THE HERPETOLOGY OF SOUTH-EAST AFRICA

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INTRODUCTION.

"South-east Africa", for the purposes of this study, includes Bechuanaland, the Caprivi Strip, Rhodesia, Zambia, Malawi and Mozambique, a total area of 1,065,000 square miles. It is therefore considerably larger than South Africa and South West Africa together (800,000 sq. miles) or "East Africa" as defined by Loveridge (1957), i.e. Uganda, Kenya and Tanzania with a total area of 680,000 square miles. It is also slightly larger than the Congo (910,000 sq. miles).

The herpetofauna of south-east Africa has never been considered as a whole. Most South African herpetologists have confined their attention to Africa south of a line formed by the Cunene and Zambezi Rivers, the most important contributions being by FitzSimons (1943 and 1962) on the reptiles and Poynton (1964) on the amphibians.

The only comprehensive survey of the herpetofauna of Bechuanaland was made by FitzSimons (1935b).

Apart from brief descriptions of new forms, the only reports on herpetological collections from Rhodesia are by Boulenger (1902), FitzSimons (1939b; 1958a) and Broadley (1959b; 1962d).

Little has been published on the herpetofauna of Zambia until recently. Peracca (1896; 1910) reported on Jallaf's collections from Kazungula and Barotseland. Boulenger (1907a) listed Neave's small collection and Pitman (1934) published a tentative checklist. Vesey-FitzGerald (1958), Broadley and Pitman (1960) and Wilson (1965) have published reports on large collections of snakes from northern and eastern Zambia.

Malawi received some attention in the last century (Gunther, 1888, 1893, 1894; Boulenger, 1897) and was then neglected for fifty years. Loveridge (1953a; 1953b; 1953c) provided a good basis for future work in this region. Poynton (1964b) has subsequently made a big contribution to our knowledge of the amphibians of Malawi and eastern Zambia.

Large areas of Mozambique remain blank on the distribution maps. The early collections from Mozambique came either from the coast or along the Zambezi and provided the basis for papers by Bianconi (1847-1862), Peters (1854-1882), Gray (1864) and Gunther (1864). Bocage reported on some reptiles from Angoche (1882) and then listed all the reptiles and amphibians recorded from Mozambique (1896). Pfeffer (1893) listed some material collected by Stuhlmann at Quelimane.
Boulenger (1907b) recorded some specimens collected by Grant and Sternfeld (1911) reported on a collection made in the interior of Mozambique by Tiesler. Cott (1932; 1934; 1935) and Parker (1931) made valuable contributions to our knowledge of the herpetofauna of the lower Zambezi. Cunha (1935) and Themido (1941) recorded some reptiles from Massangulo and Mertens (1937) listed some material from Inhaiminga. Manacas (1952; 1957; 1959; 1961) has published a series of reports on reptiles from Mozambique. A paper on the amphibians of northern Mozambique (Poynton, 1966b) is in press.

During the preparation of the present study it has become obvious that the great weakness in the literature on the herpetofauna of Africa is parochialism. Much intensive and valuable work has been done in the territories bordering south-east Africa, but it has not been co-ordinated. There is a pressing need for the herpetofauna of the Ethiopian Region to be considered as a whole and Poynton has led the way in looking to wider horizons. One of the main objectives of this study is to reconcile the views of workers to the north (Loveridge; Witte; Laurent), west (Bocage; Monard; Hellmich; Mertens) and south (Hewitt; FitzSimons).

Poynton (1960; etc.) laid the foundations for studies on the zoogeography of the Ethiopian Region. His conclusions are largely based on the distribution patterns shown by the amphibians, so a comparison of reptile distributions should prove illuminating. As few amphibians are equipped for life in arid regions, the reptiles will shed more light on the affinities of the fauna inhabiting such areas.

Many reptile groups are obviously in need of revision on a pan-African basis. An admirable model for such a study is the revision of the snake genus Dasypeltis by Gans (1959). It is preferable that a study of intraspecific geographic variation should cover the whole range of the species, so this type of analysis has not usually been attempted here.

Most of the amphibian material listed has already been examined and reported on by Poynton (1964a; 1964b; 1966b), so I have undertaken little taxonomic work on the amphibians apart from a review of the Breviceps mossambicus group. I have tried to collate all the literature references to Zambian amphibians, but the identity of much of this material will remain doubtful until it is re-examined.
The total number of forms (species and subspecies) recognised in south-east Africa is 294 reptiles and 108 amphibians.

ACKNOWLEDGEMENTS.

This project was instigated by Dr. J.C. Poynton at the beginning of 1964. At that time his own study on the amphibian fauna of Southern Africa was nearing completion and he felt that I had accumulated enough material from south-east Africa to make a zoogeographical study of that area, based on the distributions of both reptiles and amphibians, a worthwhile proposition. I am grateful to Dr. Poynton for his advice and encouragement, without which this project would not have reached fruition.

The work was carried out at Umtali Museum and occupied a large part of my time during 1965-1966. I am indebted to the Director of National Museums, Mr. Renay H.N. Smithers, not only for his constant encouragement, but also for collecting much herpetological material in Bechuanaland.

It is impossible to list all those who have contributed material and observations, but I am particularly indebted to: Messrs. W.P.H. Ansell; R. Japp; B.L. Mitchell; L.D.E.P. Vesey-FitzGerald and V.J. Wilson (Zambia); Dr. Margaret Stewart (Malawi); Messrs. L. Balarin; D.K. Blake; D. Bredenkamp; I. Cannell; H.C. Garbett; T.N. Liversedge; Prince Edward School and the Rhodesian Schools Exploration Society (Rhodesia); Messrs. T. Pavey (Rhodesia and Mozambique) and C.R. Owen (Mozambique).

I am specially indebted to Mr. T.N. Liversedge who prepared the long series of snake skulls used for dentitional studies.

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Mr. C.E. Gow (South African Museum); Mr. B.G. Donnelly (Port Elizabeth Museum); Miss. P.M. Barbour (McGregor Museum); Dr. W. Steyn (State Museum, Windhoek); Dr. U. de V. Pienaar (Kruger National Park); Drs. D.M. Cochran and J.A. Peters (United States National Museum); Dr. R.F. Inger (Chicago Natural History Museum); Drs. A. Capart and G.F. de Witte (Institut Royal des Sciences Naturelles de Belgique); and Senor J.J. Cravo (Estacao de Biologia Maritima, Inhaca Island).

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I am particularly grateful to Mrs. R.E. Blake, who collated the gazetteer and typed and checked the final manuscript.

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MATERIALS AND METHODS.

This study is based on the herpetological collections of the National Museums of Rhodesia, now centralised at Umtali Museum, which contain over 16,000 specimens from south-east Africa. In the course of revisionary studies on a number of reptile groups, all relevant material in the South African Museums has been examined, together with some material from American Museums, the British Museum (N.H.) and the Institut Royal des Sciences Naturelles de Belgique. The groups in question are:

- Biopa sundevalli group
- Typhlosaurus lineatus group
- Nucras tessellata group
- Genus Platysaurus (Broadley, 1964b)
- Genus Natriciteres
- Philothamnus natalensis (Broadley, 1966, in press)
- Prosymna sundevalli group (Broadley, 1965c)
- Psammophis subtaeniatus

The south-east African material examined during the preparation of this study consists of 12,400 reptiles and 5,600 amphibians; additional material from other parts of Africa has been used for comparative purposes.

In order to make the distribution data as complete as possible, all reliable literature records have been collated. In some groups the discovery of sibling species makes literature citations unacceptable (e.g. Hemidactylus mabouia complex; Mabuya striata complex).

Unpublished locality data has been supplied by several colleagues and these localities have been included under "Literature records" followed by the following abbreviations in parentheses:

- B = Bredo Collections in the Institut Royal des Sciences Naturelles de Belgique (Data supplied by Captain C.R.S. Pitman).
- BM = Material in the British Museum (Data supplied by Miss. A.G.C. Grandison and Captain C.R.S. Pitman).
- P = Material examined by Dr. J.C. Poynton.
- T = Material examined by Father K. Tasman, S.J.
In those cases where material listed under "material examined" has previously been recorded in the literature, the localities are not usually repeated either in the synonymy or under "literature records". In the synonymy a locality record is normally listed only on the first occasion that it appeared in the literature.

All localities have been listed alphabetically in the gazetteer with their quarter-degree grid references and the distribution maps were compiled from the gazetteer. This system was used by Poynton (1964a) and FitzSimons (1962) also used a quarter-degree reference system, although his method of notation is different. The adoption of this system for plotting animal distributions facilitates comparative zoogeographical studies.

A detailed description of each form has not been included if this is already available in the literature. The range of variation given for relevant taxonomic characters is based only on material from the study area unless otherwise stated.

Lengths for the largest specimens examined are recorded. For reptiles these are given as head and body + tail = total. A + sign after the tail denotes a truncated tail, an * indicates a regenerated tail. Measurements were normally taken to the nearest millimetre for lengths under 500 mm; a steel whiteface tape was used. Head and foot measurements (where relevant) were taken to the nearest tenth of a millimetre with a pair of Vernier calipers. Head lengths of lizards were measured from end of snout to rear edge of ear opening; foot lengths are from heel to tip of claw on the longest toe. Maximum lengths for amphibians are mostly taken from Poynton (1964a; 1964b; 1966b).

Transverse counts of scale rows on reptiles were taken as follows:

Lizards - at a point midway between armpit and groin.

Snakes (a) Species with regular scalation. Three counts were taken - at a point one head length posterior to the occiput; at a point midway between snout and vent and a point one head length anterior to the vent. Where the counts are constant for a species they are expressed as a formula, e.g. 17 - 19 - 15.

(b) Species with irregular scalation (e.g. Dasypeltis; Bitis). One count was taken at a point midway between snout and vent.

* and to the nearest 5 mm for lengths over 500 mm;
In some cases it is advantageous to record the manner and place in which the number of dorsal scale rows increase and decrease on different parts of the body (e.g. Oliver, 1948). This can be expressed as a formula, e.g. 19 •• III + IV (65-82) •• 17, which indicates that there are 19 rows of dorsals anteriorly, reducing to 17 posteriorly by the fusion of the third and fourth rows (counting from the ventrals inwards) at a point between ventrals 65 to 82.

Most ventral counts recorded for African snakes have probably been started at the "first ventral wider than long". Dowling (1951) has drawn attention to the subjective nature of this method and has recommended that the count should begin with the first ventral bordered on both sides by the outer row of dorsals, usually yielding a count 1-3 lower than the "first wider than long" system. The old system was used for most of the counts recorded here, but I am using the Dowling system for generic and species group revisions and this is indicated by a "(D)" immediately before the range of ventrals. "Half-ventrals" are included in the ventral count if they are at least half the width of a normal ventral.

Subcaudal scale counts were begun at the first pair in contact on the median line and do not include the terminal spine. A tail is assumed to be complete if the terminal spine is at least one and a half times the length of the preceding subcaudal.

Pasteur (1959; 1964) has shown the importance of the caudal scalation in taxonomic studies on the Gekkonidae. He has concentrated on the subcaudal scalation in his work on the genus Lygodactylus and his nomenclature has been used here. I have found that the supra caudal scalation may also provide good diagnostic characters, especially in the genus Pachydactylus. For lizards, counts of subdigital lamellae were made to the first junction with an adjacent toe.

Dentitional formulae for snakes conform to Bogert (1943), i.e. Roman numerals are used for fangs, Arabic numerals for ordinary teeth and a + sign indicates a gap or diastema in the tooth series.

Statistical methods are based on Mayr, Linsley and Usinger (1953), but in most cases statistical analysis of morphological data has been deferred until more material is available.
Ecological data for reptiles and amphibians from the study area has been included. Much remains to be done on reptile diets, but some new data for snakes have been incorporated. The stomach contents of small carnivores collected on the Bechuanaland Mammal Survey have yielded useful information on predators.

In the lists of localities for material examined, all specimens are in the Umtali Museum unless otherwise indicated.

The abbreviations used to denote various institutional collections are as follows:

AM = Albany Museum, Grahamstown.
AMNH = American Museum of Natural History.
BM = British Museum (Natural History).
EBM = Estacao de Biologia Maritima, Inhaca Island.
IRSNE = Institut Royal des Sciences Naturelles de Belgique.
KM = Kaffrarian Museum, King Williams Town.
MCZ = Museum of Comparative Zoology, Harvard.
MM = McGregor Museum, Kimberley.
NM = Natal Museum, Pietermaritzburg.
NMK = National Museum of Malawi, Blantyre.
NMSR = National Museum of Rhodesia, Bulawayo.*
PEM = Port Elizabeth Museum.
QVM = Queen Victoria Museum, Salisbury.*
SAM = South African Museum, Cape Town.
SMP = Senckenberg Museum, Frankfurt-am-Main.
TM = Transvaal Museum, Pretoria.
UM = Umtali Museum.
USNM = United States National Museum.
VFNP = Victoria Falls National Park Collection.
ZMB = Zoologisches Museum, Berlin.
ZMC = Zoological Museum, Copenhagen.

* Apart from reference collections, all material catalogued in the National Museum of Rhodesia and the Queen Victoria Museum is held centrally in the Umtali Museum.
The physiogeographic regions defined by Wellington (1955) for Southern Africa provide a good basis for a subdivision of "South-east Africa". Some alterations in nomenclature are necessary, as the names of several political divisions have been changed in the past decade. The physiogeographic regions and subregions of South-east Africa are shown in Fig. 1 below.

For the brief descriptions of the regions data have been collated from the following sources:

Geology - Wellington (1955) and Bond & Stowe (1965).
Vegetation - Keay et al (1959), supplemented by data from Pole-Evans (1948) and Smithers (1964) for Bechuanaland, Wild (1965) for Rhodesia, Rattray and Wild (1960) for Zambia and Malawi and Ansell (1960) for Zambia.

1. The KALAHARI BASIN includes Bechuanaland (except for the eastern tip), an area in the north-west of Rhodesia and the Barotse Plain. This huge inland drainage basin is covered by a deep mantle of very old aeolian sands, which has extended much further east in dry periods of sand redistribution during the Pliocene and Pleistocene.

1A. The SOUTHERN KALAHARI is more arid and cooler (mean July temperature below 13°C) than the northern areas. The northern and eastern parts of this subregion are flat or gently undulating, sparsely covered with Acacia scrub and grass. There are numerous pans. The south-western part in the vicinity of the Kalahari Gemsbok National Park is very dry, with long parallel sand dunes and broad dry water courses.

1B. The CENTRAL KALAHARI is very flat and is largely scrub savanna with Acacia and Commiphora. The Makarikari depression is an open saline pan, sometimes seasonally dry, with extensive grassy plains in the north, elsewhere fringed by Mopane woodland. Lake Ngami has dried up during the last hundred years and is now a depression covered with grass and Acacia woodland or scrub. The swamps of the Okovango and the eastern Caprivi Strip have extensive beds of Papyrus and Phragmites, also islands with Hyphaene palms and evergreen trees. The swamps are fringed with well-developed riverine forest, backed by Camelthorn (Acacia giraffae) and Mopane woodland. The Mababe depression is subject to seasonal flooding and is covered with grassland and bordered by Mopane woodland. Extensive areas of Baikiaea...
Fig. 1. GEOGRAPHICAL REGIONS OF SOUTH-EAST AFRICA

1. KALAHARI BASIN
   1a. Southern Kalahari
   1b. Central Kalahari
   1c. Barotse Plains

2. LAKE MOESRU BASIN

3. CENTRAL PLATEAUX
   3a. Rhodesian Plateau
   3b. Zambian Plateau

4. EASTERN RHODESIAN HIGHLANDS.

5. LUANGWA - MALAWI HIGHLANDS.

6. ZAMBEZI - MALAWI TROUGHS
   6a. Gwere - Luangwa Trough
   6b. Chicoa Trough
   6c. Malawi Trough

7. LIMPOPO - SABI DEPRESSION.

8. MOZAMBIQUE PLATFORMS
   8a. Niassa Platform
   8b. Manica Platform

9. MOZAMBIQUE PLAIN.
woodland occur in north-eastern Bechuanaland, north-western Rhodesia and to the north of the Chobe swamps.

10. The BAROTSE PLAINS extend well beyond the boundaries of Barotseland to the north and east. The Barotse flood plains are covered with *Loudetia* grassland. On higher ground occur areas of *Baikiaea* forest in the south and *Cryptosepalum* dry evergreen forest in the north-east. Extensive *Brachystegia* woodlands occur east of the Zambezi.

2. The LAKE MWERU BASIN lies north of the South Equatorial Divide and is linked with the main Congo Basin by the Luvua River, which flows out of the northern end of Lake Mweru near Pweto. The drainage of this region is dominated by Lake Bangweulu and the huge area of swamps bordering it. The Chambeshi River rises in the highlands just south of Abercorn and flows south-west into the swamps south of Lake Bangweulu. The Luapula River flows out of the southern end of Lake Bangweulu and then turns west and north to enter the southern end of Lake Mweru. The Bangweulu Swamps consist of a mosaic of swamp forest (*Mushitu*) and *Papyrus* swamps with large areas of *Hyparrhenia* grassland to the south and on the flood plain of the upper Chambesi. *Pterocarpus-Erythrophleum* savanna covers large areas to the north and west of Bangweulu and also borders Lake Mweru and the lower Luapula. The Mweru-Wantipa is a permanent swamp lying between Lakes Mweru and Tanganyika, it is surrounded by a flood plain covered with *Hyparrhenia* grassland. The higher ground in this region is largely covered with *Brachystegia* woodland.

3. The CENTRAL PLATEAUX are portions of the Miocene Peneplain which is still recognizable in many parts of central and southern Africa.

3A. The RHODESIAN PLATEAU has been eroded down to the old granite over large areas and granite bornhardts and kopjes dominate the landscape in the south and east of the subregion. Paragneiss replaces granite on the Zambezi escarpment, but is overlaid with Karroo sedimentary rocks in many areas. Other geological features are the Great Dyke, which divides the subregion north-south, the Basement Schists (the "Gold Belts") and relict patches of Kalahari Sand east of the Great Dyke in the Umvuma area.
Brachystegia woodland covers large areas in the north and east, but the drier western areas are largely covered with Acacia and Terminalia savanna. Mopane woodland occurs in the major river valleys. Large areas of Hyparrhenia grassland occur on the main watershed between Bulawayo and Inyanga. Wild (1956) has drawn attention to relics of Albizia-Macaranga montane forest on the southeastern escarpment of this plateau in the Bikita-Belingwe area.

3B. The ZAMBIAN PLATEAU lacks the distinctive weathered granite formations of Rhodesia, the old granite being largely covered by Pre-Cambrian rocks of the Katanga-Kundelungu series.

The dominant vegetation type is rich Brachystegia woodland. There are extensive swamps along the Kafue river, the most important being the Lukanga Swamp west of Broken Hill and the Kafue Flats. The permanent swamps are bordered by flood plains covered with Hyparrhenia grassland.

Patches of evergreen gallery forest occur in the Mwinilunga District with riparian forest further south along major rivers like the Kabompo and its tributaries (Ansell 1960).

4. The EASTERN RHODESIAN HIGHLANDS consist of a series of separate blocks along the eastern escarpment of the Rhodesian Plateau which exceed 6,000 ft. in height. The northern highlands are largely dolerite and granite, but the Chimanimani Mountains are old fold mountains of metamorphosed quartzites, with the red sandstone and shales of the upper Umkondo System forming the Melsetter Plateau to the west. The montane blocks from north to south are: The Inyanga Highlands, with the highest peak (Inyangani Mountain) reaching 8,514 ft; Stapleford (6,669 ft); Vumba (6,265 ft); Himalaya (7,269 ft); Musapa (7,042 ft) and Chimanimani Mountains (8,004 ft).

The summits of most of these mountains are covered with Themeda-Exotheca grassland and Protea scrub. Giant Heath (Phillipia) occupies areas where it is protected from fire by extensive rock outcrops, as on the summits of Inyangani and the Chimanimani Mountains. Relict patches of dry Widdringtonia - Podocarpus montane forest are scattered throughout the eastern highlands, but are best developed on
Himalaya and in parts of the Chimanimani Range. Wet Macaranga-Albizia montane forest occurs as relict patches on the eastern slopes of Inyangani Mountain, in the Pungwe and Mtarazi Gorges, on Stapleford and the summits of Vumba and Silinda Mountains and in the Banti Forest north of Himalaya.

5. The LUANGWA-MALAWI HIGHLANDS occupy a triangular area bordered by the Luangwa Trough on the west, the Malawi Trough on the east and the Zambezi Valley in the south. They include portions of Zambia, Malawi and Mozambique. This region is another desiccated portion of the pre-Karroo surface, most of it lying between 3,000 and 5,000 ft. The granite Nyika Plateau reaches an altitude of 8,697 ft., other areas over 6,000 ft. are the Vipya Plateau and isolated peaks in the Misuku Mountains and the Dzalanyama and Kirk Ranges on the Malawi-Mozambique border. The summits of these mountains are covered with Themeda-Exotheca grassland and scattered patches of evergreen montane forest, particularly in the Misuku Mountains on the northern border of Malawi. A patch of Juniperus procera survives on the Nyika Plateau (Loveridge, 1953d).

On the main plateau area Brachystegia woodland is the dominant vegetation type. In the Fort Jameson District of Zambia and adjoining Mozambique massive granite kopjes are a feature of the landscape.

6. The ZAMBEZI-MALAWI TROUGHS are linked with the great Rift-Valley system of East Africa.

6A. The GWMBE-LUANGWA TROUGH includes the Deka Valley, the Gwembe Valley (now filled by Kariba Lake), the section of the Zambezi Valley between the Kariba and Mpata Gorges, and the Luangwa Valley (including the Lukushashi and Luano valleys).

6B. The CHICOA TROUGH is the lower section of the Middle Zambezi Valley, lying between the Mpata and Cahorabassa Gorges. The dominant vegetation type throughout these hot dry valleys is Mopane woodland with Baobabs.

6C. The MALAWI TROUGH consists of the basin of Lake Malawi (deepest in the north, becoming very shallow in the south) and the Shire Valley. Vegetation varies from dry savanna with Baobabs to Brachystegia woodland.
7. The LIMPOPO-SABi DEPRESSION is cut mainly in paragneiss and basalt. Post-Karoo igneous intrusions ("ring-complexes") form prominent hill features at Marungudzi and the Mateke Hills. The area is very dry and the dominant vegetation type is Mopane savanna with numerous Baobabs in the valleys.

The Cretaceous Sandstone on the south-eastern border of Rhodesia shows resemblances to the southern Kalahari, with grass covered dune structures (Brain, in litt.) and many pans.

8. The MOZAMBIQUE PLATFORMS have been produced by the recession of the central plateau edge from the border of the Mozambique Plain, caused by the headward erosion of the post-Jurassic rivers.

8A. The NIASSA PLATFORM includes Malawi east of the Shire Valley and consists of basement gneisses and schists with intrusive granite and syenite which forms great inselbergs rising from the platform. The most important of these are Zomba Plateau (6,846 ft.), Chiradzulu (5,821 ft.) and Mlanje (9,843 ft.) Mountains in Malawi and the Namuli Peaks (7,980 ft.) and Mitacue and Hibaue Mountains (both nearly 6,000 ft.) in Mozambique. There are also a number of peaks reaching 5-6,000 ft. in the north-west of Niassa District. The dominant vegetation is Brachystegia woodland, but evergreen forest occurs on the inselbergs, with montane grassland on the summits of the higher ones. Dry Juniperus-Widdringtonia-Fodocarpus montane forest occurs in sheltered ravines and valleys on Mlanje Mountain between 4,000 and 7,000 ft.

The coastal plain is very narrow on this stretch of the east coast and is a complex of dry savanna with Baobabs, freshwater swamps and mangrove swamps. The coast is fringed with coral reefs, which have formed numerous small islands, the most important being the Querimba group and Mozambique Island.

8B. The MANICA PLATFORM includes the north-east corner of Rhodesia, the area around Tete and the south-western edge of Malawi, with tongues extending into Rhodesia up the valleys of the Pungwe, Honde, Nyamakari (Burma) and Lusitu Rivers.

Gorongoza Mountain (6,112 ft.) is a large isolated mountain block which has montane vegetation on the summit and extensive evergreen forests on the slopes. Many granite inselbergs are conspicuous because of their "dragon's tooth" shape, which makes them good landmarks, especially Mavita (5,213 ft.), Zembe (4,078 ft.) and Mhanda (4,669 ft.).
There are extensive areas of granite, paragneiss and sandstone outcrops. Garuso (4,882 ft.) is a heavily forested north-south ridge midway between Vila de Manica and Vila Pery.

The vegetation is largely *Brachystegia* woodland, with patches of lowland evergreen forest concentrated on the eastern edge of the Platform (e.g. Amatongas and forests on the lower eastern slopes of Gorongoza Mountain), but extending westwards along rivers.

9. The **MOZAMBIQUE PLAIN** lies below 1,000 ft. and is composed of cretaceous and tertiary sandstones and limestones, with large areas covered by recent unconsolidated alluvium. Rising sea levels have drowned deep river valleys and produced long northward pointing spits, which in some cases have been "beheaded" to form Inhaca Island opposite Lourenco Marques and Bazaruto Islands between Beira and Inhambane.

The vegetation is varied. Some Mopane savanna is present in the Limpopo Valley. There are large blocks of rich *Brachystegia* woodland, one extends north from Bando to Inhamitanga and there is a much larger area inland from Inhambane. Along the coast are patches of swamp forest, especially in the Zambezi Delta, but much of this forest has been cut out. Mangrove swamps occur at river mouths. A belt of freshwater swamps marks the old course of the Zambezi from just below Serra to Beira, widening out into the Pungwe Flats at its southern end.
1. SYSTEMATIC DISCUSSION.

PREFACE

The taxonomic principles of the author are largely based on Mayr, Linsley and Usinger (1953) and Mayr (1963). A "biological species" concept has been used throughout this study and the taxonomic status of each form determined by evaluation of ecological, zoogeographical and morphological characters.

The biological criterion of reproductive isolation has been used, wherever possible, to determine the specific or subspecific status of closely related forms, but this may present difficulties. Moore (1944), in an analysis of variation in Rana pipiens, found that it is not possible to define subspecies in spite of great geographic variation not only in general morphology and secondary sex characters, but also in the viability of larvae produced by crossing individuals from different local populations. When crosses were made between individuals from widely separated populations (Vermont and Florida) the embryos often showed pronounced morphological abnormalities and Volpe (1954) subsequently reported hybrid inviability between Rana pipiens from Wisconsin and Mexico. Such a situation presents a major taxonomic problem when the terminal populations of a circular cline prove to be reproducively isolated, which seems to be the case with Thelotornis kirtlandi kirtlandi and T. k. oatesi in Angola.

The mating call of male amphibians is one of the most useful taxonomic characters when dealing with morphologically similar sympatric forms, particularly those of the genera Bufo, Leptodactylus and Hyla. Because of intraspecific geographic variation in calls (Bogert, 1960 and 1962; Poynton, 1964a), differences between the calls of allopatric forms must be interpreted with caution.

Intraspecific variation in morphological characters is often underestimated, particularly with regard to osteological and anatomical features which are usually examined in relatively few specimens. Poynton (1964a, p. 13) has criticised the tendency to establish taxa on skeletal proportions based on inadequate samples. Because of ontogenetic variation it is dangerous to compare adult and immature specimens.

Boulenger (1893, 1894a, 1896) used maxillary dentition in his diagnoses of snake genera, but, as pointed out by Bogert (1940), he made little attempt to determine the extent of interspecific and intraspecific variation. Bogert has published some valuable data on the dentition of the African Colubridae (1940) and the Elapidae (1943). The present study incorporates dentitional data for many local snake species, based on 140 cleaned skulls. Dentitional formulae seem to be very stable in some groups, but show considerable variation in others; so caution must be exercised when using dentition as a taxonomic character.
The structure of the snake hemipenis has been valuable in the classification of the suborder Serpentes, especially the Colubridae (Bogert, 1940). Dowling and Savage (1960), in a survey of the basic structure and systematic characteristics of the snake hemipenis, pointed out that the features of the hemipenis are rather stable at the level of the species or species group and may advantageously be used to distinguish related species and genera. They stressed that intraspecific variation in hemipenial characters needs further examination and this warning was underlined by Inger & Marx (1962), who showed that male specimens of Calamaria lumbricoidea from different parts of Borneo may have the hemipenis simple or forked and the calyces smooth or papillate, while the female cloacas show corresponding geographical variation. An analysis of the variation in the hemipenis of local snakes has not been attempted at the present time.

Poynton (1964a, p. 12) has drawn attention to the problem of long clines, which may have terminal populations which show marked differences, but which lack 'steps' in the character gradients which would serve to divide subspecies. Such clines are typical of the East African coastal plain and work on the reptiles supports Poynton's conclusion that most species with a continuous distribution from Kenya to Zululand should not be subdivided.

In the absence of evidence regarding reproductive isolation, the status of closely related allopatric forms may sometimes be deduced by consideration of associated species which show similar distribution patterns. For example, a number of closely related montane forms indicate a former connection between Mlanje and Inyangani Mountains. In one case (Mabuya punctatissima) the two populations show such slight morphological differences that they would normally be included in the same taxon. On the other hand, Pasteur described Inyoscelis velleus bonesi (endemic to Mlanje Mountain) as a full species because of the wide gap separating it from its close relative I. bernardi on Inyengani Mountain, together with a number of small morphological differences. A number of associated species have different races each side of the the Zambezi gap (Scelotes arnoldi; Duberia lutrix; Rana johnstoni; Rana fasciana), so it seems advisable to maintain uniformity of treatment. In this study doubtful allopatric populations are treated as subspecies - as recommended by Mayr, Linzey and Weinger (1953), but if two forms occupy different habitats and occur in close proximity without intergradation they are assumed to be distinct species even if they show only slight morphological differences (e.g. Crotaphopeltis hotambocia and C. tornieri).

Where necessary, the spelling of trivial names has been emended to conform with articles 26 to 34 of the International Code of Zoological Nomenclature (1961).
SUMMARY OF TAXONOMIC CHANGES.

Five forms have not yet been described, either due to lack of material or pending the completion of a generic or species-group revision. These forms are referred to by the following manuscript names:

- *Typhlosaurus* "relicus"
- *Typhlosaurus* lineatus "jappi"
- *Zygaspis* "niger"
- *Ratriciteres variocata* "sylvatica"
- *Probrevicope* "rhodesianus"

The following appear to be new synonyms:

- *Homoptychystylus turneri* Gray = *Pachydactylus ibroni* (A. Smith)
- *Agama kirki fitzsimoni* Loveridge = *Agama kirki* Boulenger
- *Chamaeleo peterelli* Gray = *Chamaeleo dilepis dilepis* Leach
- *Chamaeleo dilepis* var. *Culmensis* Bocage = *Chamaeleo dilepis dilepis* Leach
- *Brookesia platyceps carri* Loveridge = *Brookesia platyceps* (Gunther)
- *Brookesia ionidesi* Loveridge = *Brookesia brachyura* (Gunther)
- *Mabuya perroteti* melanbae Witte = *Mabuya planifrons* (Peters)
- *Mabuya obtii* Werner = *Mabuya quinquedactila margaritifer* (Peters)
- *Mabuya damarens rhodesiana* Broadley = *Mabuya incertiformis* Peters
- *Mabuya varia nyika* Loveridge = *Mabuya varia* (Peters)
- *Mabuya ellenbergeri* Chabanaud = *Mabuya striata wahlbergi* (Peters)
- *Sepacantias modestus* Gunther = *Nopia sundevalli sundevalli* (A. Smith)
- *Rumeedia anchietae major* Laurent = *Rumeedia anchietae anchietae* Bocage
- *Rumeedia anchietae willti* Laurent = *Rumeedia anchietae anchietae* Bocage
- *Ablepharus ansalli* FitzSimons = *Ablepharus sondei* Witte
- *Melanocela Bouleguer = Scelotes Fitzinger
- *Melanocela sten misukuensis* Loveridge = *Scelotes sten sten* (Gunther)
- *Typhloconias rehavi* Angel = *Typhloconias gracilis gracilis* Roux
- *Gerrhosaurus grandis* Bouleguer = *Gerrhosaurus major major* Dumril
- *Tetradactylus Boulengeri* Witte = *Tetradactylus ellenbergeri* (Angel)
- *Kerrias holubi* Steindachner = *Nucras tessellata ornata* (Gray)
- *Varanus microstictus* Boettger = *Varanus exanthematicus albicullaris* Sauvage

- *Varanus albicullaris angolensis* Schmidt = *Varanus exanthematicus* albicullaris Sauvage
- *Varanus exanthematicus ionidesi* Laurent = *Varanus exanthematicus* albicullaris Sauvage
- *Amphisbaena capensis* Thomiot = *Zygaspis quadrifrons* (Peters)
- *Chirindia bushbryi* Cott = *Chirindia aegyptiaca* Bouleguer
- *Monopeltis decorleri* Bouleguer = *Monopeltis sphenorhynchus* Peters
- *Monopeltis ellenbergeri* Angel = *Tomaropeltis longicudata* (Werner)

* *Gerrhosaurus flavicularis* fitzsimoni Loveridge = *G. flavicularis* Wagner
The following forms are revived from synonymy:

**Hemidactylus tasmani** Hewitt is a good species, not a synonym of **Hemidactylus mabouia**.

**Hemidactylus platycephalus** Peters is a good species, not a synonym of **Hemidactylus mabouia**.

**Euprepes punctatissimus** A. Smith is a good species, not a synonym of **Nabuya striata**. It now becomes **Nabuya punctatissimus** (A. Smith).

**Euprepes wahlbergi** Peters is a valid race of **Nabuya striata**, not a synonym of it.

**Psammophis brevirostris** Peters is a good species, not a synonym of **Psammophis sibilans**.

**Psammophis leopardinus** Bocage is revived from the synonymy of **Psammophis sibilans** as a subspecies.

**Naja haje var annulifera** Peters is a valid south-eastern race of **Naja haje**

The status of the following forms has been changed as indicated:

**Ihyodactylus bonai** Pasteur = **L. bernardi bonai** Pasteur

**Pachydactylus oshaughnessyi** Boulenger is a good species, not a race of **P. capensis** (A. Smith)
Pachydactylus capensis katanganus Witte = P. oshaughnessyi katanganus Witte

Pachydactylus affinis Boulenger is a good species, not a race of P. capensis (A. Smith)

Pachydactylus capensis tigrinus Van Den = P. affinis tigrinus Van Den

Agama hispida makarikarika FitzSimons is a good species, not a race of A. hispida (Linnaeus)

Mabuya boulengeri Sternfeld is a good species, not a race of Mabuya maculilabris (Gray)

Suropas striatus var. spilogaster Peters = Mabuya punctatissimus spilogaster (Peters)

Mabuya becagii mlanjensis Loveridge = Mabuya punctatissimus mlanjensis Loveridge

Lygosoma johnstoni Boulenger = Eumeces anchietae johnstoni (Boulenger)

Typhlecontias ngamiensis FitzSimons = Typhlecontias gracilis ngamiensis FitzSimons

Acontias plumbeus occidentalis FitzSimons = Acontias gracilicauda occidentalis FitzSimons

Acontias plumbeus broadleyi FitzSimons = Acontias gracilicauda broadleyi FitzSimons

Typhlosaurus bicolor Havitt = Typhlosaurus cregoi bicolor Havitt

Zonurus tropidosternum Cope is a good species, not a race of Cordylus cordylus. It now becomes Cordylus tropidosternum Cope.

Zonurus Jonsei Boulenger = Cordylus tropidosternum jonsei (Boulenger)

Platysaurus guttatus pungweensis Broadley is a good species, not a race of P. intermedius Matschle

Platysaurus intermedius blakei Broadley = P. pungweensis blakei Broadley

Chamaesaura micropus Boulenger = C. macrolepis micropus Boulenger

Teira ornata Gray = Nucras tessellata ornata (Gray)

Lygodonocromus rufulus mlanjensis Loveridge = L. leleupi mlanjensis Loveridge

Natrix olivacea bipostocularis Broadley = N. variegata bipostocularis Broadley

Natrix olivacea pembana Loveridge = Natrix variegata pembana Loveridge

Leptodira tornieri werner is a good species, Crotaphopeltis tornieri (werner), not a race of Crotaphopeltis hetambosia (Laurenti)

Psammophylax variabilis Gunther is a good species, not a race of P. tritaeniatus (Gunther)

Psammophylax tritaeniatus festivus Laurent = P. variabilis festivus Laurent

Psammophylax tritaeniatus subniger Laurent = P. variabilis subniger Laurent

Psammophis Ansorgei Boulenger = P. jallae ansorgei Boulenger
LIST OF REJECTED SPECIES.

The following species have at various times been recorded for south-east Africa, but the records are rejected for the reasons given.

Lygodactylus picturatus (Peters): Recorded from Victoria Falls (Loveridge, 1929 & 1941) and Tete (Loveridge, 1953a). This material is all referable to L. chobiensis.

Lygodactylus gutturalis (Bocage): Recorded from Lealui (Pasteur, 1964), but based on L. chobiensis. L. gutturalis may occur in the Lake Mweru area.

Phelsuma cepedianum (Merrem): Recorded from Qualimane (Gunther, 1864). I have examined these specimens and they are a pair of Phelsuma v-nigra.

Phelsuma madagascariensis Gray: The two specimens recorded by Boulenger (1885a) are actually P. v-nigra, see above.

Araña arama Linnaeus: Recorded (as A. colonorum) from Manica District (Bocage, 1896) and Zumbo (Themido, 1941), but both records were probably based on A. kirkii. Also recorded from the Zambezi Expedition (as A. occipitalis) by Gunther (1864) and from Zumbo (as A. colonorum) by Loveridge (1920), both these records were based on A. E. mossambica.

Brookesia brevicaudata (Matschie): Recorded (as Rhampholeon brevicaudatus) from Zomba by Werner (1902) and Mitchell (1946), these records were based on specimens of Brookesia brachyura.
Scelotes eggeli Tornier: Recorded from Lumbo (Loveridge, 1920), but these specimens later became the types of Scelotes aeneus Barbour & Loveridge.

Scelotes guentheri Boulenger: Recorded from Lourenco Marques (Hewitt, 1921), but based on Scelotes brevipes.

Acontias meleagris (Linnaeus): Records from Kazungula to Bulawayo (Percacc, 1896), "Bechuanaland" (Bocage, 1996b) and Comodino to Kaotwe (Petacca, 1935b) are all apparently based on Acontias gracilicauda occidentalis. Records from Rikatla (Houx, 1907) and Delagoa Bay (Boulenger, 1910) are probably based on Acontias plumbeus. Bocage (1896) recorded this species from "Hacequees to the Save River" and as the specimens came from the Rhodesia-Mozambique border they were probably Typhlosaurus c. bicolor, but could be Acontias plumbeus. I have examined the Manoe specimens recorded by Boulenger (1902) and they are Typhlosaurus c. bicolor.

Platysaurus capensis A.Smith: The specimens recorded from Tete (Peters, 1854) later became types of P. torquatus Peters. Rhodesian material material listed under this name by Boulenger (1910) included specimens of P. i. rhodesianus and P. i. subniger.

Platysaurus guttatus A.Smith: The specimens recorded from Tete (Peters, 1854) later became types of P. torquatus Peters. The record from Mbasheca (Manacas, 1952) is based on P. wilhelmi. Numerous records from Rhodesia are based on either P. i. rhodesianus or P. i. subniger.

Aremias nitida Gunther: The specimen recorded from Eldorado (Hewitt & Power, 1913) later became the type of Latastia kidwelli Boulenger, which is a synonym of Latastia johnstoni.

Typhlops lumbriciformis (Peters): The record from Fwambo (Boulenger, 1896) was based on Typhlops gracilis.

Typhlops decorosus (Bucholtz & Peters) The record from Manje Mountain (Sternfeld, 1908) was based on Typhlops obtusus according to Loveridge (1955a).

Typhlops punctatus (Leach): The records from Abercorn (Vesey-Fitzgerald, 1958; Broadley & Pitman, 1962) were based on Typhlops c. achmasti.

Leptotyphlops nitricans (Schlegel): The records from Umfuli River (Boulenger, 1896) and Cafumps (Manacas, 1954) were based on Leptotyphlops longicauda. Records from Mozambique Island (Peters, 1854 & 1882), Petauke and Luangwa Valley (Boulenger, 1907) and Broken Hill (Pitman, 1934) were probably based on L. conjuncta.
**Prosystena frontalis** (Peters): Recorded from Angoche (Bocage, 1882), but based on *Prosystena a. lineata*.

**Pythonodipsas carinata** Gunther: This species was described from "Zambesi" by Gunther in 1868. It has not subsequently been recorded from Bechuanaland or further east and the type locality is probably incorrect. At my request the type has been examined by Mr. A.F. Stimson, who reports (letter of 27.iv.65) that it bears a collector's label which reads "No. 84. J. Chapman." Chapman's original notebooks cannot be traced, they are not at the British Museum or the Royal Geographical Society. John Chapman's book "Travels in the interior of South Africa" contains a map showing his route from Walvis Bay to Victoria Falls via Lake Ngami in 1861-3. It is likely that the type of *Pythonodipsas carinata* was collected somewhere between Walvis Bay and Gobabis.

**Choristocalamus concolor** (A.Smith): The specimen recorded from Expandene under the name *Calamela concolor* (Chubb, 1909b) is a *Calamela u. nigropes*.

**Atractaspis irregularis** Heinhardt: The records from Quelimane (Pfeffer, 1893; Bocage, 1896) were based on *A. bibroni*.

**Atractaspis microlepisota** Gunther: The records for the Lake Bangweulu area (Pike, 1964) were probably based on *A. bibroni*.

**Caenus resinaceus** Peters: I have examined the specimen recorded from Petauke by Boulenger (1907) and repeated by Pitman (1934) and Vesey-FitzGerald (1958), it is a *Caenus defilippis*. The records from Angoche (Bocage, 1882) and Lake Bangweulu (Pike, 1964) are also based on this species.

**Ptychodene ansorgei** (Boulenger): The records from Amatongas (Parker, 1931) and various Malawi localities (Loveridge, 1953b & 1953c) were based on *P. c. guibei* (see Poynton, 1964a & 1964b).

**Ptychodene trinoda** (Boettger): The record from Quelimane (Pfeffer, 1893) was based on *Ptychodene mossambica* (see Poynton, 1966b).

**Arthroplectis variabilis** Matschies: The record from Chitala (Hoffman, 1944) was based on *A. stenodactylus* (see Loveridge, 1953b).

**Hyperolius concolor** (Hallowell): The numerous records for south-east Africa are mostly based on *H. tuberilinguis*. 
### SYSTEMATIC CHECK LIST AND INDEX

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#### A. REPTILIA

**Order TESTUDINATA**

**Suborder CRIPTODIRA**

**Family TESTUDINIDAE**

- *Testudo pardalis babcocki* Loveridge
- *Testudo sulcata* Kuhl
- *Kinixys belliana bolliana* Gray

**Family TRIONICEIDAE**

- *Cycloderma frenatum* Peters

**Family CHELONIIDAE**

- *Chelonia mydas* (Linnaeus)
- *Eretmochelys imbricata* (Linnaeus)
- *Caretta caretta* (Linnaeus)

**Family DERMOCHELYIDAE**

- *Dermochelys coriacea* (Linnaeus)

**Suborder PLEURODIRA**

**Family PELOMENIDAE**

- *Pelomedusa subrufa* (Lacepede)
- *Pelusios nanus* Laurent
- *Pelusios castaneous castaneous* (Schweiger)
- *Pelusios castaneous rhodesianus* Hewitt
- *Pelusios bechuanicus* FitzSimons
- *Pelusios subiniger* (Lacepede)
- *Pelusios nigrita* (A. Smith)

**Order CROCODILIA**

**Family CROCODILEIDAE**

- *Crocodylus cataphractus* Cuvier
- *Crocodylus niloticus* Laurenti

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Check List: B = Bechuanaland, R = Rhodesia, Z = Zambia, M = Malawi, N = Mozambique
### Order SQUAMATA

### Suborder Sauria

#### Family GEKKONIDAE

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#### Family AGAMIDAE

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Family CHAMALEONIDAE

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Chamaeleo planiceps (Broadley)
Chamaeleo molleri (Gray)
Chamaeleo dilepis dilepis (Leach)
Chamaeleo marshalli (Soulenger)
Brookesia claviceps (Günther)
Brookesia nobilissimae Loveridge
Brookesia brachyura (Günther)

Family SCINCIDAE

Mabuya homalocephala depressa (Peters)
Mabuya maculilabris (Peters)
Mabuya boulenzeri Sternfeld
Mabuya mesalura (Peters)
Mabuya planifrons (Peters)
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E. AMPHIBIA

Order CAMPANOPHIGIA
Family CASCILLIDAE
Scolecocara pumila kirki kirki Boulanger

Order AMIBA
Suborder OPISTHOCEPHALA
Family PIPIDAE
Xenopus laevis laevis (Baudin)
Xenopus laevis poweri Hewitt
Xenopus muelleri (Peters)

Suborder PROCOPELA
Family BUFONIDAE
Bufo gariepensis gariepensis Poyton
Bufo regularis Heuss
Bufo pumilus Mantell
Bufo mossambicus Fitzsimons
Bufo garmani Hoek
Bufo lemairei Boulanger
Bufo arenar A. Smith
Bufo urununguensis Loveridge
Bufo vertebralis complexus Hewitt & Methuen
Bufo vertebralis grindleyi Poyton
Bufo taitanus taitanus Peters
Bufo taitanus nyika Loveridge
Bufo taitanus barbagus Loveridge
Bufo anotic Boulenger

Suborder DIPLASIOCEPHALA
Family MICROHILIDAE
Probreviceps "rhodasianus"
Breviceps mossambicus adersanus Peters
Breviceps mossambicus mossambicus Peters
Breviceps mossambicus poweri Parker
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Phrynopus affinis Boulenger
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KEY TO THE REPTILIA OF SOUTH-EAST AFRICA.

KEY TO THE ORDERS AND SUBORDERS.

1a. Body enclosed in a bony shell consisting of an upper (Carapace) and lower (Plastron) portion. Order Testudinata (2)
1b. Body not enclosed in a bony shell. 3

2a. Neck hidden when head is withdrawn into shell or head not withdrawable into shell. Suborder Cryptodira
2b. Neck exposed (by being bent laterally) when head is withdrawn into shell. Suborder Pleurodira (Family Pelomedusidae)

3a. Anal opening longitudinal. Order Crocodylia
3b. Anal opening transverse. Order Squamata (4)

4a. Body limbless, covered with rectangular segments of soft skin, which form regular rings from the pectoral region to tip of tail. Suborder Amphisbaenia
4b. Body with or without limbs, covered with granules or scales, which do not form regular rings from pectoral region to tip of tail. 5

5a. The two halves of the lower jaw rigidly connected by a suture; a moveable eyelid usually present; limbs usually present; a median series of transversely enlarged ventral plates never present. Suborder Sauria
5b. The two halves of the lower jaw connected by an elastic ligament or a nodule of cartilage; no moveable eyelid; limbless; usually a median series of transversely enlarged ventral plates. Suborder Serpentes

Order TESTUDINATA
Suborder CRYPTODIRA

KEY TO THE FAMILIES

1a. Limbs modified as flippers with 0-2 claws; marine. 2
1b. Limbs not modified as flippers, each with 3-5 claws; terrestrial or fresh water. 3

2a. Carapace with large horny shields; flippers with one or two claws. Cheloniidae
2b. Carapace covered with smooth skin (or small scales in juveniles) and with 7 prominent longitudinal ridges; flippers clawless. Dermochelyidae (Dermochelys coriacea)

3a. Carapace with horny shields; feet with 4 or 5 claws; terrestrial. Testudinidae
3b. Carapace without horny shields; feet with 3 claws; fresh water. Trionychidae (Cycloderma frenatum)
KEY TO THE FAMILY TESTUDINIDAE

1a. Carapace hinged posteriorly in adults, usually between 7th and 8th marginals; outer margin of 4th costal markedly wider than outer margin of 3rd. ........................................... Kinyxs b. belliana

1b. Carapace without hinge; outer margin of 4th costal subequal to, or narrower than, outer margin of 3rd. ........................................... ?

2a. First pair of marginals separated by a nuchal; a greatly enlarged scale on anterior face of forelimb. ........................................... Testudo oculifera

2b. First pair of marginals in contact; no greatly enlarged scale on anterior face of forelimb. ........................................... Testudo pardalis babcocki

KEY TO THE FAMILY CHELONIIDAE

1a. Carapace with 4 pairs of costal shields, of which the anterior pair is never the smallest and is separated from the nuchal shield. .............................................................................................................

1b. Carapace with 5-6 pairs of costal shields, of which the anterior pair is the smallest and normally in contact with the nuchal shield. ............................................................................................................. Caretta caretta

2a. Snout compressed; 4 prefrontal shields on head; shields of carapace extensively overlapping; usually two claws on each limb. ........................................... Eretmochelys imbricata

2b. Snout not compressed; 2 prefrontal shields on head; shields of carapace not overlapping (except in hatchlings); usually a single claw on each limb. ........................................... Chelonia mydas

KEY TO THE FAMILY PELOMEDUSIDAE

1a. Anterior lobe of plastron immovable; pectoral shields extending well onto bridge; plastral fenestration persisting until late in life. ........................................... Pelomedusa (P. subrufa)

1b. Anterior lobe of plastron moveable; pectoral shields almost excluded from bridge by abdominals; plastral fenestration closed very early in life. ........................................... Pelusios (2)

2a. Abdominal suture less than half the length of anterior lobe of plastron. ........................................... P. nemus

2b. Abdominal suture more than half the length of anterior lobe of plastron. ........................................... 3
3a. Abdominal suture subequal in length to the anterior lobe of the plastron; posterior margin of carapace serrated; first pair of marginals together subequal in width to first vertebral; plastron yellow with a sharply defined black peripheral pattern. **P. simus**

3b. Abdominal suture shorter than the anterior lobe of the plastron; posterior margin of carapace not serrated; first pair of marginals together usually narrower than first vertebral; plastron without a sharply defined black peripheral pattern.

4a. Plastron strongly constricted between the abdominals and the femorals; intergular usually longer than the humeral + pectoral sutures; anterior face of forelimb covered with regular juxtaposed scales; shields of plastron yellow mesially, becoming brown towards the sutures. **P. subniger**

4b. Plastron not strongly constricted between the abdominals and the femorals; intergular shorter than the humeral + pectoral sutures (in adults); anterior face of forelimb with transversely elongated falciform or striplike scales separated by smaller scales; plastron yellow and/or black, coloration irregularly disposed.

5a. Head large, more than half width of plastron at abdomino-femoral suture, with distinct yellow markings. **P. bechuanicus**

5b. Head small, less than half width of plastron at abdomino-femoral suture, without distinct yellow markings.

6a. Carapace brown; plastron uniform yellow. **P. c. castaneus**

6b. Carapace black; plastron black, with or without yellow patches (sometimes predominantly yellow). **P. castaneus rhodesianus**

**KEY TO THE ORDER CROCOYLLIA**

Snout greatly elongated; range West Africa, reaching Lakes Tanganyika and Mweru. **Crocodylus cataphractus**

Snout moderately broad; range throughout tropical Africa. **Crocodylus niloticus**

**KEY TO THE FAMILIES**

1a. Top of head covered with granules or small irregularly arranged scales. .................................................. 2

1b. Top of head covered with large symmetrical shields. .................................................. 5

2a. Eyelids not or hardly moveable, incapable of closing over eye. .................................................. 2

2b. Eyelids moveable, eye can be fully closed. .......................... 3
3a. Dorsal scales keeled, imbricate; tongue short and broad, covered with papillae........................................AGAMIDAE
3b. Dorsal scales smooth or granular, juxtaposed; tongue long and slender, not covered with papillae, tip club-shaped or deeply forked...
4a. Digits bound into opposed bundles for grasping; tongue extensible, its tip club-shaped........................................CHAMALEONTIDAE
4b. Digits separate, in a single plane; tongue snake-like, forked at tip..........................................................VARANIDAE
5a. Dorsal scales imbricate, smooth or with three or more keels; femoral pores absent........................................SCINCIDAE
5b. Dorsal scales either juxtaposed with a strong median keel or small and granular; femoral pores or a row of differentiated scales on posterior face of thigh............................................6
6a. A lateral granular fold present and/or limbs vestigial.......................................................CORDYLIDAE
6b. No lateral granular fold; limbs well developed.......................................................LACERTIDAE

GEKKONIDAE

KEY TO THE GENERA

1a. Digits not dilated, without adhesive lamellae below distally.........2
1b. Digits dilated, with adhesive lamellae below distally....................3

2a. Digits short, subcylindrical, clawless; toes without a lateral fringe of pointed scales........................................CHONDRODACTYLUS (C. angulifer)
2b. Digits long and slender, clawed; toes depressed, with a lateral fringe of long pointed scales..................................................PTENOPUS (P. garrulus)

3a. Digits each with a strongly developed claw..........................................................4
3b. Digits clawless or with a minute inconspicuous claw.................................7

4a. Digits with a long series of undivided adhesive lamellae below........................................HOMOPHOLIS (H. wahlbergi)
4b. Digits with paired adhesive lamellae at the tip..............................................5

5a. Distal digital joint strongly compressed and without adhesive lamellae below........................................AFROADURA
5b. Distal digital joint not strongly compressed, with a pair of adhesive lamellae below........................................AFROADURA

6a. Pupil vertical; inner digits well developed; postanal slits present; enlarged tubercles present on body and tail..................................................HEMIDACTYLUS
6b. Pupil round; inner digits small; postanal slits absent; no enlarged tubercles on body or tail..................................................LYZODACTYLUS

7a. Second toe about half length of third..................................................RHOPTROPUS (R. braconnieri)
7b. Second toe nearly as long as third..................................................8
8a. Pupil round; first digits vestigial; males with preano-femoral pores.................................Phelsuma
8b. Pupil vertical; first digits well developed; males without pores or with preanal pores only.................................9
9a. Two transverse adhesive lamellae beneath tips of toes.................................Colopus (C. wahlbergi)
9b. Three or more transverse adhesive lamellae beneath tips of toes.................................Pachydactylus

Key to the genus HUMIDACTYLUS

1a. Dorsum covered with smooth granules and scattered small conical tubercles; 12-14 transverse dorsal scale rows in a caudal verticil; arboreal..............................................H. platycephalus
1b. Dorsum covered in small multicarinate scales and rows of keeled tubercles; 7-9 transverse dorsal scale rows in a caudal verticil; rupicolous or arboreal..............................................2
2a. Dorsal tubercles larger than the interspaces separating them; body and tail with conspicuous irregular dark cross-bands; rupicolous..........................................................H. tasmani
2b. Dorsal tubercles smaller than the interspaces separating them; body and tail very pale, with only faint indications of cross-bands; arboreal..........................................................H. mercatorius

Key to the genus LYGODACTYLUS

1a. Mental with a pair of lateral clefts, resulting from fusion with a large postmental..............................................2
1b. Mental without lateral clefts..............................................9
2a. A series of palpebral spines above eye..............................................3
2b. No palpebral spines above eye..............................................4
3a. Throat uniform bluish-white; rostral usually excluded from nostril; 4-5 lamellae under fourth toe..............................................L. bernardi bernardi
3b. Throat with dark forward-directed chevrons; rostral usually entering nostril; 6 lamellae under fourth toe..............................................L. bernardi bonsi
4a. Adults 40-50 mm in snout-vent length; throat with dark lines extending from labials to base of throat..............................................L. rex
4b. Adults 30-40 mm in snout-vent length; throat without dark lines extending from labials to base of throat..............................................5
5a. Back grey with irregular large black spots; throat with faint forward-directed chevrons.............................................. L. stevensoni
5b. Back brown with a dark lateral and pale dorso-lateral stripe at least anteriorly; throat unmarked or with irregular grey stippling.............................................. 6

6a. Tail with a continuous series of median transversely enlarged subcaudals; three per verticil.............................................. L. capensis protei
6b. Tail without a continuous series of median transversely enlarged subcaudals........................................................................... 7

7a. Preanal pores in males 4-7.................................................................................................................. 8
7b. Preanal pores in males 7-10.................................................................................................................. 8

6a. Postnasal usually present; 3 subcaudals per verticil, 2 single, 1 paired (bilingual).............................................. L. capensis capensis
6b. Postnasal absent; subcaudals aperiodic.............................................. L. bradfieldi

9a. Posterior entering nostril; throat with dark lines converging from labials to base of throat.............................................. L. angularis angularis
9b. Rostral excluded from nostril; throat with forward-directed chevrons or entirely black (males).............................. L. chobiensis

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Key to the genus AFOGEDURA
Rostral bordering the nostril.............................................. A. transvaalica transvaalica
Rostral excluded from nostril.............................................. A. transvaalica loveridgei

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Key to the genus PHELSUMA
Rostral with a median cleft above............................................................................................................. P. dubia dubia
Rostral without a median cleft above............................................................................................................. P. v-nigra

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Key to the genus PACHYDACTYLUS
1a. Dorsum covered with subuniform granules.............................................. P. p. punctatus
1b. Dorsum covered with granules intermixed with enlarged tubercles.............................................................................. 2

2a. Transverse adhesive lamellae under fourth toe 4-5................................................................................... 3
2b. Transverse adhesive lamellae under fourth toe 9-14................................................................................... 7

3a. Original tail with a series of elongate spines across the middle of dorsal verticil, with small irregular scales below.............................................. P. rugosus
3b. Original tail with uniform scales above or with the posterior row in each verticil enlarged to form a ring of tubercles.............................................................................. 4

4a. Original tail with the posterior row of scales in each verticil enlarged to form a ring of tubercles; tubercles on back forming longitudinal rows.............................................. P. c. capensis
4b. Original tail without enlarged tubercles; tubercles on back irregularly disposed.............................................................................. 5
5a. Dorsum with three broad black-edged cream cross-bands; body and
tail subcylindrical...........................................P. o. oshaughnessyi
5b. Dorsum with 5-6 narrow pale cross-bars or rows of confluent spots;
body and tail depressed........................................6
6a. Adults with large black spots between irregular or poorly defined
pale cross-bars or transverse rows of confluent spots.........................P. affinis affinis
6b. Adults without large black spots between sharply defined dark-edged
white cross-bands................................................P. affinis tigrinus
7a. Rostral bordering nostril; preanal pores present in males................8
7b. Rostral not bordering nostril; preanal pores absent..................P. bibroni
8a. Rostral with a median cleft above; no swollen nasal ring; each
caudal verticil with a transverse row of 6 enlarged dorsal
tubercles..........................................................P. tuberculatus
8b. Rostral without a median cleft above; a greatly swollen nasal ring
present; each caudal verticil with a pair of slightly enlarged
scales above.........................................................P. tetanus

AGAMIDAE

Key to the genus AGAMA

1a. Occipital scale no larger than adjoining scales on back of head;
dorsal scalation very heterogenous, with a broad vertebral band of
enlarged spinose scales...........................................A. cyanogenaster
1b. Occipital scale larger than adjoining scales on back of head; dorsal
scalation homogenous or with spinose scales forming more or less
regular longitudinal rows........................................2
2a. No well defined vertebral crest extending from nape to base of tail
...........................................................................A. atra
2b. A well defined vertebral crest extends from nape to at least base of
tail........................................................................3

3a. Dorsal scalation heterogenous, more or less regular longitudinal
rows of enlarged spinose scales present..................................4
3b. Dorsal scalation uniform apart from pointed scales in vertebral
crest.......................................................................5

4a. Ear opening large, diameter more than half that of cleft of closed
eye; third and fourth toes more or less subequal; usually 16-21
lamellae under third toe...............................................A. hispida
4b. Ear opening very small, diameter less than half that of cleft of
closed eye; third toe much longer than fourth; 12-14 lamellae
under third toe........................................................A. makarikarika
5a. Dorsal scales subequal to ventrals in size; 95-122 scales round midbody; males with a well developed caudal crest. *A. kirkii*
5b. Dorsal scales larger than ventrals; 69-94 scales round midbody; males with a feebly developed caudal crest. *A. m. mosaambica*

**CHAMAELEONIDAE**

**KEY TO THE GENERA**

Tail at least half the length of the body. *Chamaeleo*
Tail not more than a third the length of the body. *Brookesia*

Key to the genus CHAMAELEO

1a. Claws simple; tail subequal to body in length. 2
1b. Claws bicuspid; tail little more than half body length. *C. marshalli*

2a. A median ventral crest of white conical tubercles running from snout to vent. *C. d. dilepis*
2b. No median ventral crest running from snout to vent. 3

3a. Snout with a prominent horn; a pair of large occipital flaps present. *C. melleri*
3b. No horn on snout; no occipital flaps present. 4

4a. A gular crest present, consisting of small conical tubercles or compressed scaly lobes. *C. pumilus melanoccephalus*
4b. No gular crest present. 5

5a. A vertebral crest of conical tubercles on body and anterior half of tail. *C. geetzeli nyikae*
5b. No vertebral crest present, a few conical tubercles on nape only. *C. mlanjensis*

Key to the genus BROOKSIA

1a. A pit in the groin. *B. platyceps*
1b. No pit in the groin. 2

2a. A pit in the axilla. *B. brachyura*
2b. No pit in the axilla. *B. nohisiensis*

**SCINCIDAE**

**KEY TO THE GENERA**

1a. Nostril pierced between 2 or 3 nasals, well separated from the rostral. 2
1b. Nostril pierced in the rostral or bordered by the rostral. 5

2a. Eyelids immovable, the lower one with a large transparent disc which completely covers the eye; limbs short. *Ablepharus*
2b. Eyelids movable, the lower one scaly or with a large transparent disc, if the latter, limbs well developed. 3
3a. Lower eyelid with a large transparent disc; dorsal scales usually keeled, rarely smooth; limbs well developed. **Mabuya**

3b. Lower eyelid scaly; dorsal scales smooth; limbs short or vestigial. **Riopa**

4a. Prefrontals small and widely separated; limbs short, but pentadactyle. **Eumeces**

4b. Prefrontals large and usually in contact; limbs vestigial, 1-3 digits on forelimb and 2-3 on hindlimb. **Eumeces**

5a. Rostril pierced between the rostral and a small nasal or between rostral, supranasal, postnasal and first labial; limbs present or absent. **Scolecocephes**

5b. Rostril pierced in the anterior part of a very large rostral, with the posterior border of which it is connected by a longitudinal groove; limbs absent, vermiciform. **Scolecocephes (S. boulengeri)**

6a. Rostral bordered posteriorly by a pair of internasals. **Scolecocephes (S. boulengeri)**

6b. Rostral bordered posteriorly by a single internasal or frontonasal. **Eumeces**

7a. Eye completely exposed, without trace of eyelids; 3 transversely enlarged head shields between rostral and interparietal; no enlarged preanal plate. **Typhlacontias**

7b. Eye covered by an eyelid or head shields; 1-2 transversely enlarged head shields between rostral and interparietal; an enlarged preanal plate present. **Eumeces**

8a. Eye covered by an elongate moveable eyelid; 3-4 supraciliaries. **Acontias**

8b. Eye covered by head shields, discernable only as a dark spot; 1-2 supraciliaries. **Typhloesaurus**

Key to the genus **Mabuya**

1a. Scales on soles of feet non-spinose, smooth or tubercular. **Megalurus**

1b. Scales on soles of feet keeled and spinose. **M. planifrons**

2a. Midbody scale rows 24-26; dorsals smooth. **M. megalurus**

2b. Midbody scale rows 28 or more; dorsals keeled. **M. planifrons**

3a. Midbody scale rows 26-34. **M. quinquenematus margaritifer**

3b. Midbody scale rows 38-52. **M. quinquenematus margaritifer**

4a. Supranasals in broad contact; dorsals largely tricarinate; a black lateral band from eye to behind shoulder. **M. planifrons**

4b. Supranasals usually separated; dorsals with 5-11 keels (adults); no black lateral band from eye to behind shoulder. **M. planifrons**
5a. Anterior border of ear opening with 3-4 lanceolate lobules; lamellae under fourth toe 19-23; a dark lateral band with a pale longitudinal stripe below it. \( \text{M. homalocephala depressa} \)

5b. Anterior border of ear opening with 3-7 short pointed scales; lamellae under fourth toe 15-20; no lateral bands or stripes. \( \text{M. bolengeri} \)

6a. Midbody scale rows 32-34; usually 5 supraoculars; build robust, head length usually over 20% of snout-vent length; flanks with much dark speckling, which may extend on to back. \( \text{M. maculilebris} \)

6b. Midbody scale rows 28-32; usually 4 supraoculars; build slender, head length usually less than 20% of snout-vent length; dorsum uniform grey-brown or with a few scattered black spots. \( \text{M. bolengeri} \)

7a. Subocular not narrowed below, similar to upper labials.

