

HERPETOFAUNA OF THE ZUYTDORP COAST AND HINTERLAND, WESTERN AUSTRALIA

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ABSTRACT

The area dealt with lies on the west coast of Western Australia between Shark Bay and the Murchison River. 39 genera and 83 species of frogs and reptiles are listed with brief notes on their local distribution, relative abundance and habitat preferences.

INTRODUCTION

The study area is located on the west coast of Western Australia between latitude 26°30' and 27°45'S. It is bounded in the north by the Overlander-Tamala road, in the east by the North-west Coastal Highway, and in the south by the Murchison River (but excluding the Kalbarri National Park, the herpetofauna of which is being studied by L.A. Smith of the Western Australian Museum). The herpetofauna of the country to its immediate north, i.e. the Shark Bay region, was described by Storr & Harold (1978), and that to the immediate east by the Department of Fisheries and Wildlife (Burbidge *et al.*, 1980). This paper thus forms one of a series of reports on the herpetofauna of the west coast of Western Australia; other reports include Storr & Hanlon (1980), Dell & Chapman (1977), and Storr, Harold & Barron (1978).

The present region is largely a rolling plateau about 200 m above sea-level that straddles the boundary between the arid and semi-arid climatic zones. Apart from the Murchison River in the very south of our area, the region is divisible into three north-south zones which to a large extent are continuations of those in our Shark Bay paper.

Western zone

This zone comprises the coast (here almost wholly occupied by the

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Zuytdorp Cliffs) and the adjoining country inland for about 10 km. Mean annual rainfall ranges from 32 cm in the north to 40 cm in the south, nearly all of it falling between May and August. Almost everywhere the soil is sandy and varies in colour from white to grey and pale brown. Shallow soils, especially near the coast, are vegetated mainly with coastal heath and *Melaleuca* thickets. Deeper and more sheltered soils carry thickets of *Acacia rostellifera*.

Central zone

This zone is bounded in the west by the inland limit of coastal limestone, and in the east by the 'mulga-eucalypt' line. Annual rainfall ranges from 25-30 cm in the north to 30-35 cm in the south. For the most part the country consists of red, brown and yellow sandplains and sandridges. The vegetation is a highly varied assemblage of shrubs and low trees. In the north the soils are mostly reddish and the vegetation mainly a scrub of *Acacia*, *Eucalyptus*, *Banksia*, *Melaleuca*, *Hakea* and *Grevillea* spp, broken by patches of soft spinifex (*Plectrachne*). In the south the sands tend to be more yellowish and the scrub denser; the conifer *Actinostrobus arenarius* is common here. In the south-east there are extensive tracts of red loam carrying woodlands of York Gum (*Eucalyptus loxophleba*); the southernmost part of this country constitutes the extreme north of the wheat belt.

Eastern zone

This occupies the north-east of our area. It mainly consists of red-soil plains. Annual rainfall is 20-25 cm, with somewhat more in summer and autumn than the country to the west and south. The prevailing vegetation is *Acacia* scrub (known locally as bowgada); it is more open in the north where the soil is heavier and shallower over the limestone. West and north-west of Coburn HS there is a small area of hard spinifex (*Triodia*) and scattered eucalypts growing on reddish sandplains; it is notable for an isolated population of *Amphibolurus isolepis*.

Murchison River

This (the only watercourse in the area) and its narrow valley provide additional habitats. First there are the permanent river-pools and springs that afford a home for freshwater turtles and frogs. Then there are the fringing forests of *Eucalyptus camaldulensis* and *Casuarina obesa*. Finally there are the canyons and lateral gullies of the river; these sandstone cliffs and slopes constitute the only rocky habitats in the region apart from the Zuytdorp Cliffs. However most of the Murchison Gorge lies in the Kalbarri National Park and thus outside our area.

