15	0.13			0.14	
<i>Aspidites melanocephalus</i>												0.08					
<i>Diplodactylus conspicillatus</i>												0.23					
<i>Carlia triacantha</i>					0.07							0.08					
<i>Furina ornata</i>					0.07							0.08					
<i>Morelia childreani</i>					0.07							0.15					
<i>Ctenopus militaris</i>					0.07							1.00					
<i>Diporiphora laliae</i>					0.21			0.20				0.85	0.13				
<i>Menetia maini</i>									0.08			0.62					
<i>Gehyra nana</i>			0.33		0.43	0.56			0.80		0.09	0.85			0.46		
<i>Gehyra pilbara</i>												1.23		0.36			
<i>Eremiascincus richardsoni</i>												0.08	0.13				
<i>Orolepida branchiatis</i>					0.07		0.33				0.09	0.08	0.88		0.09		
<i>Diplodactylus ciliaris</i>														0.14			
<i>Prooblepharus reginae</i>														0.43			
<i>Ctenopus inornatus/saxatilis</i>			0.50	0.11	1.00	1.88	6.33		0.42		0.73	0.54	0.38	6.86	0.46	2.71	
<i>Ctenopus pitankai</i>					0.07	0.06					0.27			0.86	0.36	0.43	
<i>Varanus gouldii</i>					0.06	0.06								0.57		0.43	
<i>Tiliqua multifasciata</i>					0.06	0.06								0.43		0.29	
<i>Ctenophorus caudicinctus</i>			0.33		0.07					0.25		0.15		0.29	0.36		

Table 19 (cont.)

SPECIES	FLORISTIC GROUPS																
	1	2	14	4	12	16	15	13	5	3	9	6	7	17	10	8	11
<i>Pseudonaja modesta</i>															0.09		
<i>Litoria rubella</i>															0.09		
<i>Ctenophorus isolepis</i>										0.55	0.15			0.71	0.55	6.00	
<i>Lerista aericeps</i>										0.09						0.14	
<i>Diporiphora magna</i>										0.09				0.14	0.27	0.43	
<i>Proablepharus tenuis</i>				0.06	0.29				0.08			0.23	0.13	0.14			0.40
<i>Oedura rhombifer</i>																	0.20
<i>Menetia greyii</i>				0.07					0.17			0.54					0.60

^(a) Description of floristic groups: 1 = *Livistona-Acacia-Germania*, 2 = *E. psychocarpa-Pandanus-Heteropogon*, 14 = *E. cliftoniana-Cajanus-Plectrachne*, 4 = *Melaleuca-Acacia-Aristida*, 12 = *E. opaca-Grevillea-Triodia*, 16 = *E. cliftoniana-Acacia-Triodia*, 15 = *E. aspera-Acacia-Triodia*, 13 = *E. brevifolia-Acacia-Triodia*, 5 = *Lysiphylum-Carissa-Heteropogon*, 3 = *E. camaldulensis/Melaleuca-Aerva-Aristida*, 9 = *E. collina-Acacia-Plectrachne*, 6 = *Lysiphylum-Acacia-Cenchrus*, 7 = *Acacia-Aerva-Aristida*, 17 = *Acacia-Triodia*, 10 = *E. brevifolia-Cassia-Plectrachne*, 8 = *E. collina-Acacia-Triodia*, 11 = *Hakea-Dodonea-Triodia*.

Table 20

Average number of reptile species per quadrat for the land systems surveyed.

LAND SYSTEM			NO. REPTILE SPECIES		
SYMBOL			<i>Total</i>	<i>Torresian</i>	<i>Eyrean</i>
ANTRIM	rugged uplands	Au	2.8	1.8 (62%)	0.8 (27%)
ANTRIM	lowlands	Al	2.7	1.0 (35%)	0.3 (12%)
BUCHANAN	uplands	Bu	5.4	1.3 (24%)	2.0 (37%)
BUCHANAN	sandplain	Bp	3.2	0.9 (29%)	1.5 (47%)
BUCHANAN	frontage	Bf	2.9	0.9 (30%)	1.1 (40%)
ELDER	uplands	Eu	2.9	1.8 (62%)	0.4 (15%)
ELDER	cuestas	Ei	3.1	0.8 (26%)	1.5 (48%)
HEADLEY	lower slopes	Hi	2.6	0.6 (23%)	0
NELSON	cracking clay plains	Ns	4.5	1.5 (33%)	0.5 (11%)
NELSON	interfluvial lower slopes	Nl	1.0	1.0 (100%)	0
NELSON	frontage	Nf	6.7	2.3 (35%)	2.0 (30%)
NELSON	low rises	Nr	5.8	1.9 (33%)	2.1 (36%)
WICKHAM	rugged uplands	Wk	4.0	2.4 (60%)	0.3 (7%)

Table 21

Average number of reptile species per quadrat for the floristic groups.

FLORISTIC GROUP		NO. OF REPTILE SPECIES		
		<i>Total</i>	<i>Torresian</i>	<i>Eyrean</i>
1.	<i>Livistona - Acacia holosericea - Germania</i>	5.4	4.4 (81%)	0
2.	<i>E. ptychocarpa - Pandanus - Heteropogon</i>	4.8	3.6 (75%)	0
3.	<i>E. camaldulensis / Melaleuca - Aerva - Aristida</i>	3.5	1.3 (37%)	0.5 (14%)
4.	<i>Melaleuca leucadendra - Acacia eriopoda - Aristida 3</i>	.4	1.4 (40%)	0.3 (10%)
5.	<i>Lysiphyllum - Carissa - Heteropogon</i>	3.7	1.7 (46%)	0.5 (14%)
6.	<i>Lysiphyllum - Acacia holosericea - Cenchrus</i>	6.2	1.9 (31%)	1.9 (31%)
7.	<i>Acacia farnesiana - Aerva - Aristida</i>	2.1	0.5 (24%)	1.0 (48%)
8.	<i>E. collina - Acacia stipuligera - Triodia spicata</i>	4.0	1.0 (25%)	2.0 (50%)
9.	<i>E. collina - Acacia tumida - Plectrachne pungens</i>	3.0	1.0 (33%)	1.2 (39%)
10.	<i>E. brevifolia - Cassia - Plectrachne pungens</i>	3.0	0.8 (27%)	1.5 (48%)
11.	<i>Hakea arborescens - Dodonea - Triodia wiseana</i>	2.6	0.6 (23%)	0
12.	<i>E. opaca - Grevillea pyramidalis - Triodia pungens</i>	3.6	2.0 (56%)	0.8 (22%)
13.	<i>E. brevifolia - Acacia reivenia - Triodia intermedia</i>	1.2	0.6 (50%)	0.6 (50%)
14.	<i>E. cliftoniana - Cajanus - Plectrachne pungens</i>	3.0	2.0 (67%)	0
15.	<i>E. aspera - Acacia eriopoda - Triodia microstachya</i>	3.3	1.7 (50%)	1.0 (30%)
16.	<i>E. cliftoniana - Acacia spp - Triodia spicata</i>	3.1	1.7 (54%)	0.5 (16%)
17.	<i>Acacia spp - Triodia spicata</i>	4.9	1.3 (27%)	2.0 (41%)