7b. Subocular narrowed below or excluded from lip by labials.

8a. Midbody scale rows 32-36; anterior border of ear opening without pointed lobules; lamellae under fourth toe 15-20. \( \text{M. capensis} \)

8b. Midbody scale rows 30-32; anterior border of ear opening with 2-3 pointed lobules; lamellae under fourth toe 21-24. \( \text{M. occidentalis} \)

9a. Anterior border of ear opening with 2-4 lanceolate lobules; centre of nostril usually above or anterior to the suture between rostral and first labial; adults less than 55 mm from snout to vent.

9b. Anterior border of ear opening without lanceolate lobules; centre of nostril usually posterior to the suture between rostral and first labial; adults more than 55 mm from snout to vent.

10a. Midbody scale rows 30-34; aruncicolous. \( \text{M. longiloba longiloba} \)

10b. Midbody scale rows 36-40; rupicolous. \( \text{M. lacertiformis} \)

11a. Lower border of subocular usually at least half the length of upper; usually a conspicuous white lateral longitudinal stripe. \( \text{M. varie} \)

11b. Lower border of subocular less than a third the length of the upper, or excluded from lip; no white lateral stripe.

12a. Lamellae under fourth toe 15-18; Nyika Plateau. \( \text{M. hildae} \)

12b. Lamellae under fourth toe 17-25.

13a. Usually 5 upper labials anterior to subocular; dorsals tricarinate, without subsidiary ribs; adults usually less than 80 mm from snout to vent.

13b. Usually 6 upper labials anterior to subocular, or latter excluded from lip; dorsals with 3-7 keels or ribs; adults usually 90-100 mm from snout to vent.

14a. Belly with irregular black blotches. \( \text{M. punctatissimus spilogaster} \)

14b. Belly without irregular black blotches.
15a. A pale vertebral stripe usually present; Mlanje Mountain, Malawi

..............................................M. punctatissimus mlanjenensis

15b. No pale vertebral stripe; South Africa and Rhodesia

..............................................M. punctatissimus punctatissimus

16a. Dorsum dark with small pale spots, no trace of longitudinal stripes; prefrontale usually in contact; subocular usually excluded from lip

..............................................M. striata sparsa

16b. Either conspicuous pale dorsal-lateral stripes or black lateral bands at least anteriorly; prefrontale usually separated

..............................................17

17a. Dorsum dark, with a pair of conspicuous pale dorsal-lateral stripes; subocular usually excluded from lip (except in a coastal strip extending north from Mozambique Island)

..............................................M. striata striata

17b. Dorsum pale, with a conspicuous black lateral band which begins in front of eye and fades out between fore and hind limbs; subocular usually bordering lip

..............................................M. striata wahlbergi

Key to the genus KIOPA

Adults 30-137 mm from snout to vent; dorsum usually irregularly speckled with black and white

..............................................R. afer

Adults usually 60-80 mm from snout to vent; dorsum uniform brown or each scale with a dark spot at the base

..............................................R. sundevalli sundevalli

Key to the genus FUNSCIA

2-3 digits on forelimb, 3 on hindlimb

..............................................E. anchietae anchietae

One digit on forelimb, 2 on hindlimb

..............................................E. anchietae johnstoni

Key to the genus ABLEPHARUS

Frontoparietals and interparietal fused into a single shield; supracoalcers 5

..............................................A. boutoni africanus

Frontoparietals fused, interparietal distinct; supracoalcers 3

..............................................A. wahlbergi

Frontoparietals paired, interparietal distinct; supracoalcers 2-3

..............................................A. seydeli

Key to the genus SCLODES

1a. Interparietal small and subtriangular, narrower than the frontal, well separated from the posterior supracoalcers

..............................................2

1b. Interparietal large, broader than frontal, in contact laterally with posterior supracoalcers

..............................................6

2a. Limbs with 5 digits

..............................................3

2b. Limbs with 3 or 4 digits

..............................................5
5a. Frontal 3 times as long as the frontonasal; tail longer than head and body; habitat montane grassland or forest.................................4
5b. Frontal twice as long as the frontonasal; tail shorter than head and body; habitat alluvium at sea level.................................3. aeneus
4a. Forelimbs 14-17% and hindlimbs 25% of snout-vent length; 11-12 lamellae under fourth toe.................................S. arnoldi slanjenis
4b. Forelimbs 8-11% and hindlimbs 14-17% of snout-vent length; 6-8 lamellae under fourth toe.................................S. arnoldi arnoldi
5a. Limbs with four digits.................................S. tetradactylus tetradactylus
5b. Limbs with three digits.................................S. angolensis
6a. Forelimbs tridactyle; hindlimbs tetradactyle.................................S. limpoensis
6b. Forelimbs absent; hindlimbs minute (monodactyle) or absent...........7
7a. Frontal longer than broad; supraoculars 4; supraciliaries 6..............8
7b. Frontal broader than long; supraoculars 3; supraciliaries 4-5...........9
8a. A minute hindlimb present...................................................S. bravipes
8b. No trace of limbs.....................................................S. inornatus mossambicus
9a. Nostril pierced between rostral and a small oval nasal; midbody scale rows 18-20; pale olive or light brown above.................................S. cronica
9b. Nostril pierced between rostral and first labial; midbody scale rows 20-24; black above......................................................S. aer aer

Key to the genus TYPHLACONTIAS

Usually the third upper labial entering the orbit; Zambia and Angola..............T. gracilis gracilis
Second upper labial entering the orbit; South West Africa, Bechuanaland and Rhodesia.................................T. gracilis ngamensis

Key to the genus ACONTIAS

1a. Midbody scale rows 16-20; ventrals 150-163; adults 250-467 mm from snout to vent.................................A. plumbus
1b. Midbody scale rows 16; ventrals 163-179; maximum snout-vent length 290 mm..................................................2
2a. Black above and below, with a few scattered white ventrals anteriorly.................................A. gracilicauda occidentalis
2b. Olive green to grey-brown above, uniform white below.................................A. gracilicauda broadlavi

Key to the genus TYPHOLOSAURUS

1a. Snout conical.....................................................2
1b. Snout with a sharp horizontal edge and flattened below.....................................................4
2a. A single transversely enlarged aszygous shield between rostral and the subtrangular interparietal; midbody scale rows 12.................. T. aurantiacus

2b. Two transversely enlarged shields between rostral and the sub-trangular interparietal; midbody scale rows 16-20.................. 3

3a. Three supraoculars; frontonasal much narrower than frontal.................. T. cregoi bicolor

3b. Two supraoculars; frontonasal and frontal subequal in width.................. T. cregoi cregoi

4a. Upper labials 4; supraciliaries 2; a subocular.................. 5

4b. Upper labials 3; a single supraciliary; no subocular.................. T. gariespensis

5a. Midbody scale rows 14; rostral bordered posteriorly by 5 shields; second and third upper labials in contact with postocular.................. 6

5b. Midbody scale rows 12; rostral bordered posteriorly by 7 shields; second and third upper labials separated from postocular.................. T. "relicus"

6a. Dorsum with 4-8 longitudinal rows of confluent dark spots, which form continuous stripes on tail (rarely uniform plumbeus); maximum snout-vent length 133 mm.................. T. lineatus lineatus

6b. Dorsum with a pair of well defined continuous dark longitudinal stripes, which break up and disappear on tail; adults 140-180 mm from snout to vent.................. T. lineatus "jappi"

CORDYLIINAE
KEY TO THE GENERA

1a. Serpentine, limbs minute or absent, hindlimbs vestigial.................. 2

1b. Not serpentine; limbs well developed.................. 3

2a. A granular lateral groove present; six longitudinal rows of smooth ventral plates.................. T. tridactylus (T. ellenbergeri)

2b. No lateral groove; ventrals keeled and lanceolate like the dorsals.................. Chamaeaura

3a. Dorsum covered with regular transverse rows of quadrangular scales.................. 4

3b. Dorsum covered with small granules.................. Platyxenus

4a. Frontoparietals absent; tail much longer than head and body.................. Gerrhosaurus

4b. A pair of frontoparietals present; tail little longer than head and body.................. Cordylus
Key to the genus CHAMAESAURA

Midbody scale rows usually 24-26: a minute forelimb (smaller than a dorsal scale) present.......................... C. macrolepis miropus
Midbody scale rows 22: forelimb absent.................. C. macrolepis macrolepis

Key to the genus GEHRHOSAURUS

1a. Ventral in 14-20 longitudinal rows.................. G. validus validus
1b. Ventral in 8 or 10 longitudinal rows.......................... 2
2a. Ventral in 10 longitudinal rows.................. G. major major
2b. Ventral in 8 longitudinal rows.......................... 3
3a. Scales on soles of feet keeled and spinose; supraoculars in 4.......................... 4
3b. Scales on soles of feet smooth and tubercular; supraoculars in 5.......................... G. flavigularis

4a. A pair of well-defined yellow black-edged dorsolateral stripes present.......................... G. nigrolinatus
4b. No well-defined dorsolateral stripes present.......................... 5

5a. Scales on proximal portion of tail strongly spinose; dorsals usually in 24 longitudinal rows; adults uniform grey-brown.................. G. bulsi
5b. Scales on proximal portion of tail not strongly spinose; dorsals usually in 26 longitudinal rows; adults pale brown, usually with light and dark speckling or ill-defined longitudinal stripes.......................... G. auritus

Key to the genus CORDYLUS

1a. Rostral in contact with frontonasal; occipitals spinose; adults over 100 mm from snout to vent.......................... 2
1b. Rostral usually separated from frontonasal; occipitals non-spinose; less than 100 mm from snout to vent.......................... 3
2a. Preocular in contact with (or narrowly separated from) the nasal above the loreal; chin and throat pale.................. C. warreni regius
2b. Preocular well separated from the nasal by the loreal; chin and throat dark brown.................. C. warreni mosaambicus

3a. Head strongly depressed and expanded in the temporal region; head shields finely rugose; laterals similar to dorsals; rupicoleous.......................... C. cordylus rhodesianus
3b. Head feebly depressed, not expanded in the temporal region; head shields very rugose; some laterals smaller than dorsals; arboreal.......................... 4

4a. Outer rows of ventrals not keeled; less than 80 mm from snout to vent.......................... C. tropidosternum jonasii
4b. Outer 3-4 rows of ventrals keeled; adults 80-95 mm from snout to vent.......................... C. tropidosternum tropidosternum
Key to the genus PLATYBAURUS

1a. Supranasals present .................................................. 2
1b. Supranasals absent (fused with nasals) ........................ 4

2a. Scales on side of neck no larger than those on dorsum; 31-36 gulars transversely between posterior sublabials; adults 80-112 mm from snout to vent .................. P. mitchelli
2b. Some scales on side of neck enlarged, spinose; 20-30 gulars transversely between posterior sublabials; maximum snout-vent length 76 mm.................. 3

3a. Supranasals usually in broad contact; occipital usually absent; sublabials usually 6; females and juveniles with tail speckled black and pale yellow .................. P. maculatus maculatus
3b. Supranasals widely separated; occipital large and usually in contact with interparietal; sublabials 5; females and juveniles with tail distinctly striped in black and pale blue ... P. maculatus lineicauda

4a. Scales on side of neck and flanks no larger than those on dorsum; no trace of pale longitudinal stripes .................. P. ocellatus
4b. Scales on side of neck and flanks larger than those on dorsum; females and juveniles with well-defined pale longitudinal stripes... 5

5a. Enlarged scales on side of neck flattened; females and juveniles with pale blue tails .................................. P. tortuatus
5b. Enlarged scales on side of neck conical or spinose; females and juveniles with straw-coloured tails .................. 6

6a. Adult males with yellow head and crimson body, 115-146 mm from snout to vent; adult females with three broad bright yellow stripes on head, 97-120 mm from snout to vent .................. P. imperator
6b. Adult males with head and body red-brown, green or blackish, rarely over 115 mm from snout to vent; adult females with three narrow cream stripes on head, rarely exceeding 97 mm from snout to vent.... 7

7a. Median row of gulars strongly enlarged and as broad or broader than long posteriorly; range south of the Limpopo ............... P. wilhelmi
7b. Median row of gulars not as broad as long posteriorly; range north of the Limpopo .................................................. 8

8a. Ventrals in 14-16 longitudinal rows .................................. 9
8b. Ventrals in 18-24 longitudinal rows .................................. 10

9a. Adult males dark brown above with distinct pale spots, pale blue below with black blotches on throat and a black collar .................. P. pungweensis pungweensis
9b. Adult males uniform olive-brown above, throat grey, chest and belly purple or black .................................. P. pungweensis blakii
10a. Ventra ls usually in 18 longitudinal rows; range north of the
Zambezi.........................................................P. intermedius nyasae

10b. Ventra ls usually in 20-24 longitudinal rows; range south of the
Zambezi........................................................11

11a. Nasals usually in contact; usually 4 upper labials anterior to
subocular; chest of adult males suffused with green, blue or terracotta.
.......................................................................P. intermedius rhodesianus

11b. Nasals usually separated; usually 5 upper labials anterior to
subocular; chest of adult males uniform black
..................................................................................P. intermedius subniger

LACERTIDAE

KEY TO THE GENERA

1a. Frontoparietals absent; a paired series of smooth transversely
enlarged plates extending down middle of back and tail; tail
strongly depressed and fringed laterally........................................Holaspis (H. guentheri Leewis)

1b. Frontoparietals present; 26 vertebral series of enlarged scales;
tail cylindrical, not fringed laterally........................................2

2a. Ventra ls keeled..................................................Gastropholis (G. vittata)

2b. Ventra ls smooth..................................................3

3a. Digits serrated laterally............................................Merolus (M. suborbitalis)

3b. Digits not serrated laterally........................................4

4a. Subdigital lamellae smooth or tubercular...........................Nucras

4b. Subdigital lamellae keeled.........................................5

5a. Nostril surrounded by 3-5 nasals and the first labial, or narrowly
separated from the latter..................................................Latastia (L. johnstoni)

5b. Nostril surrounded by 2-3 nasals, well separated from the first
labial.................................................................6

6a. Collar well marked; dorsal scales small; head shields smooth or
slightly rugose............................................................Premias

6b. Collar absent; dorsal scales large and strongly keeled; head
shields keeled or striated..................................................Ichnotropis

Key to the genus NUCHAS

1a. 2-7 small granules between supraciliaries and supraocculars; 20-33
lamellae under fourth toe.......................................2

1b. No small granules between supraciliaries and supraocculars; 17-20
lamellae under fourth toe........................................N. boulangeri
2a. Dorsum with rows of spots or a reticulated pattern, rarely a single vertebral line present...........................................N. intertexta
2b. Dorsum with 2-7 longitudinal stripes..................................................3
3a. Usually 2 or 4 dorsal stripes; 26-33 lamellae under fourth toe.................................N. tessellata tessellata
3b. Usually 3, 5 or 7 dorsal stripes; 20-27 lamellae under fourth toe.................................N. tessellata ornata

Key to the genus FREMIAE
1a. Ventral plates in 6 longitudinal rows; an elongate upper temporal shield present...........................................K. lumbrica
1b. Ventral plates in 10 or more longitudinal rows; no elongate temporal shield present...........................................2
2a. A narrow tympanic shield on anterior border of ear opening; lower eyelid semi-transparent, with a row of 10-12 enlarged scales across the middle...........................................K. nemaeonensis
2b. No tympanic shield present; lower eyelid with a large transparent file, composed of ten large black-edged scales.................................K. lineocellata lineocellata

Key to the genus ICHNOTROPIS
1a. Frontonasal single; subocular bordering lip; 34-40 scales round middle of body...........................................2
1b. Frontonasal longitudinally divided; subocular not reaching lip; 46-58 scales round middle of body...........................................I. squamulosa
2a. Prefrontal in contact with the anterior of two large supracoculars; head shields strongly keeled, but with fine striations...........................................I. bivittata bivittata
2b. Prefrontal not in contact with the anterior of two large supracoculars; head shields not strongly keeled, but with numerous fine striations...........................................I. capensis capensis

VARANIDAE
Key to the genus VARANUS
Nostril round or oval, slightly nearer eye than end of snout; canthus rostralis well defined; build slender; semi-aquatic.................................V. niloticus niloticus
Nostril an oblique slit, much nearer eye than end of snout; canthus rostralis ill-defined, rounded; build robust; terrestrial and arboreal.................................V. exanthematicus albipenis
Suborder AMPHISBAENIA

AMPHISBAENIDAE

KEY TO THE GENERA

1a. Segments of the pectoral region not differentiated; snout rounded, without a sharp horizontal edge; nostril pierced more or less laterally.......................................................... 2

1b. Segments of the pectoral region enlarged, forming elongate shields; snout depressed, with a sharp horizontal edge; nostril pierced inferiorly in a small nasal................................. 4

2a. Nasal, prefrontal, ocular and upper labial shields all distinct.................. 3

2b. Nasal, prefrontal, preocular, ocular, first and second upper labials fused to form one or two shields........... Chirindia (C. swynnertoni)

3a. Preocular distinct from prefrontals.................................................. Zygaspis

3b. Preocclusars fused with prefrontals................................................ Amphibiaena (A. v. violacea)

4a. Nasals separated by rostral; tail bluntly rounded.................................. Monopeltis

4b. Nasals in contact above rostral; tail terminating abruptly in a callus pad.......................................................... Tomuropeltis

Key to the genus ZYGASPIS

Black above; adults over 300 mm in length........................................ Z. "niger"

Pink or pale brown above; maximum length 260 mm.......................... Z. quadrifrons

Key to the genus MONOPELTIS

1a. Two large shields covering top of head........................................... 2

1b. A single large shield covering top of head...................................... 3

2a. 70 segments in a midbody annulus; 289 annuli on body........... M. mauroei

2b. 36-54 segments in a midbody annulus; 182-224 annuli on body........ M. anchietae

3a. Nasals not reaching lip, rostral and first labials in contact........... 4

3b. Nasals bordering lip, separating rostral from first upper labials..5

4a. 286-300 annuli on body............................................................. M. acularis

4b. 174-250 annuli on body............................................................. M. c. capensis

5a. 271-273 annuli on body; 42-44 segments in a midbody annulus........ M. habenichti

5b. 193-229 annuli on body; 32-42 segments in a midbody annulus........ M. sphenorhynchus

Key to the genus TOMUROPELTIS

24-32 annuli on tail............................................................... T. pistillum

38-45 annuli on tail............................................................... T. longicauda
Suborder SNAKES
KEY TO FAMILIES

1a. Tail cylindrical or but feebly compressed; terrestrial or fresh water ................................................. 2
1b. Tail strongly compressed, car-shaped; marine .............................................. HYDROPHIDAE (Pelamis platurus)

2a. Body vermiform, covered above and below with small subequal scales; eyes vestigial, buried under the head shields ................... 3
2b. Body not vermiform, head distinct; a median series of transversely enlarged ventral plates present; eyes well developed, moveable below a transparent brill .............................................. 4

3a. Ocular shield not bordering lip; midbody scale rows 20 or more; tail only slightly longer than broad .................................. TYPHLOPIDS
3b. Ocular shield bordering the lip; midbody scale rows 14; tail at least three times as long as broad .................................. LEPTOTYPHLOPIDS

4a. Ventral plates much narrower than body; midbody scale rows more than 70; some labials with deep pits; vestigial hindlimbs indicated externally by a pair of claws bordering the vent .............................................. BOIDAE (Python sebae)
4b. Ventral plates almost as wide as body; midbody scale rows less than 50; labials without pits; no trace of hindlimbs .................................. 5

5a. No enlarged poison fangs at front of upper jaw .................................. COLUMBIDAE
5b. One or two pairs of enlarged poison fangs at front of upper jaw .......................... 6

6a. Poison fangs immovable, not enclosed in a membranous sheath .................................. ELAPIDAE
6b. Poison fangs moveable and very long, folded back against the maxillary bone when not in use and covered by a membranous sheath .................................. VIPERIDAE

TYPHLOPIDS
Key to the genus TYPHLOPS

1a. Nostril pierced laterally; rostral hardly one third width of head; midbody scale rows 20 .................. T. brasilius
1b. Nostril pierced inferiorly; rostral more than half width of head; midbody scale rows 22 or more .................. 2

2a. Snout rounded .................................................................. 3
2b. Snout with an angular horizontal edge .................................................................. 6

3a. Dark brown or grey above and below, underside of head and anal region yellowish; prefrontal subequal to the scale posterior to it; maximum length 170 mm .................................. T. formainii
3b. Pale below than above; prefrontal much larger than the scale posterior to it; adults over 200 mm in length .................. 4
4a. Prefrontal subhexagonal; supracocular transverse, its lateral apex between preocular and ocular.......................... T. obtusus
4b. Prefrontal subtrapezoidal; supracocular oblique, its lateral apex between nasal and ocular.......................... 5

5a. Eye below the preocular.............................................. T. rondoensis
5b. Eye below the ocular.............................................. T. schmidtii

6a. Flesh pink in colour; midbody scale rows 22; extremely slender, midbody diameter into length 73-116 times.......................... T. gracilis
6b. Some dark pigmentation dorsally; midbody scale rows 24 or more; robust in build, midbody diameter into length 73-57 times.......................... 7

7a. Midbody scale rows 24-28; moderately robust, midbody diameter into length 41-57 times.......................... 8
7b. Midbody scale rows 30-44; robust, midbody diameter into length 23-53 times.......................... 10

8a. Snout distinctly hooked in profile.................................. T. schinzii
8b. Snout not hooked in profile.................................. 9

9a. Snout with an obtusely angular horizontal edge.................. T. boylei
9b. Snout with an acutely angular horizontal edge.................. T. delalandei

10a. Midbody scale rows 36-44; range south of the Limpopo........ T. schlagei schlagei
10b. Midbody scale rows 30-38; range north of the Limpopo........ T. schlagei mucroso

LEPTOTYPHLOPS

Key to the genus LEPTOTYPHLOPS

1a. Rostral in contact with the supracocular; uniform black above and below.............................................. 2
1b. Rostral separated from the supracocular by the nasal; brown or pink above, often lighter below.............................................. 3

2a. Rostral more than twice width of nasal.......................... L. scutifrons
2b. Rostral less than twice width of nasal.......................... L. conjunctus

3a. Supracocular much larger than prefrontal; tail 7 to 10% of total length; brown above, sometimes lighter below.......................... L. emini emini
3b. Supracocular subequal to prefrontal; tail 9 to 18% of total length; pink or red-brown above, white below.......................... L. longicuda
COLUMBIIDAE
KEY TO THE GENERA

1a. No enlarged grooved poison fangs in the upper jaw......................... 2
1b. One or more pairs of enlarged grooved poison fangs in the upper jaw below the eye................................................................. 15

2a. Loreal absent; scales strongly keeled in 21-27 rows at midbody, three or four lateral rows reduced in size, oblique and serrated........................................... Jasypeltis
2b. Loreal present (sometimes absent in Duberia); scales smooth (or keeled in 15-17 rows at midbody), no lateral rows reduced in size, oblique and serrated........................................ 3

3a. Scales strongly keeled, the vertebral row enlarged and bicarinate........ Meholya
3b. Scales smooth or feebly keeled, the vertebral row not enlarged or bicarinate................................................................. 8

4a. Pupil vertically elliptic; nocturnal................................................ 5
4b. Pupil round; diurnal........................................................................... 8

5a. Scales in 15-17 rows at midbody; subcaudals 18-47.............................. 6
5b. Scales in 19-33 rows at midbody; subcaudals 37-76.............................. 7

6a. Nostril pierced in an entire nasal; rostral small, rounded.................. Lycophidion
6b. Nostril pierced in a semidivided nasal; rostral large, with an angular horizontal edge................................................................. Prosyzma

7a. Scales in 19-25 rows at midbody; ventrals 152-178................................ Lycodonemosaurus (part)
7b. Scales in 23-33 rows at midbody; ventrals 186-237............................. Boasedon

8a. Anal entire.......................................................................................... 9
8b. Anal divided.......................................................................................... 10

9a. Scales in 21-25 rows at midbody; subcaudals 51-73................................ Lycodonemosaurus (part)
9b. Scales in 15 rows at midbody; subcaudals 23-47................................ Duberia

10a. Scales in 15-19 rows at midbody........................................................ 11
10b. Scales in 21-31 rows at midbody........................................................ 13

11a. Ventrals 130-151; subcaudals 37-67; habit moderate; black, olive or reddish above; terrestrial and semiaquatic................................. 12
11b. Ventrals 141-217; subcaudals 73-140; habit slender; usually green above at least anteriorly; arboreal or semiaquatic......................... Philothamnus

12a. Internasals paired; subcaudals 50-87............................................... Matriciteres
12b. Internasal single; subcaudals 37-58.................................................. Limnophis (L. bicolor bangweolicus)
13a. Snout with a sharp horizontal edge; labials excluded from eye by suboculars... Scaphiophis (S. a. albopunctatus)
13b. Snout without a sharp horizontal edge; one or two labials entering the orbit...

14a. Scales in 25-31 rows at midbody; subcaudals 45-70; snout pointed... Pseudaspis (P. carls)
14b. Scales in 21 rows at midbody; subcaudals 71-91; snout rounded... Meizodon (M. semiorbatus)

15a. Loreal present; eye moderate to large; head distinct from the neck; terrestrial or arboreal... 16
15b. Loreal absent; eye small; head not distinct from the neck; fossorial... 28

16a. Pupil vertically elliptic; head much broader than neck... 17
16b. Pupil round or horizontal; head slightly broader than neck... 21

17a. Scales in 21-25 rows at midbody, the vertebral row enlarged; ventrals 240-274; subcaudals 120-147... Boiga (B. blandingi)
17b. Scales in 17-19 (rarely 21) rows at midbody, the vertebral row not enlarged; ventrals 141-244; subcaudals 29-102... 18

18a. Loreal entering the eye; marbled in red-brown and white above... Chamamortus (C. a. aulicus)
18b. Loreal excluded from eye by precocular; uniform grey to black above or orange with black blotches... 19

19a. Ventrals 141-180; subcaudals 29-65... Crotaphophis
19b. Ventrals 195-244; subcaudals 51-86... 20

20a. Uniform grey to blue-black above; anal usually entire; a single anterior temporal... Dipandoeba (D. ahreusi)
20b. Orange or pink with a series of black dorsal blotches; anal usually divided; two anterior temporals... Telecopum (T. s. semiannulatus)

21a. Pupil horizontal, dumb-bell shaped; body extremely slender; subcaudals usually more than 140... Thelotornis
21b. Pupil round (sometimes horizontally pear-shaped in Dispholidus); body moderately slender; subcaudals less than 140... 22

22a. Scales strongly keeled in 19 (rarely 17 or 21) rows at midbody; eye very large... Dispholidus
22b. Scales smooth in 11-17 rows at midbody; eye moderate... 23

23a. Snout pointed, beak-like... Rhaphiophis
23b. Snout rounded... 24

24a. Nostril pierced in a single semidivided nasal... 25
24b. Nostril pierced between at least two shields... 26
25a. Snout excavate laterally just anterior to eye; anal entire; proximal 4-12 subcaudals usually single. 

\textit{Amphorhinus} (\textit{A. multinucleatus})

25b. Snout not excavate laterally; anal divided; subcaudals all paired.

\textit{Hemichagorhiss} (\textit{H. n. nototenia})

26a. Maxillary teeth interrupted below anterior border of eye by two greatly enlarged fang-like teeth, which are separated from the true fangs by a further series of small teeth below the eye. \textit{Pseudophis}

26b. Maxillary teeth subequal in size, continuing without interruption until the interspace separating then from the grooved fangs below the posterior border of the eye.

27

27a. Subcaudals 51-68.

\textit{Psammophylinax}

27b. Subcaudals 83-105.

\textit{Psammophis} (\textit{P. lineatus})

28a. Anal divided; subcaudals paired.

29

28b. Anal entire; subcaudals single.

30

29a. Two pairs of shields between rostral and frontal.

31

29b. A single pair of shields between rostral and frontal.

30a. Nasal in contact with the rostral; precocular absent.

\textit{Calocalane}

30b. Nasal separated from the rostral; precocular present.

\textit{Miodon} (\textit{M. colleri christyi})

31a. Upper labials 4; yellow above with 3-5 dark longitudinal stripes, tail blunt and with similar markings to the head. \textit{Chilorhinophis}

31b. Upper labials 5 or 6; uniform, blotched or with a single dorsal stripe.

32

32a. Scales in 15 rows at midbody; precocular absent.

\textit{Anhylodipraxis}

32b. Scales in 17 rows at midbody; an elongate precocular (or displaced prefrontal) present.

\textit{Xenocaleana}

33a. Pupil vertically elliptic; snout pointed, rostral enlarged; ventrals 102-119.

\textit{Hypoptophtis} (\textit{H. wilsoni})

33b. Pupil round; snout rounded, rostral moderate; ventrals 106-190.

\textit{Aparallactus}

Key to the genus \textit{LYCODONCHORPHUS}

1a. Scales in 23 (rarely 25) rows at midbody; endemic to Lake Tanganyika.

\textit{L. bicolor}

1b. Scales in 19-21 rows at midbody.

2

2a. Scales in 21 rows at midbody; pupil round to vertically subelliptic.

\textit{L. leaupi elaniensis}

2b. Scales in 19 rows at midbody; pupil vertically elliptic.

3

3a. Subcaudals of females 37-47; lowlands.

\textit{L. uhleri uhleri}

3b. Subcaudals of females 54-69; highlands, except in south Mozambique.

\textit{L. rufulus}
Key to the genus BOAFDON
Subcaudals paired; habitat savanna..................B. fuliginosus fuliginosus
Subcaudals single; habitat forest..........................B. olivaceus

Key to the genus LYCOPHIDION
1a. A postnasal present; ventrals 171-204; subcaudals 24-40...........2
1b. No postnasal; ventrals 139-161; subcaudals 20-30...................L. semiannule
2a. Dorsum uniform, or each scale with a pale spot...L. capense capense
2b. Dorsum with light and dark crossbands; Botswana..........................L. capense multimaculatum

Key to the genus MESSILYAN
Vertebral scale row and ventrals ivory white; ventrals 195-224;
subcaudals 45-59..........................N. capensis capensis
Vertebral scale row and ventrals dark; ventrals 167-182; subcaudals
55-77..............................N. nyassae

Key to the genus NATRICITERS
1a. Scales in 19 rows anteriorly, 17 posteriorly..........N. olivacea
1b. Scales in 17 rows anteriorly, 15 posteriorly...............2
2a. Postoculars usually 2..........................N. variegata bipostocularis
2b. Postoculars usually 3..........................N. variegata"sylvatica"

Key to the genus DUBRRIA
1a. Ventrals 95-110; variegated or spotted above..........D. variegata
1b. Ventrals 118-144; uniform above or with a thin dark vertebral line

2a. Loral usually present; subcaudals 34-61 in males, 24-34 in females; ventrals yellow with dark lateral blotches; range south of the Limpopo..........................D. lutrix lutrix
2b. Loral usually present; subcaudals 30-39 in males, 21-30 in females; ventrals bluish-white with a paired series of black median blotches; range eastern Rhodesia and adjoining Mozambique..........................D. lutrix rhodesiana
2c. Loral usually absent; subcaudals 37-44 in males, 24-34 in females; ventrals yellow mesially, dark laterally; range highlands north of the Zambezi..........................D. lutrix shirana

Key to the genus PHILOTHAMNUS
1a. Subcaudal smooth; temporales usually 1+1 or 1+2...........2
1b. Subcaudals keeled and notched; temporales usually 2+2...........5
2a. Usually 2 upper labials entering the orbit...............P. hoplococater
2b. Usually 3 upper labials entering the orbit..................3
3a. A yellow-edged brown dorsal band present; usually 8 upper labials; subcaudals usually less than 100.

P. ornatus

3b. No brown dorsal band present; usually 9 upper labials; subcaudals usually more than 100.

P. heterolepidotus

4a. Habit moderately slender, head moderate; subcaudals in males 103-126, in females 97-116; widespread.

P. irregularis irregularis

4b. Habit extremely slender, head very small and narrow; subcaudals in males 115-134, in females 109-126; range north of the Zambezi.

P. semivariegatus semivariegatus

5a. Usually 8-9 upper labials, two of which enter the orbit; subcaudals 106-130.

P. natalensis natalensis

5b. Usually 9 upper labials, three of which enter the orbit; subcaudals usually more than 130.

P. angolensis

Key to the genus PROSYNIA

1a. A pair of internasals; rostral with an acutely angular horizontal edge...

2

1b. A single band-like internasal; rostral with a moderately angular horizontal edge...

3

2a. Basic dorsal pattern consists of a pale broken dorsal stripe and a pair of dark dorsolateral stripes; ventrals 154-165 in males and 162-180 in females; internasals widely separated.

P. bivittata

2b. Basic dorsal pattern consists of short dark streaks, sometimes a vertebral series of dark blotches; ventrals 139-158 in males and 156-168 in females; internasals in contact.

P. sundevallii lineata

3a. Dorsal scales largely keeled; ventrals less than 130.

P. jani

3b. Dorsal scales smooth; ventrals usually more than 130.

P. ambigua ambigua

Key to the genus CROTAPHOPCILIS

Scales in 19 (rarely 17 or 21) rows at midbody; prescuclar usually single; habitat savanna.

C. hotamboensis

Scales in 17 rows at midbody; usually 2 prescuclars; habitat montane forests of Tanganyika and Malawi.

C. tornieri

Key to the genus PHOSPHOLUS


J. typus typus

1b. Subcaudals 97-117 in males and 90-109 in females.

2
2a. Males green, uniform or with the scales bordered with black; range Abercorn northwards........................................... 3. typus kivuensis
2b. Males black above, each head shield and dorsal scale with an orange or yellow spot; ventrals violet margined with black; range Angola, Katanga and western Zambia........................................... 3. typus punctatus

Key to the genus THELOTORNIS

Ventrals 146-164.............................................................. T. kirtlandi capensis
Ventrals 163-176.............................................................. T. kirtlandi catesi

Key to the genus PSAMMOPHYLAX

1a. Two anterior temporals; ventrum white; habitat savanna.............. 2
1b. A single anterior temporal; ventrum dark grey; habitat montane grassland north of the Zambezi........................................... P. variabilis variabilis
2a. Dark vertebral and lateral stripes well defined.......................... P. tritaeniatus tritaeniatus
2b. Dark vertebral stripe absent, lateral stripes poorly defined or absent P. tritaeniatus fitzgeraldi

Key to the genus RHAMPHIODHIS

1a. Rostral very pointed; dorsum with three well defined dark longitudinal stripes like Psammophylax t. tritaeniatus............................. R. acutus
1b. Rostral moderately pointed; dorsum uniform or spotted.............. 2
2a. Supraocular in contact with prefrontal; subcaudals 97-117; dorsum more or less uniform............................................. R. oxyrhynchus rostratus
2b. Supraocular separated from prefrontal by preocular; subcaudals 28-45; dorsum with longitudinal series of dark spots or blotches.. R. multimaculatus

Key to the genus PSAMMOPHYLAX

1a. Scales in 17 rows at midbody........................................... 2
1b. Scales in 9-15 rows at midbody........................................... 8
2a. Upper labials usually 8, the fourth and fifth entering the orbit... 3
2b. Upper labials usually 9, the fourth, fifth and sixth entering the orbit............................................. P. subtaeniatus subtaeniatus
3a. Ventrum with a pair of black longitudinal lines separating the yellow median area from the white marginal areas............................................. P. subtaeniatus sudanensis
3b. Ventrum yellow or white, sometimes with paired series of dark streaks, but never a pair of black lines........................................... 9
4a. Anal usually entire; preoculars usually 2; south-west arid .............................................P. notostictus
4b. Anal usually divided; preocular usually single .................................................................5

5a. Preocular usually in good contact with frontal; usually 3 nasals, the upper postnasal with a pronounced posterior prolongation ........................................ P. leightonii trinasaalis
5b. Preocular usually separated from the frontal; usually 2 nasals, the postnasal without a pronounced posterior prolongation .........................................................6

6a. Dorsum with a pale vertebral line flanked by a series of pale black-bordered rings - giving the impression of a double chain, posteriorly these markings give way to a pale lateral band; ventrals margined with black; range Angola and northern Zambia ........................................ P. sibilans leopardoins
6b. Dorsum without chain markings; ventrals not margined with black ........................................7

7a. Distance from frontal to end of snout less than length of frontal; ventrals 148-165; subcaudals 70-101; a pair of pale dorso-lateral stripes present .............................................P. brevirostris
7b. Distance from frontal to end of snout subequal to length of frontal; ventrals 155-164; subcaudals 87-107; no well defined pale dorso-lateral stripes .............................................P. sibilans sibilans

8a. Scales in 15 rows at midbody .................................................................................................9
8b. Scales in 11 (rarely 9) rows at midbody ..................................................................................P. angolensis

9a. Preocular in good contact with frontal; upper labials usually 7, the third and fourth entering the orbit; ventrals 153-177; subcaudals 84-109 .............................................P. jallaee jallaee
9b. Preocular not reaching frontal; upper labials usually 8, the fourth and fifth entering the orbit; ventrals 136-165; subcaudals 61-86 .................................................................P. crucifer

Key to the genus CALAMELIAPS

Scales in 19 or 21 rows at midbody; 6 upper labials, third and fourth entering orbit; uniform black above and below .........................................C. unicolor mioleric
Scales in 15 rows at midbody; 5 upper labials, second and third entering orbit; black above, white or yellow below .............................................C. ventrimaculatus

Key to the genus AMELIODIPSAS

Four lower labials in contact with the sublinguals; ventrals 127-162; range southern Mozambique and eastern Transvaal .........................................A. micropthalma
Three lower labials in contact with the sublinguals; ventrals 179-207; range Katanga and western Zambia ..................................................A. katangensis katangensis
Key to the genus XENOCALAMUS

1a. A small supracocular present; a single postocular
1b. No supracocular; two postoculars

2a. Ventralis 184-197 in males, 214-215 in females. X. transevalensis
2b. Ventralis 201-230 in males, 217-250 in females

3a. Snout strongly depressed; habit slender, head at least twice as long as broad and diameter of body over 60 times into length from snout to vent
3b. Snout moderately depressed; habit moderate, head less than twice as long as broad and diameter of body less than 60 times into length from snout to vent. X. bicolor maculatus

4a. Yellow, with a purplish-brown dorsal band 3 or rarely 5 or 7 scales wide. X. bicolor lineatus
4b. Black or dark brown above, this coloration covering at least 11 scale rows, yellow to entirely black below. X. bicolor bicolor

5a. Ventralis 227-239 in males, 245-260 in females. X. michowi michowi
5b. Ventralis 247-268 in males, 270-282 in females. X. michowi inornatus

Key to the genus CHILOCHIOPHIS

1a. Nasal shield not fused with first labial; frontal about $1\times$ times as long as broad
1b. Nasal shield fused with the first labial; frontal only slightly longer than broad. C. carpenteri carpenteri

2a. Ventralis in males 265-294, in females 274-348; range Katanga, western Zambia, northern Rhodesia. C. gerardi gerardi
2b. Ventralis in males 308-310, in female 375; range eastern Katanga, northern Zambia, western Tanganyika. C. gerardi tanganyikae

Key to the genus APAHALLACTUS

1a. First pair of lower labials in contact behind the mental (rarely narrowly separated); usually the first 4 lower labials in contact with the anterior sublinguals
1b. First pair of lower labials widely separated by the anterior sublinguals, with which the first 3 lower labials are usually in contact

2a. Nasal usually divided; steel blue, usually with two yellow collars on nape, rarely uniform. A. quentheri
2b. Nasal usually entire; red, brown or grey above with top of head black and a black nuchal collar, whitish below

3a. Ventralis 129-190; subcaudals 30-63. A. capensis
3b. Ventralis 108-123; subcaudals 20-35. A. nigricorne
Key to the genus \textit{Dasypeltis}:

All apical pits strongly pigmented, conspicuous; subcaudals in males 81-109, in females 71-80. \textit{D. medici medici}.

Apical pits not strongly pigmented, inconspicuous; subcaudals in males 50-60, in females 45-65. \textit{D. scabra scabra}.

\textbf{ELAPIDAE}  
\textbf{KEY TO THE GENUS}  

1a. Head short and snout broader than long; subcaudals less than 75

1b. Head long and narrow, snout longer than broad; subcaudals more than 90. \textit{Dendroaspis}.

2a. Scales in 13 rows at midbody. \textit{Flaploidea}.


3a. Rostral very large, projecting laterally and shield-like. \textit{Aspidelaps (A. scutatus)}.

3b. Rostral moderate, not projecting laterally. \textit{Dendroaspis}.

4a. Dorsal scales strongly keeled; ventrals 116-150; subcaudals 33-47. \textit{Hemachatus (H. hemachatus)}.

4b. Dorsal scales smooth; ventrals 176-228; subcaudals 48-75. \textit{Boulengerina (B. annulata stormsii)}.

5a. Dorsal scales oblique; largely terrestrial. \textit{Naja}.

5b. Dorsal scales not oblique; aquatic. \textit{Boulengerina (B. annulata stormsii)}.

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\textbf{Key to the genus FLAPLOIDEA}:

Juveniles with alternate light and dark bands of about equal width; adults dark grey above, immaculate white below; ventrals 162-181. \textit{N. sundevalli fitzsimonsi}.

Juveniles with alternate light and dark bands of about equal width; adults with pairs of narrow white rings; ventrals 136-156. \textit{N. sundevalli guentheri}.

Juveniles black with white bands which are half to a quarter the width of the interstices; adults grey or black above, plumbrus to whitish below; ventrals 132-162. \textit{N. sundevalli decostersii}.

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\textbf{Key to the genus NAJA}:

1a. Upper labials usually excluded from the orbit by suboculars. \textit{N. haje annulifera}.

1b. One or two upper labials entering the orbit. \textit{N. haje annulifera}.

2a. Scales in 19 (rarely 17 or 21) rows at midbody. \textit{N. haje annulifera}.

2b. Scales in 17 (rarely 15 or 19) rows at midbody. \textit{N. haje annulifera}.
3a. Sixth upper labial largest and in contact with the postoculars; a single preocular.

3b. Sixth upper labial not the largest, not in contact with the postoculars; two preoculars.

4a. Rostral about as broad as deep; internasals as long as the prefrontals; range South Africa to southern BechuanaLand. N. nivae

4b. Rostral much broader than deep; internasals shorter than the prefrontals; range Zambia, Malawi, Mozambique, eastern Rhodesia. N. melanolaeua

5a. Scales in 17-21 rows at midbody; black or dark grey above, lighter below, with a single broad dark band on the throat. N. nigricollis crawshayi

5b. Scales in 21-27 rows at midbody; light grey or olive above, salmon pink below, with a series of irregular black bands or blotches on the throat. N. mossambica mossambica

Key to the genus DENDROASPIS

1a. Scales in 21-25 rows at midbody; ventrals 242-282; inside of mouth blackish; light grey, olive or dark brown above. D. polyplepis polyplepis

1b. Scales in 15-19 (rarely 21) rows at midbody; ventrals 201-235; inside of mouth whitish; green above. D. angusticeps

2a. Temporals usually 2+3; uniform emerald green above; range eastern tropical lowlands. D. jamesoni jamesoni

2b. Upper temporals fused to form a single elongate shield, lower anterior temporal fused with an upper labial (usually 7th), lower posterior temporals usually fused with posterior upper labial; usually olive green above, each scale margined with black; range west Africa and swamp forests of Lake Bangweulu. D. jamesoni jamesoni

VIBERIDAE

KEY TO THE GENERA

1a. Head much broader than neck and covered above with small keeled scales; pupil vertical. 3

1b. Head not or only slightly broader than neck and covered above with large symmetrical smooth shields; pupil round. 2

2a. Loreal present; eye moderate, separated from labials by suboculars; ventrals less than 160. Causus

2b. Loreal absent; eye minute, bordered by two labials; ventrals more than 200. Atractaspis
3a. Canthus rostralis poorly defined; habit robust; ventrals 117-147; subcaudals 16-37............................... Bitis
3b. Canthus rostralis well defined; habit moderate; ventrals 142-162; subcaudals 32-52............................... Atheris

Key to the genus ATRACTASPIES
Midbody scale rows 21-25 (rarely 19); anal entire; subcaudals all single................................. A. bibronii
Midbody scale rows 19; anal entire or divided; proximal subcaudals (0-9) may be single, distal ones always paired............... A. congica congica

Key to the genus CAUSUS
1a. Snout obtuse and not turned up at the tip; ventrals 128-153; subcaudals 21-35............................... C. defilippii
1b. Snout pointed and turned up at the tip; ventrals 109-128; subcaudals 10-19............................... C. bilineatus

Key to the genus BITIS
2a. One pair of internasal horns, which are usually in contact mesially; head pale with a dark median stripe........ B. gabonica gabonica
2b. Two or three pairs of internasal horns, which are usually separated by small scales; head blue with a forward-pointing black arrow-head marking; habitat swamp forests (Lake Bangweulu)......... B. nasicornis
3a. Scales in 29-41 rows at midbody; nostrils directed vertically upwards; adults usually 600-900 mm in length.. B. aristae aristae
3b. Scales in 23-33 rows at midbody; nostrils directed upwards and outwards; maximum length about 500 mm............................... B. caudalis
4a. Supranasal region raised and bearing an erect horn-like scale; midbody scale rows 23-37; habitat arid regions........ B. caudalis
4b. Supranasal region not raised, without "horns"; midbody scale rows 29-33; habitat montane grassland............ B. atropos atropos
Key to the genus AThERIS

A large supraocular shield present; subcaudals 32-43, paired; tail not prehensile; habitat lowland swamps..................A. superciliaris

No supraocular shield present; subcaudals 47-53, single; tail prehensile; habitat montane evergreen forest fringes.........................A. nitschei rungwensis
KEY TO THE AMPHIBIA OF SOUTH-EAST AFRICA (ADULTS).

KEY TO THE FAMILIES

1a. Body limbless, vermiform, without visible eyes..............Cinclidae

1b. Body with four limbs, not elongated, eyes normal..................2

2a. Tongue absent; three inner toes with black claws; eyes directed upwards..........................Pipidae

2b. Tongue present; toes clawless; eyes directed laterally...........3

3a. Upper jaw with teeth or, if toothless, snout hardened for digging (Hemipus)......................Hymenidae

3b. Upper jaw toothless, snout not very pointed and hardened for digging.................................4

4a. Parotid glands usually present; no transverse folds on palate...Bupholidae

4b. No parotid glands present; transverse folds present on palate...Microhylidae

Cinclidae

Only one form recorded..................Scolecomorphus kirki kirki

Pipidae

Key to the genus Xenopus

1a. Length of subocular tubercle at least half the diameter of the eye..........................X. muelleri

1b. Length of subocular tubercle much less than half the diameter of the eye.........................2

2a. Width of nostril divided by the internarial space gives a proportion of 0.8 or more..................X. laevis laevis

2b. Width of nostril divided by the internarial space gives a proportion of less than 0.8.............X. laevis pouteri

Bupholidae

Key to the genus Bufo

1a. Tarsal fold present..................................................2

1b. Tarsal fold absent..................................................8

2a. Throat not as granular as lower abdomen...............H. saraspensis inyanga

2b. Throat as granular as lower abdomen............................3

3a. Parotid glands present; no dorsolateral glandular ridge...........4

3b. Parotid glands absent; a prominent dorsolateral glandular ridge extends from tympanum to groin...............H. carens

4a. Snout pointed; parotid glands at least four times as long as broad; third toe very long...............H. lemairei

4b. Snout rounded; parotid glands less than four times as long as broad; third toe moderate..............5
5a. A light cross on head formed by a light interocular bar and a median stripe........................................................ 6
5b. No light cross on top of head........................................................ 7
6a. Parotid glands prominent and not obscured by dark-tipped warts........................................................ B. regularis
6b. Parotid glands flattened and obscured by dark-tipped warts........................................................ B. pusillus
7a. Well defined maroon dorsal markings present, usually red infusions on upper part of thigh.................................................. B. garmani
7b. Coloration uniformly dark; head very broad.............................. B. ngasani
8a. First finger shorter than second.............................................. B. urunguensis
8b. First finger subequal to second................................................ 9
9a. Skin of throat and snout not or only slightly granular.............. B. vertebralis grindleyi
9b. Skin of throat and snout granular........................................... 10
10a. Only one phalanx of third toe free of webbing...................... B. anolis
10b. At least two phalanges of third toe free of webbing.................. 11
11a. Chest and abdomen not or hardly marked................................ B. vertebralis fenouhieti
11b. Chest and abdomen with distinct markings or flecking............. 12
12a. A dark three-pronged marking on chest and abdomen; maximum size 32 mm........................................................ B. taitanus taitanus
12b. Ventral markings consist of dark flecking................................ B. taitanus nyikae
13c. Ventral flecking brown to black; Adults 35-42 mm in length..... B. taitanus heibrarua

MICROHYLIDAE

KEY TO THE GENERA
1a. Inner metatarsal tubercle massively developed, spade-like........... Brevicaps
1b. Inner metatarsal tubercle weakly or moderately developed, not forming a sharp flange......................... 2
2a. Palms and soles covered with enlarged tubercles...................... Phrynomerula
2b. Palms and soles smooth.......................................................... 2

Key to the genus BREVICAPS
1a. Outer finger very short, not extending beyond the subarticular tubercle of the adjacent finger; a pale spot above the vent........................................................ B. mosaemicus poweri
1b. Outer finger extending well beyond the subarticular tubercle of the adjoining finger; no pale spot above the vent........................................................ 2
2a. Vertebral region with paired pale blotches. ........................................ B. mossambicus adspersus

2b. Vertebral region without paired pale blotches. ....................................... B. mossambicus mossambicus

Key to the genus Phytonemus
Tips of fingers expanded into truncated discs; vertebral region usually without pale spots. ........................................ P. bifasciatus bifasciatus
Tips of fingers not or hardly expanded; vertebral region with pale spots. ........................................ P. affinis

Ranidae
KEY TO THE GENERA

1a. Upper jaw toothless; an interorbital groove on top of head connects posterior corners of eyes. Hemiplus (H. marmoratus)

1b. Upper jaw with teeth; no interorbital groove on top of head. 2

2a. Last phalanx of fingers not placed out of linear alignment by an intercalary cartilage. ........................................ 3

2b. Last phalanx of fingers placed out of linear alignment by an intercalary cartilage ("tree-frogs"). ........................................ 10

3a. Vomerine teeth present. ........................................ 4

3b. Vomerine teeth absent. ........................................ 7

4a. Outer metatarsals separated from rest of sole by a web; inner metatarsal tubercle not flanged. ........................................ 5

4b. Outer metatarsals bound into the sole; inner metatarsal tubercle strongly flanged. ........................................ 6

5a. Vomerine teeth abutting onto the anterior margins of the internal nares. Ptychadena

5b. Vomerine teeth not abutting onto the anterior margins of the internal nares. Hana

6a. Conspicuous longitudinal light and dark bands on the throat. ................ Hildebrandtia (H. c. ornata)

6b. No longitudinal banding on throat. Pyxicephalus

7a. Toes webbed. Phrynobatrachus

7b. Toes not webbed. ........................................ 8

8a. A fine dorsal skin ridge running along vertebral line. Arthroleptis

8b. No vertebral skin ridge. ........................................ 9

9a. Head narrow, width one-third the snout-vent length. Capoetaternum (C. boettgeri)

9b. Head broad, width two-fifths the snout-vent length. Nothophryne (N. broadleyi)
10a. Outer metatarsals separated from rest of sole by a web.

............................ Ghiromantis (C. zerampelina)

10b. Outer metatarsals not separated from rest of sole.

11a. Digital discs present, or if absent, outer metatarsal tubercle longer than inner toe.

........................................... 12

11b. Digital discs absent; outer metatarsal tubercle shorter than inner toe.

Kansina

12a. Armpit and groin with scarlet patches. Hylambates (H. maculatus)

12b. Armpit and groin without scarlet patches.

13a. Vomerine teeth present.

........................... Leptopelis

13b. Vomerine teeth absent.

Afrizalus

14a. Pupil vertical.

........................... Afrizalus

14b. Pupil horizontal.

Hyperolius

Key to the genus PFAICHRALUS

1a. Lower jaw with three sharp bony cusps.

........................... P. adspersus

1b. Lower jaw without bony cusps.

........................... 2

2a. Less than 2 phalanges of outer toe free of webbing. P. marmoratus

2b. 2 or more phalanges of outer toe free of webbing.

........................... 4

3a. Not more than 2 phalanges of third toe free of webbing.

........................... P. delalandei cryptotis

3b. More than 2 phalanges of third toe free of webbing.

........................... 4

4a. A light vertebral line present.

........................... P. tuberculatus

4b. No light vertebral line present.

........................... P. natalensis

Key to the genus HANA

1a. Less than 3 phalanges of the fourth toe free of webbing.

........................... 2

1b. More than 3 phalanges of the fourth toe free of webbing.

........................... 6

2a. A conspicuous broad dark lateral band extending from snout to groin.

........................... 8

2b. No conspicuous dark lateral band extending from snout to groin.

........................... 3

3a. A light-coloured trans-occipital groove present.

........................... H. occipitalis

3b. No trans-occipital groove present.

........................... 4

4a. Tympanum more than half the diameter of the eye. H. angolensis

4b. Tympanum less than half the diameter of the eye.

........................... 5

5a. Head width divided by tibia length gives a proportion of more than 0.68; Manje Mountain. H. johnstoni johnstoni

5b. Head width divided by tibia length gives a proportion of less than 0.68; Inyanga Highlands. H. johnstoni inyanga
6a. Length of foot less than the distance from tympanum to vent

6b. Length of foot at least equal to distance from tympanum to vent

7a. Head width divided by length of foot gives a proportion of not more than 0.43

7b. Head width divided by length of foot gives a proportion of not less than 0.43

8a. Dorsum uniform gold

8b. Dorsum with a pair of broad light dorso-lateral stripes extending from eyelids to groin, intermediate zone darker, often with irregular dark blotches or a dark inner border to the dorso-lateral stripes

7a. Head width divided by length of foot gives a proportion of not more than 0.43

7b. Head width divided by length of foot gives a proportion of not less than 0.43

7a. Posterior face of thigh with olearly contrasted continuous light and dark longitudinal stripes

7b. Posterior face of thigh spotted or mottled, not with longitudinal stripes continuous along whole length of thigh

8a. A rostral protuberance present

8b. No rostral protuberance present

9a. Digits with discs

9b. Digits without discs

Key to the genus Ptychadena

1a. Two or more dark transverse bands running below vent; abdomen usually spotted

1b. Not more than one dark band running below vent; abdomen not spotted

2a. Less than 2 phalanges of fourth toe free of web

2b. 2 or more phalanges of fourth toe free of web

3a. Posterior face of thigh mottled; distance from nostril to tip of snout greater than the internarial distance

3b. Posterior face of thigh with longitudinal stripes; distance from nostril to tip of snout not greater than the internarial distance

4a. Length of foot (including metatarsal tubercle) more than half body length

4b. Length of foot not more than half body length

5a. Two phalanges of fourth toe free of web

5b. Three phalanges of fourth toe free of web

6a. Posterior face of thigh with clearly contrasted continuous light and dark longitudinal stripes

6b. Posterior face of thigh spotted or mottled, not with longitudinal stripes continuous along whole length of thigh

7a. A prominent continuous dark line running almost from knee to knee along femurs below vent

7b. No distinct continuous dark line running transversely below vent

8a. A rostral protuberance present

8b. No rostral protuberance present

9a. Digits with discs

9b. Digits without discs
9a. Mid-dorsal pair of skin folds continuous from occiput to anal region.......................... P. grandisonae
9b. Mid-dorsal pair of skin folds interrupted or present only posteriorly.......................... P. chrysogaster guibeii
10a. A light longitudinal line present on upper surface of tibia......................... P. porosisiana
10b. No light longitudinal line on upper surface of tibia.................................11
11a. A pair of skin ridges present on snout just in front of eyes (usually continuous with paravertebral ridges), each ridge capped with a dark patch.......................... P. usungweensis
11b. Snout without skin ridges.......................................................... P. upembae upembae
12a. An outer metatarsal tubercle usually present, sometimes represented only by a white spot; usually a light vertebral band present.......................... P. mossambica
12b. No outer metatarsal tubercle or white spot present; no light vertebral band present.......................... P. floweri

Key to the genus PHYRNOBATRACHUS
1a. Third toe broadly webbed to base of discus............. P. perpalmatus
1b. Third toe with at least one phalanx free of webbing.............. 2
2a. One phalanx of outer toe free of webbing; tympanum usually distinct.............................................. 3
2b. Two or more phalanges of outer toe free of webbing; tympanum usually hidden.............................................. 5
3a. Tips of fingers and toes with small circular discs; usually a pair of conspicuous elongate skin glands in the scapular region.......................... P. acridoides
3b. Tips of fingers and toes without discs; no conspicuous elongate skin glands in the scapular region.......................... 4
4a. Males with femoral glands and a clear transverse posterior fold to the gular pouch.......................... P. gutturosus
4b. Males without femoral glands or a transverse fold to the gular pouch.......................... P. natalensis
5a. A silvery streak below tympanum from eye to arm insertion; posterior quarter of abdomen with dark spots.......................... P. parvulus
5b. No silvery streak below tympanum from eye to arm insertion; posterior quarter of abdomen without dark spots.......................... 6
6a. Tips of fingers and toes with discs............. P. ukingensis ukingensis
6b. Tips of fingers and toes without discs............. P. ukingensis nababiensis
### Key to the genus *ANTHROPLEXIS*

1a. Metatarsal tubercle as long as or longer than the inner toe; first finger as long as or longer than the second. ............................................. *A. stenodactylus*

1b. Metatarsal tubercle shorter than inner toe; first finger usually shorter than second. .......................................................... 2

2a. Metatarsal tubercle not more than half length of inner toe; maximum length 27 mm ............................................................ 3

2b. Metatarsal tubercle at least three-quarters length of inner toe; maximum length up to 50 mm .................................................. 5

3a. Tips of toes expanded, wider than subarticular tubercles. .......... 4

3b. Tips of toes not wider than subarticular tubercles. ....................... *A. troglodytes*

4a. Body slender; tips of digits expanded, bulbous, often terminating in a tiny point; third finger of males not more than three times length of fourth finger. *A. xenodactyloides xenodactyloides*

4b. Body globular; tips of digits tapering or swollen, not terminating in a point; third finger of males more than three times length of fourth finger. *A. xenodactyloides nyitzei* or *A. subsectatis*

5a. Tips of digits expanded into discs; metatarsal tubercle three-quarters length of inner toe; maximum length 35 mm; habitat forests in Tanganyika and northern Malawi. .................................................. *A. reichei*

5b. Tips of digits swollen, but not flattened; metatarsal tubercle almost as long as inner toe; maximum length 50 mm; habitat forests on Manje Mountain. ............................................. *A. adolphfriederici francosi*

### Key to the genus *LEPTOPELIS*

1a. Webbing passing distal tubercle of outer toe. ....................... *L. flavomaculatus*

1b. Webbing not passing distal tubercle of outer toe. ....................... 2

2a. Tips of fingers with broad discs ............................................. 3

2b. Tips of fingers not broader than subarticular tubercles. ............... *L. boocei*

3a. Tympanum almost as large as eye ............................................. 4

3b. Tympanum less than half the diameter of eye. ....................... *L. angolensis*

4a. Dark dorsal markings broken up and linked with a dark inter-orbital bar ........................................................................... *L. concolor*

4b. Dark marking on back not broken up, no dark interorbital bar .... *L. viridis cinnamomeus*

### Key to the genus *KASSINA*

1a. Dorsum spotted, but no spots in vertebral region; ventrum with a grey reticulate pattern. ............................................. *K. inserti*

1b. Dorsum with vertebral and dorsolateral stripes, which may be broken up; ventrum immaculate. ............................................. *K. angolensis*
2a. Males with a straight transverse fold posterior to a short vocal sac; light dorsal bands each bisected by a narrow dark line; adults 20-22 mm in length. 

2b. Males without a transverse fold posterior to a long vocal sac; light dorsal bands undivided; adults over 30 mm in length.

Key to the genus AMERUS

1a. Dorsum and outer surfaces of limbs covered with small black asperities...

1b. Back and limbs without small black asperities...

Key to the genus Hypomorphius

NOTE: Because of polymorphism and great intraspecific variation, it is impossible to identify material with any confidence unless a good representative series of fresh specimens is available, even then comparative material is often required. Many forms in the H. marmoratus superspecies can only be positively identified if adult females are to hand. The following key can act only as a very rough guide and should be used with caution.

1a. Size small, not exceeding 25 mm; snout more or less pointed; usually green in life, with small dark dorsal spots or a dark lateral stripe...