For detailed accounts of the climate, physiography, soils and vegetation of

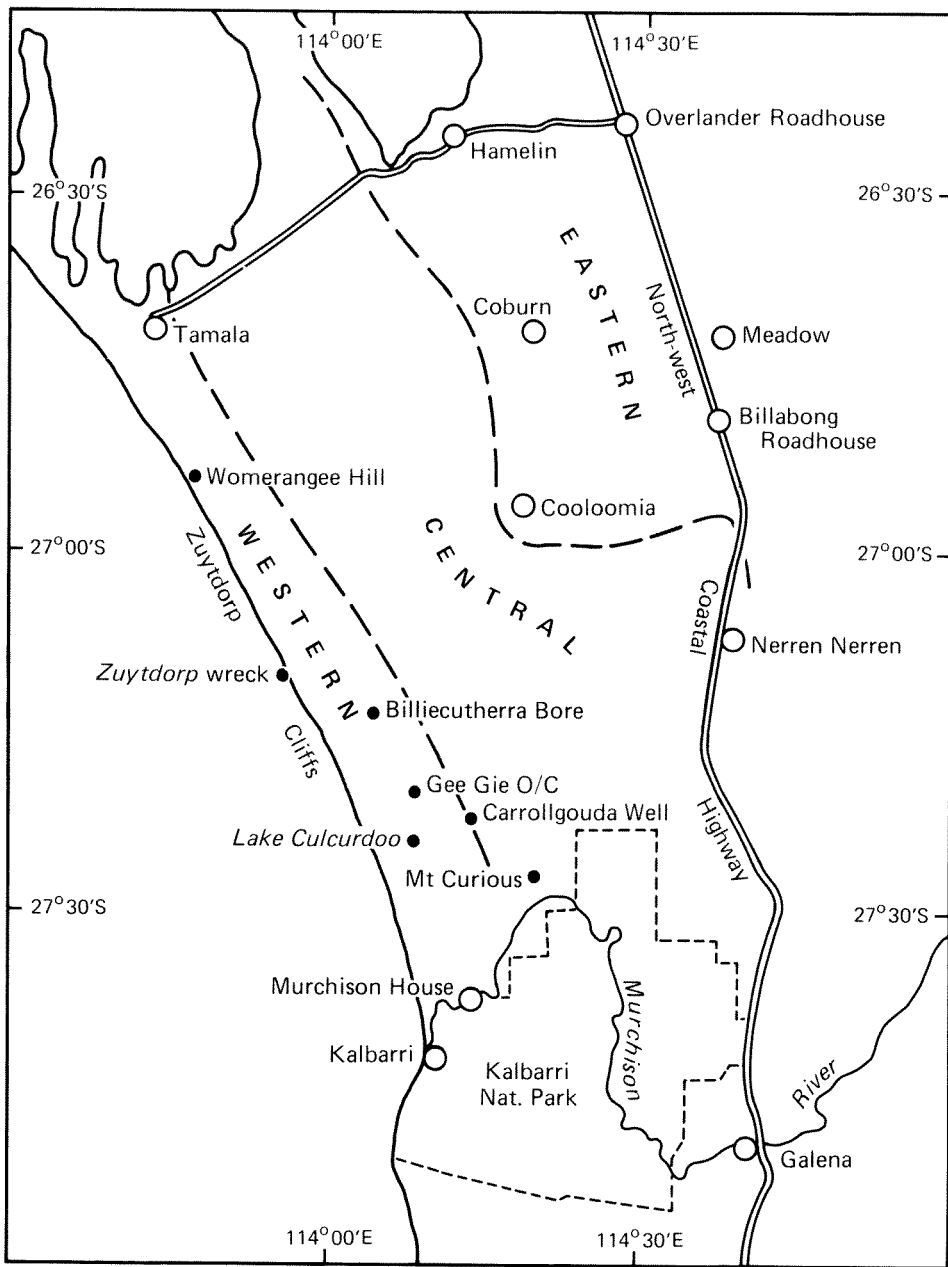


Fig. 1: Map of Zuytdorp region, Western Australia.

the region see Beard (1976). Our western zone roughly corresponds to Dr Beard's Zuytdorp System (p. 99), our central zone to his Tamala and Eurardy Systems (pp. 102-7), and our eastern zone to his Toolonga Plateau (p. 88).