1b. Size large, adults 28-38 mm; snout moderate or blunt...

2a. A broad black lateral band extends from nostril through eye to groin...

2b. No black lateral band present...

3a. Range western and northern Zambia, Angola...

3b. Range Nyika Plateau...

4a. Snout projecting strongly beyond mouth...

4b. Snout hardly extending beyond mouth...

5a. Fourth toe with at least one phalanx free of web; or with a narrow seam extending to disc; snout not truncated...

5b. Fourth toe with less than half a phalanx free of web; snout truncated (H. marmoratus superspecies)...

6a. A light V-shaped marking extending from snout to eyelids...

6b. No light V-shaped marking on snout...
7a. Light band on canthus often continues as a dorso-lateral band or series of spots, but no light spots in the middle of the back ...................................................... H. punctulatus

7b. Light band on canthus rarely continues posteriorly, but large irregular light spots present in the middle of the back ...................................................... H. armus

8a. A dark interorbital triangular marking has its apex pointing posteriorly and connecting with a dark more or less pentagonal patch .............................................. H. tuberilunguis (part)

8b. No such dorsal markings .................................................................................. 9

9a. Dorsum brown; range highlands or plateau areas of Central Africa ...................................................... 10

9b. Dorsum green; range - tropical lowlands of East Africa .......................... 11

10a. Dorsum uniform light brown; range northern Zambia to Angola ...................................................... H. boehmi

10b. Dorsum dark brown, often with light longitudinal stripes; range - Nyika Plateau to SW Tanganyika ...................................................... H. platus

11a. Canthus rostralis prominent; no dorsal markings .............................................. 12

11b. Canthus rostralis rounded; with or without small dark spots and a dark line on the canthus; with or without a pale line running from snout to groin ...................................................... H. argus 37

12a. A broken dark lateral stripe extending from nostril through eye and onto flank; Lake Tanganyika region ...................................................... H. diuensis

12b. No dark lateral stripe present; Mozambique Plain ...................................... H. tuberilunguis

13a. Brownish or yellow, with or without a dark line on canthus and continuing as a dorso-lateral stripe ...................................................... 26

13b. Dorsum with a more distinct pattern ...................................................... 14

14a. Dorsum uniform brown, sometimes with a black margin ...................................................... H. m. serpinitus (part)

14b. Dorsum striped, spotted or marbled ...................................................... 15

15a. Dorsum striped ...................................................... 16

15b. Dorsum spotted or marbled ...................................................... 20

16a. Five white longitudinal stripes, subequal in width to dark intervening stripes ...................................................... H. m. taeniatus (part)

16b. Three white longitudinal stripes, much narrower than the intervening dark bands ...................................................... 17
17a. White stripes usually regular; range - Rhodesia, Malawi and Mozambique

17b. White stripes irregular and branching; range north and west Zambia

18a. White stripes with red axes; range - Rhodesia and adjoining Mozambique

18b. White stripes without red axes

19a. Lateral stripes continuous; range - southern Malawi and adjoining Mozambique

19b. Lateral stripes sometimes broken up; range northern Zambia

20a. Dorsum spotted

20b. Dorsum marbled or vermiculate

21a. Dorsum pale with darker spots

21b. Dorsum dark with pale spots

22a. Numerous large symmetrical grey (lime green in life) blotches on back and limbs; range - north-west Rhodesia

22b. Irregular black spots or blotches on back, but rarely on limbs; range northern shores of Lake Malawi

23a. Vague grey speckling, mottling or vermiculation on a yellow or orange ground; ventrum uniform white; range south-eastern Rhodesia

23b. Well defined red, black or brown markings; ventrum often with red markings; range Zambia and Bechuanaland

24a. Dorsum largely maroon, with a light vertebral band and two lateral rows of light spots, or with fine light vermiculation or stippling; range western Barotseland and northern Bechuanaland

24b. Dorsum not largely maroon; proportions of light and dark coloration about equal

25a. Dorsal markings red, lateral surfaces of limbs with small black spots

25b. Dorsal markings brown to black, lateral surfaces of limbs without small black spots

26a. Ventrum with a red network

26b. Ventrum without a red network
SYSTEMATIC DISCUSSION.

Class REPTILIA
Order TESTUDINATA
Suborder CRYPTOPODA
Family TESTUDINIDAE

Genus TESTUDO Linnaeus


Loveridge and Williams (1957) treated Geochelone and Psammobates as full genera, but Loveridge (1957) and Wermuth & Martens (1961) relegate them to subgeneric rank.

TESTUDO PARDAVIS BACCOOKI Loveridge

Testudo pardalis (not Bell) Peters, 1882, p.2 (Sena, Tete); Bocage, 1896, p. 97; Boulenier 1907a, p. 6 (Lunguwa River; Petauke); Chubb, 1909a, p. 592 and 1909b, p. 34 (Gwamayaya River); Pitaan, 1934, p. 307; FitzSimons, 1935b, p. 303 (Gemsbok; Maun; Shorobe; Shaleshonto; Tsotsoroga; Makarikari) and 1939b, p. 18 (Birchenough Bridge); Mitchell, 1946, p. 20.


Geochelone pardalis babcocki Loveridge & Williams, 1957, p. 235.

54 specimens examined from: BECHUANALAND. Mahalapye; 5 mls. N. of Nata. RHODESIA. Ralla Balla; Gweta District; Gonderwa Falls; Gwasi Bridge; Kapasi; Kariba Lake (Sanyati Confluence); Bugdai Hot Pools; Springs; Sabi-Macheke Confluence; Tuli. ZAMBIA. Chipepali; Kariba Lake (Usafina Confluence).

Literature Review: BECHUANALAND. Gemsbok; Mahalapzi; Makarikari; Maun; Serowe; Shaleshonto; Shorobe; Tsotsoroga Pan. RHODESIA. Birchenough Bridge; Gwamayaya River; Mount Darwin. ZAMBIA. Lunguwa River; Petauke. MALAWI. Tengani. MOZAMBIQUE. Cobo Delgado Island; Sena; Tete.
Variation. Vertebrals 5 (rarely 6); costals 4 (rarely 5); marginals 11 (rarely 10 or 12); supracaudal single.

Coloration. Very variable. Subadult specimens are often strongly marked with black while adults are more or less uniform yellow.

Size. Largest 9 (QM, mounted - Gokwe District) 358 mm. in carapace length.

Breeding. The eggs of this species are spherical and 5 to 30 may be laid at one time (Loveridge & Williams, 1937). Wilson noted 5 laid by a specimen at Fort Jameson on 23rd June.

Diet. This species is vegetarian and feeds largely on grass, supplemented with succulents and fruit when available. Small bones are broken up and eaten.

Parasites. Ticks (Ambllyomma exornatum) are sometimes present on the limbs.

Enemies. The most important predator on the Leopard Tortoise is undoubtedly Homo sapiens, who is responsible for its scarcity in heavily populated areas. The Bushmen use the carapace as a receptacle (Fitz-Simons, 1935b).

Habitat. In south-east Africa this species is most plentiful in dry country, especially the major river valleys, but it does not seem to be common on the Matabele Plain.

Distribution. Sudan and Ethiopia, south to Natal, northern Cape Province and South West Africa.

*TESTUDO COULIFERA* Kuhl.

*Testudo coulifera* Kuhl, 1820, Beitr. Zool. Annt., pp. 77; Cape;
Siebenrock, 1910, Sitzber. K. Akad. Wiss. Wien., 119, p. 704 (Kamelslip, S. Kalahari); Werner, 1910, Jena Denkschr., 16, p. 301 (Kosa; Lebhumutu-Kang; Nockane; Vlaij Topan, Kalahari). Fitz-Simons, 1935b, p. 304 (Gomodimo; Kaotoe; Gembok; Makarikari).

*Psamobates coulifer* Loveridge & Williams, 1937, p. 315.

5 specimens examined from BECHUANALAND. Lephepe; 5 mls. N and 10 mls. W. of Nata; Serowe; Sharobe.

Literature Records: BECHUANALAND: Gembok; Gomodimo; Kamelslip; Kaotoe; Kosa; Ghami Lake; Lebhumutu to Kang; Makarikari; Mokane; Palapye Road; Serowe (U.S.N.M.); Vlai Topan.

Variation. Vertebrals 5; costals 4; marginals 10-11; supracaudal single.

Size. Largest 9 (UM 9823 - 10 mls. W of Nata) 106 mm. in carapace length. BechuanaLand specimens are apparently smaller in average size than southern populations. FitzSimons (1935b) records a 9 of 118 mm. and a 9 of 133 mm. taken together between Schmidtsdrift and Kimberley.
One captive specimen at Umtali was seen to catch and devour grasshoppers.

Bushmen eat many of these tortoises and use the shells as snuff boxes. UM 9784 is a juvenile found in the crop of a Secretary Bird (Sagittarius serpentarius).

Habitat. Dry thornbush and grass savanna.

Distribution. South-West Africa and Bechuanaland, extending into western Transvaal and Orange Free State and the Karroo areas of the Cape Province.

Genus Kinixys Bell


**Kinixys belliana belliana** Gray

Kinixys belliana Gray, 1831, Synopsis Reptilium, p. 69: No locality; Pitman, 1934, p. 307; FitzSimons, 1939b, p. 13 (Hot Springs; Mount Silinda; Changadzi River; Birchenough Bridge).

Kinixys belliana Peters, 1882, p. 5 (Nosurul; Inhamane; Boror; Sena; Tete); Beecroft, 1896, p. 77; Boulenger 1907a, p. 6 (Petumbo); 1907b, p. 482 (Baire); Clahb, 1909a, p. 592 and 1909b, p. 34 (Essexvale; Shangani River); Cott, 1935, p. 972 (Cherro; Gaia; Amatongas).


Kinixys belliana neobelliana Hewitt, 1931, Ann. Natal Mus., 6, p. 469, fig. 1c, pl. xxxvii, figs. 1a: Zomba, Malawi.


Kinixys belliana belliana Loveridge, 1933a, p. 15a (Malawi localities); and 1933b, p. 140 (Lake Chilwa); Laurent, 1956, p. 29 (Abercorn);

Loveridge & Williams, 1957, p. 384; Broadley, 1962, p. 791; Laurent, 1962, p. 5 (Cholo Mountains; Mitamba; Isaka; Birchenough Bridge; Bulawayo; Hot Springs; Lumane; Mount Silinda; Umtali; Abercorn).
70 specimens examined from: RHODESIA. Bulawayo; Gashel; Heathfield; Irisvale; 5 mls. SE of Epsami; Kariba Lake (Sanyati Confluence); Karoi; Mzota Reserve; 6 mls W and 15 mls. NE of Mtoko; Muriel Mine; Shangani River; Salisbury; 20 mls. SE of Tsholotjo; Untali. ZAMBIA. Chipangali; Dimba; Kariba Lake (Laufula Confluence); Kasum; Livingston; Siantange. MALAWI. Blantyre; Port Johnston; Rumphi; Shire Valley near Zomba. MOZAMBIQUE. 8 mls. NE of Inhambing; Nhanda Mountain.

Literature records. BECHUANALAND. Lobatei; Tauclewoga Pan. RHODESIA. Birchcouough Bridge; Bulawayo; Changaani River; Resserve; Hot Springs (Melsetter); Lumane; Marambilla-Untali; Masoe; Salisbury; Sandown; Mount Silinda; Shangali River; Untali; Umsilow River. ZAMBIA. Abercorn; Broken Hill; Inoka; Petauke. MALAWI. Chilotela; Chinuwa; Chilwa Lake; Chirema; Chitala River; Cholo Mountain; Port Johnston; Likangala; Livingstonia; Monkey Bay; Ngundu; Mtambuka; Port Herald; Zomba. MOZAMBIQUE. Amatongs; Beira; Boror; Galia; Chirre; Inhambane; Lombo; Mapurii; Sema; Tete.

Variation. Vertebrae 5 (rarely 6); costals 4 (rarely 3 or 5); marginales 11 (rarely 12); supraespid single; 5 claws on forefoot. Pectoral suture is 25 to 54% of abdominal suture. Eastern specimens have deep shells with the highest point posteriorly - this type was described by Hewitt (1931) under the names zombensis and zuluensis. Western specimens tend to have more depressed shells - the "apokiil" type of Love-ridge & Williams (1957). I have not seen any specimens with a pronounced anterior "hump" on the carapace as in the types of Jordon! (Hewitt, 1931).

Coloration. Very variable. Females and juveniles are usually more strongly marked than adult males. Eastern specimens are often handsomely marked with black.

Size. Largest ♀ (NGZ. 50314 - Mtambuka) 190 mm; Largest ♀ (QVM, mounted - Untali) 217 mm. in carapace length.

Diet. Omnivorous. Millipedes are chased and devoured greedily and snails (Achatina) are eaten after their shells have been broken. This species is a great scavenger; bones and dried corpses of frogs and other small vertebrates are eaten. Succulents and fungi (Power, 1927; Mitchell, 1946) are sought out and devoured with relish.
Habitat. Widespread and common in savanna, but scarce in arid areas. Apparently absent from montane grassland above 5,000 feet.

Distribution. Sudan and Eritrea south to Natal, Transvaal and Bechuanaland.

Genus CYCLODERMA Peters


CYCLODERMA FRENA-TUM Peters.


MOZAMBICAN. Zambezi River near Tete.

Literature Records. MALAWI: Chowa; Mtimbuka; Fort Johnston.

MOZAMBICAN: Lake Inhaimbundu near Tete; Licaure River; Zambezi River near Tete.

Size. Largest 9 (BM 10339 - Zambezi River) 300 mm. in carapace length.

Diet. In Lake Malawi, aquatic snails and mussels (Mitchell, 1946).

Distribution. Southern Tanganyika, Malawi (Lake Malawi and Shire River), and Mozambique as far south as the Save River and S.E. Rhodesia.

The occurrence of this species in the Sabi-Lundi system has been discussed by Broadley (1962). The Zambezi River formerly entered the sea near Beira and shares its fish fauna with the Pungwe, Rusi and Sabi-Lundi systems.

Family CHELONIIDAE

Genus CHELONIA Bronniiart


CHELONIA MYNAS (Linnaeus)


Chelonia mysag Peters, 1882, p. 18; (Mozambique Island; Querimba Islands). Bocage, 1896, p. 97; Loveridge & Williams, 1957, p. 474 (Revision).
One specimen examined from MOZAMBIQUE: Cabaceira Peninsula.

**Literature Records.**

**MOZAMBIQUE:** Mozambique Island; Querimba, Islands.

**Distribution.** All African coasts, known to resort to Zululand beaches for egg-laying, so probably breeds on the Mozambique coast also.

**Genus ERETMOCHELYS Fitzinger**


**ERETMOCHELYS IMBRICATA (Linnaeus)**


American and Asiatic seas.

*Chelonia imbricata* Peters, 1882, p. 17, (Mozambique Island; Querimba Island); Bocage, 1896, p. 97.

*Eretmochelys imbricata* Loveridge & Williams, 1957, p. 485.

None examined.

**Literature Records.**

**MOZAMBIQUE:** Cape Delgado; Mozambique; Querimba Island.

**Distribution.** Coasts of East, South and West Africa.

**Genus CARETTA Rafinesque**


**CARETTA CARETTA (Linnaeus)**


Islands off America.


One specimen examined from MOZAMBIQUE: Beira.

**Literature Records.**

**MOZAMBIQUE:** Inhambane.

**Data.** Vertebrals 5; costals 5-6; marginals 12; supracaudals 2; intergular absent; inframarginals 3.

**Distribution.** All African coasts.

**Family DERMOCHELYIDAE**

**Genus DERMOCHELYS Blainville**


**DERMOCHELYS CORIACEA (Linnaeus)**


Although there are no records of this turtle from the Mozambique coast, it breeds on the Zululand beaches south of Kosi Bay. It certainly occurs in Mozambique waters.
**Distribution.** All African coasts.

**Family PEMODUSIDAE**

**Genus PEMODUS Wagler.**


**PELOMEDUSA SUBRUFUS (Lacépède)**


*Pelomedusa galacta* Peters, 1872, p. 6 (Querimba; Lumbo; Qnelina; Tete); Bocage, 1896, p. 97; Pitman, 1934, p. 307; FitzSimons, 1935b, p. 307 (Metsimaklaba River; Kuka-Gomodimo; Gomodimo; Zweise River; N’Katte Pan; Hewitt, 1935, p. 325; FitzSimons, 1935b, p. 30 (Birchenough Bridge).


40 specimens examined from: BECHUANALAND, 15 ml. E of Lake Dow. RHODESIA, 3 ml. S of Antelope Mine; Bulawayo; Eagle Vulture Mine; 5 ml. S of Kasumgila; Plumtree, ZAMBI. Kalikali Dan; Kalabo; Nakalombwe, MALAWI. Fort Johnston.

Literature Records. BECHUANALAND: Gomodimo Pan; Gomodimo to Kuka; Lobatiti; Metsimaklaba River; N’Katte Pan; Zweise River.

RHODESIA: Birchenough Bridge, MALAWI; Livingstonia near Blantyre.

MOZAMBIQUE: Lumbo; Qnelina; Querimba; Tete.

**Variation.** Vertebrales 5; costals 4 (rarely 5); marginals 11 (rarely 12); supracaudals 2; pectorals in contact (separated in the Kalikali hatching).

Size. Largest (BM. 2629 - Nakalombwe, Zambia) 170 mm. in carapace length.

Breeding. A female was found under a dried cow skin 10 ml. E. of Lake Dow, Bechuanaland. She held 14 eggs measuring 27 x 17 mm. on 22.x1.64. (R. E. Flatts).

Habitat. Generally found in temporary pans and ponds. Buries itself in the mud during the dry season.

**Distribution.** Sudan south to the Cape and west to Senegal (savannas). Madagascar.

**Genus PELUSIOS Wagler.**

PELUSIOS NIGRUS Laurent


One specimen examined from: ZAMBIA. Chambeshi-Lukulu Confluence.

**Data.** Vertebrae 5; costals 4; marginals 11; supracaudals 2. Abdominal suture 49.2% of length of anterior lobe of plastron; head width 52.9% of abdomino-femoral suture; humeral + pectoral sutures 121.4% of intergular length; abdomino-femoral suture 81.0% of pectoro-abdominal suture.

**Size.** (BMNH. 3958 - Chambeshi-Lukulu Confluence) 75 mm. in carapace length.

**Distribution.** Angola, southern Congo (Kasai, Katanga) and northern Zambia (Bangweulu drainage).

PELUSIOS CASTANEUS CASTANEUS (Schweigger)


*Pelusios subniger* (part, not Lacepede) Loveridge, 1941, p. 489 and 1953, p. 162 (Chibotela).

3 specimens examined from: MALAWI. Chibotela (A.M.N.H.).

**MOZAMBIQUE.** Inhaca Island (R.M.H.). One without locality data.

**Variation.** Abdominal suture 77.8-78.2% of length of anterior lobe of plastron; head width 46.0% of abdomino-femoral suture; humeral + pectoral suture 107.5-135.1% of intergular length; abdomino-femoral suture 85.5 - 90.1% of pectoro-abdominal suture.

**Remarks.** Laurent (1965b) has discussed the variation in this species. The limited material available supports the recognition of a central African race, but a good series from the Mozambique Plain and the continental islands is needed to clarify the relationship between the East African terrapins and those on Madagascar and the Seychelles.

**Size.** Largest (UM 8997 - without locality data) 243 mm. in carapace length.

**Coloration.** Carapace yellowish or reddish brown; plastron uniform yellow.

**Distribution.** East African coastal plain from Kenya south to Zululand, the continental islands, also Madagascar and Seychelles.
Fig. 2. Distribution of the genus Pelusios.

- Pelusios name Laurent
- Pelusios castaneus castaneus (Schweigger)
- Pelusios castaneus rhodesianus Hewitt
- Pelusios bechuananus FitchSimons
- Pelusios subniger (incépôde)
- Pelusios simusus (A. Smith)
PELUSIONS CASTANEAUS RHODESIANS Hewitt

Sternotherus nigeriensis (not Donnadorf) Boulenger, 1907a, p. 6 (part; Moefu River).

Pelusius nigeriensis rhodesianus Hewitt, 1927, Rec. Albany Mus., p. 375; figs. 1a, 1b, pl. xxx, figs. 2-3; Mpila District, Zambia; Loveridge, 1933, p. 210 (Nyankolo); Pitman, 1934, p. 307 (Chambeshi River).

Pelusius subinger (part, not Lacepede) Loveridge, 1941, p. 489.

Pelusius nigeriensis rhodesianus Laurent, 1955, p. 30 (Nyankolo).

17 specimens examined from: RHODESIA, Salisbury District; Umsindale (Salisbury); Umsilinze River, ZAMBIA, Kalabo; Lochinvar, MOZAMBIQUE, Zambia.

Literature Records: ZAMBIA, Chambeshi River; Mpila District; Moefu River; Nyankolo.

Variation. Abdominal suture 97.3 (hatching) = 39.4% of length anterior lobe of plastron; head width 32.0-45.9% of abdomino- femoral suture; humeral + pectoral suture 103.1-170.0 (hatching))% of intergular length; abdomino-femoral suture 86.6-97.6% of pectoro-abdominal suture.

Coloration. Carapace black; plastron entirely black, more often with irregular patches of yellow, sometimes largely yellow.

Size. Largest (BMNH, 2527 - Lochinvar, Zambia) 210 mm, in carapace length.

Habitat. Swamps and dams.

Distribution. Lower Congo and Angola east to southern Ru, Ruanda, Urundi, western Tanganyika, Zambia, south to Rhodesia and western Mozambique.

PELUSIONS BENGUANICUS PitSimons,


Pelusius subinger (part, not Lacepede) Loveridge, 1941, p. 489.

7 specimens examined from: BENGUANICUS. Globe River, ZAMBIA. Kalabo; Livingstone; Lochinvar; Upper Zambesi.

Variation. Abdominal suture 30.7-93.3% length of anterior lobe of plastron; head 52.2-94.4% of abdomino-femoral suture; humeral + pectoral suture 108.3-116.6% of intergular length; abdomino-femoral suture 80.3-97.1% of pectoro-abdominal suture.

Coloration. The yellow markings on the head are well marked on all specimens examined and these, together with the enormous size of the head, are the best diagnostic features of the species. Carapace and plastron black.

Size. Largest (BMNH, 761 - Lochinvar, Zambia) 265 mm.
Habitat. Rivers and swamps. Specimens were seen basking on exposed rocks in the Thamalakane River (FitzSimons, 1935b). This species is definitely sympatric with Pelusios a. rhodosternus in Barotseland and on the Enufe Plateau.

Distribution. Upper Zambezi basin (Angola, Barotseland, Caprivi and northern Bechuanaland); Chavango Basin; Enufe Plateau.

PELUSIOS SUBNIGER (Lacepede)

Sternothyrus subniger Gunther, 1864, p. 306.
Sternothyrus nigricans Peters, 1862, p. 8 (Nassuril); Becqué, 1896, p. 97; Boulenger, 1907a, p. 6 (part, near Chisali's); 1907b, p. 482 (Beira); Clapp, 1909a, p. 292 and 1909b, p. 34 (Gumayunya River; Gwelo River); Cott, 1935, p. 973 (Caisa).

Pelusios nigricans Fitzmaurice, 1934, p. 307 (part, Chisali's; Lulimile River; Muyamadi River).

Pelusios subniger Loveridge, 1941, p. 499 (part) and 1953, p. 162 (part, Port Herald); Laurent, 1956, p. 37 (Kalan; Abercorn; Buleya; Mweru-wantipa); Broadley, 1962, p. 792.

25 specimens examined from: RHODESIA. Hartley; Kariba Lake; Iman; Ngami Pan; Que Que; Sabi Experimental Station; 10 nls. W of Salisbury. ZAMBIA. Bililibili Hot Springs; 50 nls. W of Fort Jameson; Kalikali Dam; Kariba Lake (Infula Confluence); Masi River (Kalalo). MOZAMBIQUE. Beira; Macta Mountain (foot); Mua; Savane.

Literature records: RHODESIA. Gwamatya River; Gwelo River. ZAMBIA. Abercorn; Buleya; Chisali; Kalana; Lulimile River; Muyamadi River; Mweru-wantipa. MALAWI. Port Herald. MOZAMBIQUE. Beira; Cais; Nassuril.

Variation. Abdominal suture 60.0 (hatchling) - 87.1% of length anterior lobe of plastron; head width 46.1-72.7% (hatchling) abdowo-femoral suture; humeral + pectoral suture 60.0-107.7% of intergular length; abdowo-femoral suture 66.0 (hatchling) - 86.3% of pectoro-abdominal suture.

Coloration. Carapace brown; plastron yellow and brown, each plate light in the centre, becoming darker towards the sutures.

Size. Largest (UK. 3181 - Hartley, Rhodesia) 172 mm. in carapace length.

Habitat. Common in swamps around Beira. Taken in pans and small dams in Rhodesia. Kariba specimens are from small pools and tributaries, not from the Zambezi River.

PELUSIOS SINUATUS (A. Smith)

Sternotherus simuatus A. Smith, 1838, Ill. Zool. S. Africa, Rept., pl. 2: "In rivers to the north of 25°S, South Africa"; Peters, 1862, p. 8 (Inhambane; Quelimane; Boror; Mozuril; Tete); Gunther, 1894, p. 618; Boeger, 1896, p. 97; Hoelzinger, 1907a, p. 6 (Petauke).


Pelusios simuatus Loveridge, 1941, p. 502 and 1953, p. 163 (Mtimbika).

33 specimens examined from: RHODESIA. Chisamba Ranch; Hot Springs (Malayetter); Iririvale; Kariba Lake; Kyle Lake; Lake Malawi; Limpopo River (23°03' S, 25°00' E); Mana Pools; Maranka Reserve; Munswai River; Nyamabata River; Old Untali; Ruware; Sabi-Lumali Confluence; Sabi-Tsungwesi Confluence; 8 mls. S of Tuli. ZAMBIA. Chipangali; Kali-Kali Dam; Kitwe; Songwe. MALAWI. Lake Malawi near Port Johnston; Lake Malombe. MOZAMBIQUE. Chiteme; Chisangha Dam; Pungwe River.

Variation. Abdominal suture 75.0-110.0% of length anterior lobe of plastron.

Size. Largest (NHM. 4331 - Lake Nyasa) 380 mm. in carapace length.

Enemies. Specimens have been found in the stomachs of crocodiles from the Limpopo. They are also eaten by most African Tribes.

Habitat. Large lakes and rivers up to 5,000 feet.

Distribution. Somalia south to Natal, west to Lake Tanganyika, Zambia, Rhodesia and Transvaal.

Order CROCODILIA : Family CROCODILIDAE
Genus CROCODILUS Laurenti


CROCODILUS CATAPHRACTUS Cuvier


No specimens examined. Recorded from Lake Mern by H. J. Breck (Manuscript list) and reported by crocodile hunters to be more plentiful than C. niloticus in this lake. The belly skin of this species is of no commercial value.
Distribution. West Africa, both forest and savanna, from Senegal to Lake Tanganyika, south to Angola and Lake Mweru.

**GROOVUS NILOTICUS Laurenti**

*Crocodylus niloticus* Laurenti (part), 1766, Syn. Rept., p. 53; "India orientalis et Aegypto."; Boulenger, 1897, p. 300; Chubb, 1909a, p. p. 592 and 1909b, p. 34 (Victoria Falls; Kafue River); Bigalke, 1931, p. 357 (Moamba); Pitman, 1934, p. 303; Gott, 1935, p. 973 (Gah); Mitchell, 1946, pp. 16 (Chiroco; Chiuta Lake); Loveridge, 1953, p. 154 (Chipoka; Mtimbuka); Attwell, 1959, p. 13 (Luangwa Valley).

*Crocodylus vulgaris* Gunther, 1864, p. 307 (Tete); Bocage, 1896, p. 86 (Quelimane).

*Crocodylus vulgaris* var *macrinas* Peters, 1862, p. 19, pl. iv, fig. 4 (Sens; Tete; Querimoo; Maravi; Laurence Marques).

*Chamoe vulgaris* FitzSimons, 1935b, p. 302 (Main; Kwai; Kabilakula).

19 specimens examined from: RHODESIA. Kariba Lake; Sabi-Odai Confluence; Usami River; Victoria Falls. ZAMBIA. Kabompo. MALAWI. Shire River. MOZAMBIQUE. Grudja.

**Literature Records.** BECHUANALAND. Kabilakula; Kwai; Main. RHODESIA. Victoria Falls. ZAMBIA. Kafue River; Luangwa Valley. MALAWI. Chipoka; Chimo; Chiuta Lake; Mtimbuka. MOZAMBIQUE. Gaia; Laurence Marques; Maravi; Moamba; Quelimane; Querimoo; Sens; Tete.

**Variation.** Transverse rows of dorsal scutes 17, rarely 18.

**Ecology.** Gott (1961 and 1962) has presented a study of the ecology of this species in Zambia.

**Breeding.** Bigalke (1931) describes eggs from a clutch of 12 laid at Pretoria Zoo by a freshly caught 9 foot S from Moamba.

**Diet.** Gott (1961 and 1962) has analysed the marked changes in diet associated with the growth of crocodiles. Attwell (1959) has described and illustrated the behaviour of crocodiles feeding on carrion in the Luangwa Valley.

**Habitat.** Formerly common in lakes and rivers up to about 5,000 feet. Now largely shot out by professional hunters.

**Distribution.** The whole of Africa south of the Sahara, except the arid south-west. Its southern limit on the east coast is the Tugela River in Natal.
Order SQUAMATA
Suborder SAURIA
Family GEKKonIDAE
Genus CHONDRODACTYlus Peters

CHONDRODACTYlus ANGULIFER Peters

Variation. Original tail covered above with small subtriangular scales, 6 rows per verticil, with a transverse series of enlarged tubercles in the middle of each verticil; subcaudals large, subhexagonal, aperiodic, 3-4 rows per verticil.

Habitat. These large terrestrial geckos are usually found in the vicinity of dry river beds.

Distribution. Throughout sandy regions of the western and north-western Cape Province, the south-western Kalahari and southern South-West Africa.

Genus PTENOPUS Gray

PTENOPUS GARRULUS (A. Smith)

Ptenopus carillus carillus FitzSimons, 1935b, p. 331 (Kake; Gomodino Pan; Kaeewe Pan; Damara Pan) and 1943, p. 12; Loveridge, 1947, p. 31; FitzSimons & Brain, 1958b, p. 99.

Thirteen specimens examined from HESCHUANAISLAND. Kanya Pan; 10 mls. S of Machuma; SW-BP. Border at 24°S.

Literature records. HESCHUANAISLAND. Damara Pan; Gomodino Pan; Kaeewe Pan; Kake Pan; Ky-Ky; Bossob River.

Variation. Tail covered above with small scales, 7-9 rows per verticil; subcaudals small, aperiodic, 5-9 rows per verticil.

Size. Largest examined (UM. 7434 - 10 mls S of Machuma) 49 x 35 = 84 mm.

Enemies. One was found in the stomach of a Bat-eared Fox (Otocyon mesaloticus) from Kanya, another in a Genet (Genetta genetta) from Chukutsa Pan.

Distribution. South West Africa, the northern Cape Province and the southern and central Kalahari. There is a relict population at Great Salt-pan in the northern Transvaal, so it may eventually be found in sandy areas of S. E. Rhodesia and adjoining Mozambique (see map in Brain, 1962).

Genus HEMIDACTYLUS Oken

Hemidactylus Oken, 1817, Isis, p. 1183 (based on "Hemidactylos" of Cuvier, 1817, Regne Animal, 2, p. 47). Type: tuberosus Daud. = navia

Most specimens of Hemidactylus collected in south-east Africa have been listed under the name Hemidactylus navia (Jonnes). However, intensive field work in this region has shown that there are at least three sibling species with different habitat preferences, although all of them are liable to frequent houses. The type locality for Hemidactylus navia is "Antilles and the adjacent mainland" and this species was presumably introduced into the West Indies with the slave trade. The species has a patchy distribution in West Africa and has apparently been introduced at ports (Loveridge, 1947) so it seems likely that the West Indian geckos were derived from the Lower Congo. Mr. W. D. Hecke at the Transvaal Museum is at present working on this group, so until the relationships of the eastern forms are clarified, I avoid the use of the name Hemidactylus navia for any of them.

All three local species have the median series of subcaudals transversely enlarged, two per verticil, the bibordered one largest, but there is interspecific variation in the arrangement of the subcaudals.

Hemidactylus meratorius Gray, 1842, Zool. Misc., p. 58: Madagascar; Loveridge, 1953a, p. 165. (Ndziel Min.; Mtimbuka; Chikwa; Tote)
and 1953a, p. 140 (Fort Johnston; Fort Herald; Mhala).


Thirty-five specimens examined from: MOZAMBIQUE. Beira; Cabo Cao Peninsula; Govane; Gurubado; condo; Gorongosa Game Reserve; Gudiya; Gumbo; Jofane; Meteorshohe; Mula; Sama; Santa Carolina Island.

Literature records. MAHARI. Chilangau; Fort Johnston; Mtizimba; Nchisi Mta; Mhala; Port Herald. MOZAMBIQUE. Lumbo; Tete.

**Variation.** Dorsum covered with small multicellular scales and rows of rounded tubercles, which are smaller than the interpaces between them; males with 30-31 preano-segment pores. Original tail with 7-9 dorsal scale rows per verticall and a transverse series of pointed tubercles.

**Coloration.** Pallid, dark cross-bands on body hardly discernible, but black and white cross-bands on tail often well marked, especially in juveniles.

**Size.** Largest 9 (Uh. 2617 – Beira) 37+35=132mm.

**Breeding.** Loveridge (1947 and 1953a) has drawn attention to the fact that this species lays its eggs separately, not glued together in pairs like "*H. mabouia*". The eggs measure 2-4.5 mm. in diameter.

**Species.** Near Tete Loveridge (1953a) recovered one gecko from the stomach of a *Boaedon f. fuliginosus* and another from a *Prograya s. undata*.

**Habitat.** Loveridge (1947 and 1953a) considered that the distribution of this gecko was linked with that of coconut palms, for he found them most frequently under piles of palm fronds; he was surprised to find them at Nchisi, where there are no palms. I have only seen this species on palm trees on the Cabo Cao Peninsula, where they were living in the crown and came down the trunk at night. None were found under palm fronds in Mozambique or Malawi, although *Lycodactylus marmoratus* is common in such situations. *H. aratorius* is common on house walls at Beira and at Gorongosa Game Reserve. The specimen from Santa Carolina Island was in a Waror Bird’s nest. This species is apparently sympatric with *H. platymorphus*. trees in some parts of the Mozambique Plain.

**Distribution.** Coastal areas of eastern Africa from Kenya south to Mozambique, inland to Tete and Malawi. All continental islands south to the Basaruto group; Madagascar; Aldabra; Seychelles and Mauritius.
HEMIDACTYLUS TASMANI Hewitt

Hemidactylus tasmani Hewitt, 1932, Ann. Natal Mus., 7, p. 120; Driasfontein, Rhodesia; FitzSimons, 1943, p. 48 (Chilimani; Rupase; Macheke; Chishawasha; Musani; Eutama; Mtoko; Gokowere; Rlicita); Tasman, 1952, p. 111.


One hundred and ninety-four specimens examined from: CAPRIVI STRIP. Liambeni Lake, RHODESIA. Ruxley Bridge; Sethbridge; Chera; Chido; Chisamunzi Mtn.; Chinyamanda; Chipinda Pools; Chirimbu; Cleveland Dam; Devali Bridge; Dora; Eagles Nest; Filabusi; Gilston Estates; Gungunya; Haroni Gorge; Jwamabhi; Kariba; Kariba Lake - Chirewa and Mavunda Confluences; Kyle Lake; Lake Makhuswa; Limpopo-Umbangwe Confluence; Machake; Manda; Mvange Reserve; Murungudai; Matinodza; Mvamba Reserve; Mount Silinda; 8 mls W & 15 mls SE of Mtoko; Muneteli; 3 mls NE of Odzi; Rainham; Sabi-Lundi Confluence; Salisbury; Sentinel Ranch; Shashi-Sharend Confluence; Simua; Tondi; Triangle; Tuli; Umtali; Vumba Mtn.; 12 mls SW of Weema; Zambesi-Chawore Confluence; Zona; Zongoro Bridge. ZAMBIA. Chisewe; Chikwa; Chipepo; Dushimwani; Fort Jameson; and 30 mls. H; Kabopo; Katabo; Luangwa Valley; Intemba; Sesheka; Tandalwe; Zongwe River. MALAWI. Blantyre; Mwansa; Mvula Bay; Rupani, MOZAMBIQUE. Chapala; Chiuta (UNH); Gondola-Goroza Bridge; Goroza Mtn.; Ilha dos Portugueeses; Inchope; Inhaca Island; Lurio and 10 mls SE; Magasso; 15 mls S of Mtoko; Metolola; Mzochira; Mitucue Mtn.; Morrushala; Morrushala Mtn; Mtambala; Ribaua; Sabalma; Sanzi; Sanzi; Vila Bocage; VIla; 5 and 15 mls SW of Bequa.

Literature records. Rhodesia: Rlicita; Chilimani; Chishawasha; Driasfontein; Gokowere; Eutama; Machake; Mtoko; Musani; Penhalonga; Rupase; Vumba Mtn.

Variation. Dorsum covered with small multiscarinate scales and rows of conical or strongly keeled tubercles which are subequal to or larger than the interspaces between them; males with 26-44 presacrococcygeal pores. Original tail with 7-9 dorsal scale rows per verticle and a transverse series of pointed tubercles.

Coloration. Grey or brownish with dark wavy cross-bands which are most distinct on the tail. This species is capable of a wide range of colour change, on a white wall they are very pale grey, but specimens from a burnt out hollow tree are almost black.

Size. Largest 3 (UN. 966 - Eagles Nest) 70+77=147 mm. 9 (UNB. 2126-Macheke) 73+90=163 mm.
Breeding. The eggs of this species are cemented together in pairs. A suitable rock crevice may be used for the deposition of eggs by many females and it is not unusual to find 50 or more freshly laid, juxtaposed eggs, which are about 8.5 to 11 mm in diameter.

Breeding. One was found in the stomach of a *Hemidactylus f. gallinaceus* from Chikungu, Zambia.

Habitat. This is essentially a rupicolous species, but it also lives under loose bark on dead trees and on houses. Specimens were found sharing house walls with *H. platycephalus* at Lurio and Ribane.

Distribution. This is the common species of *Hemidactylus* in Rhodesia and Zambia and at higher altitudes in Malawi and Mozambique. It may prove to be synonymous with *H. bentuellensis* Bocage of Angola.

Discussion. Loveridge (1942a, p. 322 and 1947, p. 172) placed *tasmani* in the synonymy of *H. maboula* because he could not distinguish a series of Birchenough Bridge geckos from toptype *maboula* from the Antilles. As FitzSimons (1939b, p. 25) states that most of these geckos were taken in Masabab trees, they are probably *platycephalus* and not *tasmani*.

**Hemidactylus platycephalus** Peters


*Hemidactylus maboula* (not Jommes) Peters, 1852, p. 27, pl. v, figs. 3, 3a-d;

Loveridge, 1920, p. 133 (Lumbo); FitzSimons, 1939b, p. 25 (part - Changadzi River; Birchenough Bridge) and 1943, p. 46 (? part); Loveridge, 1939c, p. 164 (? part - Chitala River) and 1953c, p. 140 (Nehalo);

Broadley, 1962, p. 792 (part)

Eighty-seven specimens examined from: **RHODESIA**. Chibakwe Bridge; 12 mls SE of Chisumbanje; Baroni-Luansu Confluence; Lushe Bridge; Kapani; Kasungula; Kyle Dam; Maryland; Mtobe Reserve; 25 mls N of Mtoko; Nyampondu; Sabi-Lundu Confluence; 10 mls NW of Resusa Drift; Zambeni-Natete Confluence. **MOTORIA**. Cape Maclear; 15 mls NW and 15 mls SSW of Fort Johnston; Mpatamanga Gorge; Palm Beach. **MOZAMBIQUE**. 10 mls E of Alto Liqueza; Beira; Buzi River at 2,000 ft; 5 mls S of Gandhi; Cavalo; Crusado; Grudja; Gumia; Inchope; Jorge; Lusala Bridge; Lusbe; Lurio; Marings; Mavue; Matanbuhene; Matuchira; Montine; Mosanique Island; Mada; Mutuali; Ribane; Same; Savane; Tete (1939) and 5 mls E.

**Literature records.** RHODESIA. Birchenough Bridge; Changadzi River; MISION. Chitala River; Nhelbo. MOZAMBIQUE. Lumbo.

**Variation.** Dorsum covered with smooth granules and scattered small conical tubercles; 12-14 transverse dorsal scale rows per caudal verticil. Tail with rings of small tubercles. Males with 29-31 premax-femoral pores.
Coloration. Grey or brownish with darker cross-bands.

Size. Largest ♂ (MZ 50366 - Chitara River) 90+37 = 127 mm. Largest ♀ (MZ 50364 - Chitara River) 88+97 = 186 mm.

Breeding. The two eggs, measuring about 10-12 mm. in diameter, are usually cemented together.

Habitat. This is basically an arboreal gecko; large Baobabs (Adansonia digitata) and Figs (Ficus spp.) often harbour large colonies, especially if the trees are hollow. Houses are frequently occupied, but it is unusual to find this species in rock crevices.

Distribution. East Africa and most of Mozambique, extending into the Zambezi-Malawi troughs and up the Deka Valley to Wankie District. Common on Baobabs in north-east Rhodesia, in the south-east it seems to be largely restricted to the Sabi Valley.

Genus LYGODACTYLUS Gray


This is an ancient genus, for it is well represented on Madagascar. Pasteur (1964) has published a study of the evolution of this group and has clarified the taxonomy of the difficult L. cepensis complex, his terminology for the subcaudal scaleation is used in this study.

LYGODACTYLUS BERNARDI BERNARDI FitzSimons


Twenty-five specimens examined from: RHODESIA. Inyangani Mtn.; Nyasium Ridge; Troutbeck; World's View, Inyanga.

Literature record. RHODESIA. Nyasium.

Variation. Nostril bordered by 2 nasals and the first labial (rostral in contact in one specimen only); internasals 1, rarely 2; supraciliary spines 4-7; mental with short lateral clefts; postmentals 3 (4 in one only); preanal pores in males 7-10; lamellae under 4th toe 5. Original tail with 5-6 scale rows per verticil, above and 3-4 below; subcaudals usually aperiodic, but semi-divided in one specimen; regenerated tail covered with small scales below.

Coloration. Olive brown above with numerous pale ocelli on body and tail; yellow below, except for the throat, which is uniform bluish white.

Size. Largest ♂ (UN. 1297 - Inyangani Mtn.) 39+30 = 69 mm. Largest ♀ (UNR. 5095 - Inyangani Mtn.) 40+40 = 80 mm.
Breeding. Large communal egg depositaries containing hundreds of eggs are common on Inyanga Mountain, which must support an enormous population. It appears to be the only gecko found in this area.

Habitat. Rock outcrops on the Inyanga Mountains from 7,000 ft. to the summit at 9,514 ft.; associated with *Malaya p. mungtissimus* and *Cordylus u. rhodesiensis*. This species shows close affinities with *Cordylus ocellatus* of the Transvaal, which occupies a similar habitat.

Distribution. Endemic to the Inyanga District of Rhodesia. See Fig. 2.

*LYCODACTYLIUS BERNARDI BOSSI* Pasteur

*Lycodactylus bernardi* Pasteur, 1962, p. 607; Mlanje Mountain at 3,000 metres, Malawi.

Nine specimens examined from: MAIAMI. Mlanje Mountain (Chambé and Dzole).

Literature records. MAIAMI. Mlanje Mtn.; "Zomba" (As in Johnston coll., catalogued at BM in 1894, perhaps from Mlanje Mtn., see remarks of Loveridge, 1953a, p. 146).

Variation. Nostril bordered by 2 nasals, the first labial and the rostral (latter excluded in 2 specimens); internasals 1, rarely 2; supraciliary spines 3-8; mental with short lateral elapsa; postmentals 3; preanal pores in males 3-9; lamellae under fourth toe 6. Original tail with 5-6 scale rows per vertical above and 3 below; subcaudals aperiodic; regenerated tail with small irregular scales below.

Coloration. Grey brown above, with numerous pale ocelli, superimposed on a pattern of three pale longitudinal lines, i.e. a pair of distinct dorso-lateral stripes and a faint vertebral line. Below, yellow except for throat, which is blue grey with two forward directed dark chevrons.

Size. Largest 8 (BM, 1956.1.15.69 - Holotype) 45 + 36* = 83 mm. Largest 9 (BM, 4235 - Dzole Peak) 40 + 37* = 77 mm.

Habitat. Eight specimens were collected under loose stones lying on the bare syenite summit of Dzole Peak at 8,900 feet. Some shared their refuges with frogs, which became the type series of *Schoepfinae broadlei*.

The holotype of *Scelotes a. maliansis* was collected at the same place.

In view of the close relationship of this form to *L. bernardi*, and the similarity of the habitats that they occupy, it seems advisable to treat them as subspecies. Pasteur (1962 & 1964) points out a number of differences between the two forms, but some of these characters may be genetically linked.

Distribution. The summit of Mlanje Mountain (perhaps also Zomba Plateau) in south-east Malawi. (See Fig. 2).
Fig. 3. Distribution of some species of the genus *Lygodactylus*.

- [Star] *Lygodactylus bernardi bernardi* FitzSimons
- [Star] *Lygodactylus bernardi borsi* Pasteur and *Lygodactylus rex* Broadley
- [Triangle] *Lygodactylus anguarius anguarius* Günther
- [Square] *Lygodactylus stevensoni* Hewitt
- [Circle] *Lygodactylus chebianus* FitzSimons
LYGODACTYLUS ANGULARIS ANGUIARIS Gunther


This gecko, together with L. angularis and L. angulatum of the Woodburn Forest in the Transvaal, appears to represent the remnants of an old forest dwelling group of Lygodactylus which has been largely supplanted by the vigorous and expanding L. picturatus group. It is significant that the southern representative of this group, L. shobleni, is nowhere sympatric with L. rex or L. angularis. (See Fig. 3).

Distribution. Known only from the Ruo Gorge Forest and the formerly forested areas of Lujeri Tea Estates to the south of Manje Mountain, southeast Malawi (See Fig. 2). This species is likely to be found in relict forest patches on the Niassa Platform.
Lygodactylus angularis angularis Loveridge, 1947, p. 221 and 1953a, p. 169
(para - Zomba Mtn.; Misuku Mtns; Mokisi Mtn.; Chiradsulu Mtn.);
Pastour, 1964, p. 46.

Sixty specimens examined from: ZAMBIA. Abercorn; Ndola;
Nkika Plateau, MALAWI. Nyika Plateau; Vipya Plateau; Zomba Plateau,
Literature records. ZAMBIA. Abercorn; Katundula. MALAWI. Chiradsulu Mtn.; Misuku Mtns.; Mokisi Mtn.; Nyika Plateau; Zomba Plateau.

Variation. Nostril bordered by 2 (rarely 3) nasals, the first labial and the rostral (excluded in one specimen); internasals 1, very rarely 2 (3 in one specimen); mental entire; postmentals 2 or 3; preanal pores in males 6-9, usually 7 or 8. Original tail with 5-6 rows of dorsal scales per verticil, median row of subcaudals transversely enlarged, periodicity usually 3, rarely 2 (anteriorly) or 4 (posteriorly); regenerated tail with transversely enlarged strip-like scales below.

Coloration. Olive brown above, with numerous dark and light dorsal spots which may form wavy cross-bands, pale dorso-lateral and vertebral stripes may be discernible. Below, yellow, the throat with about four black chevrons extending from labials towards base of throat. These markings are present in both sexes, but are more pronounced in males. Specimens from Ndola have irregular and rather poorly defined throat markings and show some affinity with the Katanga race heugeni in this respect.

Size. Largest 9 (UN. 6923 - Nyika Plateau, Zambia) 41 + 50 = 91 mm.
Largest 9 (UN. 5972 - Nyika Plateau, Zambia) 39 + 41 = 80 mm.

Breeding. Loveridge (1953a, p. 170) notes that this species lays its eggs separately, not cemented together like L. capensis. He found eggs in the Ntapi Forest beneath fallen slivers of bark, under slabs of rock and under an old beehive, while on the Zomba Plateau 13 eggs were found under a mat of moss and leaves in a crevice between two large rocks.

Enemies. Remains of one recovered from the stomach of a Thalotornus k. capensis on Cholo Mountain (Loveridge, 1953a).

Habitat. Loveridge (1953a) found this arboreal gecko adaptable, living on evergreen forest trees, but also in Brachystegia woodland or even on exotic Blue Gums. It also occurred on the walls of Chiradsulu Boma.

The only specimen that I have collected was on a boulder on Zomba Plateau, with no trees in the vicinity. It is apparently common on the walls of the rest house on the Zambian sector of the Nyika Plateau and also on house walls at Ndola (Ansell, in litt.). Pastour (1964, p. 50) considers L. angularis to be an "species rare", but although patchily distributed it seems to be locally common.

Distribution. An upland form (2,500-6,500 feet, vide Loveridge, 1953a) which occurs in forested or formerly forested areas, but seems to be rather adaptable with regard to habitat, occupying an ill-defined range in northeastern Zambia, Malawi and south-western Tanganyika (See Fig. 2).
LYGODACTYLS

LYGODACTYLS STEVENSONI


L. capensis stevensoni, FitzSimons, 1943, p. 53.

L. angolensis Loveridge (part, not Bocage), 1947, p. 207.

Thirteen specimens examined from: RHODESIA. Khami Ruins; Matopos; Shashi-Shashani Confluence.

Literature records. RHODESIA. Khami Ruins.

Variation. Nostril bordered by 2 nasals, the first labial and the rostral; internasals 2 (1 in 3 specimens); mental with deep lateral clefts; postmentals 3; preanal pores in males 6 - 9. Original tail with 6 - 7 rows of dorsal scales per vertical, subcaudals aperiodic, subhexagonal, juxtaposed, 4 rows per vertical; regenerated tail with small juxtaposed scales below.

Coloration. Above, blue-grey with large black spots irregularly distributed over the back. Below, white, throat with dark forward-directed chevrons.

Size. Largest 8 (HNSR. 5228 - Matopos) 40 + 41 = 81 mm. Largest 9 (HNSR. 2131 - Khami Ruins) 37 + 43 = 80 mm.

Habitat. Common at Khami Ruins and in the gorge below the Khami Dam wall, living on big Fig Trees (Ficus capensis) which grow along the rocks. L. capensis does not seem to occur in the area occupied by the more robust L. stevensoni.

Distribution. Apparently restricted to the well-wooded granite hills of the Matopos and similar country in south-western Rhodesia. (See Fig. 2).

LYGODACTYLS ANGOLENSIS


L. stevensoni (not Hewitt) Loveridge, 1933, p. 287 (Nyankololo); Pitman, 1934, p. 302.

Thirty-seven specimens examined from: RHODESIA. Kariba; Kariba Lake-Zambesi and Sanyati Confluences; Que Que; Redcliff. ZAMBIAN. Abercorn (HNSR); Beem Musha; Chikwa; Fort Jameson & 20 mls W of same; 20 mls W of Katebe; Mweru-Kantika and Mush (HNSR). MIAMI. Rump.

Literature records. ZAMBIAN. Nyankolo.

Variation. Nostril bordered by 2 nasals, the first labial and in some populations (e.g. Kariba) the rostral also; internasals 1 - 2 (rarely 3);
Mental with deep lateral clefts; postmentals 3 (rarely 4); preanal pores in males 8 - 9 (6 in one; 10 in one); lamellae under fourth toe 4. Original tail with 5 - 7 rows of dorsal scales per vertical, subcaudals usually aperiodic, sometimes semi-divided posteriorly with a periodicity of 3, rarely all subcaudals semi-divided; regenerated tail with small irregular scales.

Pasteur (1964, p. 58) has analysed the morphological differences between angolensis and capensis, but there is considerable overlap in all characters except the preanal pore counts for males. Single females from isolated localities can rarely be identified with confidence.


Size. Largest 8 (UM. 5987 - Fort Jameson) 33 + 40 = 73 mm. Largest 9 (UM. 5233 - Redcliff) 31 + 38 = 69 mm.

Habitat. Occurs on trees and houses like L. capensis.

Distribution. Angola, east through Katanga and Zambia to Malawi, north to Kenya, south to Que Que District of Rhodesia (See distribution map in Pasteur, 1964, p. 62).

LYGODACTYlus bradfieldi Hewitt


Lygodactylus capensis bradfieldi FitchSimons, 1943, p. 53.

Lygodactylus capensis Loveridge (part), 1947, p. 208.

One specimen examined from: BECHUANALAND. Tierpub.

Literature record. BECHUANALAND. Mabelaspudi.

Variation. Nostril bordered by 2 nasals, the first labial and the rostral; internasals 2 - 3 (rarely 1); mental with deep lateral clefts; postmentals 3; preanal pores in males 5. Original tail with 5 - 6 dorsal scale rows per vertical; subcaudals aperiodic, imbricate; regenerated tail with small scales below (Pasteur, 1964, p. 61).

Coloration. Grey-brown, with a pair of pale dorsolateral bands, which are bordered with narrow black lines. Cream below, often with dark spots on throat.
**Lycodactylus capensis capensis (A. Smith)**

*Hemidactylus capensis* A. Smith, 1882, Ill. Zool. S.Afr., Rept., pl. Ixxxv, Fig. 3: "Kaffirland and the districts to the north of Cape Colony"; Peters, 1854, p. 615 (part - Boror; Tete).

*Lygodactylus striatus* Gray, 1854, p. 591: South-Eastern Africa (Dr. Kirk); Gunther, 1864, p. 307.

*Hemidactylus (Peronius) capensis* Peters, 1862, p. 26 (part - Boror; Tete).

*Lygodactylus capensis* Boulenger, 1885a, p. 160; Gunther, 1893, p. 355; (Shire Highlands); Bocage, 1896, p. 98; Boulenger, 1902, p. 16 (Mashonaland), 1907a, p. 7 (Petauke); Boulenger, 1907b, p. 484 (Segama; Beira); Howes, 1907, p. 405 (Lorence Marques); Clapp, 1909, p. 592 and 1909b, p. 34 (Balavaya); Boulenger, 1910, p. 458 (Salisbury; Delagoa Bay); Hewitt & Power, 1913, p. 149 (Bulawayo); Loveridge, 1920, p. 135 (Manzoe; Mount Selinda; Fort Johnston; Beira); Hewitt, 1926, p. 444 (Salisbury; Malawian District); Power, 1931, p. 46 (Kanchi); Loveridge, 1947, p. 208 (part), also 1953a, p. 107 (Nchachacheni; Mtirikwane; Chiro; Chimudumu Mt.; Glantyre; Cholo Mt.; Chimbanja; Tete; Beira) and 1953b, p. 140 (Fort Johnston; Elephant Marsh; Tangadzi River; Mzimba River; Lake Malombe); Tasman, 1958, p. 142, photos 6 - 7; Mancacas, 1961, p. 146 (Vila Paiva de Andrade); Broadley, 1962, p. 23.

*Lygodactylus capensis capensis* Cott, 1934, p. 147 (Amatongas; Panbani; Beira; Gaia); Pitman, 1934, p. 302 (Broken Hill; Machinga = Katundula); FitzSimons, 1935b, p. 332 (Gaberones; Kastwe Pan; KholiKholiGlacien); Mann; Shaleshanto; Totsoroga Pan; Figtree; Zimbabwe), 1939b, p. 26 (Vumba Mt.; Mount Selinda; Birchencough Bridge) and 1943, p. 50 (Chilimanshi; Driefontein; Bikita; Macoka; Plumtree; Rupapa; Francistown; Bindura; Livingstone; Inhaca Island; Manzoe); Mitchell, 1946, p. 23; Mancacas, 1952, p. 133 (Manhica; Lifidizi); FitzSimons, 1958a, p. 204 (Nyamusim); Pasteur, 1964, p. 26.

Two hundred and thirty-nine specimens examined from: RHODESIA. 9 mls S of Foley; 4 mls W of Lechanga; 9 mls S of Mata; RHODESIA. Beithbridge; Bembesi; Binga; Birchencough Bridge; Balavaya and 9 mls S; Chimbalandu Mtns.; Chipinda Pools; Devali River Bridge; Eagles Nest; Fatima; Fern Valley; Filabusi; Glenvale; Gungunyama; Haronikutunzi Confluence; Insumu Bridge; Irambale; Kusungula; Khami River Ranch;
Kyle Lake; Lake MacMillaine; Limpopo-Usangwane Confluence; Lochard; Machake; Majinji Pan; Malipati Drift; Marungudzi; Matopos; Mount Hampden; 16 mls NE of Kweva; Marara Bridge; Ngornim Reserve (N); Nyanchura Falls; Nyasashatu Bridge; Old Umtali; Rhodes Inyanga Estate; Kanyani; Sabi-Lundi Confluence; Salisbury; Sanyatwe; Sentinel; Shashi-Shashani Confluence; Sinoia; Soti Source; Stapleford; Triangle; Tali; Umtali; Umlimwe Bridge; Urungwe Reserve; Vumba Mtn.; Zambeni-Chewore and Sebungwe Confluences. ZAMBIA. Broken Hill; Chilanga; Kabompo Bosu; Katete and 30 mls W; Kaungashi; Livingstone; Lusaka; Sinjenbale. MAURITIUS. Chelo Mtn.; 13 mls SWW of Fort Johnston. MOZAMBIQUE. Beira; Boane; Chapala; Chemeni; Chicamba; Crusado; Dondo; Garuso; Gorongosa Game Reserve; Gorongosa Mtn.; Grudje; Gunha; Ilha dos Portugueses; Inhaca Island; Jofane; Lurio; Maforga; Mendic; Manga; Matarara; Maputo; Matamanebe; Mocuba; 9 mls S of Mauzsa; 5 mls E of Miculandia; Palma; Quelisana; Savane; 4 mls E of Tete; Vila Bocage and 30 mls N; Vila Fontes.

Literature records. RHODULANDELAND. Francistown; Gaberones; Kaobwe Pan; Lobatse; Maun; Matsibatilo; Shaleshonto; Tsotschoego Pan. RHODESIA. Bikita; Bindura; Birchenough Bridge; Bulawayo; Chirisanzi; Driefontein; Eldorado; Figtree; Machake; Masoe; Mafutsu District; Mount Sillima; Nyasiva; Plumtree; Rusape; Salisbury; Vumba Mtn.; Zinabwe. ZAMBIA. Broken Hill; Katundula; Livingstone; Petuabo. MAURITIUS. Blantyre; Chikawa; Chiredamu Mtn.; Chelo Mtn.; Cheve; Elephant Marsh; Fort Johnston; Lake Mbalwa; Mkombo; Ncherechena; Madi River; Tunganzi River. MOZAMBIQUE. Amatongas; Beira; Boror; Caha; Cogumo; FambuU;* Lifidi; Lourenco Marques; Manhica; Manzabo; Tete; Vila Paiva de Andrade. * Inhaca Island.

SB. Some of these literature records, particularly those for Zambie, may refer to L. angolemus.

Variation. Nostril bordered by 2 - 3 nasals, the first labial and frequently the rostral also; internasals 1 - 2 (rarely 0 or 3); mental with deep lateral clefts; postmentals 3 (rarely 2 or 4); preanal pores in males 4 - 6 (rarely 7 or 8). Original tail with 6 - 8 dorsal scale rows per verticil; subcaudals normally semi-divided in periods of 3, sometimes aperiodic anteriorly, rarely for entire length of tail, sometimes irregular verticils have divided subcaudals in periods of 3 or (posteriorly) semi-divided in periods of 4; in a standard verticil the unibordered subcaudals are single and the bipherdered ones are paired, but occasionally the latter may also be single; regenerated tail with transversely enlarged strip-like scales below.
As noted by Pasteur (1964, p. 59) the occurrence in Rhodesia and Zambia of specimens of L. c. capensis with aperiodic anterior subcaudals makes it difficult to distinguish L. capensis on this character alone.

**Coloration.** Grey-brown, a dark streak from snout through eye to shoulder, sometimes extending along flank, usually a pale dorso-lateral band which breaks up posteriorly into a series of light spots which continue onto the tail. Below, cream, throat usually more or less stippled with grey or dark brown.

**Size.** Largest ♀ (QMT/R. 357 - Vuma Mtn.) 34 + 43 = 77 mm. Largest ♂ (INSR. 5236 - Mulawayo) 37 + 44 = 81 mm.

**Breeding.** The eggs of this species are sometimes laid singly, but more often cemented together in pairs measuring about 7.5 x 5.5 mm. They are usually laid in rock crevices or under stones or loose bark.

**Distinctive Features.** Inge (1934, p. 148) has published an analysis of the stomach contents of 24 Mozambique geckos.

**Parasites.** Red mites (*Geckobdella australis*) numerous beneath the belly scales of Malawi specimens (Loveridge, 1953a).

**Enemies.** One gecko in the stomach of a Thalotornia k. capensis from Birchenough Bridge, another in a Hemidactylus notostictus from Metambeme, Mozambique.

**Habitat.** Common on trees, bananas, rocks and houses. It lives in mangrove swamps at Savane and on dead trees below high water mark on Inhaca Island, where it is extremely abundant due to the lack of competition from other arboreal lizards.

**Distribution.** Kenya south to Natal, the Transvaal and northern Cape Province, west to the Congo, Angola and Bechuanaland (See distribution map in Pasteur, 1964, p. 62).

**LYGODACTYLUS CAPENSIS GROTHI** Sternfeld


*Lygodactylus capenis grotod Loveridge, 1947, p. 212 (part - Lumbo; Mossuril); Laurent, 1964a, p. 31 (Porto Amélia).

*Lygodactylus capensis grotod Pasteur, 1964, p. 56 (Ibo)

Nineteen specimens examined from: MOZAMBIQUE, Cabaceira Peninsula; Mossuril; Nampula.
Literature records. MOZAMBIQUE. Ibo; Lumbo; Mocimboa; Mosuril; Porto Amelia.

Variation. Nostril bordered by 2-3 scales and the first labial; internasals 1-2; mental with deep lateral clefts; postmentals 2-3; prenasal pores in males 5-7. Original tail with 7-8 dorsal scale rows per vertical, subcaudals single, strongly enlarged transversely, bilo- bordered widest, in periods of 3; regenerated tail with transversely enlarged strip-like scales below.


Size. Largest (UM, 8141 - Mosuril) 36 + 31 = 67 mm. Largest (UM, 8209 - Nampula) 33 + 35 = 68 mm.

Habitat. Common on banana and coconut palms on the Cabo Frio Peninsula; on trees lining the streets of Nampula.

Distribution. Coastal regions of Tanganyika and northern Mozambique, southern limit is about 17°S (Pasteur, 1964).

LYGODACTYUS CROHENSIS FitzSimons

Lygodactylus censensia (not Smith) Angel, 1920, p. 614 (Lealui).

Lygodactylus picturatus picturatus (not Peters) Loveridge, 1929, p. 46, (part - Victoria Falls); Pitman, 1934, p. 302; Loveridge, 1947, p. 233 (part - Victoria Falls) and 1953 a, p. 171 (Tete).


Lygodactylus picturatus guianaensis (not Boega) Pastor, 1960, p. 1442 (Lealui).

Lygodactylus chobensis Pastor, 1964, p. 77.

Ninety-six specimens examined from: BECHUANA LAND. 15 mls SE of Gomare; Sepopa; BECHUANA. Ringa; Chete Jorge; Mapal and 50 mls SE; Kariba; Kariba Lake at Daula, Sharien, Mwenda and Sebangwe Confluences, and Sengwa Sound; 2 mls S of Katanga; Lukoki Bridge; Malinshashi; Mana Pools; Sincia; Victoria Falls and 20 mls NW; Wankie; Wankie National Park - Main Camp; Kambai-Gwembe Confluence; ZAMBIA. Chalume River; Chinya; Chimane River; Dambumwendi; Livingstone; Luaka; Ngoma; Sesheke; Sinjenshe. MOZAMBIQUE. Changara; 15 mls SSW of Tete.

Literature records. BECHUANA LAND. Kabulabula; Kasane. ZAMBIA. Lealui; Victoria Falls. MOZAMBIQUE. Tete.
Variation. Nostril bordered by 2 (rarely 3) nasals and the first labial; internasals 4 – 3, usually one; mental entire; postmentals 3 (rarely 2 or 4); preoral pores in males 8 – 10 (rarely 7 or 11). Original tail with 7 – 8 dorsal scale rows per verticil; subcaudals single, transversely enlarged, biformed widest, in periods of 3; regenerated tail with transversely enlarged strip-like scales below.

Coloration. Above, blue-grey with large pale dorsal spots, head and neck spotted and streaked darker. Below, yellow, adult males with throat entirely black or with two heavy black forward-pointing chevrons plus a median "shaft". Females with a similar, but much fainter marking or throat immaculate.

Size. Largest male (UK 500 – 20 mls WSW of Victoria Falls) 42 + 47 = 89 mm. Largest (NH 2119 – Livingstone) 38 + 35 = 73 mm.

Habitat. Arboreal, common on Baobab and mopane trees, also on house walls. Occurs on *Acacia* trees bordering the Chobe River (FitzSimons, 1935b).

Distribution. The Okavango and Upper Zambezi Basins and the Zambezi Valley downstream to Tete, extending onto the Zambian and Rhodesian plateau (See, Fig. 3).

Genus *AFROEDURA* Loveridge


Type by original designation: *A. karroden bogarti* Loveridge

*AFROEDURA TRANSVAALICA TRANSVAALICA* (Hewitt)

*Afroedura transvaalica* Hewitt, 1925, Rec. Albany Mus., 2, p. 350, pl. xvi, fig. 1 and pl. xvii, fig. 1; Njelela River, W. Transvaal.

*Afroedura transvaalica platyoga* Hewitt, 1925, Rec. Albany Mus., 2, p. 353, pl. xvi, fig. 4; Umtali, Rhodesia, (also recorded from Matopos); FitzSimons, 1939b, p. 25 (Devali River Bridge) and 1943, p. 43 (Masanda; *Mtko; Matopos; Umtali; Devali River Bridge; Tzasa; 1938, p. 142. Afroedura transvaalica platyoga* Loveridge, 1947, p. 266.


*Afroedura transvaalica* Broadley, 1962a, p. 794.

One hundred and thirty-seven specimens examined from:

RHODESIA. Bazeley Bridge; 18 mls N of Beithbridge; 30 mls W of Burchingue Bridge; Ghizo; Chinyama; Ghawuza River; Dora; Devali Bridge; Fern Valley; Kondo; Limpopo-Ungwana Confluence; Lundi River;

* Mtko; Empandene between Filabusi & Shabani,
Matimba; Matopo; Matona; Matashara; 7 mls ENE & 15 mls NE of Mtoko; Sabi-Landi Confluence; Sabi-Macheke Confluence; Umtali. MOZAMBIQUE.

Gorongosa Mt.; Magassa.

Literature records. RHODESIA. Bikita; Devuli Bridge; Epandans;
Filabusi - Shabani; Matopo; Mtoko; Musaui; Umtali.

Variation. Nostril bordered by three nasals, the first upper labial and the rostral; preanal pores in males 6 - 9, rarely 5 or 10. Original tail strongly verticillate, 6 - 9 scale rows per verticil above and 5 - 7 below; subcaudals aperiodic, squarish or subhexagonal and juxtaposed.

Coloration. Pale grey-brown, with ill defined broad irregular dark cross-bands on body and tail. White below.

Size. Largest 8 (UM. 4756 - Sabi-Landi Confluence) 72 + 46 = 118 mm.
Largest 9 (UM. 1067 - Umtali) 64 + 63 = 127 mm.

Habitat. This gecko lives in narrow fissures in granite, paragneiss and sandstone outcrops. It is very gregarious, a dozen specimens are often found packed like sardines under a tiny flake. They emerge at dusk to hunt. Pachyactylus a. affinis often occurs in association with this species.

Distribution. Southern and eastern Rhodesia, extending south to the Soutpansberg, east to Gorongosa Mountain and north to Mtoko District and adjoining Mozambique (Magassa).

AFROEDURA TRANSVAALICA LOVERIDGE Broadley

Afroedura transvaalica (?) transvaallica (not Hewitt) Loveridge, 1938a, p. 171 (Kasumbadedza near Tete).


Forty-one specimens examined from: MOZAMBIQUE. Tete - 5 mls W, 25 and 30 mls ENE and 15 mls SSW; Viola.

Literature record. MOZAMBIQUE. Kasumbadedza, Tete.

Variation. Nostril bordered by three nasals and an upward prolongation of the first labial (excluded in 3 specimens); anterior nasals in broad contact behind the rostral; preanal pores in males 6 - 11. Original tail strongly verticillate, 7 - 8 scale rows per verticil above and 5 - 7 below; subcaudals aperiodic, squarish or subhexagonal and juxtaposed.

Coloration. Above pale grey, mottled with grey-brown, with ill defined broad dark cross-bands on body and tail, tip of tail blackish with narrow pale crossbars. Below, uniform white.

Size. Largest 8 (UM. 3967 - Viola) 59 + 60 = 119 mm. Largest 9 (UM. 4031 - 5 mls W of Tete) 54 + 57 = 111 mm.
Habitat. Paragneiss and sandstone outcrops in arid country.

Distribution. Known only from a small area around Tete, but occurs on both sides of the Zambezi River.

Genus RHOPTROPUS Peters


RHOPTROPUS BRACONNIERI (Thominot)


Known only from the type in the Paris Museum.

Description (after Thominot) Upper labials 7; lower labials 3; three chin shields present, so arranged as to form a pentagonal whole; digits dilated distally, each with five undivided transverse adhesive lamellae below.

Coloration. Above, olive green mottled with blackish-brown; three transverse black spots on back between hind limbs; limbs each with a reddish-brown chevron-shaped band; tail banded with black. Below, uniform yellowish white.

Size. Type 56 + 56 = 112 mm.

Remarks. This gecko was included in a collection received from M. de Castelmaur, French Consul at the Cape.

Genus PHYLSUM Gray

Phelsuma dubia dubia (Boettger, 1881, Zool. Ann., 4, p. 46; Madagascar.
Phelsuma dubia dubia Loveridge, 1942a, p. 160 (Revision) and 1947, p. 296
(Tanzanian localities).

Two specimens examined from: MOZAMBIQUE. Mozambique Island.

Variation. Rostral with a median cleft above; centre of nostril above first labial; nostril bordered by first labial and 3 nasals, the uppermost separated from its fellow by 2 - 3 granules; upper labials 9; lower labials 8 - 9; back covered with obtusely keeled scales; ventral scales smooth; pre-anal-femoral pores in male 27; lamellae under fourth toe 15. Original tail with small squarish feebly keeled scales above in 5 - 7 rows per verticil, large rounded scales below, paired or semi-divided in periods of 3; regenerated tail with irregular scalation.

Coloration (in life) Emerald green above with an orange U-shaped marking on the snout and some large purple-brown blotches in the lumbar region. immaculate white below.

Size. 5 (BM, 8191 - Mozambique Island) 56 + 60* = 116 mm. 3 (BM, 8192 - Mozambique Island) 57 + 60* = 117 mm.

Habitat. These geckos were living on trees in the public park near Port Sao Sebastiao on Mozambique Island, one of those captured was on a railing enclosing the park. The large Fig Trees in the park were occupied by Hemi-
dactylus platyscelus and the two species were not seen in close proximity. No Hylodactylus c. protei were seen on the island, although this gecko is common on the mainland opposite.

Distribution. Western Madagascar; Comoro Islands; Zanzibar and coastal areas of Tanzania and northern Mozambique.

Phelsuma v-nigra. Boettger

Phelsuma cepediana (not Merrem) Günther, 1864, p. 307 (Quelimane).
Phelsuma madagascariensis (not Gray) Boulenger, 1895a, p. 214 (Quelimane, probably imported).

Two specimens examined from: MOZAMBIQUE. Quelimanes (BM).

Literature records. MOZAMBIQUE. Quelimane.
Variation. Rostral without a median cleft above; centre of nostril above first labial; nostril bordered by first labial and 2–3 masals, the uppermost separated from its fellow by 1–2 granules; upper labials 8; lower labials 6–8; chin covered with enlarged flat scales, the outer slightly larger than the inner; back covered with smooth granules; ventral scales smooth; preanal-femoral pores in male 23; lamellae under fourth toe 15. Original tail with small obtusely keeled scales above, 7–10 rows per verticil, subcaudals paired in periods of 4; regenerated tail with irregular scalation.

Coloration. Green above with darker netting; cream below with a dark V shaped marking on the inner edge of the lower labials.

Size. 8 (BM. 64.5.13.4) 51 mm from snout to vent. 9 (BM. 64.5.13.3) 45 mm from snout to vent.

Discussion. Boulenger (1885a) referred to these specimens as "young", but the female contains eggs. I lack comparative material of P. v-nigra, but these Quelimane geckoes key out to that species, the only unusual features being that the male has only two masals on one side, while the female has the supramasals separated by two granules.

It is possible that the Quelimane colony of P. v-nigra has died out during the last hundred years. Many large trees near the Quelimane docks were scrutinised in December, 1964, but no Phelsuma were seen.

Distribution. Comoro Islands. Introduced to Quelimane sometime before 1864, but perhaps no longer occurring in Mozambique.

Genus HOMOPHOLIS Boulenger

Homopholis Boulenger, 1885c, Cat. Lizards Brit. Mus., 1, p. 191. Type by original designation: Geko walbergii (sic) A. Smith.

HOMOPHOLIS WALBERGI (A. Smith)

Geko walbergii (sic) A. Smith, 1849, Ill. Zool. S. Afr., Rept., pl. lxiv, fig. 1: "Country to the eastward of Cape Colony".

Homopholis walbergii Boulenger, 1907b, p. 592 (Cogomo); Chubb, 1909a, p. 592 and 1909b, p. 34 (Matopo; Gwanda); Boulenger, 1910, p. 459, (Delagoa Bay; Salisbury); Hewitt, 1910a, pp. 79, 82, 86 (Palapye; Matopo; Gwanda; 20 mi E of Salisbury); Hewitt & Power, 1913, p. 150 (Gaborones); Gott, 1934, p. 1/3 (Amaungas); FitzSimons, 1939b, p. 27 (Birchenough Bridge) and 1943, p. 13 (Rikita; Rikita; Muchudi; Bulawayo; Maseni; Ranyuni River; Mahalapye); Tasman, 1958, p. 141, Malapane.


Homopholis wahlbergii arnoldi Loveridge, 1947, p. 303.

Twenty-six specimens examined from: BECHUANALAND, Palesy.
RHODESIA. Beatridge; Bulawayo; Gwelo; I'risvale; Kildman; Lake Mashawane; 3 mls NE of Makaha; Maryland; Matopo; 7 mls NE and 25 mls N of Mtoke; Harial Mine; Queen's Mine; Shashi-Shashani Confluence; Solusi; Wankie National Park-Main Camp; Zowa. MOSAMBIQUE. Inchoro; Hamaacha.

Literature records. BECHUANALAND, Caborone; Mahalapai; Mochudi; Palapye. RHODESIA. Bikita; Burchencough Bridge; Bulawayo; Gwembi; Banyoni River; Matopo; 20 mls E of Salisbury. MOSAMBIQUE. Amatongas; Coguno; Delagoa Bay; Medeni; Ribatla.

Variation. Nostril bordered by 4-7 small nasals and the first labial; internasal granules 1-2; pre-anal pores in males 2; lamellae under fourth toe 10-12. Original tail covered above with subhexagonal, subequal scales, 5-6 rows per vertical; subcaudals large, subhexagonal to rounded, 3-4 rows per vertical; regenerated tail carrot-shaped and covered with small scales.

Coloration. Pale grey to dark grey-brown above, usually with vague dark and light irregular cross-bands, often a vertebral series of pale blotches, and many specimens (particularly males) have a pair of broad black dorsolateral stripes extending from the back of the head to about mid-body. Some Mozamibique geckos have continuous black stripes from eye to base of tail. The pale grey geckos show no appreciable colour change, but the brownish ones can change from pale fawn to dark purple brown depending on light and background. Below, white or cream, often with small black spots or brownish infusions. Loveridge (1944) distinguished H. v. arnoldi by the presence of ventral spotting, but as I have previously (1962a) pointed out, the great variation in the extent of ventral spotting has no geographical significance and specimens with and without ventral spots occur together.

Size. Largest 3 (MBR. 3232 - Queen's Mine) 112 + 91 = 203 mm. Largest 9 (MBR. 2195 - I'risvale) 120 + 95 = 215 mm.

Diet. This species feeds both by night and day, as indicated by an examination of stomach contents of half a dozen specimens; these consisted largely of cockroaches, grasshoppers and winged termites, with one butterfly and one millipede.

Enemies. The remains of one gecko were found in the stomach of a Genet from Sebungwe District.
Habitat. Often found at the edge of a rock crevice or a fissure in a Baobab, where it waits for an insect to settle nearby. At night it may frequently be found on house walls and one was found on a tarred road after rain at Lupane. Hollow trees and logs are favored refuges and I have found them in empty swallow's nests in caves on granite kopjes.

Distribution. Southern Mozambique, Zululand, Rhodesia, eastern Bechuanaland and northern Transvaal.

Genus OLOPUS Peters


Type by monotypy: C. Wahlbergii Peters.

OLOPUS WAHLBERGI Peters


Type by monotypy: C. Wahlbergii Peters.

Five specimens examined from: NECHUANALAND, 41 mls NE of Lephepe; 10 mls W of Letlaking; Tiergute.

Literature records. NECHUANALAND, Comodimo Pan; Kang; Kaotwe Pan; Kuke to Comodimo; Comodimo and Kaotwe Pans.

Variation. Nostril bordered by 3 nasals; a single internasal; fourth too with 2 transversely enlarged adhesive lamellae distally and a minute claw. Original tail cylindrical, not verticillate, covered with flat sub-imbricate scales.

Coloration. Very variable. Usually a dorsal series of large pale-fawn confluent blotches (sometimes dark edged), usually a dark dorso-lateral band extending back from eye, with a yellow band below it, extending above the shoulder and usually breaking up into a series of spots posteriorly. Tail with large dark-edged pale spots or pale with scattered small black spots. Uniform cream below.

Size. Largest 8 (UM, 10229 - 41 mls NE of Lephepe) 55 + 34 = 89 mm.
Largest 9 (UM, 10230 - 41 mls NE of Lephepe) 60 + 39 = 99 mm.

Habitat. Lives in holes under small bushes in sandy areas and emerges at night to feed, being particularly in evidence after rain.

Distribution. Southern Kalahari. The original type locality "Danaraland" is very doubtful (see Loveridge, 1947, p. 337).
Genus PACHYDACTYLUS Weigmann

Pachydactylus Weigmann, 1834, Harp. Mexicana, p. 19. Type: P. longi

Weigmann = Emanuel Guerin (not Cuvier) = Melitius Scopoli.


PACHYDACTYLUS PUNCTATUS PUNCTATUS Peters

Pachydactylus punctatus Peters, 1854, Monatsb. Akad. liss. Berlin, p. 615; Sona and Tete, Mozambique, and 1882, p. 25, pl. v, fig. 2; Boulenger, 1895a, p. 206; Boege, 1896, p. 98; Boulenger, 1910, p. 462 (Hatopo; Serowe); Fitzmaurice, 1934, p. 303.

Pachydactylus Brunthaleri Werner, 1913, Denks. Akad. Wiss., Wien, s. 1, p. 713; Bulawayo, Rhodesia.

Pachydactylus punctatus Langi FitzSimons, 1932, Ann. Tvl. Mus. 15, p. 35; Gemsbok Pan, Gemsbok District, Bechuanaland and 1935b, p. 339 (Gemsbok; Nusapandi; between Nusapandi and Lake Ngami; Motlatlogo).

Pachydactylus punctatus Langi FitzSimons, 1935b, p. 339 (Titumi; Kalakamiti), 1939b, p. 29 (Birchenough Bridge) and 1943, p. 71, (Empandene; Plumtree; Bulawayo); Lovebridge, 1947, p. 353 and 1953a, p. 172 (near Tete); Tasman, 1958, p. 139; Bradley, 1968a, p. 795.

Eighty-four specimens examined from:

BECHUANALAND. Lake Dows; Gemsbok Pan. RHODESIA. Benbeni; 4 mls SE of Birchenough Bridge; Bulawayo and 9 mls S; Charuma Plateau; Devuli Bridge; Irisvale; Kapasi and 5 & 10 mls SE; Kariba; Kariba Lake - Bank, Chinhuru & Mwendo Confluences; 5 mls SE of Kasungu; 17 mls SE of Kemburu; 10 mls E of and 15 mls SE of Luwewe; Malisabendhi; Mnyoli Ranch; Hatopo Dam; Matobo; Mbangwe; Que Que; Redcliff; Sahi-Lundi Confluence; Sentinel; Shashi-Shashani Confluence; Tuli; Umvumvu River; 15 mls E of Wankie; Wankie National Park - Main Camp; Zambesi - Chiswembe and Sambuee Confluences. ZAMBIA. Gheete Hills; 20 mls W of Katete. MALAWI. Mpatopanga. MOSAMBIQUE. Magasso; 4 mls E and 5 mls W of Tete; Viola.

Literature records. BECHUANALAND. Gemsbok Pan; Kalakamiti; Nusapandi; Nusapandi to Lake Ngami; Motlatlogo; Titumi; Serowe. RHODESIA. Birchenough Bridge; Bulawayo; Empandene; Hatopo; Plumtree. MOSAMBIQUE. Sona; Tete.

Variation. Nostril bordered by three nasals and sometimes also the first labial; the anterior nasals usually in good contact behind the rostral, rarely separated by a small internasal granule; dorsum covered with small subuniform scales; transversely enlarged adhesive lamellae under fourth toe 3 - 4. Original tail covered above with large, inarticulate.
rounded scales, not verticillate; subcaudals large, subhexagonal, not transversely enlarged, single (or sometimes semi-divided in parts) in periods of 2.

Coloration. Above, pale grey to purple-brown, usually a dark streak from nostril through eye. Dorsum often with dark spots and/or light spots, sometimes (Kalahari) with irregular dark confluent blotches. Below, white, each upper and lower labial with a median dark spot.

Size. Largest (MNR. 2787 - Lake Bov) 42 + 45 = 87 mm.

Enemies. At Kariba Lake, one gecko had been eaten by a Hemirhachis n. notosaenia, another by a Gerrhosaurus n. validus.

Habitat. A terrestrial species which hides under stones or logs during the day and emerges at night to feed. Very common in dry Mopane country of the big river valleys.

Distribution. The Zambezi and Shire Valleys, south through Rhodesia to the northern Transvaal, west through Bechuanaland to South-West Africa and Angola, also Katanga (Witte, 1953, p. 34).

PACHYDACTYLUS RUGOSUS A. Smith


No local specimens examined.

Literature records. BECHUANALAND - CAPE PROVINCE BORDER. Auob-Nossob Confluence; Ky Ky.

Variation. Nostril bordered by 3 nasals; internasals 1 - 4; dorsum covered with heterogenous, small, often subcoidal and striated granules, and irregular series of large striated conical tubercles, largest dorsolaterally; transversely enlarged scales under fourth toe 5. Original tail covered with small scales above, 6 - 7 rows per verticil, with a transverse series of elongate spines in the centre of each verticil; subcaudals small, keeled, in 6 rows per verticil.

Coloration. See FitzSimons, 1943, p. 92.

Size. 3 (T.JM. 11962 - Auob-Nossob Confluence) Head and body 51 mm, tail regenerated.

Habitat. This terrestrial species is commonly found beneath stones and logs (FitzSimons & Brain, 1955b).

Distribution. Arid areas of the north-western Cape Province and South-West Africa.
Pachydactylus capensis capensis (A. Smith)

*Pachydactylus capensis* A. Smith, 1845, Illus. Zool. S. Africa, Part., pl. 50, fig. 2: Interior of South Africa.

*Pachydactylus capensis* Roux, 1907, p. 81 (Rikatla); Boulenger, 1910, p. 461 (Delagoa Bay); Werner, 1910, Jena. Denkschr., 15, p. 309 (Vlei Topan; Severola); Hewitt & Power, 1913, p. 150 (Ky Ky); Power, 1927, p. 406 (Lobatsi).

*Pachydactylus capensis capensis* FitzSimons, 1935b, p. 337 (Lobatsi; Kake; Gomodimo, Kaotwe, Gomabok and Damara Pan; Chukudj; Otsea River; Mochudi Pan - Mabelapudi) and 1943, p. 94 (Junction Cap-Hossob Rivers; Mahalapye; Mochudi); Loveridge, 1947, p. 375; FitzSimons & Brain, 1958b, p. 99.

Thirteen specimens examined from: RHUHUSA. Debeeti; Dikgomo-di-ele; 35 mls W of Kang; 4 mls W of Lechana; 8 mls NE of Lephepe; Molopo River, S of Tsabong; 5 mls S of Nata; 14 mls W of Sebile; SWA-BP Border at 24°S.

**Literature records.** RHUHUSAN. Auob-Hossob Confluence; Chukudj; Damara Pan; Gomabok Pan; Gomodimo Pan; Kaotwe Pan; Kake; Ky Ky; Lobatsi; Mabelapudi to Mochudi Pan; Mahalapye; Mochudi; Otsea River; Severola; Vlei Topan. MOZAMBIQUE. Delagoa Bay; Rikatla.

**Variation.** Nostril bordered by 3 nasals, the anterior in contact behind the rostral; body rather depressed, covered above with small granules and longitudinal rows of large keeled tubercles; usually 5 transversely enlarged adhesive lamellae under fourth toe. Original tail with small, subhexagonal, feebly keeled scales above, 4 rows per verticil, the last row enlarged to form a transverse row of tubercles; subcaudals rounded, imbricate, semi-divided in periods of 2.

**Coloration.** Grey brown above, spotted and variegated with white and dark brown, sometimes with vague dark cross-bands, a dark streak from nostril through eyes. White below.

**Size.** Largest (UN 10293 - Debeeti) 62 + 45* mm.

**Enemies.** Three fragmentary specimens were recovered from the stomach of a genet (*Genetta genetta*) near Lephepe and one from a Mongoose (*Herpestes _selousii*) near Lechana.

**Habitat.** These nocturnal geckos may be found under stones, logs or loose bark on trees, they also seek refuge in termite nests.

**Distribution.** Widely distributed in the plateau areas of South Africa, extending west through the southern and central Kalahari to South-West Africa and east to Natal and southern Mozambique (See Fig. 4).
Fig. 4. Distribution of some species of the genus *Pachydactylus*.

- *Pachydactylus capensis capensis* (A. Smith)
- *Pachydactylus oshaughnessyi oshaughnessyi* Boulanger
- *Pachydactylus affinis affinis* Boulanger
- *Pachydactylus affinis tigrinus* Van Dam
PACHYDACTYLUS OSHAUGHNESSYI OSHAUGHNESSYI Boulenger

Pachydactylus oshaughnessyi Boulenger, 1885, Cat. Lizards, Brit. Mus., L. p. 204, pl. xvi, fig. 3: Lake Nyasa (= Cape Maclear), Malawi and 1891, p. 306; Hewitt, 1910c, pp. 80, 84, 87 (Que Que; Gatooma).


Pachydactylus capensis oshaughnessyi Pitman, 1948, p. 303 (Broken Hill); FitzSimons, 1943, p. 100 (Bulawayo; Matetsi; Bulawayo; Musili; Victoria Falls); Loveridge, 1947, p. 387 and 1953a, p. 173; Hanney, 1961, p. 23 (Matope); Broadley, 1962, p. 796.

Twenty-four specimens examined from: RHODESIA. Bulawayo; Kamativi; Kapasi and 10 mls SB; Lusakali; Matetsi; Mkota Reserve; 3 mls W of Nyampanda; Que Que; Redcliff; San Mine; Shashe; Uminti; Unvalles; Zena. ZAMBI. Buana Hambea; Chipangali; Fort Jameson; 50 mls ENE of Lusaka; Nola. MALAWI. Chiteka (1948); Fort Johnston.

Literature. RHODESIA. Bimurara; Bulawayo; Gatooma; Matetsi; Que Que; Victoria Falls; Wankie; ZAMBI. Broken Hill; Musili; MALAWI. Cape Maclear; Matete. MOZAMBIQUE. Zumbo.

Variation. Nontil bordered by 3 masala, the anterior in contact behind the rostral; body sub-cylindrical, covered above with small granules and large keeled tubercles; usually 5 transversely enlarged adhesive lamellas under fourth toe. Original tail with large, rounded, feebly keeled, strongly imbricate scales above, 3 rows per vertical; subcaudals rounded, imbricate, semi-divided in periods of 2.

Coloration. Purplish-brown above, crown of head light golden-brown, a broad, black-bordered, cream crescentic marking on nape, two similar broad cross-bands on back and 4-7 on tail. White below.

Size. Largest (UM* 5192 - Que Que) 57 + 33* mm.

Discussion. This gecko is given specific rank because it shows marked morphological differences from P. capensis and P. afferin and there is no indication of intermediate populations. P. o. oshaughnessyi and P. a. afferin are actually sympatric at Bulawayo and Zeua. P. oshaughnessyi differs from the other species in its cylindrical body, its supracaudal scalation and its coloration, it also differs from P. afferin in subcaudal scalation and habitat preference.

Trinominals are required because specimens from Nola (4 cream cross-bands on back) and Musili (3 cross-bands on back, vide FitzSimons, 1943, p. 101) are intergrades between typical oshaughnessyi and P. capensis Katanganus Witte (1953, p. 37) described from the Upemba National Park in Katanga, the latter form now becomes Pachydactylus oshaughnessyi katanganus.
Habitat. In Wanika District this gecko was found under logs lying on Kalahari Sand and under quartz boulders in the paragneiss hills at Kapam. The Zewe specimen was found by Mr. F. O. Bolek while carrying out archaeological excavations at Yahokwe Ruins. The Fort Johnston gecko was under a big pile of palm fronds at the end of the dry season, the Matope specimen under a pile of stones and the Chileka one under a place of corrugated iron. This species is solitary and does not live in rock crevices like P. affinis.

Distribution. Southern Zambia, northern and central Rhodesia, east to Malawi (see Fig. 4).

PACHYDACTYlus AFFINIS AFFINIS Boulenger

Rustenburg District, Transvaal and 1902, p. 16 (between Umtali and Marandellas); Chubb, 1909a, p. 393 and 1909b, p. 35 (Matopos).
Pachydactylus formosus var. affinis Hewitt, 1910c, pp. 84 and 87 (Mashonaland; Matopo Hills).
Pachydactylus capensis nigricans (not Van Dam) FitzSimons 1939b, p. 27 and 1943, p. 103 (Devuli Bridge).
Pachydactylus capensis affinis FitzSimons, 1943, p. 102 (Mtoko; Machinga; Masani; Empandene; Kutama; Makwiro; Driefontein; Chillimani; Makushi; Bikita; Tsessebe; Matopo; Essewale; Umtali; Bulawayo); Tyson, 1953, p. 138, photo 3; Broadley, 1962b, p. 796.

One hundred and one specimens examined from: RHODESIA. Bealey Bridge; Chikubwe Bridge; Chido; Devuli Bridge; Essewale; Farm Valley; Heathfield; Irriwala; Kyle Lake; Lake Malawina; Malapati Drift; Marandellas; Matopo; Matong; 7 mls ESE and 15 mls NE of Mtoko; Nyamabatu Bridge; Old Umtali; Plutstree; Ruware; Sabi-Landi Confluence; Soti Source; 2 & 19 mls S of Tokwe Bridge; Zewa; Zimbabwe. MOZAMBIQUE. Magange.

Literature records. BECHUANALAND. Tsessebe. RHODESIA. Bikita.
Bulawayo; Chilimani; Devuli Bridge; Driefontein; Empandene; Essewale; Gokomere; Kutama; Machinga; Makushi; Makwiro; Matopo; Masani; Plutstree; Umtali; Umtali to Marandellas.

Variation. Nostril bordered by 3 nasals, the anterior in contact behind the rostral; body strongly depressed and covered with very small granules and small, keeled, irregularly disposed oval tuberules, which are largest and most numerous laterally; usually 4 - 5 transversely enlarged adhesive lamellae under fourth toe. Original tail with small, subhexagonal smooth scales above, 4 - 5 rows per vertiilal (well defined); subterminals large, subhexagonal, aperiodic, 3 rows per vertiilal.
Coloration. Purple-brown to grey-brown above usually with 5 - 6 transverse rows of white or yellow confluent spots on the back, with large black spots between them. There is a striking ontogenetic change in the coloration of this species. Juveniles in southern populations have distinct narrow yellow cross-bands or rows of confluent spots at least anteriorly, but those from Lake Mountaine and Mtoko District have broad, dark-edged, pale cross-bands. In the adults the pale markings become indistinct and large black spots appear between them. White below.

Size. Largest (UM 3863 - 7 mls. NNE of Mtoko) 54 + 33 mm.

Discussion. Although this gecko is not known to be sympatric with P. g. capensis, they may eventually be found together in eastern Bechuanaland or the northern Transvaal. P. affinis differs from P. capensis in many characters, especially caudal scelation and habitat preference, as there is no indication of intergradation between the two forms I regard them as specifically distinct.

Habitat. This species is found only in rock crevices, being common on granite, paragneiss and sandstone outcrops, often in association with Afroedura t. transvaalensis. It is very gregarious, unlike P. g. oshaughnessyi and P. g. capensis.

Distribution. Rocky areas of the Transvaal and Rhodesia, also adjoining parts of Bechuanaland and Mozambique, replaced in the Limpopo Basin by the following subspecies (See Fig. 4).

PACHYDACTYLUS AFFINIS TIGRINUS Van Den


Nine specimens examined from RHODESIA. Beithbridge; Shashi-Shashi Shangani Confluence.

Variation. In build and lepidosis indistinguishable from the typical form.

Coloration. Dark purple-brown, crown of head lighter, with 5 - 7 well-defined white, black-edged cross-bands on back and scattered white dots on tail. White below. Juveniles are very similar to young P. g. affinis except for their better defined light cross-bands, but the adults never have the large dark dorsal spots which are the dominant markings in adults of the typical form.

Size. Largest (UM 3723 - Shashi-Shashi Shangani Confluence) 42 mm. from snout to vent, tail missing.

Habitat. Rock crevices in sandstone and paragneiss.

Distribution. The Zoutpansberg and the Limpopo Basin (See Fig. 4).
Pachydaulus bibronii (A. Smith), 1845, Illus. Zool., S. Africa, Rept., pl. 50, fig. 1; Interior of South Africa.

Pachydaulus emarginus (not A. Smith) Peters, 1854, p. 615 (Tete; Boror).

Pachydaulus bibronii Peters, 1882, p. 25 (Tete; Boror); Boulenger, 1885a, p. 201 and 1907a, p. 7 (Pemba); Chubb, 1909a, p. 593 (Kalasayo; Springvale Farm) and 1909b, p. 39; Boulenger, 1910, p. 460 (Bechuanaland); Hewitt & Power, 1913, p. 150 (Delorado; Francistown; Ky Ky); Cott, 1934, p. 143 (Charre); FitzSimons, 1934, p. 302 (Maswaa; Machinga = Katundula; Luangan Valley); FitzSimons, 1943, p. 106 (Mkita; Expansum; Plumtree; Serowe; Lobatse; Battlefields; Mahalapye; Arch-Nossob Confluence; Inseis; Wankie; Masambo); Mitchell, 1946, p. 22; FitzSimons & Brain, 1958b, p. 100 (Tse Rivieren); Twain 1958, p. 111, Photos 1-2.


Pachydaulus bibronii bibronii FitzSimons, 1935b, p. 336 (Titumi; Kalakamati; Malepolola; Gaborone; Machumi Pan - Malelepape; Nabolapudi; Malelepudi - Lake Ngami; Motlatlogo; Maun; Figtree).

Pachydaulus bibronii turnari FitzSimons, 1939b, p. 27 (Birchenough Bridge).

Leveridge, 1947, p. 405, also 1952a, p. 174 (Kasungu; Chitala River; Tete) and 1953c, p. 141 (Machelo); Hanney, 1961, p. 23 (Lake Chilwa); Musana, 1952, p. 134 (Machise; Chibuto; Magiza); Broadley, 1962, p. 797.

One hundred and forty-four specimens examined from: BECHUANALAND. Folesy; 12 mls S of Francistown; Kebo Hills; 10 mls E of Lake Dow; Mahalapye; Mohembo; 14 mls W of Sehitwa; Segopa; SW-SE Border at 24°S; Tete. RHODESIA. Beitbridge; Birchenough Bridge; Kalasayo; Charuma Plateau; Chipinda Pools; Chiredzi; Chirumhi; Fern Valley; Figtree; Gwelo and 15 mls NW; Jeneshi; 5 & 10 mls SE of Kapinga; Kariba; Kariba Lake - Bumi and Sangwa Confluences; Limpopo-Umzingwane Confluence; Matopo; Mkota Reserve; Nyakasanana Gorge; Redcliff; Rakosmatjie Research Station; Ruware; Selv-Landi Confluence; Shashi-Chashani Confluence; Singa; Solusi; Tjolotjo; Triangle; 14 mls, SW of Untali; Wankie; Zambeni-Chewere and Sebunwe Confluences. ZAMBIA. Chiwem; Chipeco; Fort Jameson; Intshane; Sinjambela; MOZAMBIQUE. Chicamba Dam; Covane; Lurio; Maringa; Mitumwe Mtn.; 12 mls SW of Mangari; Musasea; 4 mls E of Tete; Viola.

Literature records. BECHUANALAND. Arch-Nossob Confluence; Francistown; Gaborone; Kalakamati; Ky Ky; Lobatse; Nabolapudi; Malelepudi to Machumi Pan; Malelepudi to Lake Ngami; Mahalapye; Maun; Malepolola; Motlatlogo; Serowe; Titumi; Tse Rivieren. RHODESIA. Battlefields;
Variation. Nostril bordered by 3 (rarely 4) nasals, the anterior usually in contact behind the rostral (rarely separated by a single granule); body moderately depressed and covered above with small, flattened, keeled scales and about 16 rows of very large keeled and stellate tubercles; usually 9 - 11 transversely enlarged adhesive lamellae under fourth toe.

Original tail covered above with small subhexagonal keeled scales, 4 - 6 rows per verticil, and a transverse row of six large spinose tubercles in the centre of each verticil; subcaudals sometimes semi-divided anteriorly, always single posteriorly, in periods of 2.

Coloration. Purplish-black to grey-brown, with indistinct dark wavy cross-bands and isolated white tubercles on back, white below.

Size. Largest \( (\text{UM. 4460 - Chirunda}) 110 + 103 = 213 \) mm.

Discussion. Loveridge (1947) recognised three races of *Pachydiplax* *bibroni*, restricting the typical form to the Cape Province, with *pulitzerana* Schmidt in northern South-West Africa and Angola and *turneri* Gray covering a huge area including localities in the northern Cape Province and also Angola. He separated these races on the spacing of the tubercles on the head and development of the keels on the dorsal tubercles.

FitzSimons (1943, p. 109) treated *turneri* as a variety, as he found so much variation within populations that it was impossible to separate geographical races on the form and spacing of the dorsal tubercles. He found that in South Africa the variety *turneri* predominates in the west and the typical form in the east, which conflicts with the eastern type locality of *turneri*, which is Tete! It is doubtful whether *pulitzerana* warrants subspecific rank, so *P. bibroni* is here treated as a monotypic, if variable, species.

Diet. Cott (1934, p. 149) found a grasshopper, ants, termites, beetles, an earwig and a spider in the stomachs of six Charr specimens.

Enemies. One gecko found in the stomach of a genet (*Genetta genetta*) from Chikutu Pan. At Tete Loveridge (1953a) found remains in a Teleosurus *s. semiaquilus* and discarded tails in two Philothamnus *s. semivariabilis*. One had been eaten by a Besmea *s. fuliginosa* at Kalichero.

Habitat. Common in a wide variety of situations: in rock crevices, under loose bark on trees and on houses. This is a very gregarious species.

Distribution. Tanganyika south to Zululand, extending west through Malawi, Zambia, Rhodesia and the Transvaal into Angola, Bechuanaland (excluding the central Kalahari), South-West Africa and the northern and western Cape Province.
PACHYDUCTUS TUBERCULUS (Boulenger)

Pachydictylus boulengeri Loveridge, 1933, p. 293 (Nyankolo); Pitman, 1934, p. 302; Loveridge, 1947, p. 409.

Two specimens examined from: ZAMBIA. Chiengi (IRSNB).

Literature record. ZAMBIA, Nyankolo.

Variation. Nostril bordered by 3 nasals, the first labial and the rostral, which has a median groove above; usually a single internasal granule; body moderately depressed and covered with small stricts or keeled scales and about 18 rows of large keeled and stellate tubercles; male with 8 preanal pores; 10 - 11 transversely enlarged adhesive lamellae under fourth toe. Original tail covered above with small subtriangular multiscarinate scales, 6 rows per verticil, and a transverse row of 6 large keeled tubercles at the posterior edge of each verticil; subcaudals entire, transversely enlarged in periods of 2.

Coloration. More or less uniform grey-brown above, tail with vague light and dark cross-bands posteriorly.

Size. Both Chiengi specimens are dissected juveniles. The above description is based on three adults from the Rukwa Valley in Tanganyika.

Habitat. The Nyankolo series were collected on whitewashed house walls at night (Loveridge, 1933).

Distribution. The Lower Congo, east through Katanga and northern Zambia to Tanganyika, where it occurs on the coast at Tanga.

PACHYDUCTUS TENTENS Loveridge


Sixty-eight specimens examined from: RHODESIA. Kariba; Kariba Lake (Ganyati Island); Mvula Reserve; 25 mls N of Mvula; Kwynya River Drift; Zambezi-Chewore Confluence. MALAWI. Mpatamanga; Mwanza. MOZAMBIQUE. Chirume (USNM); Manganor; Matundo; 5 mls W and 15 mls SW of Tete; Viola; 15 mls SW of Zoboe.

Literature record. MOZAMBIQUE. Tete.

Variation. Nostril bordered by 3 (rarely 4) nasals, the first labial (excluded in 7 specimens) and frequently by the rostral (36 specimens); usually a single internasal granule (rarely 0 or 2); body moderately depressed and covered above with heterogeneous conical stellate tubercles, the larger ones strongly keeled, but not forming regular rows; there is a vertebral band of small tubercles, the largest tubercles are in the dorso-lateral
region; preanal pores in males 8-14; transversely enlarged adhesive lamellae under fourth toe II-14. Original tail covered above with small heterogenous feebly multifariate scales, 5-7 rows per verticil, and a pair of slightly enlarged scales at the posterior edge of each verticil; subcaudals entire, strongly enlarged transversely in periods of 2.

**Coloration.** Uniform pale gray above, white below.

**Size.** Largest 3 (USNM. 15847 = Chinsa) 190 + 107 = 307 mm. Largest 9 (MHBR. 4489 = Chinsa) 87 + 102 = 189 mm.

**Habitat.** This species appears to be strictly rupicolous. It is very gregarious and although locally distributed it is invariably abundant where it does occur. It has not been taken in association with *Packynatrus microlus*, which is often found in similar habitats.

**Distribution.** The centre of distribution for this distinctive species appears to be the Chisos trough, from which it has spread up the Zambezi and Shire Valleys. The paratype of *P. tetonias* was collected by C. J. P. Ionides along the upper Lamesule River, a tributary of the Rovuma River (Leveridge, 1955, p. 171). This Tanganyika population is probably linked with southern populations through the Malawi trough, for no *P. tetonias* were seen in north Mozambique, although there are plenty of suitable habitats.

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**Family AGAMIDAE**

**Genus AGAMA Daudin**


**AGAMA ATRA Daudin**


*Agama atra atra* Fitz-Simons, 1935b, p. 346 (Gelani).

No local specimens examined.

**Literature record.** KEPUWAHLAND. Gelani.

**Variation.** Midbody scale rows about 140; preanal pores in males 12; fourth toe longer than third, fifth toe longer than first; lamellae under fourth toe 20.

**Coloration.** Above, reddish brown with numerous small dark brown to blackish spots, sometimes with yellow centres. Below suffused with greenish-blue on throat and chest, belly vermilion laterally.
Size. Largest (FitzSimons, 1935b) 117 + 150 = 267 mm.

Diet. Large ants, grasshoppers and fossorial wasps.

Habitat. Rocky hills near Sabani.

Distribution. The whole of South Africa, southern South-West Africa and the south-eastern corner of Bechuanaland.

Agama hispida (Linnaeus)


Agama aequalea Water, 1820, Tent. Syst. Amph., p. 53; "Cape of Good Hope"; Boulaenger, 1885c, p. 251, 1902, p. 16 (Maholamani) and 1907a, p. 7 (Kabeka River); Chubb, 1909a, p. 993 and 1909b, p. 35 (Balayayo); Boulaenger, 1910, p. 155 (Balayayo; Salisbury; Livingstone); Werner, 1910, p. 218 (Vlei Vopen; Lohang - Severelo; Lohututu and Mokane, Kalahari); Hewitt & Power, 1913, p. 151 (Ey Ky; Nosop River).

Agama aequalea Peters, 1854, p. 155; Sane and Tete, Mozambique, and 1882, p. 42, pl. vii, fig. 2; Boulaenger, 1897, p. 800 (Nyika Plateau; Misuku Mua.); Chubb, 1909b, p. 35 (Kaffee River; Umsitu River).

Agama sp.? Beocage, 1896, p. 67 (Lourenco Marques; Manica e Sofala).

Agama distanti Boulaenger, 1902, Ann. Mag. Nat. Hist. (7), 2, p. 399; Pretoria, Transvaal; Chubb, 1909a, p. 993 and 1909b, p. 35 (Balayayo); Boulaenger 1910, p. 155 (Maholamani; Balacyo Bay); Hewitt & Power, 1913, p. 151 (Eldorado; Marundellas; Moshudi; Baralong Farms).

Agama hispida var. distanti Boulaenger & Power 1921, p. 243 (Balayayo; Mose; Baralong Farms; Tondi; Moshudi; Salisbury; Chishawasha; Rihunda; Importuni Dist.)

Agama hispida var. aequalea Boulaenger & Power, 1921, p. 252 (Chwa; Tongo; Mopani Forest; Lower Moseb; Ey Ky).

Agama hispida var. aequalea Boulaenger & Power, 1921, p. 261 (Gasaland; Lourenco Marques; Balayayo; Ributla; Serowe; Plumtree; Marundellas; Salisbury; Moxobo; Livingstone; Chishawasha).

Agama hispida distanti Power, 1927a, p. 406 (Lobaste); FitzSimons, 1935b, p. 342 (Gaborone; Molopo; Mankia) and 1943, p. 143 (Kolphane; Chilimansi; Driefontein; Kutama; Ewuse; Serowe; Francistown; Plumtree; Lusil River).

Agama hispida aequalea Pitman, 1934, p. 303; FitzSimons, 1935b, p. 344 (Molopo; Kute Pan; Goseolino Pan; Kaotwe and Darama Pans; Gamsbok; Sunyave - Masum; Belelaepudi; Motlhatlogo; Kaun; Borobe; Shaleshento; Handy; Evamwe River; Maste) and 1943, p. 146 (Serowe; Driefontein; Rusape; Plumtree; Moshudi; Makalapye; Importuni; Jumbo Cap and Mosep Rivers); FitzSimons & Brain, 1958b, p. 100.
Agama hriptica arnata Loveridge, 1933, p. 296 (Ikombo); Cott, 1934, p. 149 (Charre; Cala); Pitman, 1934, p. 303 (Munala; Samala; Kplia; Serenje; Chinsali; Broken Hill); Pitts in. 1935b, p. 345 (figtree); 1939b, p. 28 (Kirchenough Bridge), 1943, p. 149 (Brestfontein; Rusape; Mteko; Kutama; Musani; Mutita; Kidorado; Iniza; Mufwara; Masoe; Museni) and 1938, p. 206 (Nyamvize); Manoe, 1952, p. 136 (Manele; Mankla; Liifind); Loveridge, 1953a, p. 179 (Bubbe River; Kasungu; Likabula River; Chiitala River; Kintacula; Tete) and 1953c, p. 141 (Shirene); Broadley, 1962a, p. 799.

Agama hriptica Angel, 1920, p. 614 (Lezalii); Mitchell, 1945, pp. 23, 41; Audenmards, 1963, p. 293 (Kamanga material).

Two hundred and ninety-one specimens examined from: RHODIANS, Debeeti; 35 mls W of Kang; Kukunrai; Lake Dow and 10 & 15 mls N; Lekututu Pan; 40 mls NW, 10 mls NE and 7 mls S of Lephepe; 10 mls W, 10 mls SW and 23 mls S of Lettihing; Lekutu Pan; 10 mls W of Makeane; 6 mls S of Mukume; 14 mls W and 34 mls NW of Schita; Sekiu Pan; SW-SP Border at 21°3; 5 mls S of Tashinge; Tsane; Tsalanyane Pan; Wolf Hills.

ZAMBIA. Beitherbridge and 4 mls SE; Bosenshi; Salawayo and 45 mls NNW and 9 mls S; Changadzi Bridge; Charam Plateau; Chibolwe Bridge; Chinamanzoni Mine; Chimana Ranch; Chinyika Reserve; Domboswa; 4 mls S of Dunsula; Glass Block; Kabopi and 10 mls SE; Kariga; Kariba Lake - Chirara Confluence; 2 mls S of Kasungula; 15 mls NE of Lupane; Malapati Drift; Mulimbashi; Namibi Reserve; Marundellas; Marunguza; Mokota Reserve; Monte Rampden; Msango; 25 mls S and 4 mls W of Mteko; Muchanike Bridge; Namakse Gorge; Nyamasahati Bridge; Oda; Pluntree and 20 mls WNW; Redcliff; Rekotuji Research Station; Rusare; Said-Landi Confluence; Salisbury; Savuilla; Sango River; Shavani Bridge; Shangani; Shandi-Shashani Confluence; Sinola; Sinola River; Sambituwa; Joti Source; Tangade Bridge; Tangan Bridge; Triangle; Tuli; Turk Mine; Ushali; Wankie National Park - Main Camp; Kazubi - Chirero Confluence and Sezungwe Confluence, also opposite Fiers. ZAMBIA. Abercorn; Broken Hill; Bwana Mibwa; Chite Hills; Chikwa; Chilanga; Dumbumensi; Fort Jameson and 30 mls S; Kafue River; 30 mls W; Kafue river; Lake Chilika; Livingston; Luxsa; Mukupa and MwaraARENTZA (ZSHM); Mwala; Ngambwe Falls; Siansokwa; Singabele: Victoria Falls. MOZAMBIQUE. Chinhamba Dam; Chiramaizuma; Covane; Farmersong; Jofange; Jorge; Lurio; Maringa; Mavio; Metembanho; Muluwirira; Samo; 5 mls W of Tete; 5 mls SW of Vila Goulolw; Vila de Manica and 15 mls SE; Nambo (ZSHM).

Literature recorded. RHODIANS. Anob-Manye Confluence. (A); Bara Long Farms (D); Dameru Pan (A); Francistown (D); Gaberones (D); Gembok (A); Keba Pan (A); Kuka Pan (A); Kuka to Kondomo (A); Kwezi (A); Ny Ny (A); Lekutu Pan (A); Lekutu Pan (D); Leusamang-Severalala (A); Mabelapu (A); Makalalga (A); Mau (A); Mochindi (D); Malapone (D); Malapone to Kuka (A); Mopani Forest (A); Mothole (A); Notshatlogo (A);
Shorobe (a); Sunnyside to Mashumi (A); Tango (A); Towani (D); Vlei 
Togzi (A); Becke River (A); RHODESIA, Bikita (X); Bindura (D, X); 
Murchisona Bridge (X); Bulawayo (D, A, X); Chilibanani (D); Chibha-
ushe (D, X); Drielfontein (D, A, X); Eldorado (D, X); Engandene (D); 
Figtree (X); Importuni District (D, A); Inresa (X); Kutama (D, X); Lundi 
River (D); Marandellas (D, X); Mance (D, X), Muzimbi (X); 
Nyamaiva (X); Plumtree (D, A, X); Ruzape (A, X); Uswuma (D); Wankie 
(D), MAHILA, Broken Hill (X); Chinsali (X); Ikongo (X); Masive 
(D), Lealui, Livingstone (A, X); Nyika (X); Passion (X); Masuila (X); Serenje 
(X); Umzima River (X); MALAM. Run River (X); Chiruma (X); Chitara 
River (X); Kasungu (X); Likhala River (X); Misuku Miti. (X); Mupuna 
(X); Nyika Plateau (X); MALAWI, Caia (X); Chaire (X); Lifikidai 
(X); Lourenco Marques (D, X); Mandisa (X); Maleni (X); Muala (X); 
Masamb (X); Kase River (A); Mibila (X); Sena (X); Tete (X). 

Variation. Midbody scale rows 73 - 108; ventrals smooth to obtusely 
keeled; third and fourth toes usually subequal; first and fifth toes usu­
ally subequal or first slightly longer; lamellae under third toe usually 
16 to 21 (but 13 - 17 in specimens from northern Zambia); preanal pores in 
males 8 - 15.

Coloration. Extremely variable, but males usually have a pale dorsal 
band flanked by paired dark triangles, while females have a vertebral series 
of pale spots. Throat of adult males usually with a dark blue reticulation 
or series of wavy longitudinal lines, plus a dark blotch at the base of the 
throat. The dorsal ground colour covers a wide range of greys, browns and 
reds and the animal is capable of a considerable amount of colour change. 
The heads of both sexes are suffused with blue during the breeding season.

Largest (Qv. R. 498 - Lomagobe Pan) 100 + 127 = 227 mm.

Discussion. The only comprehensive analysis of the variation within 
the species Agama hispida was undertaken by Boulangar and Pover (1921), who 
recognised five forms, the forms typica and "varieties" armata, aculeata, 
distanti and brachyura. They showed that the differences between these 
forms are not clear cut and that in several cases two or more varieties 
occur together. FitzSimons (1935b, p. 344), with a huge collection from the 
Kalahari, found that "great difficulty was found in separating certain in­
dividuals (of Agama h. aculeata) from A. hispida distant on the one side 
and A. hispida armata on the other. In these cases the distinction has 
been arbitrary and based for the most part on averages." The futility of 
trying to define geographical races of Agama hispida is shown by the above 
list of localities collated from the literature; the forms recorded frorn
each locality are indicated in parentheses (D = distanti; A = aculeata; X = armata), and well collected localities are often credited with all three "varieties", i.e. Serowe; Bulawayo; Driefontein and Salisbury. I have previously (1962d, p. 799) noted that most Rhodesian specimens of Agama hispida were intergrades between these three races and Audenarde (1963, p. 239), after reviewing the situation, decided that it was impossible to recognise geographical races of this species, with which I concur.

The great intraspecific variation shown by Agama hispida may be largely phenotypic, resulting in a morphologically distinct "ecotype" in response to a particular habitat background. The big Kalahari agamas are a good example of this. More ecological studies are required, especially where mosaics of different habitats occur, as in the western Cape Province.

Dist. Gott (1934, p. 149) listed the stomach contents of eleven Mozambique specimens, which consisted largely of ants, supplemented by beetles, Mutillid wasps, termites, etc. Loveridge (1953a, p. 180) lists stomach contents of five Tete females.

Parasites. Mites (Pterygosoma) on a Htimbuka J. Hematodes (Polydelphia; Strongylurus; Theladors; Thelenuosa) and a cestode (Oocheridae) in other Malawi agamas (Loveridge, 1953a, p. 180).

Enemies. One specimen was found in the stomach of a Mongoose (Parasphinctes seilousi) near Lephepe. Gott (1934, p. 149) recovered one from the stomach of a Pseudomorphus a; sudanensis. I have found this agama in the stomachs of Tarentola s. seminulata (Kabompo); Diapholidus t. rectatus (Fort Rosebery) and Pseudomorphus jallae (Somabula).

Habitat. Widespread and common in savanna, where it is largely terrestrial, although it sometimes climbs into bushes and low trees, especially in the Kalahari.


Agama MAKARIKARIKA Fitz Simons

Agama hispida makarikarika Fitz Simons, 1932, Ann. Tvl. Mus. 15, p. 36

Makarikari Saltpan, Bechuanaland, also 1935b, p. 342 and 1943, p. 145.

One specimen examined from: BECHUANALAND. Makarikari Salt-pan.

Literature record. BECHUANALAND. Makarikari Pan.

Variation. Midbody scale rows 80 - 105; ventrals smooth or but feebly keeled; third toe much longer than fourth, first toe much longer than fifth; lamellae under third toe 12 - 14; preanal pores in males 10 - 12,
Coloration. Light to dark grey-brown, uniform or with a series of four large dark quadrangular blotches arranged in pairs on either side of the back; a yellowish vertebral line present or absent; head with a distinct X-shaped marking on snout and two dark interocular chevrons pointing posteriorly. Below whitish, with a blue-black reticulation on throat which may extend onto the chest.

Size. Holotype 蚣 (TH. 14451) 66 + 76 = 142 mm. ♀ (UM. 4655) 75 + 60 = 135 mm.

Discussion. This species is readily distinguished from the surrounding populations of *A. hispida* by its smaller size, shorter tail, shorter toes, very small ear-opening and head markings. As FitzSimons (1935b, p. 344) has noted, it has affinities with the highveld form (*distanti*) of *Agama hispida* and is probably derived from this temperate stock, which has been subsequently swamped by invasions of a tropical (*aculeata-armata*) stock entering from the north. This form has attained reproductive isolation and is a good biological species, whereas the "varieties" of *A. hispida*, although very different morphologically, are not reproductively isolated and therefore intergrade extensively.

Diet. Tenebrionid beetles.

Habitat. Dry open flats of hard-baked lime impregnated ground, where these agamas live in burrows below small scattered salt-bushes.

Distribution. Great Makarikari Saltpan and northern South-West Africa around Ondangwa (Steyn, Finkalday and Bys, 1963, p. 12), also western Orange Free State (Steyn in litt.).

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**Agama Kirkii** Boulenger

*A. kirki* Boulenger, 1885, Cat. Lizards, 1, p. 354, pl. xxviii, fig. 2; Zambesi Expedition; Gunther, 1893, p. 555 (Shire Highlands); Boulenger, 1902, p. 16 (Masoe); Chubb, 1909a, p. 993 and 1909b, p. 35 (Matopos; Khami River); Boulenger, 1910, p. 466 (Importuni); Hewitt & Power, 1913, p. 153 (Haramellas; Inselin); FitzSimons, 1935b, p. 347 (Zimbabwe), 1939b, p. 29 (Changadzi River; Birchenough Bridge) and 1943, p. 136 (Penhalonga; Bindura; Chishawasha; Hwanyi River; Macheka; Driefontein; Esatendele; Mtoko; Chilimani; Gokomere; Rutana; Bikita; Salisbury; Bulawayo; Singa; Mudzi); Pitman, 1934, p. 303 (Luangwa Valley); Mitchell, 1946, p. 23 (Kandyre; Zomba).

7 *A. colonorum* (not Daudin) Bocage, 1896, p. 36 (Manica District); Thenulo, 1941, p. 13, (Zambo).

*A. kirki* fitzsimonsi Loveridge, 1950, Proc. Biol. Soc. Washington, 63, p. 127; Changadzi River, Rhodesia (also paratypes from Birchenough Bridge; Zimbabwe; Gokomere); FitzSimons 1958a, p. 206 (Nyassila); Broadley, 1962d, p. 78.
Agama mossambica (not Peters) Boulenger, 1907a, p. 7 (Mteriize River; Petauke).

Agama mossambica mossambica (not Peters) Pitman, 1934, p. 303.

Agama kirkii kirkii Loveridge, 1953a, p. 182 (Mtimwika; Mpatamanga Gorge; Chiredzulu Mtn.; Likabula River; Ruu River); Broadley, 1952a, p. 798.

One hundred and eighty-six specimens examined from: RHODESIA.

Ambi Falls; Agama-Makishwe Confluence; Balla Balla; Bassetley Bridge; Hindura; 12 and 20 mls. W. of Birchenough Bridge; Bulawayo; Chema; Chibakwe Bridge; Chido; Chisanimani Mtn.; Chinyika Reserve; Chinyama; Chitona River; Dora; Fern Valley; Ganderowe Falls; Getai; Gisos Block; Gwelo; Hareni-Lugitu Confluence; Hunters’ Road; Inyanga National Park – Wicklow; Kasangwala; Kariba Lake – Munda and Senga Confluences; Khami Dam; Lake Makhuvane; Lukosi Bridge; 3 mls NE of Makaha; Makurupini River; Mambwe Pass; Manda; Matopos; Matowa; Miotto Reserve; 15 mls NE and 7 mls ENE of Mtkoko; Mmadumudzirwa; Mapapate Bridge; Nyazimanga; 4 mls. W of Nyamandila; Ruanya River Drift; Runyani; Ruware; Shavanoo Bridge; Simba; Stapleford; Untali; Vumba Mtns.; Watsombi; Zewa. ZAMBIA. Chakwengwa River; Chiloza; Dinda; Kafue; 20 mls W of Katote; 50 mls ENE of Lusaka. * MAAMI. Cape Maclear; Fort Johnston and 10 mls. SW; Lujeri; Mpatamanga; Mwanza. MOZAMBIQUE. Chicamba Dam; Coma; Erego; Luula Bridge; Magasa; Mucucu Mtn; 14 mls W of Morrumbala; 15 mls W of Munjari; Mutuali; 20 mls WSW of Nampula; 15 mls SSW of Tete; Vila Coutinho (USNM); Vila Gouveia (USNM); 4 mls W, 7 mls E and 15 mls SE of Vila de Manica; Vumba Mtns. (USNM); 15 mls SW of Zobe.

Literature records. BECHUANALAND. Nchudi, RHODESIA. Belita; Hindura; Birchenough Bridge; Bulawayo; Changudzi River; Chilimansi; Chishawasha; Driefontein; Empandana; Gokomere; Runyani River; Importuni; Insasa; Khami River; Kutama; Machaka; Manandellas; Matopos; Manzoe; Mtoko; Nyazimanga; Panhalonga; Salisbury; Sindisi; Zimbabe. ZAMBIA. Luangwa Valley. * MAAMI. Blantyre; Chiredzulu Mtn.; Likabula River; Mpatamanga; Mtimbuka; Ruu River; Zomba. MOZAMBIQUE. Zumbo. Variation. Midbody scale rows 95 – 122; muchal and vertebral crests well developed; ventrals subequal to dorsals, smooth; fourth toe longer than third, fifth much longer than first; preanal pores in lines 11 – 13.

Coloration. Adult males in the breeding season have the head vermilion to yellow, body purple with vertebral crest whitish, flanked by scattered white scales, hind limbs and tail light blue-green, the latter with narrow white rings, northern specimens usually have a black blotch at the base of the throat. Breeding females have a blue-green head, maroon body with blue-grey blotches, limbs and tail grey. Juveniles and adults during the winter months are a mottled grey-black which blends beautifully with lichen-covered granite.

* Mteriize River; Petauke.
Size. Largest ♀ (UN. 4089 - 15 mls. SW of Zobue) 115 + 224 = 339 mm.
Largest ♂ (MZ. 30505 - Mtimbuka) 92 + 150 = 242 mm.

Discussion. Loveridge distinguished *fitzsimonsi* on the less well
developed nuchal and vertebral crests, weaker keels and mucrones on the
dorsal scales and the absence of a dark basal spot on the throats of
adult males. In the large series which I have examined, these differences
between northern and southern material are apparent, but the larger average
size of north Mozambique and Malawi lizards is more noticeable. The develop­
ment of crests and keels is difficult to assess in series, so I previously
(1962a, p. 798) tried to define the ranges of the two races by using the
gular spot of adult males as the diagnostic character. As far as possible
recent collecting has been restricted to adult males, yielding 177 specimens.

Analysis of this series shows that Loveridge's samples of *kirki*
from Malawi and *fitzsimonsi* from south-eastern Rhodesia are linked by a
cline. In Rhodesia there is a slight "step" in the cline corresponding
with the Salisbury-Umtali watershed; specimens from this area have poorly
defined gular spots, often paired. Material from Zambia, the Zambesi Valley
and Wankie District is variable, the gular spot being usually poorly defined
and often absent. Material from the Manica Platform conforms to *fitzsimonsi*
except for those from the Tete area, which are typical *kirki*. I had already
decided that *fitzsimonsi* was too poorly defined to be recognised, when I re­
ceived four adult males from the Makurupini River on the Mozambique border
40 miles due east of the type locality for *fitzsimonsi*. Two of these have
a well marked gular spot, one has a faint spot and one has no spot.

Diet. Loveridge found that termites were the chief food for Malawi
lizards. In Rhodesia ants seem to be more important; Kapawi specimens were
full of "Natalabe Ants" (*Megagonycha foetens*).

Parasites. Red Mites (*Pteronyssium aculeata*) numerous on a Mtimbuka ♀.
Nematodes (abbreviation amuniasia; Strongylus sp.) in Likabula River
lizards (Loveridge, 1953a, p. 183).