Exploration

Collecting began in the late 1950s and early 1960s, mainly in the periphery of the region, i.e. along the Murchison River, the North-west Coastal Highway and the road from Overlander to Denham. In December 1963 G.M. Storr briefly visited the country between Murchison House and Tamala. A larger collection was made by the Hale School Expedition (led by R.B. Humphries) in the country north of Murchison House (Carrollgouda Well, Gee Gie Outcamp and Culcurdoo Lake) in late November and early December 1968. In January-February 1969 a Western Australian Museum party under the leadership of J.L. Bannister carried out a biological survey of the Kalbarri National Park, during the course of which some collecting was done in our area — at Billiecuthera Bore, near the *Zuytdorp* wreck, around Mt Curious, and along the Murchison downstream from Murchison House.

From 19 to 29 July 1979 G. Harold and D. Knowles worked the country around Coburn and Cooloomia homesteads, south-west of Billabong Roadhouse, south-west of Nerren Nerren, north-east and south of Tamala, and north of Murchison House. This work was partly financed by a grant to the Western Australian Museum by Mr and Mrs W.H. Butler.

In mid-September 1979 J.K. Rolfe and P.J. Fuller of the Fisheries and Wildlife Department collected in the country west of Cooloomia; they made smaller collections south-east of Womerangee Hill and north of Lake Culcurdoo. Later in the same month T.M.S. Hanlon and G. Harold collected in the northern part of the area.

Other people whose specimens have contributed to this report are G. Barron, A. Baynes, G. Bostock, D. Bradshaw, M.G. Brooker, A.A. Burbidge, W.H. Butler, B.T. Clay, M. DeGraaf, A.M. Douglas, J.R. Ford, G.W. Kendrick, J. Kirsch, N. Kolichis, G. Kontoolas, A.K. Lee, A.R. Main, Z. Oxenham, M. Peterson, R.L. Pink, W.D.L. Ride, R. Simmons and W.K. Youngson.

All specimens cited in this paper are lodged in the Western Australian Museum.

ANNOTATED LIST

Leptodactylidae

Arenophryne rotunda Tyler

Recorded from only a small part of the central zone. On the evenings of 17, 19 and 20 September 1979 J.K. Rolfe and P.J. Fuller pit-trapped 35 specimens on red sandplains 17 and 23 km WSW of Cooloomia HS; 17 of the specimens were released. At 1230 hr on 20 September they collected one

that walked into their camp on a red sandplain 20 km WSW of Cooloomia; it was evidently attracted by the camp fire.

These records are the first inland from white coastal dunes.

Heleioporus albopunctatus Gray

A frog (35016) and egg-mass (35019) in the Western Australian Museum are labelled 'Murchison River'; they were collected on 6 September 1954 by A.R. Main and A.K. Lee, presumably within our area.

Limnodynastes dorsalis (Gray)

Occurring on the lower Murchison from its mouth upstream to at least Lockwood Spring.

Neobatrachus pelobatoides (Werner)

Restricted to the southern third of the area. In the evening of 19 July 1979 G. Harold and D. Knowles found one (64445) feeding in *Hakea* scrub on reddish soil 31 km SW of Nerren Nerren. On 29 November 1968 a Hale School party collected two larvae (34051-2) at Culcurdoo Lake believed to belong to this species.

Neobatrachus sutor Main

One record: a specimen (21316) found by G.M. Storr in the evening of 14 May 1963; it was feeding above the floodline of the Murchison at Galena.

Pseudophryne guentheri Boulenger

Confined to the south-west of the area (specimens from Culcurdoo Lake and the lower Murchison).