Enemies. A gravid female had been eaten by a *Gerrhosaurus m. major* near
Bikita and another ♀ was recovered from a *Theleotornis k. capsensis* on Mtucue
Mountain.

Habitat. Granite and paragneiss outcrops and the fig trees which grow
on them. The agamas "browse" off the constant stream of ants ascending
the tree trunk.

Distribution. Rocky areas of Mozambique, Malawi, Zambia, Rhodesia and
eastern Bechuanaland.
Agama mossambica Peters, 1854, Monatsber. Akad. Wiss. Berlin, p. 616; Coast of Mozambique between 7° and 20° S. Latitude, and 1882, p. 38, pl. vii, fig 1; Günther, 1864, p. 307 (Quelimane); Boulenger, 1885c, p. 353 (Quelimane; Zambesi); Günther, 1893, p. 555 (Shire Highlands); Bowage, 1896, p. 86 (Moosuril; Zambas); Boulenger, 1907b, p. 184 (Beira); Gott, 1924, p. 150 (Gua; Morrosen; Anamongas; Charre).

Agama coedicitiae (not Gray) Günther, 1864, p. 307 (Zambesi Expedition).


Agama mossambica mossambica Peters, 1936, p. 305; Mertens, 1937, p. 7 (Inhambinga); Fitzsimons, 1943, p. 135 (Beira); Manacca, 1952, p. 137 (Dondo); Loveridge, 1953a, p. 180 (Lilambula River; Ruo River); Manacca, 1961, p. 147 (Vila Paiwa de Andrade).

Seventy-two specimens examined from:

RHODESIA. Haroni-Lusitu Confluence; Jersey Tea Estate; Ngoroma Reserve (E). MAIWI. Chalo Min.; Lujeri Tea Estate. MOZAMBIQUE. Cabaceira Peninsula; Grunado; Dondo; Grudja; Gumbu; Inchope; 8 mls NE and 12 mls SSW of Inhambinga; Jorge; Mango; Moosuril; Nada - Lusago; Piro; Same; Vila Junqueiro; Xiluvo.

Literature records. MAIWI. Lilambula River; Ruo River. MOZAMBIQUE. Anamongas; Beira; Gua; Charre; Dondo; Inhambinga; Lusobo; Morrosen; Moosuril; Quelimane; Vila Paiwa de Andrade.

Variation. Midbody scale rows 70 - 94; keels on the vertebral scale row form a very low crest; ventrals smaller than dorsals, smooth to strongly keeled and mucronate; fourth toe usually slightly longer than third, fifth much longer than first; preanal pores in males 10 - 14.

Coloration. Adult males usually pinkish or grey-brown with a blue head and a broad whitish vertebral band, suffused with orange below, throat with a large blue patch. Adult females brilliant orange on the back and very similar to females of Agama kirkii.

Size. Largest (UM. 8169 - Cabaceira Peninsula) 115 + 215 = 330 mm.

Diest. (UM. 7283 - Xiluvo) 100 + 150 = 250 mm.

Diet. Gott (1934, p. 150) lists the stomach contents of nine Mozambique specimens. These consisted largely of ants, supplemented by beetles and other insects and one millipede.

Parasites. Orange sites (Ptyromonas triangularis; Schistogaster coronaeuri; Chthonius montensis) numerous in the gular fold of Malawi specimens. Nematodes (Abreviata anamensis; Abreviata sp.) recovered from several stomachs (Loveridge, 1953a).
Habitat. Lowland savanna and forest fringes. This species is partially arboreal and partially terrestrial.

Distribution. Tanganyika, south through Mozambique to the Buzi River, east to Malawi, and eastern Rhodesia.

AGAMA CYNOGASTER (Ruppell)

Stellio cyngaster Ruppell, 1835, Have Wirbelthiere Fauna Abyss. Amph., p. 10, pl. vi Mascoma, Eritrea.

Agama atriocollis A. Smith, 1849, Ill. Zool. S. Afr. Parte. App. p. 144 Interior of Southern Africa and Country near Port Natal; Boulenger, 1887, p. 496 (Delagoa Bay); Günther, 1893, p. 555 (Shire Highlands); Boulenger, 1907a, p. 7 (Petauke); Roux, 1907, p. 82 (Bikita); Chubb, 1909a, p. 593 (Malawyo) and 1909b, p. 35 (Malawyo; Kana River; Gweelo; Broken Hill); Boulenger, 1910, p. 466 (Delagoa Bay; Maseno); Hewitt & Power, 1913, p. 153 (Mimandelas; Francistown); Angel, 1920, p. 614 (Masalui); Power, 1927, p. 406 (Lebatai); Cott, 1934, p. 150 (Mamonga); Pitman, 1934, p. 303 (Broken Hill; Mpili; Serenje; Chim-sali); FitSimons, 1935b, p. 348 (Gabani; Kalakazani); Martens, 1937, p. 7 (Mambo); FitSimons, 1939b, p. 29 (Mount Silinda); Thesido, 1941, p. 13 (Masangulu); FitSimons, 1943, p. 127 (Salisbury; Kutama; Saboro; Plunstree; Mochudi; Chikhavasha); Mascomas, 1952, p. 135 (Masachoa; Mamcha; Guja; Chikutu; Maqueale).

Stellio atriocollis Bocage, 1896, p. 87 (Mozambique)

Agama cyngaster Loveridge, 1935a, p. 176 (Chibotela; Chire River Bridge; Chitale River; Hobisi Mt.; Zomba Plateau; Cholo Mt.; Likabula River); Broadley, 1962d, p. 797.

Agama atriocollis atriocollis Klausewitz, 1937, p. 151 (Masaka, P.E.A.)

Agama atriocollis Loveridge, Klausewitz, 1937, p. 153: Eakoma, East Africa (also Masabo, Lake Bangweulu; Chifumbani).

One hundred and twenty-two specimens examined from: RHODIA.

Debrei; 10 mls N of Lake Bos; 4 mls W of Lachana; Matjeslopi; Mutesi; Ootmbi; RHODIA. Achmash; Beitbridge; Ballyanyo; Charuma Plateau; Chinyamonde; Dett; Fern Valley; Filabusi; Gweelo; Holdenby; Inyanga; Ten Estates; Inyamure; Irisvale; Kapeni and 6 mls SE; 10 mls S of Lupane; Malisabambo; Manda; Marundellas; 25 mls WSW of Mtoko; Rumanibhlovo; Nyamasathu Bridge; Pingwe Bridge; Redclif; Shamby-Shashani Confluence; Umbali and 4 mls NW. ZAMBIA. Abercorn; Chawenga River; Chiloma Stream; Chiri River Bridge; Fort Rosebery District; Italenge; Labombo; Kasama (IBNN): Kasuma; 20 mls W of Katete; Kondolitlo Falls; 50 mls NB of Lusaka; Mukupa (IBNN); Mwinilunga; Ndola; Solwezi. MALAWI. Cholo; Rupsi; Zambu. MOZAMBIQUE. Cavelo; 15 mls NNW of Parauanungo (IBNN); Inchope; Metuchira; Samo.
Literature records. BECHUANALAND: Francistown; Gabani; Kalahari; Lobatsi; Mochudi; Serowe. RHODESIA: Bulawayo; Chishavasha; Gwelo; Kham River; Kutama; Marandellas; Manoe; Mount Silinda; Plumtree; Salisbury: ZAMBIA: Broken Hill; Chinsali; Chire Bridge; Lealui; Mpika; Makabola; Petauke; Serenje. MALAWI: Chibotela; Chitata River; Chole Mtn.; Limbula River; Mchisi Mtn.; Zomba Plateau, MOZAMBIQUE. Anmatenga; Chibuto; Chiwembe; Delagoa Bay; Guija; Manhica; Maquese; Massangulo; Mzambe; Ribatla.

Variation. Midbody scale rows 100 - 136; no vertebral crest; ventrals smooth; preanal pores in males 17 - 29, in two rows.

Sisyr. Largest θ (N.M.S. 50544, Chitata River) 1.67 +.231 = 398 mm.

Largest θ (U.M. 9726 - 4 mls W. of Lochema) 1.42 + 1.78 = 320 mm.

Discussion. Parker (1942) placed Agama atricollis in the synonym of A. synopsster and was followed by Loveridge and others. Klausewits (1954) revived A. atricollis as a full species and subsequently (1957) recognised six races of it. Audenarde (1963) found that a series of 800 Congolese agamas showed a range of variation which bridged the allaged specific differences listed by Klausewits and he therefore recognised only one monotypic species - Agama synopsster.

The material considered here does not shed any light on the status of A. atricollis, which can only be definitely established by field studies in north-eastern Africa. The only point to be settled is whether two races can be recognised in south-east Africa, for Klausewits (1957) distinguished A. a. loveridgei north of the Zambezi and A. a. atricollis south of that river and extending north-west into Angola and Katanga (Elizabethville). Audenarde (1963, p. 227) has already remarked on the improbability of a subspecific distinction between populations at Elisabethville and Lake Bangweulu; it seems equally unlikely to me that a widespread savanna form should be divided into subspecies by the Zambezi River.

Klausewits separated loveridgei from atricollis on its slightly longer tail and the coloration. As Audenarde has already pointed out, the great variation in the coloration of these agamas renders this character useless for systematic studies.

Klausewits gives the following data for the Tail: Body Length Index.:

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<th>Table 1A</th>
<th>MALES</th>
<th>FEMALES</th>
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<td>H</td>
<td>Range</td>
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<tr>
<td>atricollis</td>
<td>16</td>
<td>1.16 - 1.40</td>
</tr>
<tr>
<td>loveridgei</td>
<td>23</td>
<td>1.15 - 1.59</td>
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</table>
There is a big overlap in the proportions even with these samples, which include only four specimens from "south-central Africa". For comparison I have divided my material from the region into two groups, the southern material from Bechuanaland, Rhodesia and south Mozambique should be *stricellus* and the northern specimens from Zambia and Malawi should conform to *loveridgei*.

<table>
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<th>Table 1 B.</th>
<th>MALES</th>
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<td>N</td>
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<tr>
<td>Southern group</td>
<td>34</td>
<td>1.16 - 1.60</td>
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<tr>
<td>Northern group</td>
<td>16</td>
<td>1.21 - 1.46</td>
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</table>

These figures certainly do not support the recognition of two local subspecies, but suggest that there is a cline in average tail length, with an increase from south to north.

**Diet.** Gutt (1934, p. 150) lists the stomach contents of six Amatongas specimens, which consisted largely of ants with a few beetles and caterpillars. Power (1927c) found beetles in a Lobatai specimen, while I (1962d, p. 797) recovered beetles, a grasshopper and a mantis from the stomachs of two Kapendi specimens. One I. R. S. E. B. specimen from Mulupa has been preserved with an adult *Hemivagarephus nitratetus in* its mouth.

**Parasites.** Hematox (Abbreviate *sparganioides; *A. varians) recovered from Malawi specimens (Loveridge, 1953a, p. 178).

**Enemies.** Adult specimens have been recovered from the stomachs of the following snakes: *Nabolyn c. capensis* (Salawayo); *Thelotornis k. capensis* (Iriavelo) and *Thelotornis k. oatesi* (Salisbury). One was killed by a crow (*Corvus albus*) at Umtali.

**Habitat.** This arboreal species is widespread in savanna, but is perhaps most plentiful in *Brachystegia* woodland and *Acacia* savanna. On the Mozambique Plain its place seems to be taken by *Agama m. moseambica* and these two species are rarely found in close proximity. Both occur in the Amatongas - Inchope area, but here *sppopogaster* is the commoner species.

**Distribution.** Eritrea south to Natal, west to the Transvaal, Bechuanaland, Gwanboland, Angola and the eastern Congo.

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**Family CHAMELEONIDAE**

Genus CHAMELEON Laurenti

Bradypodium Fitzinger, 1843, Syst. Hapt., pp. 15, 43. Type by original designation: Chamaeleon pusillus Latreille = Lacerta pusilla Cuvier

CHAMELEO PUSILIS MELANOCEPHALUS (Gray)

Chamaeleon pusillus melanopephalus Hillenius, 1959, p. 63.

No specimens examined.

Literature records: MOZAMBIQUE, Delagoa Bay.

Discussion. Loveridge (1957, p. 197, footnote 38) has pointed out that if the C. pusillus group warrants generic status the first available name is Bradypodium Fitzinger.

Hillenius (1959) reviewed the group and concluded that all the described forms were conspecific. He also questioned the advisability of placing these chameleons in a separate genus on osteological and anatomical grounds when the range of variation in other chameleons, especially the viviparous species in the Chamaeleo bitaeniatum group, is not known.

Distribution. Coastal areas of Pondoland, Natal, Zululand and southern Mozambique, extending inland to the lower slopes of the Natal Drakensberg (5,000 feet).
CHAMELECO GOSTEWI NYIKA Loveridge


Seven specimens examined from: ZAMBIA. Nyika Plateau.

MALAWI. Chalinda (Nyika Plateau).

Literature records. MALAWI. Nyika Plateau.

Description. No rostral appendage; no occipital flaps; a vertebral crest of conical tubercles present; no ventral crest; claws simple; tail subequal to about one and a quarter times length of body.

Size. Largest ♂ (UM. 6926 - Nyika, Zambia) 60 + 97 = 177 mm. Largest ♀ (AMNH. 67842 - Nyika, Malawi) 87 + 94 = 181 mm.

Habitat. Found on low plants in marshy areas (Loveridge, 1953a).


CHAMELECO MIAJENISI Brodley

Chamaeleo mianjensis Brodley, 1965, Arnoldia (Rhodesia) 1, No. 32, p. 1; Ruu Gorge Forest, Mlanje Mountain, Malawi.

One specimen examined (Type).

Description. No rostral appendage; no occipital flaps; no vertebral or ventral crests; claws simple; tail 95 per cent of total length.

Size. ♂ (UM. 4266 - TYPE) 77 + 94 = 171 mm.

Habitat. Evergreen forest in the Ruu Gorge at about 3,500 feet.

Distribution. Likely to occur on the forested inselbergs on the Niassa Platform north-east of Mlanje Mountain.

Chamaeleo melleri Boulenger, 1887a, p. 472; Gunther, 1894, p. 618;
Bocage, 1896, p. 89 (Mozambique); Werner, 1902, p. 421 (Zomba; Blantyre); Themido, 1941, p. 15 (Masangula).

Chamaeleo melleri Mitchell, 1946, p. 187 (Zomba); Loveridge, 1953a, p. 187 (Likabula River; Zomba Plateau; Blantyre; Cholo Mtn.; Ru River) and 1953c, p. 141 (Blantyre).

Six specimens examined from: MAWI. Blantyre; Injori Tea Estates.

Literature records. MAWI. Blantyre; Cholo Mtn.; Likabula River; Ru River; Zomba; Zomba Plateau. MOZAMBIQUE. Masangula.

Description. A large rostral horn present; occipital flaps very large and in broad contact on the nape; a well developed crenulated vertebral crest extends onto the proximal half of the tail; no ventral crest; claws simple; tail slightly longer than body.

Size. Largest ♀ (ANG. 67798 - Likabula River) 288 + 307 = 595 mm.
Largest ♂ (102. 50644 - Cholo Mtn.) 227 + 225 = 432 mm.

Breeding. The eggs, 38 - 91 in number, are laid in a hole in the ground about the middle of December (Mitchell, 1946).

Diet. Loveridge (1953a) found the remains of grasshoppers and dragon-flies in a Zomba Plateau specimen and large black ants in a Cholo chameleon. They will eat small birds in captivity.

Habitat. A savanna species which is common on the extensive tea estates in south-eastern Malawi.

Distribution. South-eastern Tanganyika, northern Mozambique and south-eastern Malawi.

CHAMALEO DILAPIS \ DILAPIS \ Leach

Chamaeleo dilapis Leach, 1819, in Boddich, Miss. Ashantee, App. p. 493;
Caboon; Gunther, 1894, p. 614; Harfoot, 1925, p. 7 (Inhambinga; Beira); Mitchell, 1946, p. 25; Mansoos, 1961, p.148 (Nouba; Vila Faiva de Andrada; S. Martinho).

Mozambique.

Chamaeleo dilapis var. quilenata Bocage, 1886, Jorn. Sci. Lisboa, l, p. 59:
Rio Quilo, Angola; FitzSimons, 1943, p. 155 (Malsetter; Bulawayo; Salisbury; Inhambane; Importuni; Chishawasha) and 1958, p. 207 (Nyasaland).
Chameleo dilepis Peters, 1862, p. 22 (Gape Delgado; Inhambane; Tete; Macanga);
Boulenger, 1887a, p. 430, pl. xxxix, fig. 6; Gunther, 1894, p. 618; Boscan, 1896, p. 89 (Tete; Laurence Marques; Sofala);
Peracco, 1896, p. 1 (Mamungula); Boulenger, 1897, p. 800 (Kata Bay to Ruaro); Kendowe to Karonga; Nyika District & Plateau; Masuku Mtns.; Fort Hill; 1902, p. 17 (Nsamaliland), 1907a, p. 9 (Feira; Pesanke) and 1907b, p. 486 (Beira); Chubb 1909a, p. 594 and 1909b, p. 55 (Mala-vayo);
Boulenger, 1910, p. 492 (Maso; Salisbury; Importuni); Hewitt & Power, 1913, p. 150 (Bushman Mtns.); Loveridge, 1920, p. 160 (Lamb); Hartena, 1937, p. 7 (Mocho; Inhanginga; Beira); Themido, 1941, p. 15, (Beira; Zambo; Massangulo).

Chameleo varillolus Boulenger, 1887, Cat. Lizards Brit. Mus., 3, p. 449, pl. xxxix, fig. 5; Natal, French Congo, Cameroun; Gunther, 1893, p. 555 (Shire Highlands); Angell 1920, p. 517 (Lealui).


Chameleo dilepis var isabellina Werner, 1902, p. 139 (R. Nata; Delagoa Bay).

Chameleo dilepis var. dilepis Werner, 1902, p. 340 (Zomba; Lake Nyasa; Malutse; Kota Kota; Inhambane) and p. 457 (Quelimane; Delagoa Bay).

Chameleo dilepis var. isabellina Werner, 1902, p. 344 (part - Shire Highlands).

Chameleo isabellina Boulenger, 1907b, p. 486 (Coguno; Beira); Chubb, 1909a, p. 524 (Natal; Natal); Boulenger, 1920 (Delagoa Bay); Hewitt & Power, 1923, p. 159 (Mbororo; Ky Ky); Power 1927b, p. 409 (Loapa).

Chameleo dilepis isabellina Werner, 1910, p. 352 (Malabula-Kang; Kw-Gui-Di;
Vili Topan, Kalahari); Loveridge, 1929, p. 86 (Victoria Falls) and 1933, p. 331 (Nyasamolo); Pitman, 1934, p. 306; FitzSimons, 1935b, p. 375 (Milibane; Malembe; Vekula; Victoria Falls and 1939b, p. 38 (Tanganda River; Mount Sihinta; Birchenough Bridge).

Chameleo dilepis dilepis Loveridge, 1929, p. 86 (Kafue River); Cott, 1934, p. 170, pl. iii, fig. 2 (Charred; Gia); Pitman, 1934, p. 306 (Mulan; Mulala; Broken Hill); FitzSimons, 1935b, p. 377 (Plumbue to Teessobe; Sebecia; Mann; Shaleeshoto to Khadi; Kabula; Malari- kari; Kusile) and 1939b, p. 38 (Tanganda River; Mount Sihinta; Birchenough Bridge).

Chameleo dilepis dilepis FitzSimons, 1943, p. 153 (Missol; Kutana;
Nisari; Ribatla; Francistown; Itala; Delagoa Bay; Chikwakura;
Binde; Arcturus; Inai); Manam, 1952, p. 155 (Manlco; Chibato; Lifidzi); Loveridge, 1953a, p. 18a (Chibotela; Khala Mtns.; Nisulu Mtns.; Mishede; Malaba) and 1953c, p. 141 (Chlore); Broadley, 1962d, p. 799.
Chamaeleo dilerus isabellinus Loveridge, 1953a, p. 183 (Likabula River; Rue River; Cholo Mnt.).

Chamaeleo dilerus petersi Loveridge, 1953a, p. 186 (Chitalea River; Mtombuka; near Tete).

Seventy-eight specimens examined from: BECHUANALAND, 10 mls W. of Letlaking. RHODESIA, 25 mls W of Birchenough Bridge; Bulawayo; Charuma Plateau; Chinyamanda; Chirinda Forest; Chimundu; Erin Forest Reserve; Inyantse Bridge; Irsivale; Kapansi and 5 mls SE; Kariba; Kariba Lake - Chesiya Confluence; Karoi; 5 mls SE of Lupane; Masewe; Mount Silinda; Mtoko; New Year's Gift; Rhodes Inyanga Estate; 10 mls of Salisbury; Selborne Estates; Sincla; Ustali; Zambesi-Sebungwe Confluence; Zewan; ZAMIBIA, Ikelonzi; Kabompo; Kasempa; Kasusu; Kitwe; Livingston; Marwani; Mulanga; Sakoji Stream; Sesheko; Solwezi, MALAWI, Livingstone; Lufupi Estates; Rumpi; 10 mls SW of Zomba, MOZAMBIQUE, Beira; Chisanga Dam; 5 mls NW of Banda; Garuso; Gorongose Mt;

Inhanginga; Mavue; Monapo; Sene; Tete (UM & IEIH) and 12 mls. SW; 25 and 35 mls SW of Zomba.

Literature records. BECHUANALAND, Bushman Mine (D); Francistown (D); Gaberones (Q); Kababila (D); Ku-Suil-Di (Q); Ky Ky (Q); Lethukuru - Kang (Q); Lobastu (Q); Makariki (D); Mann (D); Mtsainkoba River (Q); Olva River (Q); Sebsa (D); Shalashonta to Kusai (D); Tsasebo (D); Vlei Tepan (Q); RHODESIA, Arcturus (D); Bidura (D); Birchenough Bridge (D); Bulawayo (D, Q); Chishawasha (D, Q); Driefontein (D); Eldorado (Q); Importumi (D, Q); Inisava (D); Kasungula (D); Kuselo (D); Kutama (D); Mawoe (D); Malsutier (Q); Mount Silinda (D); Masani (D); Nyasimana (Q); Pluatre (D); Salisbury (D, Q); Sincla (D); Tanganda River (D); ZAMIBIA, Broken Hill (D); Feira (D); Kasue River (D); Leadini (X); Mambwe (D); Mwama (D); Ncambilo (D); Nyankolo (A); Petauke (D); Victoria Falls (Q). MALAWI, Chibotela (D); Chirano (D); Chitalea River (P); Cholo (I); Fort Hill (D); Kondwe to Karonga (D); Likabula River (I); Misuku Mine (D); Mtombuka (P); Mtiluka (D); Nchemchema (D); Nchisi Mt. (D); Nkata Bay to Rumwe (D); Nkombe District (D); Ruo River (I); MOZAMBIQUE, Beira (D, Q); Cala (D); Cape Delgado (D); Chare (D); Chibuto (D); Coguino (Q); Delagoa Bay (D, Q); Inhambane (D, Q); Inhaninga (D); Masingulo (D); Mocuba (D); Quelimane (D); Rikatula (D); Sao Martinho (D); Sofala (D); Tete (D, P); Vilupai de Andrade (D); Zumbo (D); Lifidzi (D); Lourenco Marques (D); Macanga (D); Manhica (D).

Description. No rostral appendage; occipital lobes variable in size; vertebral and ventral crests present, formed of white conical tuberole; claws simple; tail subequal to body in length.
Size. Largest ♂ (MO2. 50621 - Tete) 172 + 176 = 348 mm. Largest ♀ (MO2. 50614 - Mtimbula) 185 + 156 = 341 mm.

Discussion. In his study on the morphology of the species comprising the genus Chameleo, Hillenius (1959) concluded that the status of the many described races of C. dilena is very doubtful because of the apparent huge overlaps in their distributions. This is shown in the summary of literature localities above, where the forms recorded from each locality are indicated by the following letters in parentheses: D = dilenda; I = isabellinus; P = petersii; Q = quilepis; X = xarvilobus.

In several cases dilenda and quilepis have been recorded from the same locality and FitzSimons (1943) finding that intermediates between the two forms were common, treated quilepis as a variety rather than a subspecies. He noted that the variety quilepis (with xarvilobus as a synonym), with very small occipital flaps, predominated in the south, and was gradually replaced by typical dilenda as one proceeded northwards. There is certainly no justification for retaining quilepis as a subspecies, but Laurent (1964a), considers it to be a sibling species, sympatric with dilenda. The data he presents are not convincing, because his small sample of dilenda is from Elizabethville and the series of quilepis is from Angola.

Loveridge (1953a) recognised three races of C. dilenda in Malawi. C. d. isabellinus of the Shire Highlands has only 4 - 5 scales across an occipital lobe, compared with 6 - 8 in the typical form, and C. d. petersii of the Zambesi Valley and the Malawi Trough (250 to 1,550 feet) is larger in average size than the typical form, often exceeding 300 mm in total length.

The three specimens that I have examined from the Shire Highlands certainly key out to isabellinus, but so do odd chameleons from other regions. The "key character" for this form is too nebulous for sound taxonomy.

Loveridge (1953a, p. 186) himself admitted that the separation of petersii on size alone created difficulties, noting that he had recorded a female of 390 mm from Mbanja, north of Lindi and another of 370 mm from Morogoro, both localities in Tanganyika. He also observed that at Mbanja there appeared to be a colony of the giant form surrounded by normal populations. There are populations of "giant" dilenda in north-west Zambia and adjoining Angola. I have a of 327 mm (Kasenya) and 300 mm (Kabompa), also a pair from Cassai, both exceeding 300 mm. The largest Rhodesian specimen is a ♂ of 333 mm. from Irisvale. Loveridge (1920) gave the average lengths for Morogoro dilenda as 282 mm. for 23 ♂♂ and 319 mm. for 26 ♀♀, while 18 Zambian ♂♂ averaged 285 mm. In spite of this he did not include Tanganyika in the range of petersii (1957, p. 199). It appears futile to try and use size as a subspecies criterion in this instance.
In south-east Africa it seems that we are dealing with a variable monotypic species. I retain the trinominal because Parker (1942) has indicated that *C. dilepis rupelli* Boettger of Somalia is a valid race.

**Breeding.** The eggs are buried in a hole in the ground during December. The average size of the clutch is 35 - 50, but I have found 37 full-sized eggs in a gravid female.

**Diet.** Grasshoppers are the staple diet of this species (Loveridge, 1920, p. 161; Cott, 1934, p. 172; FitzSimons, 1943, p. 154), supplemented by beetles and other insects. I have seen an adult chameleon devour a juvenile of its own species.

**Enemies.** This species is heavily preyed upon by tree snakes, especially *Dispholidus typus* and *Thelotornis kirtlandii*. I have also recovered specimens from the stomachs of *Dispholidus shrevei* (Malawi) and *Telescopus a. seminannulatus* (Victoria Falls and Mozambique). A chameleon had been eaten by a mongoose (*Herpestes manginii*) collected near Salisbury. Found in a trout stomach at Inyanga by Turnbull-Kemp (1960, p. 6).

**Habitat.** This is a savanna species, and the few records from within the western rain forests are probably due to the occupation of cultivated clearings (Schmidt, 1919, p. 579). In south-east Africa *C. dilepis* is commonly found on forest fringes, but does not seem to occur within forest proper.

**Distribution.** Savannas of southern and eastern Africa, from southern Somalia to Natal, Swaziland, Transvaal, Bechuanaland and South-West Africa, extending north from Angola along the coast through the Lower Congo to Cameroon.

**Chamaeleo marshalli** (Boulenger)


Seventeen specimens examined from: RHODESIA. Chirinda Forest; Gleneagles; Stapleford; Pungue Gorge Forest; Vumba Mountain (Bungo and Castle Beacon Forests).

**Literature records.** RHODESIA. Chirinda Forest; Vumba Mountain.

**Description.** A small rostral protuberance present; no occipital flaps; a vertebral series of clumps of enlarged tubercles; no ventral crest; claws bicuspid; tail half to two-thirds length of body.
Discussion. Loveridge (1956a) has discussed the intermediate position of this species, which differs from all other species of Chamaeleo in its bicuspid claws and thus bridges the gap between this genus and the subgenus Rhampholeon of Brookesia. C. marshalli has several features in common with Brookesia platyceps of Mlanje Mountain, including the rostral protuberance and discontinuous vertebral crest, but marshalli has the wide range of colour change and the prehensile tail of a Chamaeleo; it warrants a separate subgenus.

Breeding. Females collected in December contained 12-13 eggs measuring 11 - 12 x 7 mm. (FitzSimons, 1943).

Diet. Stomach contents largely small beetles, with a few Hemiptera, Hymenoptera (Ichneumons and braconid wasps), Diptera and Pyralid moths and larvae (FitzSimons, 1943).

Habitat. Evergreen forests at altitudes varying from 3,500 to 6,000 feet. The Stapleford specimen was found on Philippia heath about a hundred yards from the nearest patch of forest.

Distribution. Wet evergreen forests along the eastern border of Rhodesia from Inyanga to Mount Silinda. It should occur in the forests on the eastern slopes of the Chimanimani Mountains in Mozambique.

Genus BROOKESIA Gray


Parker (1942, p. 80) recognised Rhampholeon as a full genus. Loveridge (1953a, p. 190) treated it as a subgenus of Brookesia. Osteological studies on all the species included in the group are required to resolve this problem.

BROOKESIA PLATYGPS (Gunther)


Nineteen specimens examined from: MALAWI. Ruo Gorge Forest on Mlanje Mountain.

Literature records. MALAWI. Lichenya Plateau and Ruo Gorge Forest on Mlanje Mountain.

The male from "Tshiromo" (BM. 93.10.26.35) probably comes from Mlanje Mountain and not from Chirimo in the Shire Valley (which is spelt correctly on the map on p. 617 of Gunther's 1894 paper). As pointed out by Loveridge (1953a, p. 146), the localities for many of the specimens collected by Sir Harry Johnston are obviously incorrect. Poynton (1964b, p. 203) has shown that the type locality for Rana j. johnstoni - Tshiromo" is probably an error for Mlanje Mountain. Whyte and sent to the British Museum by

**Description.** A small rostral protuberance usually present, sometimes completely absent; usually some enlarged tubercles on the supraciliary ridge; an interorbital row of enlarged tubercles; vertebral line with humps of granules which may be enlarged; flanks covered with granules and enlarged tubercles; axillary and inguinal pits present; claws bicuspid; tail about one third length of body.

**Size.** Largest $s$ (BM. 4269 - Ruo Gorge Forest) $62 + 24 = 86$ mm.

Largest $d$ (MZ. 50749 - Ruo Gorge Forest) $62 + 17 = 79$ mm.

**Discussion.** B. platyceps carri was based on a single gravid female from the Lichenya Plateau and three paratype males from the Ruo Gorge, which Loveridge considered to show signs of intergradation with the typical form. He suggested that BM. 33, 4, 3. 4. from Lichenya Plateau was collected at a lower altitude because it was a "typical platyceps"

A series of nineteen B. platyceps, collected along the path through the Ruo Gorge Forest between 3,000 and 6,000 feet, shows considerable variation in the "diagnostic characters" used by Loveridge. As there is no barrier to gene flow between chameleon populations at different altitudes on Mlanje Mountain, I have no hesitation in placing carri in the synonymy of B. platyceps.

**Breeding.** The $g$ type of carri contained 12 small eggs.

**Habitat.** Wet evergreen forest in the Ruo Gorge, extending into mist forest with *Fedosarma* and *Wildiopsis* near the top of the Ruo Falls. These chameleons are often found crossing the leaf-strewn path, but they are abundant on grass fringing the path at the bottom end of the gorge near the Injeri power house.
Distribution. Evergreen forest on Manje Mountain, likely to occur on the forested inselbergs on the Mlanje Platform north-east of Manje.

BROOKESIA NOHISIENSIS Loveridge

Brookesia nohisiensis Loveridge, 1953, Bull. Mus. Comp. Zool., 110, p.190, pl. iii, fig. 1; Nohisi Forest at 5,000 feet on Nohisi Mountain, Malawi (paratypes from Misuku Mtns. and the Ulinga, Poroto and Rungwe Mtns. in Tanganyika).

One specimen examined from: MALAWE. Mughese Forest, Misuku Mountains.

LITERATURE RECORDS. MALAWI. Misuku Mtns; Nohisi Mtn.

DESCRIPTION. A small rostral protruberance present; superciliary ridge composed of enlarged/strainule; a series of granular humps along the vertebral line; flanks covered with minute granules and very small scattered tubercles; no axillary or inguinal pits; claws bicuspid; tail a quarter to a third of body length.

SIZE. Largest (BM, 6604 - Misuku Mtns.) 40 + 12 = 52 mm. Largest 9 (MZ, 50661 - Holotype) 67 + 16 = 83 mm.

BREEDING. Loveridge found two females in the process of laying their eggs under logs in the Nohisi Forest at the beginning of December. The eggs measured 12 x 7 mm and the clutch size varied from 12 to 15.

ENEMIES. Loveridge found specimens in the stomachs of two Thalotornis k. capensis collected in the Misuku Mountains.

HABITAT. Evergreen forests and wild bananas beside forest streams.

DISTRIBUTION. Montane forests of south-western Tanganyika and northern Malawi, extending south to Nohisi Mountain.

BROOKESIA BRACHYURA (Gunther)


Bhamsholea brevicaudulus (not Matschie) Werner, 1902, p. 431 (Zomba); Mitchell, 1946, p. 26 (Zomba).


Brookesia brachyura brachyura Loveridge, 1953a, p. 192 (Muntyre; Nkolongwe).
One specimen examined from: MOZAMBIQUE, Chapala.

Literature records. MALAWI. Blantyre; Mikolongwe; Zomba. MOZAMBIQUE. Massangulo.

Description. No rostral protruberance; superciliary ridge composed of prominent granular tubercles; no interorbital series of enlarged granules; vertebral line with enlarged conical granules, but no granular humps; flanks covered with minute granules and scattered tubercles; an axillary pit present, but no inguinal pit; claws bicuspid; tail a quarter to a third length of body.

Size. Largest 8 (MZ. 52131 - Mikolongwe) 46 + 7 = 53 mm. Largest 9 (MZ. 52132 - Mikolongwe) 46 + 8 = 54 mm.

Discussion. In describing B. ionidesi Loveridge compared it with brevis-caudata and brechyrura, but the chameleon which he took to be brechyrura was in fact the species that he subsequently described as B. nebulifrons. He thereupon (1953, p. 193) made ionidesi a race of brechyrura, stating that "it differs in lacking the numerous strongly developed granular tubercles displayed by the typical form". When I compared my Chapala specimen with topotypes of ionidesi and found them indistinguishable, it seemed doubtful whether populations at Blantyre and Chapala, about 175 miles due east, were subspecifically distinct. On my request, Miss A. G. C. Grandison has kindly compared the types of brechyrura with five paratypes of ionidesi and reports (letter of 4. XI. 65) that they are indistinguishable.

Breeding. The Mikolongwe 9 contained 6 eggs measuring 9.5 x 5 mm.

Habitat. B. L. Mitchell collected three specimens in gallery forest along the Mudi River at Blantyre and the Nansadi River at Mikolongwe, I found the Chapala specimen asleep on a blade of grass about one inch above the ground, while collecting frogs along a stream at night.

Distribution. South Tanganyika, northern Mozambique and southeastern Malawi.

Family SCINIDAE

Genus MAKUYA Fitzinger

Makuya Fitzinger, 1826, (part), Neue Class. Rapt. pp. 23, 52. Type by tautonymy: M. dominicensis Fitzinger = Lacertus mahowe Lacépède.
MAUYA HOMALOCEPHALIA DEPRESSA (Peters)

*European depressa* Peters, 1854, Monatb. Akad. Wiss. Berlin, p. 618; Tete, Mozambique, and 1862, p. 71, pl. x, figs. 4, 4a-c.

*Malania depressa* Beccar, 1896, p. 98; Boulenger, 1887a, p. 166; Hewitt, 1910c, pp. 93, 99; Themido, 1941, p. 14 (Beira).

*Malania homalocephala* (not Weigmann) Roux, 1907, p. 82 (Rikatia).


*Malania homalocephala depressa* FitzSimons, 1943, p. 211 (Masieni); Namibia, 1952, p. 139 (Mavela).

Twenty-one specimens examined from: RHODESIA. Malapati Drift. MOZAMBIQUE. Beira; Dondo; Ilha dos Portugueses; Inhaca Island; Santa Carolina Island; Seygane.

**Literature records:** MOZAMBIQUE. Beira; Masieni; Rikatia.

The type locality "Tete" is probably incorrect. This skink is restricted to alluvium of the Mozambique Plain and the type may have come from Inhambane or Borror. Tete has been visited by several collectors since Peters' time and if *M. h. depressa* does occur there it is strange that more specimens have not been found.

**Variation.** Centre of nostril usually posterior to suture of rostral/first labial; supramacules well separated; prefrontals in contact or separated; supraciliaries 3 - 6, usually 5; upper labials anterior to subocular 4; 3 or 4 lanceolate labials on anterior border of ear opening; midbody scale rows 28 - 32, the dorsals with 5 - 9 keels in adults, but tricarinate in juveniles; lamellae below fourth toe 19 - 23.

**Coloration.** Back grey-brown to red-brown, uniform or with scattered black spots, or with outer borders of scale rows dark, forming narrow longitudinal lines; a dark lateral band (often broken up by pale flecks) extends from eye to groin, bordered below by a yellow stripe which begins on the upper lip, and is edged below by another dark stripe; lemon-yellow below.

**Size.** Largest d (UM. 2344 - Inhaca Island) 74 + 124 = 198 mm. Largest g (QVH/R. 176 - Malapati Drift) 60 + 105 = 185 mm.

**Habitat.** Confined to coastal alluvium, where they are largely terrestrial, but may often be found basking on tree trunks or in bushes.

**Distribution.** The coastal plain of south-east Africa from the Zambezi (if Cott's "laceriformis" is referable to this species, the specimens went to the London Zoo alive and were not preserved) to Natal, including the off-shore islands, inland to southeastern Rhodesia (see Fig. 6).
**MABUZA MACULIFLATUS (Gray)**


_Mabuza maculiflatus_ Loveridge, 1933, p. 312 (Nyankolo); Pitman, 1934, p. 306.

_Mabuza maculiflatus comoresis_ (? not Peters) Loveridge, 1933a, p. 200 (Ruo River at Lujeri).

Eleven specimens examined from: ZAMBIA. Kasama(I.R.S.M.B.); Nyankolo (M.C.Z.). MALAWI. Lujeri Estate.

**Literature records.** ZAMBIA. Nyankolo. MALAWI. Lujeri.

**Variation.** Centre of nostril posterior to suture of rostral/first labial; supranasals usually separated; prefrontals usually well separated (in contact in the Kasama specimen); supraciliaries 4 - 6; upper labials anterior to subocular 4 (rarely 3 or 5); 3 - 7 obtusely pointed lobules on anterior border of ear opening; midbody scale rows 31 - 34, dorsals with 5 - 9 keels; lamellae under fourth toe 17 - 19; head 19.8 - 24.4 per cent of snout-vent length.

**Coloration.** Olive to grey-brown above, with scattered dark flecks, flanks darker with light and dark flecks, especially on the side of the head and neck; yellow below.

**Size.** Largest $f$ (Wt. 4210 - Lujeri Estate) 81 + 136 = 217 mm.

**Discussion.** This species is greatly in need of revision on a continental basis, but I can detect no significant differences between these specimens and comparative material from Cameroon, the Congo, Uganda and Angola. It is possible that _comoresis_ Peters, with 34 - 36 midbody scale rows is a recognisable race endemic to the Comoro Islands (see Fig. 6).

**Diet.** Loveridge found grasshoppers in the stomach of the Ruo River specimen.

**Habitat.** These skinks were common on the Lujeri Tea Estate in an area which had been recently cleared, leaving a few forest trees standing. These trees were swarming with _Mabuza maculiflatus_ and _Hylopus g. lasius_. Two were living on the verandah of a house. Loveridge's Lujeri specimen was one of a pair living beneath the planks of a suspension bridge straddling the Ruo Gorge.

Loveridge (1933, p. 315) shot his Nyankolo specimen and an adult _Mabuza planifrons_ as they basking side by side on a hollow tree trunk.

**Distribution.** This species is typical of forest-edge and clearings within forest, extending from Guinea to Somalia, south to Malawi, northern Zambia and Angola.
HABUA BOULENGERI Sternfeld.

Habua moculilabria boleengeri Loveridge, 1953a, p. 200 (Mtinluka).

Twenty speci mens examined from: RHODESIA. Maroni-Inzitu Confluence; Ngorema Reserve (E). MALAWI. Cholo Mul. MOZAMBIQUE. 10 m. E of Alto Ligenha; Jaim; Ca valo; Grudja; Gusha; Mariage; Mada; Ponte do Pungo; Xiluvo.

Litterature record. MALAWI. Mtinluka.

Variation. Cent res of nostril posterior to suture of rostral/first labial; supranasals usually separated; prefrontals usually separated; supraciliaries usually 3, rarely 3, 5 or 6; upper labials anterior to suboculars, rarely 3; 3 - 6 obtusely pointed lobules on anterior border of ear opening; midbody scale rows 28 - 32, dorsals with 7 - 11 keels in adults, 3 - 5 in juveniles; Imellas under fourth toe 15 - 20; head 17.4 - 21.3 per cent of snout-vent length in adults.

Coloration. Grey brown above, usually with a few scattered black spots on the back; a narrow dark line runs from the preocular, under the eye to the ear opening; uniform yellow below.

Size. Largest ♂ (UN. 10377 - E. Ngorema Reserve) 82 + 190 = 272 mm.
Largest ♀ (UN. 8778 - Mariage) 90 + 203 = 293 mm.

Discussion. Although he treated boleengeri as a race of H. moculilabria, Loveridge recorded both "subspecies" from south Tanganyika and Malawi, even listing both from Kilwa in the same paper (1953, p. 173). The two species differ strikingly in appearance and coloration. H. moculilabria is a robust skink with a large head, whereas H. boleengeri is slender, with a very long tail and a small head. The head length:snout-vent length ratio, midbody scale count and number of supraciliaries are all useful diagnostic characters when used in conjunction with coloration and habitat.

Diet. A large spider was found in the stomach of Loveridge's Mtinluka specimen.

Habitat. Loveridge shot the Mtinluka skink in a creeper covered tree twelve feet from the ground and considers this form to be more arboreal in habits than H. moculilabria. In Mozambique and Rhodesia it is usually found on the ground or basking in the top of tall grass, on thatched roofs or piles of palm fronds. One specimen from the Maroni-Inzitu Confluence was under dead leaves on the forest floor. In riverine forest at Bondo I saw one on a tree trunk spanning a stream, but in the southern part of its range this species cannot be called truly arboreal.
Distribution. Southeastern Tanganyika south through Mozambique to the Save River, west to Malawi and eastern Rhodesia (see Fig. 6).

MAHUYA MEBALUHA (Peters)

Emydura (Lemisia) megalura Peters, 1878, Monatsb. Akad. Wiss. Berlin, p. 204, pl. 11, fig. 4; Teitz, Zanzibar.

Lemisia megalura Loveridge, 1930, p. 153 (Lumbo).

Six specimens examined from: ZAMBIA. Abercorn (Vassy-Fitz-Gerald collection). MOZAMBIQUE, Lombo (M.C.Z.).

Literature record. MOZAMBIQUE, Lombo.

Variation. Centre of nostril posterior to suture of rostral/first labial; supranasals in broad contact; prefrontals separated; supraillaries 3 (4 in one); upper labials anterior to subocular 4 - 5; no lobules on anterior border of ear opening; midbody scale rows 24 - 26, dorsals smooth; lamellas under fourth toe 17 - 18. The Abercorn skink is more robust than the Lombo specimens.

Coloration. Lombo series. Light orange-brown above, with a dark-edged pale vertebral stripe two scale rows wide, a white lateral stripe one scale wide from upper lip, above shoulder to groin. White below. The Abercorn specimen is grey-brown above and lacks the vertebral stripe.

Size. Largest ♂ (MIZ. 18331 - Lombo) 51 + 208 = 259 mm. Largest ♀ (Loveridge, 1930 - Lombo) 65 + 235 = 300 mm.

Diet. Loveridge found spiders in the stomach of a Lombo male.

Habitat. "The Lombo specimens were found rushing about on sandy ground, which is sparsely grown with clumps of grass." (Loveridge, 1930).

Distribution. Ethiopia, south to Lombo, Mozambique, and west to Uganda and Katanga.

MAHUYA PLANIFRONS (Peters)

Emydura (Emydura) planifrons Peters, 1878, Monatsb. Akad. Wiss. Berlin, p. 203, pl. ii, fig. 2; Teitz, Zanzibar.

Lemisia planifrons Loveridge, 1933, p. 315 (Nyankolo); Pitman, 1934, p. 306.

Lemisia pyrrhotodonwiseke Witte, 1933, p. 100, pl. ii, fig. 4 and pl. xii, fig. 1; Moci, Upenba National Park, Katanga; Loveridge, 1956b, p. 4.
Three specimens examined from: ZAMHIA. Nyankolo (M.O.Z.).

**Variation.** Centre of nostril posterior to suture of rostral/first labial; supranasals in broad contact; Prefrontals separated or in contact; supraciliaries 5; upper labials anterior to subocular 5 (4 on one side of one); 3 - 4 obliquely pointed lobules on anterior border of ear opening; midbody scale rows 30 - 32, dorsals tricarinate; lamellae under fourth toe 16 - 19.

**Coloration.** Grey-brown above, head often orange-brown, back with scattered dark flecks, a pair of light dorso-lateral bands anterriorly; a broad dark lateral band from nostril, through eye and above shoulder, fading out at about midbody, this may be flecked with white; cream below.

**Size.** Largest (MZ 30911 = Nyankolo) 125 +160 mm.

**Discussion.** Loveridge (1933, p.5) suggested that M. p. unisulcata, together with material from Nyankolo and southern Tanganyika which he had previously (1933) listed as M. planifrons, represented intergrade *perrosetti* x *planifrons* populations. Loveridge did not include *M. perrosetti* in his East African Check List (1937, p. 211), but I have examined seven specimens from Kenya and north Tanganyika (Arusha). This is a massive skink, which is well illustrated by Schmidt (1979, pl. xxvi). I have also examined twenty specimens of *M. planifrons* from Nyankolo, the Kubwa Valley, the Meru District of Kenya and Somalia. These agree with Witte's description and plates of *M. p. unisulcata*, although there is some geographical variation, as pointed out by Loveridge. *Malurus planifrons* is a good species because it is sympatric with *M. perrosetti* at Marimanti in Kenya. The variation in *M. planifrons* is clinal and therefore *unisulcata* is not a recognizable race.

**Habitat.** One Nyankolo skink was shot on a tree trunk as it basked alongside a *Malurus maculilabris* (Loveridge, 1933, p. 315).

**Distribution.** Ethiopia and Somalia, south to Tanganyika, west through northern Bambata to Katanga.
*Habia margaritifera* Bocage, 1896, p. 88 (Mozambique).

*Habia quinquecostata* (not Lichtenstein) Gunther, 1893, p. 555 (Shire Highlands); Boulenger, 1897, p. 500 (Kafue Bay to Ruarwe; Nyika District) and 1902, p. 17 (Masamalamb; Chubb, 1909a, p. 594 (Bulawayo; Khami River; Colleen Bawn; Kanyemene) and 1909b, p. 35, (Victoria Falls; Lolomudi District); Boulenger, 1907a, p. 5 (Petani; Luangwa Valley) and 1910, p. 434 (Kapotso; Nundayi); Sternfeld, 1911, p. 27 (Tete; Chitumbi; Galayza); Gott, 1934, p. 165 (Sinjala); Pitman, 1934, p. 205 (Munungushi Valley).


*Habia quinquecostata margaritifera* Schmidt, 1919, p. 547; FitchSimons, 1925b, p. 287 (Kalabati; Zimbabwe), 1939b, p. 35 (Tanganika Bridge; Changadzi River; Birchenough Bridge; Devali Bridge) and 1943, p. 213, (Orientein; Chillimani; Plumtree; Toamani; Inumia; Nolapolelo; Strathmore; Shangweini; Wankie); Mitchell, 1944, p. 37; Haines, 1952, p. 140 (Namach); Loveridge, 1953a, p. 199 (Tete); Haines, 1961, p. 149 (Mukungo River; Vila Paiva de Andrade); Broadley, 1962, p. 800.

**Habia quinquecostata obti** Loveridge, 1953a, p. 196 (Schusi Mtn.; Chitale River; Chowe; Minhaka; Chiradsala Mtn.; Limabala River; Ru River); Broadley, 1962, p. 799.

Three hundred and ninety-seven specimens examined from:

**RHODESIA.** Foley, Francistown; Mabate; Wolf Hills. **RHODESIA.**

Audi Falls; Angva - Makushi Confluence; Bali Balla; Baseley Bridge; 18 mls. S. of Beitbridge; Minura; Binga; 12 mls W of Birchenough Bridge; Bulawayo; Burn Bridge; Changadzi River; Charuma Plateau; Chibake Bridge; Chido; Chilamisani Mountains; Chicara Ranch; Chinamhinda; Chinambara Hill; Chinikwa Reserve; Chipinda Pools; Chirundu; Chitakama Bridge; Colleen Bawn; Dora; Dott's Drift; Ganderowe Falls; Gatai; 50 mls. SE of Gwanda; Gwelo; Haroni-Lusitu Confluence; Heathfield; Helvetia; Holdenby; Hunters Road; Itasha Bridge; Inyamura; Irisvale; Kamativi; Kanjukwasu Pan; Kapasi and 5 mls SE; Kariba; Kariba Lake - Mataban & Sengwa Confluences, Sanyati Island and Sengwa Sound; Khami Dam; Kota Kota; Kyle Dam; Limpopo - Umzingwane Confluence; Lusikos Bridge; Lumili River; Lutope Gorge; Makurupini River; Nunda; Manyali Ranch; Marara and Makanke Reserves; Marungudzi; Masanga Hill; Matinenda Bridge; Nateza; Mavoradza Mtn.; Mota Reserve; Modica; Mount Rudd; 4 mls. ESE of Ngwizi Bridge; 15 mls NNE of Mtoko; Mufandirira; Nelson South;
Ngorim Reserve (E); Mmäi; Nyadiri; Nyamasilu River; 4 mls W of
Nyampanda; Pluntrree; Ruenya River Drift; Rungu; Runare; Sald -Načaha & Makini Confluences; Salisbury (N.M.); Sengwe Gorge; Shangani;
Shani - Limpopo Confluence; Shwaneve Bridge; Sinaia; Tshwane; Triangle;
Tuli; Untall; Victoria Falls; Wankie and 5 mls NW; Watsomba; Zambezi -Selungwe Confluence and opposite Falls; Loua; ZAMBIA; Chalumwe River;
Chirundu; Fort Jameson; MAJANI. Cape Maclear; 15 & 20 mls NW and 15
mls SSW of Fort Johnston; Mpetamanga; Zomba Plateau. NEOGUIQUE,
Cavalo; Chicamba Dam; Chiuta (USHM); Comana; Garra; Comana; Jorge;
30 mls SE of Licoiro; Magasso; Matawu; Matutu; Macuio; 15 mls SW of
Mchonje; Mbetonde; Muteue Mtn.; Matina; 14 mls W of Moremuhula;
15 mls. N of Mungula; Mungulo; Namacha; 30 mls ENE of Mampula; Runve;
Sabelu; Saco; Tete (USHM) and 5 mls E, 4 mls W and 15 mls SSW; 3 mls
N of Vamunzi; Vila Guntinho (USHM); 15 mls NW of Vila Junqueiro; 4 mls
W and 7 mls E of Vila de Manica; Vioia; Zembj; Zobe and 5 mls SW.

Literature record. NEUГUINE. Kalakamú; Molepolole; Towani.
RHODESIA. Kirkcaldy Bridge; Bulawayo; Chiragishi; Chiiimbi; Colleen
Baws; Dewuli Bridge; Driefontein; Emodane; Hanyi River; Insia;
Khasi River; Matopo; Pluntrree; Shangwe inani; Strathmore; Tangaria
Bridge; Victoria Falls; Wankie; Zimba. ZAMBIA. Luangwa Valley;
Mwembali Valley; Petauke. MAJANI. Chirundu Mtn.; Chitaka River;
Chowe; Likabula River; Mihanka; Mchisi Mtn.; Mata Bay to Runwe; Nyika
District; Ruu River. MOZAMBIQUE. Gabaya; Chitunku; Namacha;
Nhantare River; Sinjai; Tete; Vila Paiva de Andrade.

Variation. Supraciliaries 4 - 7, usually 5; upper labials anterior
to subocular 4 - 5, rarely 3 or 6; midbody scale rows 30 - 52; lamellae
under fourth toe 17 - 25, usually 20 - 24.

Size. Largest 6 (UN. 4111 - Mpetamanga) 114 +177 = 291 mm. Largest
as (UN. 4049 - 5 mls W of Tete) 111 + 160 = 271 mm., but UN. 1786 (Nelson
South) measures 120 mm from snout to vent (tail regenerated).

Discussion. Loveridge (1953a) revived obelis for Nalawi and Tunganyika
populations, but could distinguish it only by midbody scale counts, i.e.:
Midbody scale rows 40 - 44; range - Eastern Africa south of the
Zambesi .......................................................... a.margaritifer
Midbody scale rows 44 - 48, rarely 42; range - Eastern Africa north
of the Zambesi .................................................. a. obelis

Subsequently Loveridge (1955, p. 172) recorded margaritifer
from south-east Tanganyika; a series of 45 skinks from Kilwa, Tanga and
Mangisi had 42 - 45 midbody scale rows; average 42.8.

As I have previously (1962d, p. 800) pointed out, if obelis is
recognisable its range extends south of the Zambesi across the Manica Plate-
form and into south-eastern Rhodesia. In Fig. 5, the material examined has
been split into groups, each containing material from within one degree
square. The average midbody scale count for each square and the number
of specimens in the group (in parentheses) has been marked within the
relevant square on the grid map. If an average midbody scale count of
44.0 is taken as the boundary between obesi and sayurutitifor then the
heavy line in Fig. 5 divides the two races. In view of the occurrence
of populations with low scale counts in South Tanganyika and others with
high counts in eastern Bechuanaland, it seems advisable to replace obesi
in the synonymy of sayurutitifor. The latter is certainly very differ-
ent from specimens of the typical form received from Kenya.

Breeding. A g from Changadzi Bridge contained 10 eggs measuring 16 x
10 mm on 23rd December.

Diet. Stomach contents of seven Kapasi skins consisted of lepidopter-
cous larvae, small beetles, a grasshopper, a shield bug, termites, a small
centipede, a small millipede and the slough of a skink (Broadley, 1962d).

Enemies. One was recovered from the stomach of a Naja n. massacribus
at Kariba Lake.

Habitat. This species is common on granite, paragneiss and sandstone
outcrops up to about 5,000 feet, to occasionally moves onto house walls if
these are not occupied by Habuva striata.

Distribution. Uganda and Kenya, south to Natal, west through the
Transvaal and Rhodesia to eastern Bechuanaland.

HABUVA CAPENSIS (Gray)

Tiliqua capensis Gray, 1830, in Griffith's Anim. Kingi., ix, Syn., p. 66:
Cape of Good Hope.

Habuva trivittata (not Harshbake & Gray) Werner, 1910, p. 341, pl. vii,
fig. 6 (Mookane; Vlei Topan); Hewitt, 1910c, pp. 93,99 (Mochudi);
Power, 1927a, p. 408 (Lobatsi); FitzSimons, 1935b, p. 368 (Nkua;
Kaobue).

Habuva kalabatca Werner, 1910, Jena. Denkschr., 16, p. 350, pl. viii,
fig. 11: Lebututu-Kang, Kalahari.

Habuva capensis FitzSimons, 1943, p. 216 (Serowe) and 1958a, p. 207
(Nyamzwa); Broadley, 1962d, p. 801.

Nine specimens examined from: 
BECHUANALAND. Kang and 35 mls w; 
15 mls E of Lake Dow; 10 mls SE of Letlaking (USNM); RHODESIA. Inyungan1 Mtn.; 
Mare Dam; Pungwe View. ZAMBIA. Lumo Plain.

Literature records. 
BECHUANALAND. Kaobue; Enko; Lebututu-Kang;
Lobatsi; Mochud1; Mookane; Vlei Topan. 
RHODESIA. Nyamzwa.
Fig. 5. Distribution of Makupa quinquepunctata margaritifer, with the average midbody scale counts for material examined from each degree square (number of specimens comprising each group in parentheses).
**Variation.** Centre of nostril posterior to suture of rostral/first labial; supramaxillae in contact; prefrontals separated or in contact; supraciliaries 3 – 5, usually 5; upper labials anterior to subocular 4, rarely 5; midbody scale rows 32 – 36, dorsals tricarinate; lamellae under fourth toe 12 – 20.

**Size.** Largest (USMT, 10 mls SE of Letlaking) 100 + 165 = 265 mm.

**Diet.** Carabid and tenebrionid beetles in the stomach of a Calotus skink (FitzSimons, 1935b).

**Habitat.** In the Kalahari, usually found among low bushes bordering the pans. In the Inyanga District this lizard is found in open montane grassland.

**Distribution.** Common throughout South Africa except for the arid areas of the western Cape Province. It occurs in the southern Kalahari, then there is a break in distribution and the species reappears in Barotseland. On the eastern side of the subcontinent the relict population on the Inyanga Mountains is separated from the eastern Transvaal populations by a gap of 400 miles. *Hemolatus basimohlus* has a similar distribution on the eastern escarpment, but does not extend into the Kalahari. See Fig. 6.

**HABSCA OCCIDENTALIS** (Peters)

Objimbingue, South West Africa.

*Malania occidentalis* Hewitt & Power, 1913, p. 198 (Ey Ey; Nossob River);
FitzSimons, 1935b, p. 545 (Nossob River area).


Two specimens examined from: BOCCHUANA LAND. Lehututu Pan;
S.W.A. – E.R. Border at 24°E.

**Literature references.** BOCCHUANA LAND. Anob-Nossob Confluence; Ey Ey.

**Variation.** Centre of nostril above or posterior to the suture of rostral/first labial; supramaxillae in broad contact; prefrontals in contact or separated; supraocularies 5; upper labials anterior to subocular 4; midbody scale rows 36, dorsals fuscous tricarinate; lamellae under fourth toe 21 – 22.

**Largest** (QW/H, 134 – Lehututu Pan) 82 + 125 = 207 mm.

**Habitat.** Very active during the day on grass-covered dunes in the Kalahari Gemsbok National Park (FitzSimons & Brain, 1958b).

**Distribution.** The arid areas of southern Angola, South West Africa and western Cape Province, extending into the Karroo and the south-western corner of Bochuanaland (see Fig. 6).
MABUYA LONGILOBA LONGILOBA Methuen & Hewitt


Mabuya varia varia (not Peters) part, FitzSimons, 1935b, p. 369 (Ruka; Kuke - Gomodimo; Kachwe; Damara Pan; N'Kake to Nata River).


Mabuya longiloba Longiloba Broadley, 1960a, p. 801.

Fifteen specimens examined from: RHODESIA, Wankie National Park - Main Camp, MOZAMBIQUE, Chigubo (TM); Panda (UK).

Literature records. RHODESIA. Damara Pan; Kachwe; Ruka; Kuke - Gomodimo; N'Kake to Nata River. MOZAMBIQUE, Muaela.

Variation. Centre of nostril in front of or above suture of rostral/first labial; supramesals in broad contact; prefrontals usually widely separated, rarely in short contact; supraciliaries 5, rarely 4; upper labials anterior to subocular 3, rarely 2; two or three lanceolate lobules on the anterior border of ear opening; midbody scale rows 30-32, dorsals with 5-7 keels; lamellae under fourth toe 18-22.

Coloration. Pale grey-brown above, usually with some dark dorsal spots or streaks, especially a paired series down the middle of the back, a narrow pale dorsal-lateral line is usually present in Mozambique specimens, which also have a distinct white lateral stripe running from below the eye, through the ear opening to the groin, this stripe is poorly defined in Kalahari specimens. White below.

Size. Largest g (Mhambo, 1952 - Muaela) 45 + 64 = 109 mm. This is a much smaller species than Mabuya varia.

Discussion. The validity of this dwarfed crested species is now well established and Mertens (1955, p. 77) has shown that its correct name is Longiloba Methuen & Hewitt, nanarana Peters being a synonym of Mabuya varia Peters. It is not difficult to distinguish M. longiloba from M. varia, but it seems to be closely related to M. incertiformis.

Dist. Small beetles in a Muaela g (Hamann, 1952).

Habits. Restricted to Kalahari Sand and coastal alluvium. The skinks collected in the Wankia National Park were living under tree trunks together with Mabuya varia, the latter being more plentiful. Other associated skinks were Bioum sundevalli and Tribozetia p. namibiensis.
Distribution. Southern Angola (Laurent, 1964a, p. 73), South West Africa and arid areas of the Cape Province, extending across the Karroo to the Albany District and through the Kalahari to north-western Rhodesia. There is a relict population at Great Saltpan in the northern Transvaal and another, more extensive one, in south Mozambique. It is likely to be found on the south-eastern border of Rhodesia and the northern end of the Kruger National Park (see Fig. 6).

MABUYA LACERTIFORMIS (Peters)


_Boror_, Mozambique, and 1882, p. 70, pl. x, fig. 2.

_Mabuya lacertiformis_ Boulangier, 1887a, p. 399; Bocage, 1896, p. 76.

_Mabuya depressa_ (not Peters) FitSimons, 1939b, p. 36 (Tanganda and Changadzi Rivers) and 1943, p. 224 (part above localities only).

_Mabuya lacertiformis_ Loveridge, 1953a, p. 201 (Msinbula; Mtatamanga; Kasumaladeza near Tete).


_Mabuya lacertiformis_ Loveridge, 1953, p. 802.

Seventy-three specimens examined from:

**RHODESIA.** 30 mls W of Birechenough Bridge; Changadzi Bridge; Chimoyo; 8 mls E of Chidzwa Bridge; Devuli Bridge; Hatcliffe; Kapiri; Kariba; Kvale Lake; Lukosi Bridge; Matowa; Mtota Reservoir; Mount Rvid; Mazoro; 7 & 15 mls NE of Mtoko; Rose Division; Ruacana River Drift; White Waters Bridge.

**ZAMBIA.** Kota Kota; MTENI. Cape Maclear; 15 mls SW of Fort Johnston; Mtamangwa Gorge; MOZAMBIQUE. Changara; Msalosa; Masinga; 10 mls W and 12 mls SW of Mapumhi; 5 mls W and 15 mls SW of Tete; Viola.

_Literature records._ RHODESIA. Changadzi and Tanganda Rivers.

MTENI. Mtatamanga; Msinbula; MOZAMBIQUE. Tete.

The type locality "Boror" is certainly incorrect. Peters says that he only obtained four specimens in that marshy area, but _M. lacertiformis_ is a strictly riparian species. An Unilever Mission Expedition visited the Boror swamps in December, 1964, when they were dry. The only _Mabuya_ seen in the area was _M. varia_. There is little doubt that the types of _lacertiformis_ came from Tete, where these skinks are common, and associated with _Mabuya a. maxillaris, Gerrhonotus v. valida_ and _Platysaurus torquatus_, all of which Peters did collect at Tete. He probably confused this species with _M. h. depressus_, which might occur at Boror, but certainly not at Tete, its "type locality".
Variation. Centre of nostril usually in front of suture of rostral/first labial; supra nasals in broad contact; prefrontals usually well separated, rarely in contact; supraoculars 3 - 6, usually 5; upper labials anterior to subocular 5, rarely 4 or 6; three or four lanceolate lobules on anterior border of ear opening; midbody scale rows 36 - 42; dorsals with 3 or 5 keels; lamellae under fourth toe 17 - 22.

Coloration. Grey-brown to bronze above with a few scattered dark spots, tail with an ill-defined pale dorso-lateral stripe. White below, chin and throat with indistinct dark infuscations, ventrals sometimes dark-edged, forming narrow dark longitudinal lines.

Size. Largest \( f \) (MZ, 50807 - Kasumbedza) 43 + 33 = 131 mm.

Largest \( f \) (UM, 2503 - Chegadzi Bridge) 35 + 66 = 121 mm.

Discussion. The types of *M. laceriformis* in the Berlin Museum cannot at present be traced, so the status of this name remains doubtful. In general Peters' description fits the pseudoocular skink that I named *rheosiana* in 1960, but he stated that his skink had smooth scales under the fingers and toes, whereas the species under consideration agrees with *longiloba* in having spinose scales on the soles of the feet and keeled lamellae under the toes. The doubts expressed above concerning the type locality given for *laceriformis* must also be taken into consideration. As Peters gives 38-40 longitudinal rows of body scales, the possibility of *longiloba* being a synonym of *laceriformis* is ruled out. Until the types of *laceriformis* are found, I provisionally place *Hydrya a. rhodesiana* west in the synonymy of *M. laceriformis*.

I have previously (1962, p. 802) treated this skink as a subspecies of *M. longiloba*, but as both forms occur in Manye District (within 30 miles of one another) with no sign of intergradation and as they are effectively kept apart by very different habitat preferences, it seems logical to treat them as distinct species.

Enemies. Loveridge (1953a, p. 202) found a freshly swallowed discarded tail in the stomach of a *Psammophis a. subhaematurus*.

Habitat. Widespread on granite, paragneiss and sandstone outcrops, where they tend to frequent boulder-strewn slopes rather than the open rock faces beloved of *Hydrya a. marmortiger* and *Platysaurus* spp. The Devuli Bridge series was taken on small quartz outcrops, where they were living in hollow tree trunks. They are easily overlooked because of their small size and cryptic coloration. This species is not shy and can often be caught by hand.

Distribution. Rocky areas of eastern Rhodesia and adjoining Mozambique, extending west up the Zambezi Valley to Manye District and northwards into southern Malawi (see Fig. 6).
Fig. 6. Distribution of some species of the genus *Mabuya*

- *Mabuya homalocephala depressa* (Peters)
- *Mabuya maculilabris* (Peters)
- *Mabuya boulangeri* Sternfeld
- *Mabuya capensis* (Gray)
- *Mabuya occidentalis* (Peters)
- *Mabuya longiloba longiloba* Mathuen & Hewitt
- *Mabuya lacertiformis* (Peters)
- M. h. depressa and M. boulangeri
- M. c. capensis and M. l. longiloba
Habia varia (Peters). Euprepes (Euprepis) varius Peters, 1854, p. 618 (Tete).
Euprepes Olivieri (not Dumeril & Bibron) Peters, 1854, p. 618 (Tete).

Habia varia Gunther, 1893, p. 555 (Shire Highlands).

Habia varia Bolander, 1897, p. 800 (Kunta Bay to Barwe; Kombo to Karonga; Nyika District and Plateau; Misuku Mtns.); Beoora, 1896, p. 98; Bolander, 1907a, p. 9 (Pemba) and 1907b, p. 485 (Beira); Chubb, 1909a, p. 994 and 1909b, p. 35 (Khami River; Colenso Bank; Essendene); Bolander, 1910, p. 485 (Salisbury; Serowe); Hewitt & Power, 1913, p. 152 (Eldorado; Marandellas); Loveridge, 1920, p. 153 (Loubo; Delagoa Bay); Power, 1927a, p. 408 (Lobatse); Gott, 1934, p. 166 (Charrre; Amatongas); Mitchell, 1946, p. 27; Tussman, 1957, p. 26.

Habia varia varia Pitman, 1934, p. 306 (Mumbu; Ngila; Sarenje); FitzSimons (part) 1935b, p. 369 (Tshum; Gaberones; Gabani; Malopoole to Kasa; Kasa; Chum River to Damara Pan; Damara Pan; Damara Pan to Van Zyl's Cutting; Nebelsapudi; Shaleshonto; Fitgroot; Matopo; Zimbabwe); Hartens, 1937, p. 12 (Salisbury); Loveridge, 1953a, p. 212 (Zomba Plateau; Likulala River; Misuku Mtns.; Nkhisi Mtn.; Chitata River; Mchinika; Chowe; Chiragsulu Mtn.; Cholo Mtn.; Lichanya Plateau; Ruo River; Tete; Beira) and 1953b, p. 142 (Zomba Mtn.; Limbe; Chiroro - Fort Hecild); FitzSimons, 1953b, p. 207 (Nyamagwete); Manaca, 1961, p. 152 (Vila Pau de Andrade; Goreangana Mtn.); Bredley, 1962d, p. 801.

Habia varia Pitman, 1939b, p. 36 (Vumba Mtn.; Mt. Silinda; Chagadai River; Birchamough Bridge) and 1943, p. 222 (Plumtree; Bikita; Chifuma; Filabusi - Shabani; Driefontein; Khetso; Pembalanga; Mhama-Layya; Rulawayo; Simbwa; Bizhura; Nyanako; Shangwamani); Manaca, 1952, p. 141 (Kashina; Namach; Nkwele; Lifidi).


Two hundred and eighty specimens examined from

BRITISH AFRICA.
Debreuti; Kwebe Hills; 15 mls NW of Lechosha; Lephepe and 40 mls NW; 10 mls W and 10 mls SE of Letshaking; Sun Pan; Wolf Hills. RHODESIA.
Amid Falls; Bengi Spring; Minga; Butler North; Chagadai Bridge; Chapungu; Charam Plateau; Chera; Chete Gorge; Chibuko Bridge; Chimanimani Mtns.; Chiyunjara; Chiredzi; Devuhi Bridge; Dowa; Eagle;
Marfell; Ganderowe Falls; Gilston Estates; Glendale; Gokwe; 5 mls W of and 7 mls SE of Gwain Bridge; Gwelo; Haronzi - Lusitu Confluence; Hippo Mine; Holdenby; Ilambo Bridge; Insusa Bridge; Inyangani Mtn.; Inyangue Bridge; Jemabi; 5 & 10 mls SE of Kapazal; Kariba; Kariba Lake - Dam, Charno and Mwanda Confluences, Sanyati Island and Sengwe Sound; Khami; Kota Kota; Kyle Lake; Lonely Mine; 10 mls NW and 10 mls E of Lupane; Makurupindi River; Malabasimbi; Mana Pools; Manyoli Ranch; Marandellas; Marunguani; Matapos; Mateva; 32 mls NE of Mtoko; Neema Dam; Nhavishe Pan; Nyakasanga Gorge; Nyungandi and 3 mls W; Odzi; Pungwe Bridge; Rhodes Inyangani Estate; Ruenga Drift; Salisbury; Sanyato; Sawilla; Sengwe Gorge; Sinoa; Stanley; Stapleford; Triangle; Tuli; Untali and 14 mls NW; Usambara River; 15 mls SW of Victoria Falls; Vumba Mtn.; Wankie National Park — Main Camp; Wick Farm; Zambesi — Matetsi and Selungue Confluences, also opposite Feira. ZAMBIA. Abercorn (IRSNB); Broken Hill; Bulaya (IRSNB); Chilanga; Ikahenge; Kalene Hill; 20 mls W of Katete; Kuungashi; 50 mls ESE of Inzake; Mbera-Wantipa (IRSNB); Ndola; Ngumbe Falls; Neema (IRSNB); Nyika Plateau. MALAWI. Cape Maclear; Cholo Mtn.; 10 mls SW of Fort Johnston; Lujeri; Mianje Mountain (Ruo Basin); Nyika Plateau; Rumphi; Zomba Plateau. MOZAMBIQUE. 4 mls W of Alto Ligonha; Cabo Delgado Peninsula; Chimamba Dam; Chinsamina; Cruzado; Garuso; Gorongosa Mtn.; Gumbo; Jorge; Lurio; Marungu; Massanga; Mataro; Materece; Mecacé; Meteoro; Mitucue Mtn.; 10 mls W or Moamba, Mozambique Island; Mzakana; Revue; 20 mls E of Ribane; Samo; Vila Junqueiro; Vila de Munic and 15 mls SE; Vila; Xilwe.

Literature records. BECHUAHUALAND. Damara Pan; Damara Pan to Van Zyl's Cutting; Gabeji; Gaberones; Kake; Lobatse; Mabeleapidi; Mabapha; Molopo to Kake; Okah River to Damara Pan; Scowe; Shaleshonto; Titum; RHODESIA. Bikita; Bokwe River; Bulawayo; Chitiwanda Confluence to Kake; Okah River to Damara Pan; Serowe; Shaleshonto; Titum; RHODESIA. Bikita; Bokwe River; Bulawayo; Chitiwanda Confluence to Kake; Okah River to Damara Pan; Serowe; Shaleshonto; Titum; RHODESIA. Bikita; Bokwe River; Bulawayo; Chitiwanda Confluence to Kake; Okah River to Damara Pan; Serowe; Shaleshonto; Titum.

Variation. Centre of nostril above or posterior to the suture of rostral/first labial; supraciliaries usually in broad contact; prefrontals usually separated; supraorbitals 3 - 6, usually 5; upper labials...
anterior to subocular 4 - 5, very rarely 6; two or three obtusely pointed lobules on anterior border of ear opening; midbody scale rows 30 - 36 (38 in one Zomba Plateau skink); dorsals tricarinate; lamellae under fourth toe 16 - 25.

**Coloration.** Very variable, blackish, olive or red-brown above, with or without (a) a pale vertebral stripe, (b) a pair of pale dorso-lateral stripes, (c) black dorsal blotches; flanks darker, usually with a well-defined white lateral stripe extending from subocular through ear opening to groin; bluish-white below.

**Size.** Largest ♂ (MB, 50630 - Cholo Mtn.) 55 + 95 = 150 mm. Largest ♀ (MB, 412 - Odzi) 74 + 103 = 177 mm.

**Discussion.** Loveridge (1953a) based his race nyikae on six specimens from the Nyika Plateau which differed from typical lowland varia in the following characters:

(a) centre of nostril directly above vertical of rostral - labial suture in five specimens.

(b) fewer supraoculars, 3 on one side, 4 on nine sides, 5 on two sides; usually 5 in the typical form.

(c) Midbody scale rows 34 - 36 instead of 30 - 34.

(d) Shorter limbs and more slender habitus.

(e) Darker coloration, especially chin and throat, which are plumbeous in five specimens.

I have examined a paratype of nyikae and six more specimens from the Nyika Plateau (including two from the Zambian sector). These agree with the type series in having four supraoculars on eleven sides and five on the other side, while three have 34 midbody scale rows and the others have 36. The position of the nostril is variable, as it is with lowland populations, and is too subjective to be used as a taxonomic character with any confidence. These skinks are not appreciably darker than other upland populations, though they are certainly distinguishable from light red-brown topotypes from Tete. One feature which Loveridge did not mention is the shorter toes of the Nyika skinks, with only 17 - 18 lamellae under the fourth toe, compared with 19 - 25 in lowland skinks.

The Nyika Plateau populations could be distinguished from lowland populations by a character complex based on lower midbody scale count, fewer supraoculars and fewer lamellae under the fourth toe. But this versatile species occurs at altitudes varying from sea level to 11,500 feet on Mount Elgon, and Loveridge (1936d, p. 317) found that alpine skinks did not differ significantly from lowland populations, apart from smaller size. It seems unlikely that the Nyika Plateau should be the only mountain block in eastern Africa to have an endemic race of *Mabuya varia*, so I have compared some other montane specimens with the Nyika material. All montane
populations of *varia* tend to be smaller in size, more slender and darker in coloration than lowland populations. They often have high midbody scale counts, i.e., two Zomba Plateau skinks have 36 and 38, Manje (1) and Inyangani (2) skinks have 36, nine Chimanimani skinks have 34 and a tenth has 36; on the other hand, four skinks from the summit of Gorongosa Mountain have 30 - 34 scale rows. There is also a tendency for montane skinks to have short toes, e.g., 16 - 19 lamellae under the fourth toes of Gorongosa skinks. None of the other montane populations agrees with *nyikae* in having a reduction in supraciliaries. Odd specimens from lowland localities have less than five supraciliaries, and in a series of 18 skinks from the Nkurumatalia - Mani'Pia - Abercorn region of Zambia (UR.S.G), there are four supraciliaries on 18 sides, five on 16 sides and six on two sides. These skinks show no other affinities with *nyikae*, having 32 - 34 midbody scale rows and 19 - 22 lamellae under the fourth toe.

The only characteristic which *nyikae* skinks do not share with other montane populations is the reduction in average number of supraciliaries from five to four, and a strong tendency in this direction is shown by north Zambian populations. The fragmentation of a wide-ranging and versatile species like *Malavya varia* should not be attempted without analyzing the variation throughout its whole range, so I place *nyikae* in the synonymy of *M. varia*.

**Diet.** Cott (1934, p. 166) lists the stomach contents of eight specimens from Charre, which included grasshoppers and their nymphs, bugs, a cockroach, a mantis, a caterpillar, spiders and termites. An Umtali skink disgorged an adult *Ablapharax walberghi* nearly as long as itself when captured.

**Enemies.** One skink was found in the stomach of an African Wild Cat (*Felis lybica*) from near Lephope. Specimens have been recovered from the stomachs of the following snakes: *Lycodon capensis* (10 mls SE of Kapasi); *Pseudochis a. subtaeniatus* (Chipangali; Inyati).

**Habitat.** Almost ubiquitous in savanna and montane grassland. This versatile species is normally terrestrial, but it may be arboreal at high altitudes if it is free from the competition of *Malavya quinquetaeniata* and *M. punctatissima* as on Gorongosa Mountain. The only thoroughly arboreal population that I have encountered was at Nsonga in south Mozambique, where there were apparently no *Malavya striata* to occupy the “tree trunk niches”.

**Distribution.** Sudan and Somalia, south to the south-eastern Cape Province, west to South West Africa, Angola and the Congo.
THE MAKUYA STRIATA COMPLEX.

Although Makuya striata is the commonest lizard in most parts of east and central Africa, the geographical variation throughout the entire range has never been analysed. Several workers have recently studied the variation in circumscribed areas and revived or described various races and related species. Loveridge (1953a) revived allenbergerti. Chabaud for populations along the Zambezi from Barotseland to Tete and described two montane forms from Malawi, Makuya beccari allenbergeri and Makuya hildea (Nyika Plateau). Mertens (1955) recognized three races of Makuya striata in South West Africa, typical striata, apilogaster of Peters and a new race apogaster. Hellmich (1957b) referred some Angola material to Makuya striata angolensis Homard, but Laurent (1964c) placed allenbergerti and angolensis of Hellmich in the synonymy of Makuya striata apilogaster Boulenger and treated Makuya angolensis of Homard as a full species.

After a preliminary survey of the problem, involving the examination of over 600 specimens, I am satisfied that there are two widespread sibling species in Southern Africa, but because of considerable intraspecific variation it is doubtful whether a simple key can be devised to separate them. The technique used by Gans (1959) in defining "non-dimensional" species will be of great value in work on the Makuya striata complex. The taxonomic arrangement here adopted is tentative. I have concentrated on defining biological species and it is evident that the complex consists of a temperate species (M. punctatissimus) in South Africa, which has relict populations and races on the highland areas to the north, and a tropical species (M. striata) centred on the East African lowlands.

Makuya Punctatissimus Apilogaster (Peters)

Eupreopes (Eunorina) striatus var. apilogaster Peters, 1882, Reise Mozambiques Zool. 3. Amphib., p. 69; Otjimbingue, South West Africa.
Makuya striata apilogaster Mertens, 1955, p. 80, pl. 12, fig. 54 (Damara-land and Great Namaqualand).

Twenty specimens examined from NCOHUMAULAND. Lobambe Pan; Nosob River, 40 & 60 mls. above Ausob Confluence; Tsabong and 63 mls N and 5 mls S; Tsane.

Variation. Centre of nostril usually above suture of rostral/first labial; supramaxillaries in broad contact; prefrontals usually widely separated; supraciliaries 3 - 5, usually 5; upper labials anterior to subocular 5, rarely 6; one to three pointed lobules on anterior border of ear opening; midbody scale rows 34 - 36, rarely 32 or 38, dorsals tricarinate; lamellae under fourth toe 20 - 25.
Coloration. Dark brown above, with a pair of pale dorso-lateral stripes, the area between them with light and dark spots, the flanks usually with pale spots; ventral surfaces heavily streaked and blotched with black.

Size. Largest (UM. 10419 - Nossob River, 40 mls above Augo Confluence) $70 \times 109 = 179$ mm.

Discussion. The specific status of *Haury punctatissimus* is established by the fact that *M. p. spilogaster* is sympatric with *M. striata* across along the Nossob River and again between Vanwyksrus and Askham in the northern Cape Province. A comparison of 11 *M. p. spilogaster* and 27 *M. s. sparsa*, collected together on the same trees along the Nossob River by Dr. C. K. Brain in September, 1960 show the following striking differences between these sympatric populations.

<table>
<thead>
<tr>
<th>CHARACTER</th>
<th>M. P. SPILOGASTER</th>
<th>M. S. SPARSAs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre of nostril in relation to rostral/1st labial suture</td>
<td>Usually above</td>
<td>Usually posterior</td>
</tr>
<tr>
<td>Prefrontals</td>
<td>Widely separated in 8</td>
<td>In broad contact in 20</td>
</tr>
<tr>
<td></td>
<td>Narrowly separated in 1</td>
<td>In short contact in 2</td>
</tr>
<tr>
<td></td>
<td>In short contact in 2</td>
<td>Narrowly separated in 5</td>
</tr>
<tr>
<td>Upper labial formula</td>
<td>Subocular bordering the lip posterior to the fifth (18 sides) or sixth (4) labial.</td>
<td>Subocular excluded from lip (50 sides) rarely bordering the lip posterior to the fifth (2 sides) or sixth (2) labial.</td>
</tr>
<tr>
<td>Midbody scale rows</td>
<td>34 in 5 specimens; 36 in 5; 38 in one.</td>
<td>36 in one specimen; 38 in 8; 40 in 11; 41 in 2; 42 in 3.</td>
</tr>
<tr>
<td></td>
<td>Mean = 35.3</td>
<td>Mean = 39.6</td>
</tr>
<tr>
<td>Dorsal markings</td>
<td>A pair of light dorso-lateral stripes present.</td>
<td>No light dorso-lateral stripes present</td>
</tr>
<tr>
<td>Ventral markings</td>
<td>Heavily streaked and blotched with black</td>
<td>Dark markings largely restricted to throat and sides of belly, consisting of grey stippling.</td>
</tr>
<tr>
<td>Maximum snout-vent length</td>
<td>70 mm.</td>
<td>87 mm.</td>
</tr>
</tbody>
</table>
Habitat. This form seems to be largely arboreal, both in South-West Africa (Hartnoll, 1955) and Bechuanaland.

Distribution. Southern South-West Africa, south-eastern Bechuanaland and north-western Cape Province.

**BABY PUNCTATISSIMIS PUNCTATISSIMIS (A. Smith)**

<table>
<thead>
<tr>
<th>Species</th>
<th>Author</th>
<th>Year</th>
<th>Location</th>
<th>Reference</th>
</tr>
</thead>
</table>

**Habuia striata** (not Peters) Power, 1927a, p. 408 (Lohatla); FitzSimons, (part) 1935b, p. 27 ("phase A" - Gaberones to Kaotse) and 1943, p. 229; also 1955a, p. 207 (Nyasa: Pungwe River Causeway); Broadley, 1962a, p. 802 ("phase b").

Eighty-three specimens examined from: BECHUANALAND. Debeeti; 4 mls. W of Leshana; 40 mls NW of Lephepe; 10 mls W of Naboone (U.S.N.H.); 10 mls SE of Letlaking (U.S.N.H.). RHODESIA. Chitariani Mines; Enqua; Erf Forest Reserve; Inyanganu Mine.; Rhodes Inyanga Estate; Silverstreams; Troutbeck; Wick.

**Literature records.** BECHUANALAND. Gaberones to Kaotse. RHODESIA. Nyasiva; Pungwe Causeway.

**Variation.** Centre of nostril usually posterior to suture of rostral/first labial; supraoculars in broad contact; prefrontals usually separated, rarely in broad contact; supracilarii 4 - 6, usually 5; upper labials anterior to subocular usually 5; rarely 4, 6, or subocular excluded from lip; usually 2 - 4 obtusely pointed lobules on anterior border of ear opening; nictitating membrane 34 - 42, dorsals trICatinum; lamellae under fourth toe 18 - 23.

**Coloration.** Dark brown to almost black above with a pair of narrow yellow dorsal-lateral stripes and usually each dorsal scale with a pale median spot, which are frequently confluent to form narrow longitudinal lines, head shields often with pale markings; yellow below, throat often suffused with dark brown.

**Size.** Largest (CWM - 474 - Troutbeck) 77 + 95 = 172 mm. Several specimens measure 80 mm from snout to vent.

**Discussion.** Miss A. G. O. Grantson has kindly supplied me with some previously unpublished data concerning the eight ecotypes of *Euprepe punctatissimis* A. Smith in the British Museum (N.H.) In four specimens the
subocular is excluded from the lip, in the others it borders the lip posterior to the fifth (5 sides) or sixth (3 sides) labial; midbody scale rows approximately 33 - 38 (several specimens are badly cut up on the belly); lamellae under the fourth toe 18 - 25. The largest specimen (BM.1946.6.15.19) measures 77.6 mm from snout to vent. The type of *Eumeces samburai* (BM. 1946.8.19.16) measures only 35.5 mm from snout to vent and is in very poor condition, it has the subocular excluded from the lip, about 34 midbody scale rows and 19 - 20 lamellae under the fourth toe.

Forty specimens from south-east Bechuanaland agree with Smith's *punctatissimus*, some of them watching his colour plate in detail. The types are not "typical" of the species in having the subocular excluded from the lip in 90%. Table 2 below shows the variation in some populations of *H. punctatissimus*.

<table>
<thead>
<tr>
<th>Types of <em>punctatissimus</em></th>
<th>Labials</th>
<th>Subocular</th>
<th>Midbody Scale</th>
<th>Maximum Snout-vent Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Cape, Province &amp; O. F. S.</td>
<td>8 - 5</td>
<td>3 - 7</td>
<td>33 - 38</td>
<td>78</td>
</tr>
<tr>
<td>Natal Drakensberg &amp; Midlands</td>
<td>5 - 9</td>
<td>1 - 7</td>
<td>35 - 40</td>
<td>80</td>
</tr>
<tr>
<td>Swaziland &amp; Transvaal Drakensberg</td>
<td>5 - 10</td>
<td>7 - 23</td>
<td>34 - 43</td>
<td>82</td>
</tr>
<tr>
<td>S. E. Bechuanaland</td>
<td>40 - 50</td>
<td>7 - 23</td>
<td>34 - 51</td>
<td>80</td>
</tr>
<tr>
<td>Eastern Rhodesia</td>
<td>43 - 65</td>
<td>15 - 23</td>
<td>36 - 42</td>
<td>83</td>
</tr>
</tbody>
</table>

* Ma. eulomaster

| N. Cape Province & S. E. Bechuanaland | 25 - 45 | 4 - 15 | 32 - 46 | 74 |

* Ma. mlanisiensis

| Manje Mtn., Malawi | 25 - 21 | 7 - 12 | 37 - 42 | 72 |

In most areas the only race of *Mabuya striata* likely to occur with *H. punctatissimus* is the typical form and the two forms can be distinguished as follows:

Subocular excluded from lip; dorsum dark, with a pair of broad pale dorso-lateral bands, but no pale spots or lines between them; adults over 80 mm from snout to vent; a tropical form ....... *H. eulomaster* Subocular usually bordering lip; dorsum with a pair of pale dorso-lateral stripes, the scales between them each with a pale spot, which may form narrow longitudinal lines; adults rarely exceed 80 mm from snout to vent; a temperate form ............. *H. m. mlanisiensis*
Enon. One skink was recovered from the stomach of a *Pseudophis crenifer* collected at Troutbeck.

Habitat. This species is largely arboreal in the western part of its range, also living on huts. On the eastern escarpment it is rapicolous and is particularly abundant on the summit of Inyangani Mountain (6,514 ft.). Many specimens were found living on the log cabin of the resident forester on Erin Forest Reserve.

Distribution. The eastern escarpment and highveld of South Africa, extending into south-eastern Boehmannaland. A series of relict populations occur on the eastern highlands of Rhodesia, but this skink does not occur on the summit of Gorongosa Mountain.

**Labiya Punctatissima Mianjensis** Loveridge

*Labiya boscai mianjensis* Loveridge, 1953, Bull. Mus. Comp. Zool., 110, p. 207; Lichena Plateau at 6,000 feet, Mianje Mountain, Malawi, and 1953c, p. 142 (Chambé Plateau, Mianje Mtn.).


Twenty-five specimens examined from MALAWI, LujerI Estate; Mianje Mountain (Isola Peak; Lichena Plateau; RuO Basin).

Literature records. MALAWI. Chambé and Lichena Plateaux on Mianje Mountain.

Variation. Centre of nostril above or posterior to the suture of rostral/first labial; supranasals in broad contact; prefrontals in contact or separated; supraoculars 5, rarely 4 or 6; upper labials anterior to subocular 4 - 6, usually 5; usually 2 or 3 obtusely pointed lobules on anterior border of ear opening; midbody scale rows 37 - 42; dorsals tricarinate; lamellae under fourth toe 17 - 22.

Coloration. Similar to the typical form, except that the pale lines on the two median scale rows are separated only on the nape, thereafter they converge to form a yellow vertebral stripe.

Size. Largest 9 (MCZ. 50695 - Lichena Plateau) 72 + 9 = 170 mm.

Discussion. This is a poorly defined race, distinguishable only by the presence of a vertebral stripe, which I have seen in one Inyangani Mountain specimen of the typical form. I have examined AMNH. 67821, from Lichena Plateau and find that it is a *L. p. mianjensis*, not *L. p. striata* as reported by Loveridge.

Note. Loveridge recovered one skink from the stomach of a *Pseudophis phylax b. variabilis*. 
Habitat. Rocks and montane grassland on the peaks and plateaux of Mlanje Mountain.

Distribution. Endemic to Mlanje Mountain, southeast Malawi.

MABUTA HILDAE Loveridge


Nyima Plateau above Sekhemehana at 7,000 feet, Malawi.

One paratype specimen examined.

Variation. Centre of nostril usually posterior to suture of rostral/first labial; supranasals in contact; prefrontals separated or in contact; supraciliaries 5; subocular not reaching lip; two or three obtusely pointed lobules on anterior border of ear opening; midbody scale rows 33-40; dorsals tricarinate; lamellae under fourth toe 15-18.

Coloration. Blackish above; longitudinally flanked with pale brown; a pair of cream dorso-lateral stripes and usually a pale brown vertebral stripe; greyish-white below.

Size. Largest 7 (NZ. 50666) Head and body 64 mm. Largest 9 (NZ. 50664 - Holotype) 87 + 63 = 150 mm.

Discussion. In his description of M. hildeae Loveridge did not mention the few lamellae under the fourth toe, a character which it shares with no other member of the Mabuya striata group. It seems to be very rare on the Nyima, for it has not been collected since Loveridge obtained the type series in 1948.

Enemies. Loveridge found one in the stomach of a Harrier (Circus aeruginosus).

Habitat. Montane grassland, sometimes living in rodent burrows.

Distribution. Endemic to the Nyima Plateau.

MABUTA STRIATA SPARISIA Martens


Twenty-seven specimens examined from: BECHUANALAND - CAPE PROVINCE BORDER. Hossob River - 20, 40 & 50 miles above the Auob Confluence.

Variation. Centre of nostril usually posterior to suture of rostral/first labial; supranasals in broad contact; prefrontals usually in broad contact; supraciliaries 5; rarely 4; subocular excluded from lip; rarely bordering lip posterior to fifth or sixth labial; two or three obtusely
pointed lobules on anterior border of ear opening; midbody scale rows
38 - 42, rarely 36; dorsals triarinate; lamellae under fourth toe
21 - 25.

**Coloration.** Dark brown to almost black above with numerous scattered
pale spots, no trace of light dorso-lateral stripes; white below, uniform
or with patches of fine grey stippling, especially laterally and on the
throat.

**Size.** Largest (UM. 10449 = Nossob River 60 miles above Aub Confluen-
ces) 36 + 116 = 202 mm.

**Habitat.** Arboreal, being particularly abundant on large *Acacia*
giraffae trees (Brain, in litt.).

**Distribution.**Apparently restricted to dry river valleys below 3,000
feet in the south-eastern corner of South West Africa and northern Cape
Province, extending eastwards along the Kuruman River to within 20 miles
of Vansylurus, where it is sympatric with *Haloxy n. kilomaster*. These
skinks are very common in the Kalahari Gemsbok National Park, where they
occur on practically every tree in the Aub and Nossob River courses
(FitzSimons & Brain, 1950a) and are particularly abundant on *Acacia*
giraffae trees at the Aub-Nossob Confluence. Further up the Nossob
this form is sympatric with *Haloxy n. kilomaster*.

**HALOXY STRIATA MAHLBORGI X SPARSA**

Eleven specimens examined from: BECHUANALAND. Naka Pan;
35 mls W of Kang; Lokututu; Makhe; Tsabong and 65 mls N; Tsane.

**Variation.** Profrontals in contact in 3, separated in 2; subocular
not reaching the lip in 5, bordering the lip posterior to the fifth (4
sides) or sixth (4 sides) labial in the others; midbody scale rows 35 -
38.

**Coloration.** Intermediate between *mahlbargi* and *sparsa*, i.e. like
*sparsa*, but with pale dorso-lateral stripes and therefore very difficult
to distinguish from *Haloxy n. punctatissimus*. Fortunately these inter-
grades are actually sympatric with *H. n. kilomaster*. The position will
become difficult if *mahlbargi* x *sparsa* intergrades are sympatric with
typical *punctatissimus* in some parts of the southern Kalahari.
HABU STRIATA WALBERGI (Peters)

Europaeus walbergi Peters, 1843, Sefarva, Vot. 4th, Part. 6, p. 660; Bulawayo, South West Africa.


Habuia striata (not Peters) Jobbo, 1909a, p. 296 (Bulawayo; Matabos) and 1909b, p. 35 (Kosende; Broken Hill); Boulangier (part) 1910, p. 455; Lomgundii; Salisbury; Muzo; Hewitt & Power (part) 1913, p. 158; Marnsfeld; Franciostom; Loveridge, 1923, p. 76 (Kafue River); Pei- man, 1934, p. 106; FitzSimons (part) 1935a, p. 370; "Colour phase C" - west and north of Kaswa; Hartens (part) 1937, p. 9 (Itoko; Msonko; Fort Rosebery); FitzSimons, 1943, p. 229; Tasman, 1957, p. 23; Broadley, 1962b, p. 302 (Phase A).

Habuia striata allenbergeri Loveridge, 1933a, p. 202 (near Tete).

Two hundred and sixty-two specimens examined from:

BECHUANALAND:
Foley; Franciostom, also 20 ml on west and 40 ml NW; 15 ml NE of Gomare; Kanuy; 5 ml W of Kasungula; Kebe Hills; Lake Dou and 10 ml E; Mann; 5 ml S and 9 ml SS of Nata; Nokamugah; Sihthwa and 14 ml W; Sichwe Pan; Sepopa; Taogbe River; Totsens; Tsalanyane Pan; GAPHY; Lisibana Lake; RHODESIA.

Bembezi; Binga; Bulawayo; Gondwana Plateau; Chirumuma; Fatima; Glandola; 5 ml W of Great Bridge; Inuma Bridge; Inyanga Village; Kamto; Kapam and 5 & 10 ml. S; Kariba; Kariba Lake - Suni and Mchinda Confluences; Kasungula; Lake Macabaine; Lusope River; 18 ml NW of Impone; Nalindausimbi; Marnale Reserve; Marnsfeld; Mount Dombi; Mount Kamponi; 25 ml W and 30 ml NE of Mtoke; Mopedie: Pasa; Manghi; Ngano; Nyanakunga Gorge; 15 ml NW of Kyanamihloko; Nyasoro; Plumtree; Redclift; Research Station; 10 ml NW of Ruma Drift; Saffron Warden; Salisbury; Sanyatwa; Segwe River; Sinoa; Sombele; S ml SS of Tonolofe; Wungue Reserve; 4 ml W of Victoria Falls; Mankio; Mankio National Park - Main Camp, Guralala and Kyanamihloko Pans; Zambesi - River - Chevere, Matete and Subungue Confluence, also 16 ml S of Chirumuna.

ZAMBIA:
Balmoral Fara; Broken Hill; Chavuma; Chete Hills; Chikwa; Chinambe (Lunda); Kabopo; Kalabo; Kalichero; Kali Kali; Kasanga Plain; Kaswcihil; Kinsisi; Nsaka; Sinjambela; Sitswa; Victoria Falls.

MOZAMBIQUE:
Chinambe; Mwego; 5 ml W of Tete.

Literature record:
BECHUANALAND: Franciostom, RHODESIA; Bulawayo; Kusende; Lomgundii; Marnsfeld; Matabos; Muzo; Mtoke; Salisbury.

ZAMBIA: Broken Hill; Fort Rosebery; Lealui; Msonko; MOZAMBIQUE; Tete.

Variation: Centre of nostril usually posterior to suture of rostral/first labial; supranasals in broad contact; prefrontals usually separated, rarely in broad contact; supraciliaries 5, rarely 3, 4 or 6; upper labials anterior to subocular 5 - 7, usually 6, sometimes subocular excluded from lip;
usually 2 - 4 short obtusely pointed lobules on anterior border of ear opening; midbody scale rows 34 - 42, dorsals tricarinate or with 5 - 7 keels in large adults; lamellae under fourth toe 18 - 24.

**Coloration.** Top of head orange-brown, very bright in adult males, back grey-brown, often with ill-defined pale dorso-lateral stripes anteriorly, a broad blackish lateral band extends from the eye to above the shoulder, sometimes persisting to midbody, rarely reaching the groin. White below, throat often streaked with orange or yellow.

**Size.** Largest (UK, 8865 - Sengwe River) 100 + 143 = 243 mm.

**Discussion.** This race is readily distinguishable from the typical form in the southern part of its range by coloration and upper labial formula.

In Zambia there is a broad belt of intergradation extending through the plateau areas of the Eastern Province, the western Nyika Plateau and across northern Zambia.

This is the form which Mertens (1955, p. 79, pl. xii, fig. 33) called *Nakuva a. striata* in South West Africa. As his material included the type of *Buenaosa wahlbergii*, Peters I am provisionally accepting this as the earliest applicable name, with *allenbergeri* Chalmers as a synonym. Peters also described *Buenaosa variegata* from DamaraLand, but the type had only 32 midbody scale rows, which is very low for the form under consideration. Laurent (1964, p. 69) placed *allenbergeri* in the synonymy of *Nakuva striata chishana* Boulander, which seems to be a recognisable Angolan race judging by three specimens received from Cassai.

**Diet.** Beetles and a cockroach in a Tete skink (Leveridge, 1953a, p. 204).

**Enemies.** One recovered from the stomach of a mongoose (*Herpestes conguinus*) at Nakalundwedi. Specimens were recovered from the stomachs of the following snakes: *Lycophidion a. capensis* (Bulawayo; Solwezi; Fort Jameson; Moso; Chikwa); *Kabulva a. capensis* (Essewala); *Philothamnus l. irregularis* (Abororo); *Icasechaghracis n. nototemple* (Lundazi); *Panophis a. submaenias* (Malimbasimbi). This skink is also the staple diet of young *Brachidont f. foliacinus* and *Icasechaghracis mubwanyi*.

**Habitat.** This arboreal skink seems to be most abundant in the mopane woodlands of the big river valleys, but is also widespread in Brachystegia woodland. It rapidly occupies houses and bridges when available; I noticed that within weeks of the culverts and bridges being completed on a new road line through virgin bush, these structures had their colonies of *Nakuva striata*. Baobab trees often harbour many of these skinks.

**Distribution.** The Gwanda-Zvishara-Chicora troughs and the plateau areas of Zambia and Rhodesia, extending down the Zambezi to Tete and across northern Bechuanaland to DamaraLand.
Fifty-seven specimens examined from: **ZAMBIA**. Abercorn (INSNB); Bulaya (INSNB); Fort Jameson; Kabuta (INSNB); Lutembe; Malepi (INSNB); Mweru-Muntipa (INSNB); Nyika Plateau. **MOSAMBIQUE**. Moaudia.

**Variation.** Prefrontals usually separated; subocular excluded from lip on 67 sides, reaching lip posterior to fifth (9 sides) or sixth (38 sides) on the others; nobody scales row 35 - 40.

**Coloration.** Very variable, ranging from "typical striata" to "typical wahlbergii" within a single population.

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**NABWA SYRIATI STRIATA** (Peters)


*Europes macrotiassima* (not Smith) Peters, 1854, p. 618 (Mosambique Island; Calamoira; Qualissae; Roror); Gunther, 1864, p. 307.


*Europes (Europes) striata* Peters, 1882, p. 67.

*Nabua striata* Boulesanger, 1893, p. 204; Beesage, 1895, p. 83 (Babya).

Boulesanger, 1897, p. 800 (Mala Bay); to Bulawa; Kondiues to Karonga; Nyika District and Plateau; Fort Hill) and 1907b, p. 436 (Beira); Ronx, 1907 p. 83 (Rikata); Boulesanger, 1930, p. 835 (part - Balagoa Bay); Love-ridge, 1920, p. 154 (Luanga); Gott, 1930, p. 166, p. 114, fig. 1 (Mas-bani; Charro; Gali; Anatomunga); Thenide, 1942, p. 14 (Masangulo).

*Nabua striata* FitzSimons (part), 1943, p. 229; Manacas, 1952, p. 143 (Porto Henrique; Magula; Manhica; Donolo; Mauela; Lofidzi; Moamba; Chibuto; Maquele).

*Nabua striata striata* Loveridge, 1933a, p. 205 (Kasungu; Minua Mts.; Nebemanchena; Chitela River; Minuba; Zomba Plateau) and 1953c, p. 142, (Chiroro; Fort Herald); Manacas, 1951, p. 151 (Inhassoro; Vila Paiva de Andrade; Sao Martinho).

One hundred and forty-eight specimens examined from: **RHODESIA**.

Chinyanja; Chipinda Pools; Farfall; Karonzi-Lusitu Confluence; Inyangwa Tea Estates; Nyla Lake; Limpopo-Usangwana Confluence; Majinji Pan; Malepi Drift; Marungudzi; Ngourine Reserve (S); 4 mls SW of Ruwaetai Bridge; Punwe Bridge; Selby-Landi Confluence; Sentinel; Shashi-Shashani Confluence; Triangle; Tuli; Umtali; Vumba Mts. **MILLI.** Fort Johnston; Lujeri Estate; Rumpi. **MOSAMBIQUE.** Anatomunga; Calamoira Peninsula;
Cavalo; Chicamba Dam; Covane; Crusado; Goemba; Gorongosa Mtn.; Grudja; 8 als. NSE of Inhambinga; Jorge; Monga; Maringa; Mavue; Metanbanha; Mozambique Island; Mua - Lamago; Savane; Xiluvo.

**Literature records.** MAMIS. Chirongo; Chitala River; Fort Hill; Kasungu; Kondwe - Karonga; Masuku Mtn.; Mwenda; Bechamehe; Nkata Bay to Ruave; Nyika District and Plateau; Port Herald; Zomba Plateau.

Mozambique. Anotongas; Beira; Boror; Cabaceira Peninsula; Gain; Charre; Chibuto; Delagoa Bay; Dondo; Famiani; Inhassoro; Lifididi; Lombo; Mahico; Maputo; Mauzane; Massangulo; Moana; Moamia; Mozambique Island; Porto Henriques; Quelimane; Rikula; Sao Martinho; Vila Paul de Andrade.

**Variation.** Centre of nostril usually posterior to miture of rostral/first labial; supramaxals in broad contact; prefrontals usually widely separated, rarely in contact; supraciliaries 5, rarely 3, 4, or 5; subocular usually excluded from lip, rarely bordering the lip posterior to the fifth, sixth or seventh labial (except in a coastal strip extending north from Mozambique Island, where the labial normally borders the lip); usually 2 - 4 obtusely pointed lobules on anterior border of ear opening; midbody scale rows 32 - 36, dorsals triseminate, sometimes with 5 - 7 toes in large adults; lamellae under fourth toe 18 - 24.

**Coloration.** Red-brown to blackish-brown above, with a pair of broad cream dorso-lateral bands at least two scale rows wide; white below, throat often flecked with orange.

**Size.** Largest 9 (UM. 8549 - Crusado) 104 - 134 = 238 mm.

**Discussion.** Peters (1882, p. 67) described *striata* as having the subocular bordering the lip between the fifth and sixth, or sixth and seventh labials. In four topotypes from Mozambique Island the subocular reaches the lip in three specimens, but is excluded in the other. Loveridge (1953a, p. 205) has discussed the distribution of "typical *striata*", which he found to be dominant on the coastal plains of Kenya and Tanganyika south to Mozambique Island. This central area is bordered by populations of what Loveridge called the "primitive form" with the subocular excluded from the lip, extending from Somalia (Gans, Laurent & Pandit, 1965, p. 56) through the Rift Valley region into south-east Africa. Thus the populations of *Mabuya striata* fall into four groups on the basis of upper labial arrangement, which radiate outwards from a centre in coastal Tanganyika and north Mozambique, from east to west we have:

(a) "Typical *striata*" - subocular normally bordering lip.

(b) "Primitive *striata*" - subocular excluded from lip.

(c) *Wahlbergii* - subocular normally bordering lip.

(d) *quam* - subocular excluded from lip.

**Misc.** Cott (1924, p. 163) listed the stomach contents for 17 Mozambique specimens, which consisted largely of grasshoppers, termites and beetles.
Enemiel. Specimens recovered from the stomachs of a *Lycomorphion* c. capensis (Hipersenough Bridge) and a *Teleoceras* s. semianulatus (Hart Springs).

Habitat. Largely arboreal, but also abundant on house walls, bridges, etc. This skink lives in mangrove swamps at Beira and Savane.

Distribution. East Africa from Somaliland to Natal, extending up the Shire into Malawi and up the Limpopo Valley to the Tuli area.

**Genus RIOPA Gray**


Mittleman (1952, p. 9) revived the genus *Mochlus* (including *Seracontias*) distinguishing it from *Riopa* by the absence of a brille in the lower eyelid and its more robust body and limbs. Loveridge (1957, p. 213, footnote) rejected Mittleman's fragmentation of *Riopa*, but without any argument to support his criticism, as pointed out by Gans, Laurent and Rand (1965, p. 37).

The presence or absence of a brille in the lower eyelid is not of generic significance with regard to the genera *Makaya*, *Bomensis* and *Platysaurus*, so it is a poor character on which to base *Mochlus*. Mittleman gives the range for *Mochlus* as Africa, China, Indo-China, Malaya and the Phillipines, while *Riopa* occurs in India, Burma and Kenya, which suggests that his grouping does not reflect the true phylogenetic relationships. Finally there is no apparent divergence in adaptive trends shown by these skinks. I can see no justification for the retention of *Mochlus* even as a subgenus.

**RIOPA SUNDENVALLI SUNDENVALLI (A. Smith)**


*Lyctocome sundevalli* Boulenger, 1887a, p. 307 (Lake Nyasa) and 1891b, p. 306; Günther, 1894, p. 618; Boulenger, 1902, p. 17 (Masailand); Chubb, 1909a, p. 394 and 1909b, p. 35 (Salisbury); Boulenger, 1910, p. 486 (Salisbury); Werner, 1910, p. 350 (Selmaa - Khakaa, Kalahari);
Two hundred and eighty-two specimens examined from: RHODESIA.

Cungwe (TH); Francistown (TH); Gwembe Pan (TH); Guini (AM); Kabalubula (TH); Kalahari (TH); Kaotwe Pan (TH); Lake Ngami (TM); Machumulungu Pan (TM); Makalumbi; M'mwene (AM); Mchenjo; Mokanong and 18 mls S (TM); Sekwara; Serowe (AM); 15 mls E of Sun Spit; Tzodilo Hills (TM); RHODESIA. Ringa; Birchencough Bridge; Bulawayo; Gote Gorge; Chimurenga Ranch; Chirowa; Chivhu Reserve; Duvuli Bridge; Esandeni (AM); Fort Victoria; Gilston Estates; Glass Block; 5 mls W of Gwemai Bridge; Gwanda (AM); Gwelo; Heavy Junction; 10 mls SE of Esandi; Kariba Lake - Bumi and Chibare Confluences; 2 mls S of Kasungula; Lake Mavuteaine; 10 mls E of Lupane; Lusaka; Macha; Malapati; Mount Darwin; Mount Hapden; Mavora; Mtoko (AM); Mtorashanga Pan; Musami; Makubula Ruins; Munsetei (TH); 10 & 15 mls NW of Nyamadlou; Nyamandu; Old Umtali; Plumes (AM); Que Que; Redcliff; Rusape (AM); Sabi - Lundu Confluence; Saffron Walden; Salisbury; Sentinel; Shashi-Shashani Confluences; Syrings; Tanganza Bridge (TH); Trelawney (TH); Tuli; 14 mls NW and 10 mls S of Umtali; Vumba Mtn.; Wankie National Park - Main Camp and Nyamadlou Pan. ZAMBIA. Chikusa; Chikwa; Chirawo; Port Jameson; Kalabo; Kalicha; Livingston; Lusaka West; Ndola. MALAWI. 10 mls SW of Fort Johnston; Kasungu (AMH); Kausi (M2); Mibuku (M2); Zomba. MOZAMBIQUE. Chigubu (TH); Moamba (TH); Tete (M2); 15 mls SE of Vila de Manica; Viola.

**Literature records.** RHODESIA. Cungwe; Gwembe; Kabalubula; Kabia-Sakuna; Kalahari; Kaotwe; Ky Ky; Lake Ngami; Mhelalupudi - Lake Ngami; Machumulungu Pan; Motlhakalolo; Gwena River - Damara Pan; Serowe; Tshabanda Valley - van Zyl's Cutting. RHODESIA. Birchencough Bridge;
Bulawayo; Bupandane; Gwanda; Gwelo; Insiza; Macheka; Marandellas;
Matopos; Mhoro; Masani; Mhundwe; Musape; Salisbury; Syrinxa;
Tanganda Bridge; Wankie. ZAMBIA: Choma; Kalomo; Lusaka; Lusaka.
MALAWI: Kazi Village; Lake Nyanza; Mbatuka. MOZAMBIQUE. Tete.

Variation. Nostril bordered by a supranasal which may be partially or
completely fused with the anterior of two nasals; supranasals in broad
contact; prefrontals widely separated; supraciliaries 6 - 7, rarely 5 or
8; parietals bordered by 5 - 8 middorsal; midbody scale rows 24 - 28;
lamellae under the fourth toe 11 - 15; lamellae under the fifth toe 5 - 7.

Coloration. Grey-brown above, each scale usually with a dark spot at
the base (visible through the distal edge of the preceding scale), these
spots are more pronounced on the tail; white below, tail sometimes with
dark spots.

Size. Largest (QM/R. 137 - Salisbury) 84 + 81 = 165 mm. UN. 9627
from Old Uintali measures 88 mm from snout to vent (tail regenerated).

Discussion. Loveridge (1933, p. 320) treated modesta as a race of
R. sundevallii because he had examined intermediates from Kenya and Uganda;
his distinguished the two forms as follows:

"Supranasal not fused with anterior nasal; size larger. Back
usually much spotted though occasionally uniform R. e. sundevallii
Supranasal fused with anterior nasal; size smaller. Back usu-
ally uniform brown, occasionally spotted .......... R. e. modesta"

Parker (1932, p. 357) revised the group and decided that modesta
was specifically distinct.

Loveridge (1936, p. 322) subsequently accepted Parker's finding
and recorded the occurrence of R. sundevallii and R. e. modesta together
at Voi and Mt. Khoza in Kenya.

More recently, populations of R. e. modesta with the supranasal and
anterior nasal partially or completely fused have been reported from north-
western Rhodesia (Bredlay, 1963a, p. 504), and from the Frackoveld, northern
Daraland, the Kaulesveld, Boshiland, northern Ghana and southern
Angola (Haacke, 1965, p. 15).

Gans, Laurent and Randit (1965, p. 37) have accepted that modesta
is a race of R. sundevallii and revived the name R. e. modesta for the larger East
African species which is sympatric with it.

I have recently examined more R. e. modesta material from East
and Central Africa and find that although twenty specimens from Kenya and
Tanganyika are all modesta, the whole of Zambia and Malawi is occupied by
intergrade populations, the percentage of fused supranasals varying in differ-
ent areas. To accept modesta as a race would imply the recognition of an
area of intergradation larger than the territories occupied by "pure" popu-
lations of typical sundevallii and modesta which is unjustified.
Tricondyla are still required because of Bionspa. samoia (Parker (1942, p. 99), which has a long fifth toe with 7 - 9 subdigital lamellae.

Dish. Beetles in the stomachs of two Kalahari specimens (FitzSimons, 1935a, p. 373).

Parsites. Trichicoid rites (Ascoschoenoma sp.) between the toes of tene snakes, less frequently in the groin (Leveridge, 1952a).

Beetles. One recovered from the stomach of a Cape Fox (Vulpes chama) at Sehitara. Specimens were found in the stomachs of five Genets (Genetta genetta) from Mann, Sehitara and Mahalabedi, the Genet Genet had eaten eight snakes. The tail of a Bionspa was found in an African Wild Cat (Felis libyca) at Belungue.

Bionspa mudevali has been recovered from stomachs of the following snakes: Lycosiphidae s. cappae (Brisa; Chiens); Mabria nanja (Bundl).

Habitat. Most plentiful in sandy areas like the Kalabari, but widespread in savannas and frequently found under stones on dry hillside. It seems to avoid damp conditions.

Distribution. Kenya south to the Transvaal, west through the Kalabari to South West Africa and Angola, absent from coastal areas of East Africa. This species does not occur in Natal and Smith's type probably came from the western Transvaal, not "Country to the eastward of Cape Colony".

RIOPA AFAR (Peters)


Bionspa (Centra) Dumeril, Steindachner/Sitah, A. M. Wiss. Wien, 52, p. 341, pl. iii, fig. 5; Zanzibar.

Bionspa mudevali (not A. Smith) Peters, 1882, p. 75, pl. xi, figs. 2, 3a - c (Zanzibar).

Lytosopia mudevali (not A. Smith) Boesga, 1896, p. 88 (Beira; Mosambique Island); Boulenger, 1907b, p. 486 (Beira) and 1910, p. 486 (part, Beira); Leveridge, 1920, p. 155 (Inamba); Parker, 1932, p. 339 (part); Gitt, 1934, p. 168 (Calu; Charra; Matarama; Maramanga; Fangani); Themudo, 1941, p. 14 (Beira).

Bionspa mudevali (not A. Smith) Hartens, 1937, p. 11 (Inhamana).

Moschus sundevalli sundevalli (not A. Smith) Laurent (part), 1964a, p. 78 (Porto Amalia).

Seventy-nine specimens examined from: ZAMBIA. Abercorn (INSHB); Bulaya (INSHB); Ensenye (INSHB); Kitumba (INSHB); Luangwa - Chibulunzi Pontoon; Mbuvi - Mantipa (INSHB). MOZAMBIQUE. Mpho - Shire River (MO2). Beira; Caborre Peninsula; Inchops; 5 Mls NE of Inhambinga; Lumbo (MO2; TH); Manga; Maxima (INSHB); Matochira; Mozambique Island; Mule - Lamago; Sabumum River; 5 Mls N of Nkomboza; Xiluvo.

Literature records: MOZAMBIQUE. Anquantas; Beira; Boror; Cai; Chirre; Fambani; Inhambinga; Lumbo; Mule; Mozinho; Mozambique Island; Matana; Porto Amalia; Quimba; Vila Paiy de Andrade.

Variation. Nostil bordered by a supranasal which may be partially or completely fused with the anterior of two nasals, or the latter may be fused (Cott, 1934, p. 169); supranasils in broad contact; prefrontals widely separated; supraciliaries 6 - 9; prefrontals bordered by 4 - 7 muchs; midbody scale rows 25 - 26; lamellae under the fourth toe 9 - 14; lamellae under the fifth toe 5 - 6, rarely 7.

Coloration. Grey-brown or plumbeous above, with irregular black and white blotches and streaks, sometimes both on the same scale, but on the back the black blotches usually outnumber the white by 2 : 1, whereas internally the black and white blotches frequently alternate on a longitudinal scale row; upper labials may be vertically barred in black and white; white below. The light and dark speckling is sometimes distinguishable on the tail only and it appears that these markings fade out just before a skink sloughs.

Size. Largest 9 (Cott, 1934 - Anquantas) 132 + 125 = 257 mm. BM 7300 from Inchops measures 137 mm from snout to vent.

Discussion. This species can most readily be distinguished from R. sundevalli on size and coloration. The nasal arrangement is unreliable, for populations in northern Zambia and the Bulwa Valley frequently have the prefrontal fused with the anterior nasal. Comparison of R. afer and R. sundevalli south of the Kambali shows that the former tends to have more supraciliaries (7 - 9), more midbody scale rows (usually 28) and fewer lamellae under the fourth toe (10 - 12, rarely 13 or 14).

The status of Rhynchos guineensis Peters is not clear, but the single specimen I have examined seems closer to R. sundevalli than to R. afer, so I use a binomial for the latter.

Breeding. Four eggs (16 x 9 mm) in a Chirre 9 (Cott, 1934, p. 169).
Diet. Stomach contents consisted largely of Diptera at Limbo (Love-
ridge, 1920), while Cott (1934) found termites, ants, a grasshopper,
Heteroptera, a cockroach, a beetle and two millipedes in his specimens.

Habitat. Common in the alluvium of the Mozambique Plain, where they
may be found under logs or piles of vegetable debris.

Distribution. The Sudan and Ethiopia south to northern Zambia and
Mozambique, reaching its southern limit at Inhambane.

Genus EUMECIA Bocage

Eumecia Bocage, 1870, Jorn. Sci. Lisboa, 3, p. 67. Type by monotypy:
E. anchietae Bocage.

This genus was resurrected from the synonymy of Bitia by
Mittleman (1952, p. 10) and is recognised by Laurent (1964, p. 80), but
not by Loveridge (1937, p. 213). Mittleman states that Eumecia "differs
from Bitia essentially as follows: Prefrontals large, forming a median
suture; ear opening large (only slightly smaller than the eye); Limbs
minute; digits 2-3 (in Bitia 3-3 or more)." These features, to-
gether with a pointed (but not depressed) snout, a serpentine body and
very long, finely pointed tail are adaptations for life in thick herbage,
not the fossorial existence of Bitia. Eumecia is a good genus, showing
the same adaptive trends as Chameleo and Tetradactylinus among the
Cordylidae.

EUMECIA ANCHIETA ANCHIETA Bocage

Eumecia anchietae Bocage, 1870, Jorn. Sci. Lisboa, 3, p. 67, pl. i:
Huilla Plateau, Angola.

Lysceoma anchietae Angael, 1920, p. 616 (Lealui).

67, p. 80: Calenda, Lunda, Angola.

67, p. 80: River Katango, Upemba National Park, Katanga.

Twenty specimens examined from: ZAMBIA. Abercorn; Broken
Hill; Chingola; Chisamba; Kalabo; Kalichero; Lufuta Game Reserve;
Lusaka; Mansoe (IBSH); Manyinga River; Mount Mankulu; Ngorokoso (UM;
IBSH).

Literature record. ZAMBIA. Lealui.

Variation. Nostril bordered by a supranasal and two nasals; supra-
 nasals in broad contact; frontonasal single, but divided in one Lusaka
specimen; prefrontals in broad contact; supraciliaries 4-5; the an-
terior supra-ocular usually fused with the second supraciliary, but fused
with the first supraciliary on one side of RMR. 2302 from Chiwawa, and fused with first and second supraciliaries on both sides of RMR 1300 from Manyanga River, while there is no fusion between supraciliar and supraciliaries in RM. 16646 from Kalabo; midbody scale rows 22 – 24; two digits on fore-limb and three on hind-limb.

Coloration. Ground colour olive to light grey-brown; the distinctive markings illustrated by Boege (1895, pl. vi) are well defined in all except the Kalabo skink, which has no head markings and only faint longitudinal stripes; pale olive below.

Size. Largest (TNSB = Mporokoso) 225 + 300 = 525 mm. Another Mporokoso specimen is 250 mm from snout to vent.

Discussion. Laurent (1964a, p. 80) based E. a. major on a single specimen with first and second supraciliaries in contact with the prefrontal and frontal respectively, it's only other distinguishing feature being large size, 300 mm snout to vent. His E. a. vitios was said to resemble major in the arrangement of the anterior supraciliaries, but differed from both the typical form and major in its divided fronto-nasal.

Witte (1953, p. 124) has published a brief account of the 124 specimens which he collected in the Upembe National Park and informs me that in this series "the prefrontal may be absent or divided, the fronto-nasal entire or divided, the first supraciliary in contact with the prefrontal only or with the prefrontal and the frontal." (Letter of 28, iv. 65.)

This species shows such great variation in the arrangement of head shields (only one specimen that I have examined agrees with Boege's description and it comes from Kaimosi, Kenya) that it seems premature to recognize races based on such characters.

Habitat. In Zambia this species is associated with swamps and dambos and Witte (in litt.) says that it lives in swampy regions of the Upembe National Park.


**EUMECHEMILLA ARCHIPLAN JOHSTONI** (Boulenger)


Known only from the type (BM. 1946. 8. 21. 90).

Description. Supranasals in contact; fronto-nasal single, prefrontals in broad contact; supraciliaries 6; midbody scale rows 22; fore-limb monodactyle, two digits on hind-limb.
Coloation. Dark olive above, greenish-white below; a series of small blackish, white-edged spots on each side of the head, from the nostril to the ear.

Size. \(263 \times 395 = 658\) mm.

Distribution. Enemic to the Blya Plateau.

Genus ABLEPHARUS Fitzinger.


Mittleman (1952, p. 15) revived Cryptoblepharum on the grounds that it "differs essentially from Ablepharus as follows: Frontoparietals and interparietals fused to form a single large shield; ear opening present, large, approximating eye in size."

This splitting of Ablepharus has been rejected by Loveridge (1957, p. 32) and Gans, Laurent, and Pandit (1965, p. 38).

Specimens of Ablepharus hortae, recently received from the Sululand coast have the interparietal only partially fused and therefore undermine Mittleman's principal generic character."

ABLEPHARUS SKYDELLI Witte


One specimen examined from: ZAMBIA. Kasempa (Type of Ablepharus anselli FitzSimons). There is another specimen from Kasempa in the British Museum (Fitzsimons, in litt.).

Description. Prefrontals in broad contact; fronto-parietals paired; interparietals distinct; supraoculars 2; supraciliares 4; 3-4 upper labials anterior to subocular; midbody scale rows 22; limbs pentadactyle.
Cotoration. - Top of head and dorsum olive brown, a pale dorso-lateral line, blackish-brown laterally; greyish-white below.

Risae. (juvenile) 29 + 34 = 83 mm.

Discussion. - Witte (1936, p. 130) placed *seydelli* and *moerusensis* in the synonymy of *Abelcharus smithi* Witte, 1936. However, the variation given for his series of 134 *smithi* includes 24 - 26 for midbody scale rows and frontal in contact with the frontonasal (exceptionally separated). The types of *seydelli*, *moerusensis* and *anselli* agree in having 20 - 22 midbody scale rows and the prefrontals in broad contact, so it seems advisable to group these specimens under the earliest name and to regard *seydelli* as a species distinct from *smithi*.

Distribution. - Lake Miwani, through eastern Katanga to Kasemba.

**ABELCHARUS WAHLBERGI** (A. Smith)


*Abelcharus wahlbergi* Peters, 1882, p. 77, pl. xi, figs 3, 3a - c (Inhamane); Boulenger, 1897a, p. 350 (Lake Nyasa); Bosage, 1896, p. 88 (Quelimane); Boulenger, 1897b, p. 360 and 1907a, p. 9 (Lamanga Valley; Petuile); Sternfeld, 1911, p. 417 (Tete); Hewitt & Power, 1913, p. 199 (Elderado); Loveridge, 1920, p. 158 (Lambo) and 1933, p. 324 (Nyankolo); Cott, 1934, p. 170 (Fanbani; Amatongas); Pitman, 1934, p. 306 (Mkondeni); FitzSimons, 1935b, p. 373 (Tetseseoga; Kasane; Kalabakati) and 1937a, p. 269; Hartman, 1937, p. 11 (Nkonde; Lavingu); FitzSimons, 1939b, p. 37 (Kirchenhough Bridge to Untali; Mount Silinda) and 1943, p. 236 (Salisbury; Rusepo; Ekpandeno; Driestafftein; Bullawayo; Redbank; Vusa Mt.; Naseni); Mccarthy, 1952, p. 146 (Lifindi); Loveridge, 1953a, p. 215 (Nehisi Mt.; Dedza; Mitindzi; Chow; Kauda Village; Ghelo Mt.; near Tete) and 1953c, p. 142 (Lambo); Tasman, 1957, p. 29; Broadley, 1962d, p. 805.