Ranidella pseudinsignifera (Main)

Calls heard by G.M. Storr on the Murchison at Galena during the evening of 14 May 1963 were attributed to this species. This frog is plentiful further down the river (upstream to at least Lockwood Spring).

Cheluidae

Chelodina steindachneri Siebenrock

On three separate occasions collected along the Murchison at Galena.

Gekkonidae

Crenadactylus ocellatus horni (Lucas & Frost)

Northern half of central zone. Moderately common. In soft spinifex (*Plectrachne*) on reddish and yellowish sandplains.

Diplodactylus alboguttatus Werner

Central zone. Moderately common. Reddish and yellowish sandplains carrying mixed scrubs (*Acacia*, *Eucalyptus*, *Hakea*, *Banksia*, *Melaleuca*, *Grevillea*, *Xylomelum* etc.) and heaths (*Thryptomene*, sedges etc.).

Diplodactylus michaelsoni Werner

Northern half of central zone. Scarce. In soft spinifex (*Plectrachne*) and sedges on reddish and brownish sandplains.

Diplodactylus ornatus Gray

Western parts of central zone. Scarce. Reddish and yellowish sandplains.

Diplodactylus pulcher (Steindachner)

Eastern zone and eastern parts of central zone. Moderately common on a wide variety of soil types.

Diplodactylus spinigerus Gray

Western zone and southern part of central zone. Uncommon. Yellow-eyed form.

Diplodactylus squarrosus Kluge

Eastern zone south to Billabong Roadhouse. Uncommon. Red loams and clays with open *Acacia* scrub.

Diplodactylus strophurus (Duméril & Bibron)

Central zone. Uncommon. Open scrubs on reddish sandy soils. Specimens from this area (e.g. 21837-43 and 64298) are somewhat spinier than from elsewhere and have the caudal rings white rather than golden yellow.

Gehyra variegata (Duméril & Bibron)

Very common throughout the area in a wide variety of trees and tall shrubs.

Heteronotia binoei (Gray)

Common in western and central zones but only recorded from far south of eastern zone.

Nephrurus levis occidentalis Storr

Central zone (where moderately common) and eastern parts of western zone (where scarce). Reddish and yellowish sandplains.

Phyllurus milii Bory

Western zone. Moderately common. Mainly in coastal limestone.

Rhynchoedura ornata Günther

One record from extreme north of eastern zone: a specimen (44525) collected at Overlander. [Three specimens have been collected just east of our area at 27 and 39 km E of Meadow HS.]

Pygopodidae

Aclys concinna Kluge

One record: a specimen (66192) found by G. Harold and T.M.S. Hanlon in August 1979 on road through low shrubs and *Banksia* on orange-yellow soil 2 km NE of Tamala.

Aprasia smithi Storr

Mainly the western and central zones (north to 1 km S of Tamala, Cooloomia HS and 46 km N of Galena). Moderately common. In topsoil and litter and under logs on a wide variety of soils including reddish brown sandy loam and yellow sand.

Delma australis Kluge

Northern half of central zone. Moderately common. Mainly in soft spinifex (*Plectrarchne*) on brown and yellowish sandplains.

Delma fraseri Gray

One record from extreme north of western zone: a specimen (56484) collected at 1 km S of Tamala.

Delma tincta DeVis

Only recorded from extreme north and south of area: one specimen from Hamelin and two from Murchison House.

Lialis burtonis Gray

Patchily distributed throughout the area. Uncommon.

Pygopus lepidopodus (Lacépède)

Two records: single specimens collected at 7 and 10 km NE of Tamala.

Pygopus nigriceps nigriceps (Fischer)

Confined to eastern zone and eastern parts of central zone (apart from an unconfirmed record from Tamala). Scarce.

Agamidae

Amphibolurus adelaidensis adelaidensis (Gray)

Far south-west, north to the *Zuytdorp* wreck and inland to Mt Curious. Uncommon.