One hundred and thirty-one specimens examined from: BECHUA-MAND. 6 miles E of Suva Split, HICHERIA, Behebi; Balawayo; Chilb; Chirundu; Chitona River; Devuli Bridge; Doro; 10 miles N of Goromone; 5 miles W of Gwani Bridge; Jantia Farm; 10 miles SE of Kapozi; Kariba;
Kariba Lake - Bezi, Mnonga and Sanyati Confluences; Kamwala; Kyle Lake; 10 mls S of Lemba; Masa Ponds Road; Malambe; Mount Darwin; 15 mls W of Macko; Park Farm (Untali); 20 mls NW of Plunbree; Redbank; Roma Division; Ruvure; Salisbury; Sengwe Gorge; Silverstream; Triangle; Tuli; Untali; Umsalise River; Vumba Mtn.; Wankie National Park - Main Camp; Kazembe - Materi and Solungwe Confluences and opposite Feira.

ZAMBIA. Abercorn; Broken Hill; Chakwanga River; Chioangi (IRSHE); Chilanga; Fort Jameson; Kabompo; 20 mls W of Katote; Kasungu; Livingstone; Lusaka; Mulupa (IRSHE); Sesheko; Victoria Falls. MAWANGOHOMABANZQ. Beira; and 6 mls NE; Calabashia Peninsula; Gorongosa Mtn.; Inhaca Island; Mungu; Maringa; Mambika; 5 mls W of Tete; Vila Junqueiro and 15 mls NW; 15 mls S of Vila de Manica; Viola; Ilula.

Literature records. BUSINESSLAND. Kalahastu; Kasane; Totsaroaga.

RHODESIA. Birchencroft Bridge - Untali; Bulawayo; Driefontein; Eldorado; Expandience; Mount Stilinda; Redbank; Ruwape; Salisbury; Vumba Mtn. ZAMBIA. Passo (near Abercorn); Luangwa Valley; Luminga; Manka (Kitwe); Mecche; Nyasukolo; Petunko. MAWANGOHOMABANZQ. Chilo Mtn.; Chowa; Dedza; Kasu; Village; Lake Ryna; Lusbe; Mambika; Mchisi Mtn.; Nyila Plateau.

ZAMBIA. Amabangui; Fanzeni; Inhambe; Lidiadzi; Lumbo; Maseni; Quelimane; Tete.

Variation. Prefrontals usually separated, rarely in broad contact; frontoparietals fused; interparietals distinct (fused with frontoparietals in the type of caryosan) and WM. 2728 from Salisbury, partially fused in two other skins); supracoculars 3; supraciliaries 5, rarely 4 or 6; upper labials anterior to subocular 4, rarely 3 or 5; midbody scale rows 24 - 26, rarely 28 (except in northern Zambia, where 28 is usual); limbs pentadactyle.

Coloration. Light grey-brown to gold above, uniform or with six dark hair-lines or a single median stripe; a narrow light dorsal-lateral line, flanks dark brown or blackish. Blush-white below, except for breeding males which are vermilion.

Size. Largest 8 (WM. 8007 - Vila Junqueiro) 46 + 628 = 108 mm.
Largest 9 (WM. 2307 - Inhaca Island) 46 + 67 = 113 mm., but MfZ 50929 (Mchisi Mtn.) measured 52 mm from snout to vent.

Discussion. Loveridge (1933a, p. 215) examined the type of A. caryosan and noted that its sole distinguishing character was the fused interparietals. As a similar specimen is recorded above it is clearly an aberration, particularly as the British Museum has a normal A. inbalbergi from Passo, also collected by Carson.
Diet. Largely termites, but Cott (1934, p. 170) also found a mantis, Orthoptera, bugs, beetles, a caterpillar, ants, a woodlouse, a contipoda and spiders in 17 Mosambique skins.

Esophagus. One was disgorged by a *Mabura varia* at Umtali. Probably eaten by *Hippo afer* at Limbo (Leveridge, 1920, p. 153). Specimens have been recovered from the stomachs of the following snakes: *Mabura ophisana* near Kapandi; Umtali); *P funkcis s. subbreviatus* (Kalanche; Okovango; near Francistown); *P f uncis angolensis* (Gemsnt).

Habitat. Very common under logs on Kalahari sand in Wankie District and under piles of palm fronds and other vegetable debris on Inhaca Island and the Mozambique Plain. Cott (1934, p. 170) found it in the crown of a Borassus Palm. They are common among drifts of dead leaves on well drained hillsides.

Distribution. Ethiopia and Somalia, south to Natal, west through Transvaal and the Kalahari to Damaraland and southern Angola.

**ABEPEPHA'S BOUTONI AFRICANUS** Sternfeld

*Abepepha Peroni* (not Cooten) Peters, 1854, p. G19 (Mozambique Island; Caboceira).

*Abepepha Boutoni* (not Desjardin) Peters, 1882, p. 77; Boega, 1896, p. 96.

*Abepepha boutoni africanus* Sternfeld, 1918, Abham, Senokosch, Nat.

Gen., 26, p. 423; Manda Island and Malindi, Kenya Colony; Pemba Island.

*Abepepha boutoni var. peroni* (not Cooten) Leveridge, 1920, p. 157 (Limbo).

Cryptoblepharus boutoni ahli Martens, 1928, Zool. Am., 73, p. 85;

*Mosambique Island.

Cryptoblepharus boutoni peroni* (not Cooten) Leveridge, 1929, p. 20 (Limbo).

Eighteen specimens examined from: 

MOSAMBIQUE. Caboceira Peninsula; Mosambique Island.

Literature records. MOSAMBIQUE. Caboceira; Limbo; Mosambique Island.

Variation. Profrontals in broad contact, frontoparietais and interparietal all fused; supracoculars 5; supraoculars 5, rarely 6; upper labials anterior to subocular 4 (5 on one side of a Mosambique Island skin); midbody scale rows 22 - 26; limbs pentadactyle.

Coloration. Olive brown to blackish, with darker mottling and a pair of ill-defined pale dorso-lateral bands, flanks and tail heavily speckled with white, pale olive below.
Sise. Largest " (UM. 8203 - Mozambique Island) 43 + 61" = 109 mm.
Largest g (UM. 8151 - Lambo) 45 + 69" = 108 mm.

Habitat. Coral rag of the intertidal zone, where large colonies are found.

Distribution. The East African coast from Somalia to north Mozambique, also the continental islands. This skink was not seen on Jhaca Island, but should be looked for on the Basaruto group. A colony "L. bentoni", recently found on the Baluland coast probably represents an undescribed race.

Genus SCALETEES Fitzinger

Scaletees Fitzinger, 1826, Nova Class., Sept., pp. 23, 53. Type by monotypy: Rigas anguineus Harrem = Anguis bisexual Linnaeus.


Sapsina Bourea, 1856, Jorn. Sci. Lisbona, 1, p. 52. Type by monotypy: S. angolensis Bocage.


Herpetosaura and Sapsina (including Rhinocaphnus) were regarded as synonyms of Scaletees by Barbour & Loveridge (1928, p. 164) and Fitz-Simons (1943, p. 177). Witte & Laurent (1943) revived both these genera, but placed Melanosoma in the synonymy of Scaletees. Melanosoma had been recognised by Barbour & Loveridge (1928, p. 169) and was subsequently revived by Loveridge (1953a, p. 220; 1957, p. 221), who also rejected Witte & Laurent's revival of Herpetosaura and Sapsina. More recently Laurent (1964a, p. 32) has accepted Melanosoma as a full genus, largely because these skinks inhabit forests, unlike Scaletees (sensu strictu).

While I concede that Scaletees (sensu lato) may be divided into valid phylogenetic groups, more anatomical evidence is needed before a convincing arrangement can be attempted. Studies on the skulls of these skinks at present being carried out at the University of Stellenbosch may prove illuminating.
SCHLOTES ARNOLDI MLANJEIS is Broadley


Two specimens examined (holotype and paratype) from MALAWI.

Manje Mountain (Dzole Peak and Lichenya Plateau).

Variation. Nostril bordered by the upper posterior corner of the rostral and a small ring-like nasal; supracorals 4; supraciliaries 6; upper labials anterior to subocular 4; midbody scale rows 22-23; limbs pentadactyle, forelimb 14.5 to 17% of snout-vent length, hindlimbs 25%; lamellae under fourth toe 11-12.

Coloration. Above, head dark brown, back yellow-brown, scales broadly margined with black; sides of head and body bluish-white, heavily marked with black. Below, salmon pink, the tail variegated with black; soles of feet black.

Sim. Holotype g (UM, 4297 - Dzole) 60 + 439 = 103 mm.

Habitat. The holotype was under a stone on a damp, steeply sloping rock face on the summit of Dzole Peak. Several leptodactylus b. horni were taken nearby.

Distribution. Known only from Mlanje Mountain, but likely to occur on the Miasa Platform inselbergs to the north-east.

SCHLOTES ARNOLDI ARNOLDI (Hewitt)


Vumba Mountain at 5,600 feet, Rhodesia; Witte & Laurens, 1943, p. 14.
Sclotes arnoldi FitchSimons, 1939b, p. 37 (Vumba Mus.), 1943, p. 204;

Tanzan, 1977, p. 32; FitchSimons, 1958, p. 207 (Nyamitwa; Pungwe River Causeway); Broadley, 1962, p. 303.

Forty-three specimens examined from RHODESIA. Chew; Enga;

Glenalas; Hadzit; Nyangari; 3 mi E of Pehalunga; Pungwe Gorge Forest;
Rhodes Inyanga Estate; Shela; Silverstream; Stapleford (Kwaman and Ruma Peaks); Untali (Cecil Kop); Vumba Mountain (Glenlandia to Leopard Rock).

Literature records. RHODESIA. Nyamitwa; Pungwe River Causeway;

Vumba Mus.

Variation. Nostril bordered by the upper posterior corner of the rostral and a small ring-like nasal; supracorals 4; supraciliaries 6, rarely 5; upper labials anterior to subocular 4, rarely 3; midbody scale
rows usually 22 in specimens from Vumba Mountain south to Malsetter District and 24, rarely 25 in specimens from Cecil Kop (Umtali) north to Inyanga; limbs pentadactyle; forelimb 6 to 11/2 of snout - vent length and hindlimb 14 - 17 %; lamellae under fourth toe 5 - 6.

**Coloration.** Above brown, often each scale with a dark spot, forming longitudinal lines, flanks grey; the change in coloration marked by a sharply defined dorso-lateral line; salmon pink below; tail bright blue in juveniles.

**Size.** Largest (UN, 10413 - Shela) 86 + 114 = 200 mm, but Um. 7602 (Nyangeri) measures 95 mm from snout to vent.

**Remarks.** When more material is available the populations from north of Umtali may be distinguishable as a race with normally 24 midbody scale rows instead of 22 as in the typical form.

**Habitat.** Stone-past land and evergreen forest, where it lives under stones and logs.

**Distribution.** The eastern highlands of Rhodesia, but not yet recorded from the Ghishavani Mountains.

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**SCALOTES ARDIUS** Barbour & Loveridge

*Scalotes ardius* (not Terrier) Loveridge, 1920, p. 129 (Lumbo).


No material examined.

**Literature recorded.** MOZAMBIQUE. Lombo; Porto Amelia.

**Variation.** Nostril bordered by the upper posterior corner of the rostral, the supranaual, a very small nasal ring and the first labial; supraciliaries 4; upper labials anterior to subocular 3 - 4; midbody scale rows 22; limbs pentadactyle.

**Coloration.** Bronze above, with a slightly darker vertebral band; flanks blackish-brown. Flanks-white below.

**Size.** Largest (?) (Loveridge, 1920 - Lombo) 63 + 32 = 95 mm. Holotype q (1923. 18355 - Lombo) 55 + 43 = 108 mm. Loveridge gives 67 mm for the snout-vent length of a q with a regenerated tail.
Discussion. Laurent (1964c, p. 21) suggests that S. arnoldi is a race of S. senecus, but the two forms occupy different habitats and this is reflected by the relative tail lengths. In S. senecus the tail is shorter than the body, but in S. arnoldi unregenerated tails are always longer than the body, sometimes nearly one and a half times as long.

Habitat. Types found in the roots of stumps growing in sandy soil, together with numerous Ablabarchus wahlbergi.

Distribution. Known only from the coast of northern Mozambique.

**SCLOTHES TETRADACTYLUS TETRADACTYLUS (Peters)**


*S. senecus* tetradactyla Gunther, 1893, p. 555 (Shire Highlands); Boulangier 1794, p. 112; Bocage, 1896, p. 103; Nieder, 1933, p. 90 (Mlanjo Mountain); Witte & Laurent, 1943, p. 15.

*S. senecus* tetradactyla Barbour & Loveridge, 1926, p. 168 (Zomba).

*S. senecus* tetradactylos tetradactylus Loveridge, 1953a, p. 217 (Lujeri River); Hankey, 1961, p. 33 (Mlanjo; Chola).

Three specimens examined from: ZAMBIA. Mcheru-Mantipa (IBRHA). MALAWI. Lujeri Estate; Zomba.

**Literature records.** MALAWI. Mlanjo; Chola; Mlanjo Mt.; Zomba.

**Variation.** Nostril bordered by the upper posterior corner of the rostral, the supranasal, a postnasal and the first labial; supranoculares 4, supraciliaries 4 - 5; upper labiales anterior to subocular 3; mid-body scale rows 24; limbs tetradactyla; lamellae beneath fourth toe 3.

**Coloration.** Dark brown above, white below. The Mcheru-Mantipa juvenile is longitudinally striped, each scale row being darker medially.

**Size.** Largest ? (MDZ) 90941 - Lujeri River 88 + 36° = 124 mm.

**Remarks.** The young Mcheru-Mantipa specimen seems to be referable to the typical form and not S. t. hemphilisi (Witte) of Katanga as one would have expected.

**Habit.** Termites and cockroaches in a Ujjeri River specimen (Loveridge, 1953a, p. 217).

**Habitat.** Apparently a forest-edge form, usually found under logs.

**Distribution.** Eastern Tanganyika south to south-eastern Malawi, (?) west to Mcheru-Mantipa, Zambid.
Scolotes angolensis (Boege)

Scolotes angolensis Boege, 1866, Jorn. Acad. Sci. Lisbom, 2, p. 63, pl. 1, fig. 1, in = 3; Daques de Braganza, Angola; Angel, 1920, p. 616 (Lealui); Witte & Laurent, 1943, p. 16. Scolotes angolensis FitzSimons, 1943, p. 201.

Four specimens examined from: ZAMBIA, Kalabo.

Variation. Nostril bordered by the upper posterior corner of the rostral, the supranasal, a postnasal and the first labial; supraoculars 5; supraciliaries 5; upper labials anterior to subocular 3; midbody scale rows 24; limbs tridactyle.

Coloration. Yellow-brown above, each scale darker mesially; white below.

Size. Largest (UM, 6753 - Kalabo) 80 + 64 = 144 mm; UM, 10047 measures 37 mm from snout to vent (tail regenerated).

Distribution. Lower Congo, Angola, Barotseland and northern parts of South West Africa.

Scolotes limpopoensis FitzSimons


Four specimens examined from: ZAMBIA, Beithbridge; Limpopo-Umzingwane Confluence.

Variation. Nostril bordered by the upper posterior corner of the rostral and a very small ring-like nasal; supraoculars 4; supraciliaries 5; upper labials anterior to subocular 4; midbody scale rows 22; forelimbs tridactyle, hind limbs tetractyle.

Coloration. Light brown above, each scale darker mesially, a pair of broad, buff dorsolateral bands extend from snout onto tail; slate grey laterally, each scale darker mesially; whitish below, most scales grayish mesially, especially under tail.

Size. Largest (NHM, 3263 - Limpopo-Umzingwane Confluence) 78 + 36 = 114 mm.

Habitat. The largest was under dead leaves between rocks near the banks of the Umzingwane River. Three specimens were trapped in fence-post holes at Beithbridge Customs post.

Distribution. Only known from the Limpopo Valley in the Beithbridge-Messina area.
SCOLETOS BREVIPEST Hewitt

Scoleotes caentheri (not Boulyenger) Hewitt, 1921, p. 4, text fig. 1 b
(Loearenco Montes).

Scoleotes brevipes Hewitt, 1925, Rec. Albany Mus., 3, p. 353, pl. xvi,
fig. 4: Loearenco Marques, Mozambique; FitisSimons, 1930, p. 37
and 1943, p. 194.

Scoleotes brevipes Witte & Laurent, 1943, p. 27.

No local specimens examined.

Literature record: MOZAMBIQUE. Loureiro Marques.

Description. Nostril bordered by rostral and a very small ring-like
nasal; supraceulars 4; supraciliaries 6; upper labials anterior to
subocular 3; midbody scale rows 18 - 20; fore limbs absent; hind limbs
reduced to countless rudiments not exceeding one millimetre in length.

Coloration. Pale bronze above, each scale darker medially, flanks
clane grey, ventrals grey medially.

Size. Co-type (TM. 2892 - Lourenco Marques) 61 + 65 = 126 mm.

Habitat. Usually found under logs in alluvial sand.

Distribution. Southern Mozambique and Zululand, extending into the
eastern Transvaal.

SCOLETOS ICNORATUS MOZAMBIQUE (Peters)

Herpetosaura inornata var. mozambica Peters, 1892, Beza nach, Mozam-

Scoleotes inornatus mozambicus FitisSimons, 1943, p. 200 (Masioni).

Herpetosaura inornata (part) Witte & Laurent, 1943, p. 28.

None examined.

Literature record: MOZAMBIQUE. Inhambane; Masioni.

Description. Nostril bordered by rostral and a very small ring-like
nasal; supraceulars 4; supraciliaries 6; upper labials anterior to
subocular 3; midbody scale rows 18; limbless.

Coloration. Pale brown or buff, each scale darker in the centre,
flanks darker than dorsal or ventral surfaces.

Distribution. Southern Mozambique and Zululand.
SCELOTES ARNIGOLIA (Peters)

- Inhambane and Lourenco Marques, Mozambique, and 1882, p. 79, pl. xi, fig. 4 and pl. xiii, fig. 4; Bocage, 1882, p. 237 (Angoche); Boulenger, 1890, p. 30 (Delagoa Bay), 1907b, p. 436 (Coguno) and 1910, p. 438; Hewitt, 1910c, pp. 92, 102; FitzSimons, 1930, p. 37 (Lourenco Marques).

Scelotes arnigolia Bocage, 1896, p. 88; Boulenger, 1887c, p. 415; FitzSimons, 1943, p. 196 (Rikatla); Witte & Laurent, 1943, p. 31; Manacas, 1954, p. 3 (Mausal).

Four specimens examined from: MOZAMBIQUE, Inhaca Island (IIM); Lourenco Marques.

Literature records:
- MOZAMBIQUE: Angoche; Coguno; Delagoa Bay; Inhambane; Lourenco Marques; Mausal; Rikatla.

Variation:
- Nostril bordered by the rostral and a small elongate nasal; supraoculars 3; supraciliaris 5; upper labials anterior to subocular 3; midbody scale rows 18 - 20; limbless.

Coloration:
- Above pale brown, a vertebral stripe which posteriorly consists of a double row of dark spots (one on each scale), and a similar upper lateral stripe; yellowish white below.

Size: (TH. 2823 - Lourenco Marques) 76 + 66 = 142 mm; a Musale specimen measures 82 mm from snout to vent (Manacas, 1954).

Habitat: Coastal alluvium.

Distribution: From Angoche south through Mozambique to Zululand.

SCELOTES ATER ATER (Gunther)

Herpetosaura atorn Gunther, 1873, Ann. Mag. Nat. Hist. (4) 12, p. 147:
- Zambezi; Peters, 1882, p. 31; Bocage, 1896, p. 99.
- Malanosaurus atorn Boulenger, 1887c, p. 422.

Scelotes atorn ater Witte & Laurent, 1943, p. 32.


Malanosaurus ater ater Loveridge, 1953a, p.222 (Misuku Mountains; Vipya Plateau).

Three specimens examined from: ZAMBIA. Abercrom.

Literature records:
- MALAWI: Missuku Mountains; Vipya Plateau.
- MOZAMBIQUE: Zambezi River.
**Variation.** Nostril bordered by the rostral and the first labial; supracoculars 3; supraciliaries 4; upper labials anterior to subocular 2; midbody scale rows 20 - 22 in Abercorn specimens, 22 - 24 in Malawi specimens, 22 in the type (Zambesi); limbless.

**Coloration.** Uniform black above and below or (in the type series of *misukuensis*) body white below, or with dark stripes formed by a dark spot on each scale.

**Size.** Largest ♂ (MZ 50961 - Misuku Mountains) 138 + 46 = 184 mm.
Largest ♀ (MZ 50965 - Misuku Mountains) 178 + 61 = 239 mm.

**Discussion.** Loveridge distinguished *misukuensis* from the typical form solely on its lighter ventral coloration, although he also recorded a specimen of typical size from the Misuku Mountains. The three Abercorn specimens are intermediate between the typical form and *S. a. runioensis* of south-eastern Tanganyika, having 20 - 22 midbody scale rows and snout - vent lengths of 123 - 135 mm.

**Habitat.** This species is usually found at the edge of montane evergreen forest under logs and stones.

**Distribution.** Northern Zambia, south through Malawi to the Zambesi.
Genus SCOLECOERES Loveridge


SCOLECOERES BOULANGERI Loveridge


None examined.

Literature records. MOZAMBIQUE. Lumbo; Porto Amelia.

Description. Nostril pierced anteriorly in a very large rostral and connected to its posterior border by a longitudinal groove; rostral bordered posteriorly by a pair of internasals; frontonasal twice as broad as long, subequal to frontal in size; interparietal heart-shaped, equal in size to the frontal and frontonasal together, bordered behind by a pair of band-like parietals; supraocular 2; no supraciliaries; upper labials anterior to subocular 2; eye exposed; midbody scale rows 18; anal divided; limbless.

Coloration. Flash coloured, each scale row with a longitudinal brown striation; tail darker, sometimes almost blue-black, but regenerated tips pale.

Size. Largest? (Holotype in BM - Lumbo) 90 + 16 = 106 mm. Largest 9 (Loveridge, 1920 - Lumbo) 95 + 1 = 136 mm.

Habitat. Coastal alluvium.

Distribution. Coast of northern Mozambique.

Genus TYPHIACONTAS Bocage


TYPHIACONTAS GRACILIS GRACILIS Roux

Typhiacontas gracilis Roux, 1907, Rev. Suisse Zool., 15, p. 83, figs. 3 - 4; ZAMBI!; Angel, 1920, p. 617 (Zoolin); Pitman, 1934, p. 305; Witte & Laurent, 1943, p. 35.

Typhiacontas rhani Angel, 1923, Miss. Rohan-Chabot Angola - Rhodesia (Paris, 1923) & p. 162, figs. 6 - 8; Imankunhu, S. E. Angola; Witte & Laurent, 1943, p. 35.
Eighty-six specimens examined from: ZAMBIA. Kabompo; Kalabo.

**Literature records.** ZAMBIA. Lualui; Zambesi River.

**Variation.** Nostril pierced anteriorly in a very large rostral and connected to its posterior border by a longitudinal groove; rostral bordered posteriorly by a single band-like internasal, which is followed by a frontonasal and frontal which are longer, but slightly narrower, then a subtriangular interparietal which is bordered posteriorly by a pair of band-like parietals; supraciliars 2; supraciliaries 2; preoculars 1 - 2, rarely 0; postoculars 1 - 3; the second (12 specimens) or third (74 specimens) upper labial enters the orbit; eye exposed; midbody scale rows 13; limbless.

**Coloration.** Buff above, each scale in the two median dorsal scale rows dark centred, forming a vague vertebral stripe, which extends onto the head, a broad grey-brown lateral band extends from the eye onto the tail; whitish below, but scales darker mesially.

**Size.** Largest (UM, 7875 - Kalabo) 86 + 30 = 124 mm.

**Discussion.** The range of variation in the above series (5 from Kabompo; 81 from Kalabo) shows that *T. rohani* is a synonym of *T. gracilis*. The type locality for *rohani* is only 120 miles south-west of Kalabo and there is no break in the Kalahari sands to inhibit gene flow.

**Habitat.** Kalahari sand. The huge Kalabo series was turned up by graders on road construction (K. Japp).

**Distribution.** South-eastern Angola and western Zambia.

**TYPHOCONIUS GRACILIS NOAMNIEZIS FitzSimons**


Motlhatlogo, Bechuanaland and 1935b, p. 374, Figs. 17 - 19, also 1943, p. 239 (Guizi); Witte & Laurent, 1943, p. 35; Martens, 1955, p. 117 (Andara); Tasman, 1957, p. 32; Broadley, 1962d, p. 805; Haacke, 1965, p. 20.

Eleven specimens examined from: BECHUANALAND. Motlhatlogo (Paratype, TM); Tsumfupi. RHODESIA. Chimara Ranch; 10 mls E of Lupane; Victoria Falls National Park; Wankie National Park - Main Camp.

**Literature records.** BECHUANALAND. Motlhatlogo. CAPRIVI. Andara.

**Variation.** Differs from the typical form in the proportions of the large head shields, the length of the rostral being subequal to that of the fronto-nasal + frontal and subequal to the interparietal (rostral longer than these shields in the typical form); supraciliars 2; supraciliaries 2; preoculars 0 - 1; postoculars 1 - 3; the second upper labial enters the orbit; midbody scale rows 18.
Cochilus: As in the typical form.

Size. (Type, M. x461 - Nolhatloga) \( 30 + 45 = 125 \) mm.

Discussion. This form differs from \( T. \) gracilis only in the proportions of the head shields and the labial arrangement. The precoculare are so minute that their presence or absence is of little significance. As \( n. \) occidentalis occupies the same habitat as \( T. \) gracilis it is best regarded as a southern race of the latter, the swamps of the Chobe-Ovongo system serving to isolate the two forms.

Habitat. Found under logs and piles of vegetable debris in Kalahari sand regions.


Genus Acontias Cuvier

Acontias Cuvier, 1817, Regne Animal, 2., p. 60. Type by monotypy. Acontias melaeagris Linnaeus.

No group of skinks in southern Africa is more poorly understood than the genus Acontias and only a comprehensive revision can clarify the position because of the inadequacy of the published data for many forms. These skinks tend to have discontinuous distributions, although they may be locally common, so that division into races is well marked in the group - another factor which adds to the difficulties of the taxonomist.

The Acontias plumbeus group contains seven forms which are usually regarded as conspecific. I have analysed the available morphological and distribution data and come to the following conclusions:

(a) Four forms occur in the eastern Ciskei Province - typical plumbeus at East London (a series from J. D. Visser), \( t. \) tassoni in Port Elizabeth District and at Port Brown, \( t. \) gracilis at Grahamstown and \( t. \) brevipes on the Amatola Mountains. These records form a mosaic which suggests that not all these forms can be conspecific, even if they are not actually sympatric.

(b) Typical A. plumbeus Bianconi is the only form with a tropical distribution pattern. It attains twice the size of any other form and it has much lower ventral (146-163) and subcaudal (26 - 30) counts than either \( t. \) broadleyi (163 - 177; 29 - 33) or \( t. \) occidentalis (163 - 179; 27 - 35), showing no signs of intergradation with either. A. plumbeus is evidently a monotypic species.

(c) A. brevipes Essex is a montane form found on the Amatola Mountains and in the south-eastern Transvaal, it has a low ventral count (143 - 154), but a fairly long tail (subcaudals 31 - 33). It can provisionally be considered a good species.
(d) The five remaining forms can provisionally be listed as races of *A. gracilicauda*, they are *manquensis* Hewitt, *occidentalis* FitzSimons, *broadlei* FitzSimons, *gracilicauda* Essex and *tassani* Hewitt, although the occurrence of the last two in close proximity requires investigation.

**ACONTIAS GRACILICAUDA OCCIDENTALIS**

FitzSimons

**Acontias malaearia** Permao (7) 1896, p. 1 (Kasungula to Bulawayo);

Bocage (7), 1896b, p. 118 (Boehmamaland); FitzSimons, 1935b, p. 374;

(Gosodimo to Kaeops).

**Acontias plumbeus occidentalis** FitzSimons, 1941, Ann. Tvl. Mus., 20, p. 275; Junction of Crocodile and Marico Rivers, W. Transvaal (also Otjimbingwe and Ohahamije, S.W.A.; Gosodimo to Kaeops, Kalahari; Junction of Limpopo and Magalakud rivers; Hentienfontein near Nylstroom, Transvaal) and 1943, p. 247; Broadley, 1962d, p. 806.

Fifty-four specimens examined from: RHODESIA. Bulawayo;

Gent: Nyamandlovu; Woodvale (Bulawayo Airport).

**Literature records.** RHODUANLAND. Gosodimo to Kaeops. RHODESIA.

Kasungula to Bulawayo.

**Variation.** Midbody scale rows 16; ventrals 165 - 179; subcaudals 27 - 35.

**Coloration.** Uniform black above and below with a few scattered white scales on the throat, sometimes motiled greenish or yellowish below.

**Size.** Largest (1943, 5144 - Cement) 230 + 34 = 264 mm.

**Breeding.** Females collected in November each contain two full-term young measuring 66 - 75 mm in total length.

**Habitat.** Kalahari sand, the Woodvale series being taken out at a point where this substrate meets schist, the Bulawayo and Gent specimens come from schist areas.

**Distribution.** Damarauland, the central Kalahari and western parts of Rhodesia and the Transvaal.

**ACONTIAS GRACILICAUDA BROADLEI** FitzSimons


Forty specimens examined from: RHODESIA. Bulawayo; Gent;

Lochard; Matopos Dam; Mount Hampden; (Stanford Farm); Salisbury and 10 mi., W.
Literature record. RHODESIA. Mount Hampden (Stamford Farm).

Variation. Midbody scale rows 15; ventrals 163 - 177; subcaudals 59 - 35.

Coloration. Grey-brown to olive green or yellowish above; white below.

Size. Largest (UM. 10325 - Salisbury) 254 (218 + 36) mm.

Discussion. Seventy-six Acontias graciliscadae were collected at Woodvale during the construction of the new Bulawayo Airport, 39 of these were broadlarii and 49 were occidentalis, five of the latter might be considered intergrades, being mottled with greenish-white below. The occurrence of the two forms together is explained by the meeting of their respective substrate habitat in this area, but this does not explain the almost complete lack of intergrade specimens. The two forms are distinguishable only on colour, but they behave more like good species than races.

Habitat. One specimen was recovered from the stomach of an Atractaspis buloni at Bulawayo.

Habitat. Common under slabs of red schist on hillside in the Mount Hampden - Salisbury area, also at Bulawayo and Matopos Dam; in a contact zone of talc schist and Kalahari sand at Cemert; under a quartz boulder at Lochard; under a granite flake in the Matopos.

Distribution. The central watershed of Rhodesia from Salisbury south-west to the Matopos.

Acontias graciliscadae subsp.

Three specimens (UM. 10239-91) from Debeeti, eastern Bechuana-landi, cannot be positively identified. Two of them resemble occidentalis in their uniform black coloration, the other is gray above and white below, resembling broadlarii. They have 14 midbody scale rows, 165 ventrals and 39 - 34 subcaudals. Debeeti is only 40 miles north-west of the type locality for occidentalis, but these specimens have sharply tapering tails like A. g. namagensis. There are no records of the latter from the northern Cape Province, but the Debeeti skinks look more like intergrades between namagensis and occidentalis than anything else.

The remains of another pale-coloured Acontias were found in the stomach of a Cape Fox (Vulpes chama) at Debeeti.

Acontias Pinnatus Bianconi


III. Mozambique.
Inhambane, Mozambique; Bocage, 1882, p. 287 (Angoche).
Acantias plumbeus Peters, 1852, p. 61, pl. xii; Boulenger, 1887a, p. 428;
Bocage, 1896, p. 89; Boulenger, 1920, p. 439 (Delagoa Bay).
Acantias melasgris (not Linnaeus) Roux (?), 1907, p. 23; (Kilmati);
Boulenger (part) 1910, p. 489 (Delagoa Bay).
Acantias plumbeus plumbeus FitzSimons, 1943, p. 245 (Lourenco Marques;
Masindi); Witte & Laurent, 1943, p. 19; Broadley, 1963d, p. 905.

Six specimens examined from: RHODESIA. Jervey Estate;
Ngirim Reserve (E); Vumba Mt. (lower slopes). MOZAMBIQUE. Inhaca
Island (I.B.M.).

Literature recorda. MOZAMBIQUE. Angoche; Delagoa Bay; Inhambane;
Lourenco Marques; Rikatla.

Variation. Midbody scale rows 18 - 20; ventrales 146 - 163; sub-
caudals 27 - 30.

Coloration. Uniform dark brown to bluish above and below.

Size. Largest 9 (UM, 10379 - Ngirim Reserve) 375 x 60 = 435 mm.

Breeding. The big female contained 7 eggs.

Habitat. The female from Ngirim Reserve was under dead leaves on
the floor of lowland forest.

Distribution. The coastal plain from Angoche south to Natal and in-
land to eastern Rhodesia and northern and eastern Transvaal; also a re-
lict population at East London.

Genus TYPHLOSARUS Wiegmann

Typhlosaurus Wiegmann, 1834, Herp. Mex., p. 11. Type : Typhlus cuvieri
Wiegmann = Acantias canus Cuvier.

TYPHLOSARUS GRECOI DIOCOLOR Hewitt

Acantias melasgris (not Linnaeus) Bocage (?), 1896, p. 39 (Namaqua to
Save River, i.e. the Rhodesia - Mozambique border); Boulenger, 1902,
p. 17 (Kashonland = Nance).

Umtali, Rhodesia; Witte & Laurent, 1943, p. 22; FitzSimons, 1958a,
p. 206 (Nyamiva); Broadley, 1963d, p. 807.

Typhlosaurus grecoi bicolor FitzSimons, 1943, p. 260; Tusman, 1957,
p. 32.

Twenty-six specimens examined from: RHODESIA. Chido;
Kaguni; Nance (IM); Nyamiva; Odzi; Rhodes Inyanga Estate; Umtali -
Chipondiwilli / Cecil Kop Range.
Variation. Snout conical, rostral subequal in length to the other head shields together; three anygous head shields posterior to rostral, a frontonasal which is narrower than the frontal, a triangular inter-parietal bordered by a pair of parietals which form an oblique suture posteriorly; supraoculars 3 (rarely 2 or 4); supraciliaries 2 (rarely 1); suboculars 2; upper labials 5 (rarely 4); midbody scale rows 16 - 20.

Coloration. Usually each dorsal scale row bearing a blackish longitudinal stripe, the underside uniform or with rows of dark spots (obsolescent stripes). Most specimens from the Chiposoniori - Cecil Kop Range (the northern Umtali Municipal boundary) agree with Hewitt's type (now lost) in being uniform black above and uniform white below.

Size. Largest (UM. 1336 - Rhodes Inyang Estate) 195 + 31 = 226 mm. Remarks. In view of the variation in head shields shown by the above series deciduous hardly warrants specific rank.

Enemies. One was found in the stomach of a civet (Viverra civetta) trapped in Zimunya Reserve, Umtali.

Habitat. Montane grassland under rocks.

Distribution. Endemic to the highlands of eastern Rhodesia (? and adjoining Mozambique).

TYPHOLOSAURUS GREGOI GREGOI Boulenger


One specimen examined from RHODESIA. 20 mls W of Birchenough Bridge.

Description. A juvenile with 2 supraoculars; 2 supraciliaries; 2 suboculars and 16 midbody scale rows. Uniform plumbeous above and below. Length from snout to vent 60 mm, tail damaged.

Discussion. Adults are needed to confirm the identity of Bikita populations, but this specimen seems to be closer to typical cregoi than gregoi.

Enemies. Recovered from the stomach of a P. flavescens i. rhodesianus.

Habitat. Granite Kopje at the foot of the Bikita escarpment (c.3000 ft).

Distribution. Northern Transvaal and the Bikita District of Rhodesia.
**TYPHLOSAURUS AURANTIACUS** (Peters)

*Typhlosaurus aurantiacus* (not Wiegmann) Bianconi, 1854, p. 27, pl. 1, fig. 3 (Mozambique).


*Typhlosaurus aurantiacus* Peters, 1854, p. 83; Boulenger, 1887b, p. 433; Boog, 1896, p. 87; Roux, 1907, p. 86 (Rikatla); Boulenger, 1910, p. 490; Pittsimons, 1943, p. 237; Witte & Laurent, 1943, p. 23; Manacca, 1954, p. 4 (Manelo).

Two specimens examined from: **Mozambique**. Inhaca Island.

**Literature record**: Mozambique. Inhambane; Lourenço Marques; Manalo; Rikatla.

**Variation**. Snout conical, rostral subequal in length to the other head shields together; two azygous head shields posterior to rostral, a frontonasal and a large subpentagonal frontal formed by fusion with the interparietal; parietales large, in broad contact behind frontal; supraoculares 2; one frontal; one preocular; one subocular; upper labials 4; midbody scale rows 12.

**Coloration**. Pale orange-yellow above, yellowish-white below. Juveniles with 2 - 6 dorsal rows of dark spots, these are ill-defined or absent in adults, sometimes occurring on the tail only.

**Size**. Largest (29/8, 2926 - Lourenço Marques) 209 + 33 = 242 mm.

**Habitat**. Coastal alluvium. One Inhaca specimen was in the roots of a Cassava plant, the other under a log.

**Distribution**. Southern Mozambique and Zululand, extending into the eastern Transvaal.

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**TYPHLOSAURUS "RELIGE"**

One specimen examined from: **Rhodesia**. Malapati Drift.

This form is similar to *T. lineatus*, but differs from that species as follows: Rostral bordered by seven shields (5 in *lineatus*); frontonasal and frontal narrower; second and third upper labials separated from postocular by a large subocular and two large scales posterior to it; mental bordered by five chin shields (3 - 5, usually 4 in *lineatus*); midbody scale rows 12 (always 14 in *lineatus* examined).

**Coloration**. Yellow above with six dark longitudinal stripes, the four median ones continuous, the other pair broken into spots; white below.

**Size**. (CMH/R, 178 - Malapati Drift) 140 + 24 = 164 mm.
Habitat. In alluvial sand beneath grass.

Distribution. Dr. C. K. Brain (in litt.) suggests that this form is probably widespread in the red sands which extend along the southeastern border of Rhodesia between the Ruvencori and Lundi Rivers. He found grass-covered dune structures reminiscent of the Kalahari in this area.

**Typhlosaurus lineatus** Boulenger

*Typhlosaurus lineatus* Boulenger, 1887, Cat. Reptiles Brit. Mus., 2, p. 432, pl. xxxviii, figs. 3, 3a - b: "Cape of Good Hope"; Boettger, 1887, p. 152 (Noi Kas, near Gansi); Boulenger, 1910, p. 400; Hewitt & Power, 1913, p. 152 (Ky Ky); Boulenger, 1899, pl. 11, fig. 22 (Serowe); FitzSimons, 1935b, p. 377 (Kuk - Gomodimo; Gomodimo; Kaotwe; Okan River - Damara Pan; Gemsbok) and 1943, p. 264; Watte & Laurent, 1943, p. 22; FitzSimons & Brain, 1958b, p. 101.

Twenty-six specimens examined from: **REGHUALAND.** Chavuta Pan; Gungena (TM); Dakar (TM); Gemsbok Pan (TM); Gansel (TM); Gomodimo Pan (TM); Kaotwe Pan (TM); Kuk - Gomodimo (TM); Ky Ky (TM); Lothian Pan; Serowe (AM); Swa - BP Border at 24°S; 4 km S of Tsake Pan (TM); Takutelwe Pan (TM); Tsodilo Hills (TM); Tweerivieren (TM).

**Literature records.** REGHUALAND. Gemsbok; Gomodimo; Kaotwe; Kuk - Gomodimo; Ky Ky; Noi Kas; Okan River - Damara Pan; Serowe.

**Variation.** Snout with a sharp horizontal edge; rostral subequal to or a little shorter than the other head shields together; frontonasal about three times as broad as long; frontal large and subpentagonal (fused with interparietal), bordered by a pair of large parietals which are in good contact behind; supracoculars 2; supraciliaries 2 (rarely o - 1, through fusion with supracoculars); subocular one (fused with preoculars on both sides of a Ky Ky specimen); upper labials 4; chin shields bordering mental 3 - 5, usually 4; midbody scale rows 14.

**Coloration.** Yellow above with 4 - 8 dorsal rows of dark red-brown spots, the 2 - 4 median rows usually confluent, forming continuous stripes. Two Ky Ky specimens are plumbeous with the two median rows of ventrals white, while a skink from Kuk - Gomodimo is entirely plumbeous.

**Size.** Largest (TM. 30960 - Tsodilo Hills) 166 + 21 = 187 mm, but TM. 30963 from the same locality measures 160 mm from snout to vent (tail regenerated).

**Specimen.** The Chavuta Pan specimen was found in the stomach of a genet (*Genetta genetta*).

**Habitat.** Restricted to Kalahari sand.

**Distribution.** Northern Cape Province, South West Africa and Bechuanaland, with a relict population at Great Salt Pan in the northern Transvaal.
TYPHLOSAURUS LINEATUS "JAPP"

Twenty-four specimens examined from: ZAMBIA, Kalabo.

Variation. Head scales similar to typical lineatus, but ocular much longer than high; supracleithra 2 (3 on one side of one specimen); supraciliaries 2; suboculars 1, rarely 2; upper labials 4; chin shields bordering mental always 3 (usually 4 in typical lineatus); midbody scale row 14.

Coloration. Yellow, with two broad continuous black mid-dorsal stripes, which break up and disappear on tail, rarely a faintly indicated series of spots flanking the dorsal stripes on either side. (Never less than four stripes in typical lineatus and the stripes are better defined on the tail).

Size. Largest (UM 4816, 6757 and 7905 - Kalabo) all measure 180 + 23 = 203 mm. Adults are 160 - 180 mm from snout to vent, while typical lineatus rarely exceed 140 mm.

Habitat. Kalahari sand. This fine series was collected by R. G. Japp during road-making operations.

Distribution. Barotseland and adjoining Angola.

TYPHLOSAURUS GARTERIANUS FitzSimons.


Tyrpholosaourus lineatus (not Boulenger) Brain, 1959b, p. 70 (Tweerivieren).

Five specimens examined from: CAPE PROVINCE - BOSCHWALAND BORDER, Ky Ky (AH); Tweerivieren (TH).

Variation. Snout with a sharp horizontal edge; rostral subequal to the other head shields together; frontonasal not quite three times as broad as long; frontal subpentagonal, bordered by a pair of large parietals, which are in good contact behind; supracleithra 2; a single supraciliary; no suboculars; upper labials 3, the first in contact with the ocular; chin shields bordering mental 3; midbody scale row 12.

Coloration. Yellow above, with four longitudinal rows of dark spots on back; whitish below.

Size. Largest (AH - Ky Ky) 130 + 22 = 142 mm.

Breeding. 2 of 2 from Tweerivieren each contained a single young one measuring 71 - 74 mm. (Brain, 1959b).

Distribution. Northern Cape Province, extending to the Bechuanaland border in the Kalahari Gemsbok National Park, where it is sympatric with Tyrpholosaourus l. lineatus.
Family GORDYLIIDAE
Genus GERRHOSAURUS Wiegmann


GERRHOSAURUS VALIDUS A. Smith


Gerrhosaurus validus Boulenger, 1897a, p. 121; Beccago, 1896, p. 98; Ghosh, 1909a and 1909b, p. 35 (Matopo; Empandene); Boulenger, 1910, p. 480; Hewitt, 1910e, pp. 194, 195; Sternfeld, 1911, p. 417 (Chifumbazi); Hewitt & Peters, 1913, p. 157 (Insim); Pittman, 1934, p. 205; FitzSimons, 1935b, p. 362 (Zimbabwe), 1937, p. 269 and 1939b, p. 33 (Changadzi River; Devuli River Bridge); Mitchell, 1946, p. 27 (Salim).


Gerrhosaurus validus validus Loveridge, 1942b, p. 492; FitzSimons, 1943, p. 269 (Plumtree; Matibi); Mmacas, 1952, p. 147 (Namacha); Loveridge, 1953a, p. 223 (Ntshika; Nyamazanga; Tete); Mmacas, 1961, p. 154 (Mhantare River; Vila Paiwa de Andrade); Broadley, 1962a, p. 318.

Fifty-eight specimens examined from: BEOHUANA L. Foley.

BECHUANALAND. Beitbridge; Pulawayo; Ghanânwe Bridge; 12 mls NE of Gwama Bridge; Naroni-Lusitu Confluence; Heathfield; Kappani; Kariba Lake - Sanyati Confluence; Limpopo - Uasinguane Confluence; Lukosi Bridge; Lundu River; Matopo; Matona; Nyamashatu Bridge; Prince Edward Dam; Shgd. - Mohari Confluence. Karoi Dam. Sambia. Gaste Hills.

ZAMBIA. Nagasso; Matarao; Namacha; Namuwa; Sano; 25 & 30 mls ENE and 15 mls SSW of Tete.

Literature Records. BEOHUANA. Changadzi River; Devuli Bridge; Empandene; Inaia; Matibi; Matopo; Plumtree; Zimbabwe. MALAWI. Ntamangwa; Ntshika; Salima. MOZAMBIQUE. Chifumbazi; Inchope; Namacha; Mhantare River; Tete; Vila Paiwa de Andrade.
**Variation.** Supraciliaries 5, rarely 4 or 6; dorsals multicarinate and serrated in adults, in 26 - 34 longitudinal and 50 - 58 transverse rows; ventrals in 14 - 20 longitudinal and 34 - 45 transverse rows; femoral pores 14 - 25 on each side; lamellae beneath fourth toe 17 - 23.

**Coloration.** Black above, each head shield and dorsal scale spotted with yellow and a pair of broad yellow dorso-lateral stripes, brownish below.

**Size.** Largest (1866, 5129 - Chibalwe Bridge) 285 + 405 = 690 mm.

**Breeding.** The eggs, usually four in number, are laid in rock crevices. One measuring 44 x 26 mm hatched on 16th February, the hatchling measured 68 + 100 = 168 mm.

**Diet.** The catholic diet of this species is shown by an analysis of the stomach contents of seventeen Rhodesian specimens. Four contained vegetable matter only and eight others contained varying amounts, this consisted of leaves and flower petals (pink or yellow flowers are favoured), but one Kapazi lizard had eaten nothing but figs. Six specimens contained millipedes and six had eaten beetles, other food items being scorpions (2), centipedes (1), lepidopterous larvae (23 in one stomach), mantids (2), grasshopper (1), termites and a small gecko (*Pachynostrelus p. punctatus*).

**Parasites.** Worms (*Tachygeneta* and *Theelodontus spp.*) in the intestines of Tete specimens (Loveridge, 1953a).

**Enemies.** A juvenile was found in the stomach of a *Thelotornis k. oatensi* from the Matopos.

**Habitat.** Granite, paragneiss or sandstone outcrops. Sometimes occurs in huge colonies, as at Beithbridge and Namuswa in north Mozambique.

**Distribution.** Mozambique, southern Malawi and Zambia, Rhodesia, eastern Bechuanaland, north-western and eastern Transvaal, Swaziland and northern Zululand.

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**Gerrhosaurus Major Major** Duméril

*Gerrhosaurus Major* Duméril, 1851, Cat. Rept. ; Coll. Rept. Mus. Paris, p. 139; Zamich Island; Bouloenger, 1907a, p. 8 (Feira); Hewitt, 1910a, p. 104; Sternfeld, 1911, p. 417 (Chifumbazi); Loveridge, 1920, p. 119 (Lusso); Cott, 1934, p. 165 (Sasa; Amatongan).

*Gerrhosaurus grandis* Bouloenger, 1908, Ann. Natal Mus., 12, p. 233, pl.xxxvi; Ubonso, Zululand; FitzSimons, 1939b, p. 34 (between Changadzi River and Birchamough Bridge).

*Gerrhosaurus major grandis* Loveridge, 1942b, p. 500; FitzSimons, 1943, p. 230; Loveridge, 1953a, p. 224 (Lumbula River); Bradley, 1962a, p. 819.
Gerrhosaurus major major: Fitzsim, 1934, p. 305; Leveridge, 1942b, p. 302 and 1953a, p. 225 (Tete).

Twenty-three specimens examined from: RHODESIA. 20 mls W of Birchconough Bridge, Jomeshi Hill, Kapasi; Kariba Lake - Sengati Confluence; Katamvi; Ruwya River Drift; Lupisi Hot Springs; Ranara; Triangle; SAMBIA. Gwelo Valley; 20 mls W of Katete. MUAMBIKWE. Ruma - Lusago; 4 mls S of Tete. Kilwe.

Literature records: RHODESIA. Birchconough Bridge, ZAMBIA. Feira. BULAWAYO. Likabula River. MUAMBIKWE. Amatongwe; Goin; Chifumbani; Lusago; Tete.

Variation. Supraciliaries 5, rarely 4; dorsals strongly keeled; rugose in 16 - 18 longitudinal and 31 - 35 transverse rows; ventrals in 10 longitudinal and 26 - 35 transverse rows; femoral pores 10 - 14 on each side; lamellae beneath fourth toe 12 - 15.

Coloration. Buff or yellowish-brown above, uniform or each scale streaked with black, which may form irregular longitudinal lines; tail usually black spotted with yellow; yellow or brown below.

Size. Largest 9 (Leveridge, 1930 - Lusago) 210 + 315 = 555 mm. Largest 9 (In, 2217 - Ruma-Lusago) 215 + 170 + mm. Typical.

Discussion. Leveridge (1943b and 1953a) could distinguish gwynia from major only on coloration, regarding the latter as a uniform buff coastal form extending from Kenya to the Zambezi, while gwynia, streaked with black at least posteriorly, occurred south of the Zambezi, but extended north to Tanganjika, inland from typical major.

The above series is very variable in coloration, but this has no geographical significance, lizards with no black on the body occur together with heavily streaked specimens at Kapasi, Kariba Lake and Triangle. The Kapasi series from 3,000 feet are actually lighter in colour than specimens from the Karroo-Kraal Plain, so gwynia must be placed in the synonymy of G. M. major.

Estes (1963) has referred a fossil lizard from the Lower Miocene of Tangany Inland, Lake Victoria, Kenya to Gerrhosaurus major, indicating the ancient origin of this genus. It is possible that most of the adap-like genera are derived from such a generalized gerrhosaurus ancestor.

Recipe. A 9 from Ruma - Lusago contained 2 eggs measuring 33 x 26 mm on 6th November, another from near Tete held 2 eggs of 50 x 23 mm on 11th December.

Note. Stomac contents of eight specimens consisted of beetles, grasshoppers, millipedes and lepidopterous larvae, one from 20 mls W of Birchconough Bridge had eaten a gravid 9 Amen kiri. Small beans and grass
with a single beetle leg in a Lumbo specimen (Loveridge, 1920, p. 150).

Captive specimens eat fruit.

**Habitat.** Territorial areas frequently occupied by this species, e.g.,
Lumbo (Loveridge, 1920), Lulungu River (Loveridge, 1923b), Wankie and
Mhoko Districts of Rhodesia (Broadley, 1962d). They also live in rock
crevices, but seem to prefer small outcrops, the large kopjes being oc-
cupied by *Gerrhosaurus v. validus*.

**Distribution.** Kenya to Zululand, extending inland to south-east
Zambia, Rhodesia and the Transvaal (below 3,000 feet).

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**GERRHOSAURUS NIGROLINEATUS** Hallowell

delphia, p. 29: Gaboon; Boileauer, 1907a, p. 4 (Petauke; Ulungu Mt.)
and 1910, p. 480 (Hunyani River; Victoria Falls); Pitman, 1934, p. 303,
(Lavushi Hills); FitzSimons, 1943, p. 277 (Plumtree; Umsweave River;
Victoria Falls).

*Gerrhosaurus flavicollaris* (not Wiegmann) Clubb (part) 1909b, p. 35 (part -
Victoria Falls).

*Gerrhosaurus flavicollaris nigrolineatus* FitzSimons, 1935b, p. 365 (Kabula-
bula; Kasane).

*Gerrhosaurus nigrolineatus australis* FitzSimons, 1939, Ann. Tvl. Mus., 20,
p. 10: Kaapmiden, E. Transvaal (also Bulawayo; Changadzi River) and
1939b, p. 35.

*Gerrhosaurus nigrolineatus nigrolineatus* Loveridge, 1942b, p. 506, also
1953a, p. 225 (Kasungu; Chibotela; Misuku Mt.; Nshisi Mt.; Chitala
River; Tete) and 1953b, p. 143 (Port Herald); Broadley, 1962d, p. 819.

Sixty-seven specimens examined from: **BECHUAHIAND.** 5 mls W
of Kasungula; Nkaneng; **RHOESSIA.** Binda; Bulawayo; Charuma Plateau;
Chipinda Pools; Chirundu; Fatima; Filabusi; 3 mls W of Guadi Bridge;
Ilamba Bridge; Kaponi and 5 mls SE; Kariba; Kariba Lake - Mienda and Sanyati
Confluences; Lukosi Bridge; Mount Hampden; Redcliffe; Shashi - Shashani
Confluence; Turikune; Umsweave River; Victoria Falls; Zambesi - Sbangwa
Confluence. **ZAMBIAN.** Abercorn (IRSH); Chawaanga River; Chete Hills;
Fort Jameson and 50 mls N; Kabompo; Kasuwa; Kasama District (1322 DC);
Livingstone; Lasaka East and 50 mls NE; Mahombe; Sashaka; Siamhamba.
**MAMBI.** 5 mls NW of Livonda. **MOZAMBIQUE.** Chirundu.

**Literature records.** **BECHUAHIAND.** Kabulabula; Kasane; **RHOESSIA.**
Bulawayo; Changadzi River; Hunyani River; Plumtree; Umsweave River;
Victoria Falls. **ZAMBIAN.** Lavushi Hills; Petauke; Ulungu Mt.
Habitat. Chibota; Chitola River; Kasungu; Kasama Mtn.; B declined Mtn.; Port Herald.

Variation. Head 16.2 - 24.9% of snout-vent length; prefrontals in broad contact; supraciliaries 4, rarely 3 or 5; dorsals strongly keeled, but not striated in 20 - 24 longitudinal and 96 - 62 transverse rows; ventrales in 6 longitudinal and 31 - 37 transverse rows; general pores 14 - 21 on each side; scales on scales of foot keeled and spinose; lacrimal smaller fourth toe 15 - 18.

Coloration. Reddish brown above, with a pair of sharply defined black-bordered yellow dorsal-lateral stripes, often a vertebral series of yellow streaks, flanks vermilion or chestnut brown, usually with irregular yellow vertical streaks; cream below.

Size. Largest (INHS - Abercorn) 165 - 375 = 243 mm, but another specimen from the same locality measures 183 mm from snout to vent.

Distribution. The systematics of the *Serrhosaurus perligerinus* group in central Africa remain confused. The Sashean material listed above can be split into two groups. Ten from Livingstone, the Sashe and Luambo Valleys and the Eastern Province have 20 - 22 dorsal scale rows, attain a maximum length of 165 mm from snout to vent and resemble Sashean specimens in coloration. Thirteen from Shashe, Kalomo, Kabemba, Kasangala and Abercorn Districts have 21 (rarely 22) scale rows, adults measure 160 - 183 mm from snout to vent, and the coloration is very dark in adults, with black longitudinal lines on each scale row and often a black lateral band, resembling *S. multilinatus* Koegel and *S. abyssinicus* Hallman & Schmacher (1995). These specimens have the dorsal scales at the base of the tail strongly monomorphic and they look like intermediates between *perligerinus* and *S. inlets*, which occurs in Sobaen and Kibungo Districts. An *S. perligerinus* and *S. inlets* are sympatric in the Uvasha National Park and at Sashe (White, 1953, p. 92), the affinities of these big Sashean lizards remain obscure.

Diet. Stomach contents of nine Sashean specimens consisted largely of grasshoppers, supplemented by beetles, lepidopterans larvae, ichneumons, termites, a plant bug, a snail, a weevil, a millipede and a salticid.

Locality. Adult lizards were found in the stomachs of a *Talidodactylus kasaia* from Kalilima and a *Pseudechis a. subminutus* at Victoria Falls.

Habitat. Widespread in savanna, living in robust burrows and territories.

Distribution. Cabo and Lower Congo, south through Angola to South West Africa, east through Entebbe, Sashe and northern Bocasland to Kenya, Tanganyika, Malawi, western Mozambique, Rhodesia and northern and eastern Transvaal. Sympatric with *Serrhosaurus perligerinus* throughout the eastern part of its range.


Sixteen specimens examined from: SAMBA, McIndulnga; Sakeji Stream; Solwezi.

Variation. Head length 18.0 - 23.4% of snout - vent length; pre-frontals in broad contact; supraoculars 4; dorsal scales strongly keeled and mucronate above, but smooth on the flanks, in 24 (rarely 22 or 26) longitudinal and 54 - 60 transverse rows; ventrals in 8 longitudinal and 31 - 35 transverse rows; scales on the tail strongly keeled and mucronate dorsally and laterally, those of the basal portion developed into long backward-pointing spines; femoral pores 13 - 19 on each side; scales on soles of feet keeled, spinose; lamellae under fourth toe 15 - 18.

Coloration. Uniform light brown above, grey-brown laterally, lateral fold blue-grey; white below (see Witte, 1953, pl. ii, fig. 3).

Size. Largest 9 (MNR, 4950 - Sakeji Stream) 200 + 295 = 495 mm. The largest of 38 Angola specimens measured 272 mm from snout to vent (Laurent 1954a and 1964a), ten of the Zambian specimens are 170 mm or more, while the largest of 68 Katanga lizards was 215 + 347 = 562 mm. (Witte, 1953).

Discussion. G. bulsi has a short head like G. auritus, whereas G. microlinatus has a long snout. This character is obscured by allometric growth, so the following head : snout - vent length ratios are based on data for specimens over 100 mm from snout to vent.

<table>
<thead>
<tr>
<th>Species</th>
<th>Series</th>
<th>Head : Snout - vent Length %</th>
</tr>
</thead>
<tbody>
<tr>
<td>G. microlinatus</td>
<td>40</td>
<td>19.4 - 24.8</td>
</tr>
<tr>
<td>G. bulsi</td>
<td>16</td>
<td>18.0 - 23.4</td>
</tr>
<tr>
<td>G. auritus</td>
<td>4</td>
<td>18.6 - 23.3</td>
</tr>
<tr>
<td>G. flaviniculata</td>
<td>37</td>
<td>15.6 - 21.7</td>
</tr>
</tbody>
</table>

Table 3.

G. bulsi and G. auritus may be conspecific, but no intergrade populations have yet been found.

Gerrhosaurus auritus Boettger

Gerrhosaurus auritus Boettger, 1887, Ber. Senckenb. Ges. Nat., p. L/2, pl. v, figs. 3a - d; Chidongwa, Ovamboland, South West Africa;

Boulenger, 1910, p. 480; Angel, 1920, p. 616 (Kuadji); FitzSimons, 1925b, p. 363 (Okwa River - Damara Pan; Damara Pan; Gemsbok; Mabesapudi; Kuadji) and 1943, p. 275.

Gerrhosaurus microlinatus auritus Loveridge, 1942b, p. 306.

Three specimens examined from: BECHUANALAND. Aha Nts. (TH); Deka (TH); Tsumfupi.

Literature records. BECHUANALAND. Damara Pan; Gemsbok; Kuadji; Mabesapudi; Okwa River - Damara Pan. ZAMBIA. Leaupi.

Variation. Head 18.6 - 23.3% of snout - vent length, prefrontals usually in contact; supramaxillaries 4; dorsals keeled, but not striated, lateros in 24 - 26 longitudinal and 51 - 57 transverse rows; ventrals in 8 longitudinal and 32 - 36 transverse rows; funicular pores 14 - 19 on each side; lamellae under fourth toe 15 - 18.

Coloration. pale brown above, often with pale yellow flecks on head and back, a series of three or four narrow pale dorsal-lateral stripes, pale below with dark spots, limbs pale brown with yellow spots; cream below.

Size. Largest (TH, 26979 - Deka) 155 × 285 = 440 mm.

Remarque. This form seems to be sympatric with G. microlinatus in Ngandian, so it cannot be a race of the latter as proposed by Loveridge (1942b).

Diet. Tenebrionid beetles, grasshoppers, termites, a scorpion and a centipede in two specimens (FitzSimons, 1925b).

Remarks. One had been eaten by a domestic cat at Mum.

Distribution. Northern South West Africa, northern Bechuanaland, eastern Angola (Lunda - Monard, 1937, p. 76) and Barotseland.

Gerrhosaurus flavigularis Wagmann

Gerrhosaurus flavigularis Wagmann, 1822, Isis von Gaaen, col. 378;

"Africa merid. Krebs" = South Africa; Peters, 1854, p. 618 (Tete) and 1882, p. 97; Boulenger, 1887a, p. 122; Pfeffer, 1893, p. 74 (Qualimane); Günther, 1894, p. 618 (Shire Highlands); Bosage, 1896, p. 85; Boulenger, 1897, p. 800 (Mutsa Bay to Ruwue; Nyika District and Plateau; Fort Hill) and 1902, p. 17 (Masomaland), 1907a, p. 8 (Lungu River); Climb, 1909a, p. 394 (Bulawayo; Eexpandine) and 1909b, p. 35 (part - Expandine); Boulenger, 1910, p. 460 (Serowe; Mocse); Loveridge, 1920, p. 150 (Lucbo); Power, 1927, p. 408 (Lobateli); Hewitt, 1939, pl. II, fig. 12; Mitchell, 1946, p. 28; Broadley, 1961a, p. 820.
**Gerrhosaurus flavicollaris flavicollaris** Gott, 1934, p. 164 (Caia; Sharre; Ammotongas); Pitman, 1934, p. 305; FitzSimons, 1935b, p. 365 (Gabani; Gabarones; Molopolets) and 1939, p. 34 (Vumba Mtns.; Changadzi River); Leveridge, 1942b, p. 516; FitzSimons, 1943, p. 272 (Natopos; Drifontein; Salisbury; Mochudi; Marandellas; Molapoletse; Chishawasha); Masico, 1952, p. 125 (Mashane); Leveridge, 1953a, p. 226 (Nthabi Mtns.; Mthibaha; Tete); Masico, 1961, p. 155 (Makuli; Vila Paiva de Andrade).