Amphibolurus inermis (DeVis)

Patchily distributed (recorded from Overlander, 15 km W of Hamelin, Tamala, 15 km SSW of Nerren Nerren and 8 km NE of Carrollgouda Well). Uncommon. Mainly the yellow and reddish sands of the central zone.

Amphibolurus isolepis (Fischer)

Only known from the belt of *Triodia* and open mallee growing on reddish sandplains in the eastern zone. On 26 July 1979 G. Harold and D. Knowles collected three specimens (64438-40) at 17.5 km NW of Coburn HS, they were much larger (SVL 51-59 mm) than winter specimens from elsewhere in Western Australia (Storr 1965). On 29 August 1979 T.M.S. Hanlon and G. Harold collected a male (65000) at the same locality, it has SVL 60 mm and a small dark grey pectoral patch.

The subspecific identity of this isolated population has still to be determined. It is located 300 km south from the nearest population of *A. i. isolepis*.

Amphibolurus maculatus maculatus (Gray)

Western and central zones east to 33 km NE of Tamala, 13 km W of Cooloomia, 31 km SW of Nerren Nerren and 13 km N of Galena. Very common. All kinds of well-vegetated sandy country from white coastal dunes to red and yellow sandplains and sandridges.

Amphibolurus minor minor Sternfeld

Central and eastern zones and inland parts of western zone. Common on well-vegetated lighter soils; scarce on the heavy red soils of north-eastern part of area.

Amphibolurus parviceps butleri Storr

One record from western zone: a specimen (64446) collected by G. Harold and D. Knowles in July 1979 among low shrubs on white sand 19 km S of Tamala.

Amphibolurus reticulatus (Gray)

Common in western and central zones; scarce in eastern zone. Mainly loamy soils with open *Acacia* scrub; also in mallee, York Gum woodland and samphire.

Amphibolurus scutulatus Stirling & Zietz

Central and eastern zones, and far east of western zone (Carrollgouda Well). Moderately common (more plentiful to immediate east of our area). Mainly open *Acacia* and mallee on reddish sands and loams.

Lophognathus longirostris Boulenger

Confined to extreme south. Moderately common in waterside forests along the Murchison upstream to Galena.

Moloch horridus Gray

Central zone. Scarce. Sandy country.

Scincidae

Cryptoblepharus carnabyi Storr

Western and central zones. Uncommon. In a wide variety of habitats, e.g. rock face of cliffs near *Zuytdorp* wreck, river gums at Galena, open *Acacia* scrub near Tamala, *Eremaea/Hakea* thicket west of Cooloomia, and York Gum woodland south-west of Nerren Nerren.

Cryptoblepharus plagiocephalus (Cocteau)

Western and central zones. Uncommon.

Ctenotus fallens Storr

Western and central zones. Uncommon.

Ctenotus mimetes Storr

Eastern zone. Moderately common. Red clayey soils over limestone with open *Acacia* scrub.

Ctenotus pantherinus pantherinus (Peters)

Only recorded from extreme north and south of area, viz. at 7 km W of Hamelin and Galena. Rare. Heavy red soils.

Ctenotus schomburgkii (Peters)

Central and eastern zones. Scarce (more plentiful to immediate east of our area). Mainly in sedges and leaf litter under low open woodlands on loamy soils.

Ctenotus severus Storr

Only recorded from extreme south-east of area (Galena). Common. Red clay loam.

Ctenotus youngsoni Storr

One record from western zone: a specimen (64426) collected by G. Harold and D. Knowles among low shrubs on white sand 19 km S of Tamala on 25 July 1979.

Egernia depressa (Günther)

Two specimens from extreme north-east of area, including one found by N. Kolichis on 28 July 1978 in the spout of a dead *Acacia*.

Lerista connivens Storr

Western and central zones and south of eastern zone (north to 17 km NW of Coburn and 7 km N of Billabong Roadhouse). Very common. In topsoil and litter and under logs on a wide variety of sands and sandy loams.

Lerista elegans (Gray)

Eastern parts of western zone, central zone and south of eastern zone (north to 7 km N of Billabong Roadhouse). Uncommon. Mainly in leaf litter and under logs on sands and sandy loams.

Lerista humphriesi Storr

Central zone and adjacent parts of eastern and western zones. Moderately common. Until recently this species was known only from one specimen collected at Gee Gie Outcamp. In July 1979 G. Harold and D. Knowles collected a specimen at 16 km SW of Billabong Roadhouse, three at Cooloomia HS, one at 31 km SW of Nerren Nerren and four at 10 km N of Murchison House. In September 1979 J.K. Rolfe and P.J. Fuller collected single specimens at 17 and 26 km WSW of Cooloomia and 26 km N of Lake Culcurdoo. Specimens were obtained in stumps and bulldozer spoil and under leaf litter and logs on reddish and yellowish sandplains. The closely related and widespread *L. praepedita* was not found within the small area occupied by this species.

Lerista lineopunctulata (Duméril & Bibron)

Western and central zones and south of eastern zone (north to 7 km N of Billabong Roadhouse). Common. Mainly in litter below *Acacia*, *Banksia*, mallee and *Hakea* scrubs on white and red sands and reddish brown sandy loam.

Lerista macropisthopus (Werner)

Eastern zone and south-east of central zone. Very common. Mainly in litter beneath *Acacia* and mallee scrubs on red clay, loam, sandy loam and sand in eastern zone and on yellow sand in central zone (40-46 km N of Galena).

Lerista muelleri (Fischer)

Central and eastern zones and far north-east of western zone (1 km S of Tamala). Moderately common. In litter and rotten stumps and under logs, mainly below open scrubs and woodlands on sandy loams.

Lerista nichollsi (Loveridge)

Central and eastern zones and east of western zone (Gee Gie Outcamp). Uncommon. In litter and under rotten stumps below open *Acacia* and *Banksia* scrubs on red and yellowish sands.

Lerista petersoni Storr

Three records from northern half of central zone: a specimen (64360) collected by G. Harold and D. Knowles in July 1979 in litter beneath shrubs in *Banksia* woodland on yellowish sand 42 km NE of Tamala, and two specimens (66357, 66372) collected by J.K. Rolfe and P.J. Fuller in Septem-

ber 1979 in soft spinifex (*Plectrachne*) on brown and reddish brown sandplains respectively at 23 and 15 km WSW of Cooloomia HS.

Originally described as a subspecies of *L. connivens*, this skink has now proved to be sympatric with that species and must be elevated to a full species. Both *L. connivens* and *L. nicholli* were collected at Coburn HS (27 km N of Cooloomia).

Lerista planiventralis decora Storr

One record from central zone: two specimens (67325-6) pit-trapped by J.K. Rolfe and P.J. Fuller in September 1979 in *Hakea-Acacia* scrub on coarse red sand at 23 km WSW of Cooloomia HS.

Lerista praepedita (Boulenger)

Western, central and eastern zones. Common. In topsoil, leaf litter and rotten stumps beneath a wide variety of scrubs and heaths on white, red and yellow sands.

Menetia greyii Gray

Western and central zones. Uncommon. Mainly open *Acacia* scrub on reddish sandy loam.

Menetia surda Storr

Central zone. Moderately common. Mainly in soft spinifex (*Plectrachne*) and leaf litter on yellow, brown and red sandplains.

Morethia butleri (Storr)

One record from extreme north of eastern zone: a specimen (55066) collected by G. Harold and M. Peterson in September 1976 in open *Acacia* scrub on red rocky soil 7 km W of Hamelin.

Morethia lineoocellata (Duméril & Bibron)

Western zone and adjoining part of central zone. Possibly common towards coast in low open heath on white dunes, but uncommon inland.

Morethia obscura Storr

One record from western zone, a specimen (18597) collected by G.M. Storr under a slab of limestone near the *Zuytdorp* wreck; and one from central zone, a specimen (66346) collected by J.K. Rolfe and P.J. Fuller on red sand with shrubby mallee over chenopods 23 km WSW of Cooloomia.

Omolepida branchialis (Günther)

Western and central zones. Common. Mainly in soft spinifex (*Plectrachne*) on reddish brown sandplains and in litter and topsoil beneath open to moderately dense *Banksia*, *Hakea* and *Acacia* scrubs on yellowish and reddish sands; also in coastal limestone.

Tiliqua rugosa (Gray)

Western zone and far south of central zone. Possibly common along the lower Murchison, but rare further north (collected at 1 km S of Tamala and 2 km E of Gee Gie Outcamp, and observed a few kilometers N of Galena).

Varanidae

Varanus caudolineatus Boulenger

Eastern zone (and probably south-east of central zone, judging from its occurrence at Ajana and 34 km SE of Nerren Nerren). Uncommon. Mainly in hollow logs and stumps in open *Acacia* scrub on red sandy loam.

Varanus eremius Lucas & Frost

Eastern zone. Scarce. Open *Acacia* scrub on red loam.

Varanus gouldii (Gray)

Two records from central zone: juveniles (18602-3) collected by G.M. Storr in January 1963 in mixed scrub on brown sandy loam at 18 and 27 km S of Nerren Nerren.

Typhlopidae

Typhlina australis (Gray)

One record from extreme north of western zone: a specimen (64351) collected in July 1979 by G. Harold and D. Knowles in a rotten stump in open *Acacia* scrub on reddish soil 1 km S of Tamala.

Typhlina bituberculata (Peters)

One record from western zone: a specimen (64382) collected in July 1979 by G. Harold and D. Knowles in a stump in coastal heath on white sand 19 km S of Tamala.

Typhlina leptosoma (Robb)

One record from central zone: a specimen (66343) collected in September

1979 by J.K. Rolfe and P.J. Fuller in soft spinifex (*Plectrachne*) on orange-brown soil 15 km WNW of Cooloomia HS.

Boidae

Liasis childreni Gray

One record from eastern zone: a specimen (58865) collected in December 1966 by W.H. Butler at 13 km S of Overlander. Also an unconfirmed report from western zone: a head from Tamala was sent in 1939 to the Western Australian Museum, where it was registered (7247) but not retained.

Elapidae

Demansia olivacea calodera Storr

Only recorded from extreme north of western zone (Tamala and 1 km S). Two of the three specimens were collected in open *Acacia* scrub on reddish sandy loam.

Demansia reticulata reticulata (Gray)

One record from western zone: a specimen (66336) collected by J.K. Rolfe and P.J. Fuller as it crossed track 9.6 km SE of Womerangee Hill at 1130 hr on 16 September 1979; the vegetation here was heath (*Acacia*, *Diplolaena* and Myrtaceae) on sandplain with much capstone.

Denisonia monachus Storr

Eastern zone. Scarce. Open *Acacia* scrub on red sands and loams.

Furina christiana (Fry)

One unconfirmed record from extreme north of western zone: two specimens (6530-1) from Tamala were registered in 1937 but cannot be found.

Pseudechis australis (Gray)

Pseudonaja modesta (Günther)

Pseudonaja nuchalis Günther

These three species seem to occur throughout the area. Summer collecting would probably show them to be more plentiful than the few specimens indicate.

Vermicella approximans (Glauert)

One record from far north-east of eastern zone: a specimen (28699)

collected by W.H. Butler in December 1966 at 16 km S of Overlander. In our Shark Bay paper (Storr & Harold 1978) this specimen was listed as *V. s. semifasciata*; however it agrees with *V. approximans* in all respects except for having five rather than six upper labials.

Vermicella bertholdi (Jan)

Eastern zone and south-east of central zone (17 km SW of Nerren Nerren). Uncommon. Under leaf litter and logs in open *Acacia* scrub and open eucalypt scrub and woodland on reddish sandy loam.

Vermicella bimaculata (Duméril, Bibron & Duméril)

One record from extreme north of western zone: two specimens collected by G. Harold and M. Peterson at 1 km S of Tamala in August 1976.

Vermicella littoralis Storr

Western and central zones. Uncommon. This species has been collected at 15 km WNW of Cooloomia HS, and the closely related *bertholdi* at Cooloomia HS.

DISCUSSION

To date 39 genera and 83 species of amphibians and reptiles have been recorded from the area. They are distributed in ten families:

Leptodactylidae	—	6 genera, 7 species
Cheluidae	—	1 genus, 1 species
Gekkonidae	—	7 genera, 13 species
Pygopodidae	—	5 genera, 8 species
Agamidae	—	3 genera, 10 species
Scincidae	—	8 genera, 26 species
Varanidae	—	1 genus, 3 species
Typhlopidae	—	1 genus, 3 species
Boidae	—	1 genus, 1 species
Elapidae	—	6 genera, 11 species

Further collecting, especially in summer, should add several species to the list, notably the four taxa found to the immediate north and south of our area: *Ctenotus lesueurii*, *Eremiascincus richardsonii*, *Tiliqua occipitalis* and *Vermicella f. fasciolata*. We would be surprised if the ultimate total stood at less than 90 species.

The Murchison River marks the northern limit of three south-west Australian frogs, *Heleioporus albopunctatus*, *Limnodynastes dorsalis* and

Ranidella pseudinsignifera; another two species, *Neobatrachus pelobatoides* and *Pseudophryne guentheri*, only extend a little further north. Among south-western reptiles only *Delma grayii* and *Vermicella s. semifasciata* seem to be limited by the Murchison.

Seven south-western and southern Australian reptiles are locally restricted to the western zone: *Phyllurus milii*, *Aclys concinna*, *Delma fraseri*, *Amphibolurus a. adelaidensis*, *Morethia obscura*, *Demansia r. reticulata* and *Vermicella bimaculata*. Only one of these, *Amphibolurus a. adelaidensis*, fails to reach the Shark Bay region (where its place is taken by the closely related *A. parviceps*). An additional eight south-western and southern reptiles extend to the central zone: *Diplodactylus alboguttatus*, *D. michaelsoni*, *D. spinigerus*, *Delma australis*, *Pygopus lepidopodus*, *Ctenotus fallens*, *C. p. pantherinus* and *Tiliqua rugosa*.

Another category that is largely confined to the western and central zones are the reptiles endemic to the west coast and coastal plains of Western Australia: *Diplodactylus ornatus*, *Nephrurus levis occidentalis*, *Lerista elegans*, *L. lineopunctulata*, *L. praepedita*, *Morethia lineocellata*, *Demansia olivacea calodera* and *Vermicella littoralis*. Of these taxa only the three *Lerista* extend inland to the eastern zone and then only to its western and southern fringes.

Eight reptiles characteristic of the arid interior of Western Australia are locally restricted to the eastern zone, viz. *Rhynchoedura ornata*, *Amphibolurus isolepis*, *Ctenotus mimetes*, *Egernia depressa*, *Morethia butleri*, *Varanus caudolineatus*, *V. eremius* and *Vermicella approximans*.

One species, *Lerista humphriesi*, is endemic to the area. The isolated and slightly peculiar populations of *Diplodactylus squarrosus* and *Amphibolurus isolepis* possibly constitute endemic subspecies. A further five taxa are almost confined to the area: *Arenophryne rotunda* extending only to Dirk Hartog Island and the Kalbarri National Park, *Aprasia smithi* to Edel Land and Kalbarri, *Amphibolurus parviceps butleri* to Edel Land, *Ctenotus youngsoni* to Dirk Hartog Island, *Lerista connivens* to Kalbarri and the islands of Freycinet Estuary, and *Typhlina leptosoma* to Wooramel and the lower Murchison.

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