Ninety-one specimens examined from: **NCHIHANALAND.** 10 mls. W of Naboene (UNSAH); Mabalinga; Tsane; **RHODESIA.** Aberfoyle; Bulawayo; 6 1/2 mls. NW, Changadzi Bridge; Chibokwe Bridge; Chishawasha Mtns.; Farm Valley; Filatshi; Guela; Haroni-Lusitu Confluence; Jersey Estate; Kariba Lake - Sanyati Confluence; Lumane; Manda; Marandellas; Masico; Natopos; Nkota Reserve; Mount Hampden; Ngwena Reserve (E); Nyaradzai Bridge; Old Umtali; Redcliff; Selati - Makwe Confluence; Salisbury; Selukwe; Sentinel; Tandai; Triangle; Ungwana Bridge; Umtali; Zwa. **ZAMBEZ.** Fort Jameson; 20 mls. W of Katete; Mafana. **MALAWI.** Karonga; Injari. **MOZAMBIQUE.** Ammotongas; Beira; Garuho; Gorongosa Mtns.; Inhaca Island; Mabula; Mang'a; Mala; Vila Bocage; Vila de Manica and 15 mls S; 10 mls NW of Vila Pery; Kilua.

**Literature recorded.** **NCHIHANALAND.** Gabani; Gabarones; Lobatvi; Mabalinga; Mochudi; Molopolets; Serowe. **RHODESIA.** Bulawayo; Changadzi River; Chishawasha; Drifontein; Ntandiwe; Marandellas; Natopos; Mance; Salisbury; Vumba Mtns. **ZAMBEZ.** Luangwa River. **MALAWI.** Fort Hill; Mafana; Mafana Mtns.; Mtaba Bay to Mzuzu; Nyika District. **MOZAMBIQUE.** Ammotongas; Caia; Sharre; Likha; Mashane; Makuli; Qualimano; Tete; Vila Paiva de Andrade.

**Variation.** Head 15.6 - 21.7% of snout - vent length (in adults); prefrontals separated (64 specimens), meeting at a point or separated by a small annular scale (8) or in contact (19); supraciliaries 5, rarely 3, 4, or 6; dorsals keeled and striated in 20 - 24 longitudinal and 36 - 64 transverse rows; ventrals in 8 longitudinal and 32 - 38 transverse rows; first and second rows on each side (males only); scales on sides of feet smooth, tubercular; lamellae under fourth toe 16 - 22.

**Coloration.** Dark red-brown or olive above with a pair of sharply defined black-bordered yellow dorsal-lateral stripes; sometimes a paired vertical series of pale spots; flanks darker, often with irregular yellowish vertical bars, but specimen from Koseshi and parts of adjoining Rhodesia have vermillion flanks like *G. nigrolineatus* (this coloration does not seem to occur in *flavicollaris* in those areas where it is sympatric with *nigrolineatus*); cream below, throat bright yellow in breeding males.
The resemblance of this species to nigrolineatus in coloration and markings is remarkable considering the numerous morphological differences between them.

**Size.** Largest (IBSR, 3052 - Kariba Lake) $142 + 293 = 435$ mm.

**Discussion.** Loveridge (1942b, p. 515) divided this species into northern and southern races thus:

"Prefrontals in contact $31\%$ of 33 specimens examined; range: East Africa from Sennar south to the River Njuma, southern frontier of Tanganyika ............................................ *S. f. fitzsimonsii*. Prefrontals separated in $60\%$ of 88 specimens; range: Mozambique south to Natal and western Cape Province ......... *S. flavicollaris*.

*G. f. fitzsimonsii* did not meet the requirements of the "seventy-five per cent rule" when described and the variability of the material under consideration lends no support to recognition of a northern race.

**Breeding.** Four to six eggs are laid, these measuring about $22 \times 14$ mm. A hatchling from Aberfoyle measured $40 \times 69 = 109$ mm.

**Diet.** Largely grasshoppers, supplemented by termites, beetles, mantids, millipedes and centipedes.

**Habitat.** Widespread in savanna, living in burrows. This species is common along streams, taking to the water readily when pursued.

**Parasites.** Nematoidea (Abbreviata sp.) in Nokisi and Tete lizards (Loveridge, 1953a).

**Distribution.** Eastern Africa from the Sudan and Ethiopia to the southwestern Cape Province, extending into Malawi, eastern Zambia, Rhodesia, Bechuanaland and Transvaal. Also a relic population at Gobabis, eastern South West Africa (Mitchell & Steyn, 1965).

**Genus TETRADACTYLUS** Merran


Type by monotypy: *P. allenbergeri* Angel.

Angel considered that the most important character distinguishing his *Para-tetradactylus from Tetradactylus* was the absence of femoral pores, supported by the single navel and the presence of prefrontals. The first two characters were subsequently found to occur in *Tetradactylus boulegardi* Mitte, while Laurent (1964c, p. 55) considers that the "prefrontals" (one partially fused with the fronto-nasal) of the type of *P. allenbergeri* represent an individual aberration. I agree with Laurent that *Para-tetradactylus* is not a valid genus.
**TETRADACTYLYS ELLENBERGENI (Angel)**


Eighteen specimens examined from: ZAMBIA. Chongue River (Lusaka); Luanga Game Reserve; Maniwa (INSSB).

**Literature records.** ZAMBIA. "Barotseland"; Maniwa.

**Variation.** Head shields of juveniles slightly rugose, adults with strongly striated shields; a single nasal; supraoculcurs 3 - 4 (2 on one side of one); supraciliaries 3 (4 on one side of one); dorsals strongly keeled and striated, in 12 - 14 longitudinal and 64 - 70 transverse rows; ventrals in six longitudinal rows; forelimbs absent, hindlimb minute, monodactyle, without femoral pores.

**Coloration.** Olive brown above, head with scattered dark spots, side of neck with dark and light vertical barring; pale olive below.

**Size.** Type (Paris Museum 1921 - 324) 64 + 216 = 280 mm; one Maniwa specimen measures 74 mm from snout to vent.

**Discussion.** Laurent (1964a, p. 55) retained *boulenangeri* (including *lundensis* and *simplex* as synonyms) as a race of *T. ellenbergeni* because it had 12 rows of dorsals instead of 14. A fine series of sixteen Maniwa specimens bridges this gap; the outer rows vary in size. Thirteen lizards might be considered to have 14 rows, but three others certainly have only 12.

**Habitat.** The Luanga Game Reserve specimen was in reeds near pools in the middle of a dambo (Ansell field register).

**Distribution.** Eastern Angola, Katanga, western and northern Zambia, southeastern Tanganyika.

**Genus CORDYLYS Laurenti**

*Cordylus Laurenti* (part) 1766; Syn. Rapt., p. 51. Type by tautonymy:

*C. varius* Laurenti = *Lacerta cordylus* Linnaeus.

*Zonurus* Harres, 1820; Verh. Syst. Amphib., p. 57. Type by monotypy:

*Lacerta cordylus* Linnaeus.
Cordylus warreni regius Broadley


Twenty-six specimens examined from: RHODESIA. Chido; Chinyamanda; Bora; Hlezetin; Modine.

Variation. Precocular usually in contact with the nasal above the loreal; superciliaries 4, rarely 3; occipitals 6 - 8; gulars between posterior angles of jaws 22 - 31; dorsals and laterals in 22 - 28 longitudinal and 34 - 40 transverse rows, largest dorso-laterally and obliquely set, four to six vertebral rows much reduced in size, flattened and with interpolated incipient transverse rows, laterally very spinose, particularly on the neck; ventrals in 14 longitudinal and 28 - 34 transverse rows, the two outer rows obtusely keeled; sensory pores 7 - 11 on each side (males); lamellae under fourth toe 16 - 20.

Coloration. Head dull brown, body and tail blackish-brown above, bright orange or yellow laterally, limbs and digits blackish-brown with narrow transverse bands of orange or yellow; below bright orange or yellow with a few ill-defined dark infusions on the chin and throat.

99 differ from males in having transverse rows of small orange spots dorsally, these being more numerous on the nape; flanks yellowish-brown with ill-defined yellow vertical bars; dull yellow below, chin and throat with dark infusions, posterior lower labials and sublabials suffused with dull red. Juveniles are similar to 99 in coloration.

Size. Largest 3 (Holotype, U.1.1210) 143 + 167 = 330 mm. Largest 9 (U.K. 2736 = Bora) 136 + 165 = 301 mm.

Discussion. Although *G. W. mesorrhineus* is now known to occur in eastern Rhodesia, *regius* is readily distinguishable by the anterior prolongation of the prefrontal, larger size, larger and more spinose scales on body, limbs and tail, and pale throat.

Breeding. Four or five young are born in December, measuring 49 + 54 = 103 mm at birth.

Diet. Millipedes and beetles were the most important food items in seven stomachs examined, two contained large caterpillars.

Habitat. Well-wooded granite outcrops between 2,500 and 4,500 feet. This form seems to prefer fissured boulders well shaded by trees, rather than the bare rock faces inhabited by *Platysaurus rhodesianus*, *Agama Kirkii* and *Habuia a. marcellifer*.

Distribution. Southeastern Untali District of Rhodesia.
CORDYLOS CORDYLLS MOSAMBIGUS FitzSimons

Gorongosa Mountain, Mozambique.

Twenty-eight specimens examined from: RHODESIA: Haroni-Gorge; Haroni-Lusitu Confluence; Outward Bound School (western foothills of Chinamini Mountains). MOSAMBIQUE: Gorongosa Mountain; Inchope. Also seen at Bandula and 15 miles east of Bevita.

Literature record. MOSAMBIQUE. Gorongosa Mountain.

Variation. Preocular usually widely separated from nasol by the loreal; supraciliaries 4 (5 on one side of one); occipitals usually 6 (6 - 8 in Rhodesian material); gulars between posterior angles of jaws 24 - 34; dorsals and laterals in 26 - 30 longitudinal and 35 - 46 transverse rows, smaller than in regius and imbedded in granular skin; ventrals in 14 longitudinal and 27 - 37 transverse rows; femoral pores 8 - 11 on each side (males); lamellae under fourth toe 15 - 19.

Coloration. Similar to G. w. regius, but blackish above with yellow spots (in life), throat of adults of both sexes uniform blackish.

Size. Largest (UN. 9952 - Gorongosa Mt.) 110 + 133 = 243 mm.
Largest (UN. 7939 - Gorongosa Mt.) 126 + 134 = 260 mm.

Habitat. Nineteen topotypes were collected on the lower south-western slopes of Gorongosa Mountain at about 3,500 feet. They were living in fissured syenite boulders in open grassland. The Rhodesian specimens are from well-wooded rock outcrops on the lower slopes of the Chinamini Mountains.

Distribution. The southern portion of the Manica Platform, extending from Gorongosa Mountain south-west to the lower slopes of the Chinamini Mountains.

CORDYLOS CORDYLLS RHODESIANUS (Hewitt)

1 p. 48, pl. ix, fig. 3: Monte Cassino, Machake, Rhodesia, also Ruzapo; FitzSimons, 1939b, p. 30 (Vumba Mt.).
CORDYLLS CORDYLLS RHODESIANUS FITZSIMONS, 1943, p. 459; Loveridge, 1944d, p. 40; Tsavan, 1937, p. 32; FitzSimons, 1938a, p. 209 (Nyamasia);
Brocailay, 1962a, p. 806.
Seventy-four specimens examined from: RHODESIA. Chimanimani Mtns.; Chimanimani; Enga; Erin Forest Reserve; Inyanga National Park; Machake; Mhurungi Falls; /Odzani; Silverstreams; Stapleford; Untali (Ocil Kop); Zwa; Zuruni; MOZAMBIQUE. Chimanimani Mtns., near Martin's Falls.

Literature records. RHODESIA. Machake; Nyasitwa; Rusape; Vumba Mtns.

Variation. Head strongly depressed and expanded in the temporal region (this is very marked in material from the Machake - Inyanga region, less so in Cecil Kop specimens, while specimens from the Chimanimani Mtns. have only feebly depressed heads), head shields smooth to finely rugose; supra-ciliaries 3, rarely 4; suboculars 3, rarely 4; gulars between posterior angles of jaws 16 - 23; dorsals + laterals in 20 - 25 longitudinal and 25 - 29 transverse rows; ventrals in 12 - 16 longitudinal and 21 - 30 transverse rows; femoral pores 5 - 8 on each side.

Coloration. Olive brown above, blotched with darker, yellowish or greenish white below.

Size. Largest f (UN. 10470 - Silverstreams) 91 + 71* = 162 mm.

Largest f (UN. 10471 - Silverstreams) 90 + 84 = 174 mm.

Dist. Largely beetles.


Habitat. Under stones and in fissured boulders in montane grassland and scrub Brachystegia from about 5,000 feet to the summit of Inyanga Mountain (8,514 ft.).

Distribution. Eastern highlands of Rhodesia and adjoining Mozambique.

CORDYLA TROPIDOSTERNUM TROPIDOSTERNUM (Cope).


Zonurus cordylus (not Limnaeus) Boulenger, 1897, p. 800 (Nyika Plateau; Misuku Mtns.; Fort Hill).

Zonurus parkeri Cott, 1934, p. 151, pl. 11: Amatongas, Mozambique.

Cordylus troidosternum FitzSimons, 1943, p. 450 (Untali).

Cordylus cordylus troidosternus Leveridge, 1944d, p. 33; 1953a, p.234 (Chowa); Broadley, 1962d, p. 807.

Eight specimens examined from: RHODESIA. Machake; Matowa; Untali, ZAMBIA. Bulaya (ISSRB). MAJAMI. Ruppi. MOZAMBIQUE. 15 mls. SW of Machage; 9 mls S of Mwami.
**Literature records.** RHODESIA, Birchenough Bridge; Umtali, MALAWI, Chove; Fort Hill, Mzuku Mwa; Nyika Plateau, MOZAMBIQUE, Assutongas.

**Variation.** Head not depressed or expanded in the temporal region; head shields rugose; supraciliaries 3; suboculares 2, rarely 3; gulars between posterior angles of jaws 16 – 23; dorsals + laterals in 20 – 22 longitudinal and 24 – 29 transverse rows; ventrals in 12 – 14 longitudinal and 23 – 28 transverse rows, outer 3 – 4 rows keeled; femoral pores 3 – 8 on each side.

**Coloration.** Grey-brown to olive above, often with some darker mottling, or white flecking, a poorly defined whitish dorso-lateral band usually present; yellowish-white below.

**Size.** Largest (HN. 6590 – Rumpi) 90 + 95 = 185 mm; the type of parkeri measured 92 mm from snout to vent.

**Discussion.** Despite the difficulty of splitting up the Cordylus cordylus group on morphological characters, it seems that a group of forms without depressed heads, which are all arboreal rather than rupicolous, are not conspecific with C. cordylus. The latter is a temperate species, centred on the south-western Cape, with relict races on the highland areas to the north. C. tropidosternum is a tropical species, centred on the East African lowlands, again with relict races at the periphery of its range.

**Breeding.** The 9 from near Mausa gave birth to two young measuring 35 + 39 = 74 mm in mid-November.

**Habitat.** Found under loose bark on dead trees and in hollow mopane trees and logs.

**Distribution.** East Africa, from Kenya south to the Save River in Mozambique, west to Katanga, northern Zambia, Malawi and eastern Rhodesia.

**Cordylus Tropidosternum Jonesi (Boulenger)**

Zonurus Jonesii Boulenger, 1891, Ann. Mag. Nat. Hist. (6) 7, p. 417; Marchison Range, Transvaal; Chubb, 1909b, p. 35 (Salawayo); Hewitt, 1909, pp. 31, 36 (Motopes; Palapye); Boulenger, 1910, p. 468; Hewitt, 1911b, p. 47 (Mwando); Van Dam, 1921, p. 243 (Mzambo; Lundi River); Power, 1927a, p. 407 (Lobatsi); FitzSimons, 1930, p. 29 (Titumi).

Zonurus cordylus (not Linnaeus) Chubb, 1909a, p. 393 (Salawayo).

Zonurus cordylus jonesii FitzSimons, 1935b, p. 349 (Titumi; Molopololo – Kuku; Salawayo).

Cordylus jonesii FitzSimons, 1943, p. 452 (Palapye Road; Emaleshe; Filabusi – Shabani; Plumtree; Serowe; Habelagy); Tasman, 1957, p. 33.
Cordylos cordylus jonesii Loveridge, 1944, p. 36.

Twenty-five specimens examined from: BECHUANALAND. Debeeti; 10 mls NE of Lepange; 10 mls SE of Letlaking (USNM); Mahalapye.
RHODESIA. Beitbridge; Bulawayo; Lumane; Queen's Mine; Shashi -Shashani Confluence. MOZAMBIQUE. 10 mls W. of Mozamba.

Literature records. BECHUANALAND. Lobatsi; Mahalapye; Palapye; N'wape; Molopolole - Kuka; Serowe; Titani. RHODESIA. Bulawayo; Empandeni; Filabusi - Shabani; Lundi River; Matopos; Plumtree. MOZAMBIQUE. Masambe.

Variation. Head not depressed or expanded in the temporal region; head shields rugose; supraoculars 3; suboculars 2; gulars between posterior angles of jaw 14 - 23; dorsals + laterals in 18 - 24 longitudinal and 22 - 26 transverse rows; ventrals in 12 - 14 longitudinal and 21 - 26 transverse rows, outer rows not keeled; femoral pores 3 - 7 on each side.

Coloration. Similar to the typical form, but usually lighter dorsally, pale dorso-lateral band hardly discernible, a blackish lateral band extending from eye towards groin.

Size. Largest 3 (USNM 2019 - Bulawayo) 75 + 59″ = 128 mm. Largest 9 (UM. 2300 - 10 mls. W. of Mozamba) 74 + 59 = 133 mm.

Discussion. I was unable to separate jonesi from tropidosternum on any morphological character except size, until J. D. Visser pointed out (in litt.) that the three or four outer rows of ventrals are usually keeled in the latter, smooth in jonesi. The size difference is marked: jonesi never exceeds 75 mm from snout to vent, whereas six out of eight typical tropidosternum examined measure 80 - 90 mm. I do not think that jonesi is any more than a dwarfed south-western race of tropidosternum, the two forms occupy identical habitats.

Breeding. Usually two young (2 - 4 according to FitzSimons, 1943, p. 453) are born in mid-November. A new born young one from Lumane measures 38 + 30 = 68 mm.

Diets. These lizards gorge themselves on winged termites at the beginning of the rains and are not very enthusiastic about eating any other insects.

Habitat. Found under loose bark on trees and logs or in hollow mopane trees.

Distribution. Dry Lowveld country, especially mopane savannas, of eastern Bechuana Land, south-western Rhodesia, northern Transvaal and southern Mozambique.
Genus **PLATESAURUS** A. Smith

*Platysaurus* A. Smith, 1844, Ill. Zool. S. Africa, Rept., footnote to pl. XI. Type by monotypy: *P. capensis* A. Smith.

**PLATESAURUS MITCHELLII** Loveridge


Seventeen specimens examined from: **MALAWI.** Ruu Gorge, Mlanje Mountain (including two paratypes).

**Variation.** Supranasals present and in broad contact behind the rostral; a single postnasal; occipital usually separated from the interparietal (in contact in the juvenile type and two paratypes); upper labials anterior to subocular 4; sublabials 5 - 6; gulars transversely between posterior sublabials 31 - 36, the two median rows enlarged anteriorly, but rapidly decreasing in size posteriorly; dorsal granules transversely at midbody 84 - 94, not enlarged on flanks; scales on side of neck spinose, but not enlarged; collar V-shaped, made up of 9 - 13 small scales; ventrals in 12 - 14 longitudinal and 36 - 40 transverse rows; femoral pores in males 17 - 30; labellae under fourth toe 22 - 26; scales on tibia towards heel and lateral caudals non-spinose.

**Coloration.** Adult males: Top of head dark brown with light spots corresponding with the longitudinal head stripes of other species; dorsum uniform olive-brown. Side of head yellow-green, a broad yellow-green band on side of neck; flanks dull purple with large, well defined, pale green spots, tail light blue-green laterally, throat white, suffused with cerise medially; a broad black collar, followed by a large patch of prussian blue; lower chest and belly brick-red, with a large blue-black patch in centre of a dozen extending onto the anal region; limbs with transverse bands of dark blue and pale green; tail white, suffused with blue-green.

Females and juveniles: Black, with three cream longitudinal stripes, without light spots between them; the vertebral stripe begins on the fronto-casal and the lateral head stripes are broken up into spots; tail brown; ventral coloration is similar to that in males, but much paler.

**Size.** Largest ♂ (UK. 4195 - Ruu Gorge) 112 + 187 = 299 mm. Largest ♀ (UK. 4198 - Ruu Gorge) 81 + 136 = 217 mm.
Discussion. Loveridge described *P. mitchelli* from a series of 19 juveniles (39 - 52 mm in snout - vent length) collected by him in the Ruu Gorge Forest on 31st March. These were found on boulders, brick walls or concrete in the vicinity of the Lufihi Estate Power House.

Although Loveridge regarded his type series as adults, the gonads were undeveloped in two paratypes obtained in exchange from the MZ. In late December, 1962, not finding any *Platysaurus* in the area of the Ruu Gorge Forest, I climbed up the steep walls of the gorge until I came to open rock faces, which swarmed with adult *Platysaurus* (68 - 114 mm in snout - vent length). It appears that the juveniles spend the first months of their lives segregated from the adults, but whether the gravid females, or the hatchlings, make the migration is not yet known.

**Diet.** Ants and spiders, supplemented by beetles, grasshoppers and centipedes.

**Behaviour.** This species is distinguished from all other members of the genus by the display behaviour pattern of adult males, which turn broadside to an intruder and inflate their bodies and throats to give an illusion of greater size, while the cerise throat, green-spotted purple flanks and brilliant green tail make a vivid splash of colour. The "lateral presentation" display pattern of *P. mitchelli* is in marked contrast to the displays of the other species, which face an intruder and brace the front legs to show the brilliant coloration of the throat and chest.

**Distribution.** Endemic to the lower slopes of Mlanje Mountain, southeast Malawi.

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**PLATYSARUS CORIATUS**


Forty-six specimens examined from: RHODESIA. Chimanimani Mts. (western and southern slopes); Makurupini River; MORANGHIQUE. 4 mls SE of Baroni-Lusitu Confluence.

**Variation.** Nasals in contact; occipital usually absent, but if present, may or may not be in contact with interparietal; upper labials anterior to subocular 4, rarely 5; sublabials 5, very rarely 6; gulars transversely between posterior sublabials 17 - 24, the median row strongly enlarged, subequal and more or less rectangular in shape. Dorsal granules transversely at midbody 69 - 82, not enlarged on flanks; scales on side
of neck conical, but not enlarged; collar almost straight, composed of 6 - 8 large, more or less rectangular plates; ventrals in 14 (rarely 12) longitudinal and 32 - 39 transverse rows; femoral pores in males 13 - 15; lamellae under fourth toe 18 - 23; scales on tibia towards heel and lateral caudals non-spine.

**Coloration.** Adult males: Head uniform blackish-brown, body dark olive-brown, with numerous sulphur-yellow, dark-edged ocelli, tail orange to yellow in only very large specimens, brown in many mature males. Below, chin and throat slate-grey, a black collar (followed by a patch of yellow in the largest specimens), rest of ventrum pale green to blue, tail orange to yellow.

Females and juveniles, similar to males, but head with lighter motting, dorsum bronze with ill-defined pale spots, tail blackish. Below, throat white speckled with grey, no collar; a faint yellowish tinge on upper chest, rest of ventrum cream, tail yellow anteriorly, becoming brown distally.

**Size.** Largest ♂ (UK. 3386) 94 + 150a = 244 mm. Largest ♀ (UK. 3389) 82 + 123 = 205 mm; both are topotypes.

**Discussion.** These lizards are very common on metamorphosed quartzite rocks in stunted *Brachytyria* woodland on the lower western slopes of the Chizanamani Mountains. They do not occur above the tree line at about 5,500 feet. The rocks are covered with black and grey lichens. Against this background a brightly coloured male lizard would be conspicuous and subject to heavy predation by birds of prey. It seems likely that selection against bright coloration has given rise to dull males by neoteny. The lack of dorsal stripes in females and juveniles may be due to a mutation which has become established in the population, for there is no evidence that the lack of stripes is a primitive condition. It may be significant that in an area where about eighty *Platysaurus* were collected or seen, the only other rupicolous lizards encountered were eight *Agama bradfi* and three *Aphyes* quinquemaculata.

**Diet.** Stomach contents of 23 types and topotypes were examined. Beetles occurred in 40% of stomachs and vegetable matter (mainly flower petals) in 32%; other food items were cockroaches, grasshoppers, lepidoptera and their larvae, ants, wasps, spiders and millipedes.

**Distribution.** Known only from the lower slopes and foothills of the Chizanamani Mountains on the border of Rhodesia and Mozambique.
PLATYSARUS MACULATUS MACULATUS Broadley

No. 33, p. 1; Mitucue Mountain, Niasa Province, Mozambique.

One hundred and seven specimens examined from: MOZAMBIQUE. 4 mls W of Alto Ligonha; Mitucue Mtn.; 15 mls N of Magoea; 20 mls WNW and 30 mls ESE of Hampala; Monzava; Ribave Mtn.; 30 mls W and 20 mls E of Ribave; 15 mls NW of Vila Junqueiro.

Variation. Supranasals present and usually in contact (separated in 15); one or two (very rarely 3) post-nasals; occipital usually absent (present in 8); upper labials anterior to subocular 4 (rarely 5); sublabials 6 (very rarely 5); gulars transversely between posterior sublabial 20 - 30, the two median rows strongly enlarged anteriorly; dorsal granules transversely at midbody 88 - 116, not enlarged, or but slightly enlarged laterally; some scales on side of neck enlarged and conical; collar curved, composed of 6 - 11 plates; ventrals in 16 - 13 (rarely 14 or 20) longitudinal and 34 - 45 transverse rows; femoral pores in males 16 - 25; lamellae under fourth toe 19 - 24; scales on tibia towards heel and lateral caudals non-spinose.

Coloration. Males. Mitucue Mountain. Dark olive-brown above; head with a pale green median stripe; faint indications of five lines of spots on the back; tail pink, with a patch of violet at the base; limbs dark olive-brown with pale spots. Below, throat and chest yellow to orange; collar indicated by a pair of lateral black blotches; abdominal and anal regions black; limbs white; tail orange. Ribave Mountain specimens have a continuous pale vertebral stripe flanked by two rows of pale spots; tail pink suffused with lime-green. Throat bluish-white; a broad black collar; chest bluish; suffused with orange; abdominal and anal regions black. Specimens from 30 mls ESE of Hampala are suffused with yellow-green above and have yellow tails.

Females. Mitucue Mountain. Black above, with five rows of lemon-yellow dorsal spots; on the head and neck is a continuous orange median stripe; a series of pale spots on the supraciliaries continues as a light margin to the posterior parietal, then reverts to a series of dorsal spots; the outer row of spots extends from the ear opening to the base of the tail. The vertebral stripe is continuous in the pelvic region and on the base of the tail, where it is tinged with pale blue, the rest of the tail is speckled black and pale yellow. The flanks and limbs are black spotted with yellow. Below - white suffused with yellow laterally and black in the abdominal and anal regions. Ribave Mountain specimens
are suffused with orange below, especially the throat and tail. Specimens from 30 mls. ESE of Nampula and Alto Ligonha have a continuous, but ragged, vertebral stripe and have additional pale spots between the normal five dorsal rows. In specimens from Nsamava and 15 mls N of Mugela, both the vertebral and lateral stripes are clear-cut and continuous.

Size. Largest 9 (UN. 8099—Libene Mtn.) 63 + 97 = 165 mm. Largest 9 (UN. 8246—Nsamava) 70 + 99 = 169 mm.

Diet. Beetles, ants and winged termites are the main food items, supplemented by grasshoppers, cockroaches, lepidopterous larvae, spiders and millipedes. The allotype 9 contained a gecko's tail (Hemidactylus).

Habitat. Granitic outcrops, both on mountain slopes and low flat exposures.

Distribution. Endemic to northern Mozambique.

Platysaurus maculatus lineicauda Broadley

Platysaurus maculatus lineicauda Broadley, 1965, Arnoldia (Rhodesia), 2, No. 33, p. 3: 14 miles west of Morrumbala, Zambézia Province, Mozambique.

Seventeen specimens examined from: MOZAMBIQUE, 14 mls W of Morrumbala.

Variation. Supramaxilars present, but widely separated; a single postnasal; occipital usually in good contact with the interparietal; upper labials anterior to subocular 4 (rarely 5); sublabials 5; gulars transversely between posterior sublabials 22—27; the median rows irregularly enlarged. Dorsal granules transversely at midbody 88—90, enlarged laterally; some scales on side of neck enlarged and comical; collar curved, composed of 5—8 plates; ventrals in 16—18 longitudinal and 38—43 transverse rows; femoral pores in males 19—22; lamellae under fourth toe 19—22; scales on tibia towards heel and lateral caudals non-spino.

Coloration. Males — Head dark brown with a well defined pale green median stripe; shoulders and anterior back brown, with three pale green stripes, the whole area suffused with green; the median stripe becomes orange posteriorly, broadening in the pelvic region; tail orange; flanks and limbs brown with pale spots, an orange patch in the armpit. Below — throat and chest white, tinged with orange, a black collar; abdominal and anal regions black; tail black at base, then orange.
Females - black above, with five narrow longitudinal stripes, orange on head and nape, lemon-yellow on the body, the median and outer rows of stripes continuing onto the tail, where they are Cambridge blue. The vertebral stripe begins on the snout, narrows on the back and widens again on the pelvic region; the second stripe begins on the supraoculars, is continuous until past the shoulder, then breaks up into a series of spots and disappears before reaching the pelvic region; the third stripe begins on the upper edge of the ear opening, breaks up into elongate spots at midbody, but becomes continuous again posteriorly and persists as a lateral stripe. The tail is thus distinctly striped in pale blue and black for its entire length. Below - white, suffused with orange-yellow on the throat, orange laterally and black in the abdominal and anal regions; tail Cambridge blue, suffused with orange at the base and along the median line.

Size. Largest ♀ (UN. 7968 - Allotype) 69 + 104 = 173 mm. Largest ♀ (UN. 7974 - Paratype) 66 + 99 = 165 mm.

Breeding. Females each with two eggs measuring 14 x 6 mm on 21st November.

Diet. Largely ants, also beetles, grasshoppers, a cricket, cockroach, beetle larvae, wasps, spider.

Habitat. A small granite outcrop.

Distribution. Known only from the type locality on the edge of the Shire Valley about 25 miles above its confluence with the Zambesi.

**Platysaurus torquatus** Peters

*Platysaurus cerasinus* (not A. Smith) Peters, 1852, p. 616 (Tete).

*Platysaurus guttatus* (not A. Smith) Peters, 1852, p. 616 (Tete).


*Platysaurus guttatus torquatus* Loveridge, 1953a, p. 238 (Tete).

One hundred and twenty-one specimens examined from: RHODESIA. 3 mls NE of Makanja; Matowa; Mworo; 25 mls N and 15 mls NE of Mtoko; 3 and 4 mls W of Ruyamanda; Ruunya River Drift and 2 mls W. MOSAMBIQUE. Changara; 3 mls S of Guru; Kasambudza; Magange; Matungo; 10 mls W, 12 mls NW, 8 and 12 mls SW of Hungari; 15 mls NW of Tete.
**Variation.** Nasals usually in contact; a single postnasal; occasional usually in contact with interparietal; upper labials anterior to subocular 4 or 5 (rarely 3); sublabials 5 (rarely 4 or 6); gulars transversely between posterior sublabials 19 - 27; median row not appreciably enlarged. Dorsal granules transversely at midbody 72 - 92, enlarged laterally; scales on side of neck enlarged, flattened; collar curved, composed of 5 - 10 plates; ventrals in 16 - 20 (usually 18) longitudinal and 35 - 47 transverse rows; femoral pores in males 15 - 23; lamellae under fourth toe 15 - 23; scales on tibia towards heel and lateral caudals non-spinose.

**Coloration.** Adult males: Above, head and body dark brown, with three longitudinal buff stripes, the dorso-lateral body stripes are very broad and ill-defined, flanks and tail bright orange, limbs grey-brown. Below, throat white, a broad black collar; chest orange or yellow, suffused with bright green, becoming prussian blue on the belly, anal region blue-black; tail bright orange.

Females and juveniles: Above, blackish-brown with three well-defined buff longitudinal stripes, light spots between the stripes are few or absent; tail Cambridge blue with a dark median stripe anteriorly. Below, throat white, suffused with yellow or grey; chest white, belly and base of tail orange, rest of tail Cambridge blue.

**Size.** Largest 8 (ISBR 4764 - 3 mls W of Kyanjiria) 70 * 120 = 190 mm.

Largest 9 (ISBR, 4765 - 3 mls W of Kyanjiria) 60 * 116 = 134 mm.

**Breeding.** Adult females contain two eggs measuring about 18 x 7 mm in early December and these are laid about the middle of this month.

**Diet.** Stomach contents of 64 specimens were examined. The main food items were ants (in 67%), beetles (33%) and lepidopterous larvae (30%).

**Habitat.** Granite, paragneiss and sandstone tuffarops, especially flat exposures.

**Distribution.** Northeastern Rhodesia and adjoining Mozambique, extending north-east to Matungo on the north bank of the Zambezi opposite Tete.

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**PLATSAURUS WILHELMI** Hewitt.

*Platysaurus wilhelmi* Hewitt, 1909, Ann. Tvl. Mus., 2, p. 29 and 1910a, pl. 1, fig. 2; Selapruitt, E. Transvaal.

*Platysaurus guttatus guttatus* (not A. Smith) Manacca, 1952, p. 153, pl. 1, fig. 3 (Namachia).


Twenty specimens examined from: Mozambique, Namacha.
Variation. Nasals in contact or separated; a single postnasal; occipital usually in good contact with interparietal; upper labials anterior to subocular 4 (rarely 3 or 5); sublabials 5 (rarely 6); gulars transversely between posterior sublabials 16 - 20, the median row strongly enlarged transversely. Dorsal granules transversely at midbody 74 - 86, enlarged laterally; scales on side of neck enlarged, conical; collar curved, composed of 5 - 10 plates; ventrals in 16 - 18 longitudinal and 36 - 40 transverse rows; femoral pores in males 15 - 19; lamellae under fourth toe 17 - 21, scales on tibia towards heel and lateral caudals strongly spinose.

Coloration. Adult males - Above, dull olive green or brown with a few scattered ill-defined pale spots, tail red; below, throat blue-green mottled with black, chest and belly black, tail red.

Females and juveniles - Above, brown with three longitudinal buff stripes and light spots between the stripes; below throat white, chest and belly brownish medially, white laterally.

Size. Largest ♂ (UN. 2231 - Namacha) 75 + 129 = 204 mm. Largest ♀ (UN. 2246 - Namacha) 70 + 55 = 125 mm.

Discussion. This form is not known to intergrade with either typical P. intermedius of the Transvaal or P. i. metaelas of northern Natal and Swaziland, but neither is it known to be sympatric with either of them.

Distribution. Southeastern Transvaal, extending south along the escarpment to the Umzimkulu Range in Zululand.

PLATYSAURUS PUNGREUSUS MALKI Broadley

Platysaurus intermedius Blakei Broadley, 1964, Arnoldia (Rhodesia), 1,
No. 5, p. 1; Fifteen miles south-east of Vila de Manica, Mozambique.

Ninety-nine specimens examined from: MOZAMBIQUE. Bandula; Chicanga Dam; Metuchire; Revue; Same; 3 mls N. of Vomushi; 15 mls S. of Vila do Manica; 10 mls WNW and 5 mls NW of Vila Fery.

Variation. Nasals usually in contact (western populations) or separated by an agnous (eastern populations); a single postnasal; occipital usually very small or absent; upper labials anterior to subocular 4 or 5; sublabials 5; gulars transversely between posterior sublabials 19 - 27, the median row enlarged. Dorsal granules transversely at midbody 74 - 92, enlarged laterally; scales on side of neck enlarged, spinose; collar curved, composed of 6 - 10 plates; ventrals in 14 - 16 longitudinal and
31 - 40 transverse rows; femoral pores in males 13 - 20; lamellae under fourth toe 19 - 24; scales on tibia towards heel and lateral caudal spinose.

**Coloration.** Adult males - Above, blackish-olive, or dark bronze, tail orange; below throat grayish-white, chest and belly purple (western populations) or black (eastern populations).

Females and juveniles - Above, black with three cream longitudinal stripes; the vertebral stripe poorly defined and broken up into a series of spots or dashes, no pale spot between the stripes; whitish-white below.

**Size.** Largest ♄ (UM. 6090 - 5 mls NW of Vila Fery) 90 + 136 = 226 mm. Largest ♀ (UM. 6095 - 5 mls NW of Vila Fery) 78 + 112 = 190 mm.

**Discussion.** The dams included under this taxon show much variation. The type series was drawn from two western populations which closely resemble *P. vilhelmi* and are smaller than eastern specimens of *blakai*, the largest ♄ measuring 80 mm from snout to vent and the largest ♀ 72 mm. Apart from larger size, the eastern populations differ from typical *blakai* in the coloration of the males, which are bronze above and black below, and the high frequency of an azynous scale separating the nasals (90% at 10 mls NW of Vila Fery; 75% at 5 mls NW of Vila Fery and 60% at the most easterly locality - Metuchira). The situation is complicated by intergradation between *puniceuswa* and *blakai*: specimens from 3 mls N of Vamadzi being closer to *blakai*, while those from Masareca and 12 mls SSE of of Vila Gouveia are *puniceuswa*, but showing a high incidence of azynous internasals (40% and 77% respectively).

**P. i. rhodesianus** also occurs on the southern part of the Manica Platform and the locality records for this form and *blakai* form a mosaic, the two often occur on kopjes within a few miles of one another. The only place where introgression occurs is at Chisamba Dam, where occasional specimens in a *blakai* population have *rhodesianus* markings. The evidence at present available suggests that there is almost complete reproductive isolation between *rhodesianus* and *blakai* and that *puniceuswa* should be raised to specific rank and *blakai* made a subspecies of it. There is no sign of intergradation between *P. P. puniceuswa* and *P. i. sublinaris* in the Villa Gouveia area.

**Breeding.** Two eggs, measuring about 17 x 7 mm, are laid in late November or December.

**Diet.** Ants are the most important food item, but a wide range of invertebrates are eaten.

**Habitat.** Granite outcrops, including very small isolated ones on the eastern edge of the Manica Platform at Metuchira.

**Distribution.** The southern portion of the Manica Platform, i.e. south of the Pungue River.
**Platyurus guttatus mungweensis**


Forty-eight specimens examined from: RHODESIA. Chinyamara; Pungwe River at Haldenby; Inyanga Tea Estates. MOZAMBIQUE. Nateraca; 12 mls SSE of Vila Gouveia.

**Variation.** Nasals usually in contact (Rhodesian populations) or separated by an extra nasal scale (Mozambican populations); a single postnasal; occipital small or absent; upper labials anterior to subocular 4 or 5; sublabials 5 (rarely 4); gulars transversely between posterior sublabials 20 to 27, the median row slightly and irregularly enlarged. Dorsal granules transversely at midbody 75 to 100, strongly enlarged laterally; scales on side of neck enlarged, spinose; collar curved, composed of 6 to 11 plates; ventrals in 14 to 16 (rarely 15) longitudinal and 32 to 36 transverse rows; femoral pores in males 14 to 19; lamellae under fourth toe 18 to 23; scales on tibia towards heel and lateral caudals spinose.

**Coloration.** Adult males - Above, dark brown with conspicuous pale spots, which are more numerous laterally, tail dull red, becoming dark brown distally. Below, throat pale blue with irregular black blotches, a black collar, chest light blue, belly dark blue medially, tail coral red. Females and juveniles - Above, black with three longitudinal buff stripes on the head, the narrow lateral stripes continue to the base of the tail, but the median stripe terminates on the map, or is represented by a few scattered spots posteriorly, no light spots between the stripes. Below, bluish-white, a few ill-defined dark blotches on the throats of some juveniles, base of tail orange.

**Size.** Largest 8 (M.S.B., 1975 - Holotype) 87 + 148 = 235 mm. Largest 9 (Un. 3861 - Haldenby) 78 + 130 = 208 mm.

**Discussion.** Although almost surrounded by populations of *P. i. subniger* and *P. i. rhodesianum* there is no evidence of gene flow between either of these and *P. p. mungweensis*, which is very distinct in coloration and lizards and seems to be a good species.

**Habitat.** Largely beetles and ants, supplemented by a wide variety of other invertebrates.

**Habitat.** Granite outcrops.

**Distribution.** The Honde and Pungwe valleys in eastern Rhodesia, extending down the Pungwe to Nateraca in Mozambique and north towards Vila Gouveia.
Platysaurus mutatus (Not A. Smith) Chubb, 1909a, p. 593 (Matopos; Colleen Basin) and 1909b, p. 35 (part - Khami River); Hewitt, 1909, p. 30 (part - Khami River; Matopos); Hewitt & Power, 1913, p. 154 (Insiza); FitzSimons, 1930, p. 31 (part - Matopos), also 1935b, p. 350 (Matopos; Zimbabwe) and 1939b, p. 31 (Vumba Mtn.; Chongadzi River; Devuli River Bridge).

Platysaurus capensis (not A. Smith) Boulenner, 1910, p. 469 (part - Importuni District).

Platysaurus mutatus rhodesianum Fitz Simons, 1941, Ann. Tvl. Mus., 20, p. 279; Vumba Mountain, Rhodesia (also Matopos; Insiza; Plumtree; Importuni; Chilimani; Driefontein; Bikita; Eparisiens; Tseesebe; Gwanda; Strathmore; Zvibi; Vumba Mtn.; Chongadzi River; Devuli River - remaining localities refer to P. i. subspecier) and 1943, p. 481 (part); Loveridge, 1944d, p. 86 (part); Teasan, 1957, p. 34 (part); Broadley, 1962d, p. 814.

Three hundred and eighty-three specimens examined from: HIGHLANDS. Foloy; Nabate; Madirare; Tseesebe; Wolf Hills. RHODESIA. Banceley Bridge; Bentensi and 5 mls S; Belbridge - 18 mls N; 9, 12, & 20 mls W of Banchensonburg Bridge; Burn; Chongadzi River Bridge; Chayire Bridge; Chibake Bridge - 8 mls E and 12 mls SW; Chibi; Chido; Chinyamanda; Chipinda Poole; 12 mls E of Chinamugwe; Chinor River/Bevuli River Bridge; Dora; Dott's Drift and 4 mls SE; Felsenburg Road; Fern Valley; Glass Block; Gwanda; Gwele; Beethfield; Helvetia; Hippo Mine and 6 mls E; Importuni; Insiza; Eparani; Khami Dam; Kyle Dam; Limpopo - Vubugumwe Confluence; Lumuli River Bridge - 4 mls N and 8 mls SW; Marungudzi; Matopos; Masuyi Ranch; Modica; 4 mls NE of Mpudzi Bridge; Mundayumudzi; Matamba; Nelson South; Munetsi Gorge 7 mls above Malipati Drift; Nyanzabatwa River; 3 mls SE of Odzi; Plumtree; Redcliffe; Rose Division; Ramiare; Sabi - Lundi Confluence; Sabi - Machesa Confluence; Sabi - Malumi Confluence; Sabi River (Marange Reserve); Sentinel Ranch; Shangani River; Shashi - Shashani Confluence; Soti Source; Strathmore; Tseesebe; Tseesebe Bridge; Tuli; Untali; Vumba Mountain; West Sebungwe; Whiteswaters Bridge; World's View, Matopos; Zimbabwe, MOZAMBIQUE. Bandara; Chemesi; Donio; Garuso; 4 mls W and 7 mls E of Vila de Menica; 10 mls SW of Vila Pary; Zemba.

All available material has been examined, so the above list includes all literature records.

Variation. Nasals commonly in contact, separated in 30%; a single postnasal; occipital commonly in contact with interparietal, separated in 30%; upper labials anterior to subocular usually 4, 5 in 23%; sublabials 5 (rarely 4 or 6); gulars transversely between posterior sublabials 18 - 32, the median
row slightly and irregularly enlarged. Dorsal granules transversely at mid-body 76 – 102, enlarged laterally; scales on side of neck enlarged, spinose; collar curved, composed of 6 – 15 plates; ventrals in 18 – 24 longitudinal and 36 – 47 transverse rows; femoral pores in males 15 – 23; lamellae under fourth toe 17 – 23; scales on tibia towards heel and lateral tarsals spinose.

Coloration. Adult males. Above, head blue-green or yellow-green, usually with faint indications of three pale stripes, body usually blue-green or yellow-green anteriorly (red in some Mozambique specimens), red (western specimens) or green (eastern specimens) posteriorly, tail greenish or yellowish (base of tail orange in specimens from the Manica Platform). Below, two colour phases occur. "Red Phase" – throat blue, a black collar, chest terracotta, belly black medially. "Green Phase" – throat yellow, a black collar, chest blue or green, belly black medially.

Females and juveniles: Above, black, with three well-defined cream stripes, the vertebral one much narrower than the lateral ones, usually no light spots between the stripes, tail straw with a dark median stripe. Below, bluish-white, with a pale orange patch on the chest, belly with a black patch or spotted with black medially, base of tail pale orange, rest of tail straw-yellow.

Size. Largest ♂ (MNR. 5321 – Guelo) 127 + 188 = 315 mm. Largest ♀ (MNR. 2009 – Matope) 104 + 172 = 276 mm.

Discussion. I have previously (1964d, p. 2) pointed out that the type of *P. guttatus* has a brill in the lower eyelid and represents the dwarfed species formerly called *P. minor* FitzSimons. The correct name for the large, widespread, species under consideration here is *P. intermedius* Matschie.

Breeding. Two eggs measuring about 20 x 10 mm are laid during December.

Diet. Stomach contents of 160 specimens were examined, the food items occurring most frequently were ants (in 45% of stomachs), beetles (34%), vegetable matter (20%), cockroaches (12%), bees and wasps (12%) and lepidopterous larvae (10%). One ♀ had eaten a young *Gambusia*

Habitat. Granites, paragneiss and sandstone outcrops. One was found under the loose bark of a dead tree lying on a granite outcrop and another was living between the wall and roof of a pump house adjacent to a granite outcrop.

Distribution. Southern parts of Rhodesia, extending into eastern Bechuanaland, Transvaal north of the Scouspansberg and the south-western part of the Manica Platform. Relict populations occur in the Wankie and Binga Districts of north-western Rhodesia,
**Platysaurus intermedius Suniger Broadley**

*Platysaurus guttatus* (not A. Smith) Boulenger, 1902, p. 16 (Masoe); Climb, 1909b, p. 35 (part - Losangundi District); Hewitt, 1909, p. 38 (Near Salisbury).

*Platysaurus capensis* (not A. Smith) Boulenger, 1910, p. 469 (part - Salisbury).

*Platysaurus guttatus rhodesianus* (part) FitSimons, 1941, p. 279 (Pfundwer); Chishawasha; Salisbury; Shanyani River; Bindsure; Masami; Mtoko) and 1943, p. 481; Loveridge, 1944, p. 86; Tasman, 1957, p. 34, photos 5 & 6.


One hundred and seventy-six specimens examined from: RHOEBUS.

Ams Falls; Bindura; Chere; Chibakee River Bridge; Chimojo Caves; Chineyo; Chinyika Reserve; Chishawasha; Concession - 10 mls NE; Domboshawa; Erin Forest Reserve; Inyangombe River; Inyassure; Kwalasipit; Lake Machelwane; Manda; Marendellas; Matinidza; Masoe; Mtoko - 7 mls NE, 15 mls NE; Mtoro-
shanga - 5 mls SW; Mupapate River Bridge; Nyanzakaya; Nyadiri; Odzani River (Lower); Palm Block; Pfundwer; Peterhouse; Ranape - 10 mls. N; Salisbury; Shavanoe River Bridge; Trelaway; 14 mls N of Utilali; Umpinski; Warwickshire Estate; Wick Farm; Zema; Zongoro Bridge. MEGABHUS.

Comcha; Mhanda Mta.; 20 mls SSE of Villa Gouveia.

All available material has been examined, so the above list includes all literature records.

**Variation.** Masals usually widely separated; a single postnasal; occi-
pital and interparietal separated or in contact; upper labials anterior to
subocular usually 5; sublabials 5 (rarely 4, 6, 7 or 8); gulars transverse-
ly between posterior sublabials 24 - 35, the median row slightly and irregu-
larly enlarged. Dorsal granules transversely at midbody 78 - 100, enlarged
laterally; scales on side of neck enlarged, spinose; collar curved, com-
posed of 5 - 13 plates; ventrals in 18 - 22 longitudinal and 34 - 44 transverse
rows; femoral pores in males 16 - 24; lamellae under fourth toe 19 - 27;
scales on tibia towards heel and lateral caudal spinose.

**Coloration.** Adult males - above, dark green anteriorly, brownish pos-
teriorly, sometimes almost black (males from Trelaway have uniform red
bodies), numerous distinct pale dorsal spots; tail orange. Below, throat
orange, yellow or white, uniform or spotted or infuscepted with black, some-
times uniform black; chest and belly uniform black.

Females and juveniles - above, black, with three green longitudinal
stripes, the vertebral stripe narrow and sometimes broken up posteriorly,
the lateral ones broad and well-defined; tail base, with a dark median
stripe. Below, throat white to yellow, infuscepted with grey, chest greyish-
white, belly black mesially; base of tail orange, remainder grey.

Thirty-five specimens examined from: MALAWI. Npatsamaga (including the paratype); Nkambe. HEBANGOLI. Bobwe (Gadofo Peak on the Malawi Border).

Variation. Heads usually in contact; a single postnasal; occipital usually separated from interparietal; upper labials anterior to subocular usually 5; sublabials 5 (1/5 in the paratype); gulars transversely between posterior sublabials 22 - 30, median row slightly enlarged. Dorsal granules transversely at midbody 76 - 92, enlarged laterally; no anterior patch of enlarged scales on the neck, posterior patch enlarged, scaled; collar curved, composed of 7 - 12 plates; ventrals in 12 (rarely 16 or 20) longitudinal and 35 - 41 transverse rows; femoral pores in males 18 - 23; lamellae under fourth toe 19 - 24; scales on tibia towards heel and lateral eminals non-spinose.

Coloration. Adult males - Above, dark olive green, becoming brown posteriorly with very faint pale dorsal spots, tail orange. Below, throat dull blue or bright orange, no collar, chest and belly purplish-black, suffused with orange laterally.

PLATYCESURUS INTERRUGOSUS MHABE Loveridge


Thirty-five specimens examined from: MALAWI. Npatsamaga (including the paratype); Nkambe. HEBANGOLI. Bobwe (Gadofo Peak on the Malawi Border).

Variation. Heads usually in contact; a single postnasal; occipital usually separated from interparietal; upper labials anterior to subocular usually 5; sublabials 5 (1/5 in the paratype); gulars transversely between posterior sublabials 22 - 30, median row slightly enlarged. Dorsal granules transversely at midbody 76 - 92, enlarged laterally; no anterior patch of enlarged scales on the neck, posterior patch enlarged, scaled; collar curved, composed of 7 - 12 plates; ventrals in 12 (rarely 16 or 20) longitudinal and 35 - 41 transverse rows; femoral pores in males 18 - 23; lamellae under fourth toe 19 - 24; scales on tibia towards heel and lateral eminals non-spinose.

Coloration. Adult males - Above, dark olive green, becoming brown posteriorly with very faint pale dorsal spots, tail orange. Below, throat dull blue or bright orange, no collar, chest and belly purplish-black, suffused with orange laterally.
Females and juveniles: Above, black with three very narrow, but well-defined, buff longitudinal stripes, the vertebral stripe ill-defined posteriorly, no light spots between the stripes. Below, white, belly orange medially.

Size. Largest ♀ (UM, 4115 - Mtamanga) 102 + 161 = 263 mm, but UM,4097 from Zobue measures 105 mm from snout to vent. Largest ♂ (UM, 4120 - Mtamanga) 90 + 128 = 218 mm, the holotype ♂ (MEZ, 50655) measures 91 mm from snout to vent.

Remark. This form differs from other races of *P. intermedius* in lacking an anterior patch of enlarged scales on the neck. It agrees with *P. i. rhodesianus* in having the nasals usually in contact, but resembles *sublugis* in its high upper labial count. It has a lower average ventral count than either *rhodesianus* or *sublugis*.

Breeding. On 13th December at Mtamanga, four females had recently laid their eggs; three more each contained two eggs averaging 21 x 10 mm.

Diet. Stomach contents of 32 specimens were examined. The most important food items were ants (53%), beetles (44%), lepidopterous larvae (31%), vegetable matter (16%) and cockroaches (13%).

Parasites. Nematoidea (*Pharyngodon* sp. and *Thilamusa* sp.) were recovered from the stomachs of the types (Loveridge, 1953a).

Habitat. Parageiss outcrops.

Distribution. South-western Malawi from the Shire Valley to the Mozambique border at Cadola Peak near Zobue.

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**Platysaurus imperator** Brodley


Eighty specimens examined from: RHODESIA: Chimoyo; 2 mls NE of Makaha; Maramba Reserve; Matona; 33 mls N and 7 & 15 mls NE of Mtoko; Nyadiri; Ruaya River Drift. MOZAMBIQUE: 3 mls S of Guru; Magassa; 10 mls W, 12 mls NW and 12 mls SW of Mangari.

Variation. Nasals in contact or separated; a single postnasal; occipital separated from interparietal; upper labials anterior to subocular usually 5; sublabials 5 (rarely 4 or 6); gulars transversely between posterior sublabials 28 - 39; the median row smallest. Dorsal granules transversely at midbody 84 - 105, enlarged laterally; no anterior patch of enlarged scales on side of neck, posterior patch of enlarged gynadial scales; collar curved, composed of 7 - 14 plates; ventrals in 22 - 24 (rarely 26 or 28) longitudinal and 40 - 53 transverse rows; femoral pores in males 17 - 24; lamellae under fourth toe 23 - 25; scales on tibia towards heel and lateral gundals non-genic.
Coloration. Adult males: Above, head ochre yellow, body crimson anteriorly, with numerous large pale spots, ochre yellow posteriorly and on tail; limbs black. Below, throat brick red, a broad black collar, chest reddish or yellowish; limbs, belly and anal region black; tail orange to light yellow.

Females and juveniles: Above, black, with three light longitudinal stripes, these are broad and bright yellow on the head, but narrower and cream-coloured on the body, the vertebral stripe very narrow, broken up or absent posteriorly, the lateral stripes broad, but with uneven or blurred edges; no light spots between the stripes; tail straw-coloured. Below, throat dirty white, tinged with yellow, a divided black collar, chest yellowish white, infused with black, belly largely black; tail dirty white, infused with black.

Size. Largest ♂ (MSR 4819 - holotype) 146 + 246 = 392 mm. Largest ♀ (MSR 4859 - Matowa) 116 + 130 = 246 mm, but MSR 4859 from Ruwenza River Drift measures 120 mm from snout to vent.

Breeding. Females collected in mid-December each contained two eggs averaging 24 x 10 mm.

Diets. Stomach contents of 58 specimens were examined. The most important food items were beetles (67%), lepidopterous larvae (40%), ants (19%), termites (12%) and grasshoppers (11%).

Longevity. An adult male collected with the type series in December, 1960 has lived in captivity for five years.

Habitat. Although sympatric with P. torquatus throughout most of its range P. incarnatus occupies a different microhabitat - living on the tops of kopjes or big boulders, while P. torquatus inhabits the lower levels and flat rock exposures along river courses. P. i. submiger occupies an intermediate position and competes with both the larger and smaller species in a narrow zone of sympathy.

Distribution. North-eastern Rhodesia and adjoining Mozambique.

Genus CHAMASAURA Schneider


\textbf{CHAMAESAURA MACROLEPIS MIOCROPOS Boulenger}


Sixteen specimens examined from: \textit{ZAMBIA}. Abercorn; Katete;
Nyika Plateau, \textit{MALAWI}. Nyika Plateau (Chelinda Depot and Nyanga Mtn.).

\textbf{Literature record.} ZAMBIA. Pwembe (near Abercorn).

\textbf{Variation.} Supraciliaries 3; upper labials anterior to subocular 3 (rarely 4); lower labials 4; large chin shields 4 (rarely 3); midbody scale rows 24 - 26; transverse rows of dorsals from paretial to above vent 38 - 40; limbs monodactyle; a single femoral pore.

\textbf{Coloration.} Light olive to dark brown above, with a pair of dark dorso-lateral stripes, a pale upper lateral stripe, flanks pale olive or yellowish, lighter ventrally.

\textbf{Size.} Largest \( \delta \) (UN. 9392 - Chelinda, Nyika Plateau) 92 + 225 = 317 mm. Largest \( \sigma \) (MSR. 3207 - Abercorn) 120 + 480 = 600 mm.

\textbf{Discussion.} Loveridge (1944) followed Boulenger (1894) in regarding \textit{C. microporus} (midbody scale rows 24 - 26; forelimbs minute) as specifically distinct from \textit{C. macrolepis} (22 scale rows; forelimbs absent).

Mitte (1953, p. 67) has recorded a range of 22 - 26 in midbody scale rows for 136 \textit{microporus} from the Upeafo National Park. I consider \textit{microporus} to be a northern race of \textit{C. macrolepis}, distinguished solely by the presence of vestigial forelimbs. The 600 mile gap separating the two races is less than that dividing \textit{Chamaesauro s. angina} from its northern race \textit{terrier}.

\textbf{Breeding.} A \( \delta \) collected on the Zambian sector of the Nyika Plateau by V. J. Wilson on 27th November, 1963 contained four fully developed young averaging 40 + 118 = 158 mm. Another \( \delta \) collected at Katete on 8th May contained six small embryos.

\textbf{Diet.} A \( \delta \) from Nyanga Mountain contained a single grasshopper.

\textbf{Habitat.} Montane grassland.

\textbf{Distribution.} Southern Tanganyika, west through northern Malawi and Zambia to Katanga and Angola. It may yet be found on the Vigga, Zomba and Mlanje Plateaux.

\textbf{Chamaesauro macrolepis (Cope)}


Two specimens examined from RHODESIA. Chisanimani Mountains (Bundu Valley; Dragon's Tooth).

Literature Record. RHODESIA. Chisanimani Mountains.

Variation. Supraciliaries 3; upper labials anterior to subocular 3; lower labials 4; large chin shields 3 - 4; midbody scale rows 22; transverse rows of dorsals from parietal to above vent 39; forelimb absent; hindlimb monodactyle; a single femoral pore.

Coloration. Similar to G. m. micropsoma.

Size. Larger g (BHBR. 3220 - Dragon's Tooth) 120 x 450 = 570 mm.

Dist. A grasshopper in the smaller g. The larger g fed readily on grasshoppers in captivity (Tasman, 1957).

Habitat. Thick, moderately long grass above 5,000 feet.

Distribution. Natal, Zululand, Swaziland and south-eastern Transvaal, with a relict population on the Chisanimani Mountains. It may occur on other parts of the eastern escarpment and the summit of Gorongosa Mountain is a likely locality.

Family LACERTIDAE

Genus GASTROPHOLIS Fischer


Type by monotypy: G. vittata Fischer.

GASTROPHOLIS VITTATA Fischer


None examined.

Literature Record. NOREWEGE. Lumbo.

Description of Lumbo g (after Loveridge, 1956b). Supraciliaries 4; granules between supraciliaries and supraciliaries 4 - 5; supraciliaries 6 - 7; an azygous scale anterior to interparietal, which is followed by a small occipital; parietals separated; gular scales between symphysis of chin shields and median collar scale 21; collar composed of 9 enlarged scales; enlarged shields on fore-arm anteriorly 7; dorsals keeled in 26 rows at midbody; ventrals keeled in 12 longitudinal and 32 transverse rows; pre-anal-femoral pores 10; lamellae beneath fourth toe 20 - 21.
Coloration. Dull green anteriorly, brown posteriorly, with a pale dorso-lateral stripe. Pale brown above, with a broad white black-edged dorso-lateral stripe from the nape to base of tail, continuing on the tail as a series of white spots, white below.

Size. (Loveridge, 1920 - Lumbo) 67 mm from snout to vent. The 8 type of *G. masina* (a synonym) measured 109 + 326 = 435 mm. A 9 ootype of *G. vitata* measured 82 + 195 = 277 mm.

Distribution. The coastal plain of Tanganyika and northern Mozambique.

**Genus** HOLASPIS Gray


**HOLASPIS GUENTHERI LAEVIS** Werner


Holaspis guentheri Boulenger (part) 1921, pp. 377, 340 (Zomba); Cott, 1934, p. 163 (Amatongas).

Seventeen specimens examined from: MALAWI. Lujeri Estate, MOZAMBIQUE. Gavalo.

**Literature records.** MALAWI. Ruo River Market (Lujeri); Zomba, MOZAMBIQUE. Amatongas.

**Variation.** Collar composed of 8 - 12 plates; dorsals transversely at midbody 55 - 80; ventrals in 6 longitudinal and 25 - 33 transverse rows; femoral pores 17 - 25 on each side; lamellae beneath fourth toe 16 - 26.

**Coloration (in life)** Black above; a broad cream median stripe on head, terminating on nape; a pair of cream dorso-lateral stripes from supraciliaries to base of tail, where they merge; another cream lateral stripe extends from the upper labials above shoulder to base of tail; tail black with a median series of confluent Cambridge blue spots, surrounded lateral scales yellow. Below, throat, limbs and anal region cream, chest and belly orange, tail blue, lateral fringe scales yellow.

**Size.** Largest 8 (UN. 4236 - Lujeri) 48 + 734 = 119 mm. Largest 9 (UN. 4239 - Lujeri) 49 + 615 = 113 mm. Both sexes reach a snout - vent length of 50 mm.

**Diet.** Cott (1934) recovered a grasshopper, a spider and caterpillars from the stomachs of his Amatongas specimens. The Gavalo lizards were feeding on ants.
Habitat. Restricted to the trunks of lowland forest trees. At Injeri they were plentiful on a few big trees left standing in an area recently cleared for tea planting. They were common in similar circumstances at Cavalo, where riverine forest just east of Gorongosa Mountain was being destroyed by the local Africans. At Injeri they were associated with Malagama maculilabris, but the only other arboreal lizards collected at Cavalo were Hemiauchenia platyscapulus and Acara granecaster.

Distribution. The East African lowlands from north-east Tanganika south through Mozambique to the Amatungas Forest, extending into south-east Malawi.

Genus MICROAS Gray


HUGRAS BOULENGERI Neumann


One specimen examined from: ZAMBIA. Isoka Boma (A.K.).

Description. No granules between supracoculars and supraciliaries; supraciliaries 4 - 5; occipital in contact with interparietal; collar plates 4; dorsals smooth, 40 transversely at midbody; ventrals in 3 longitudinal and 32 transverse rows; femoral pores 12 on each side; lamellae under fourth toe 20.

Coloration. Brown above, with scattered dark spots; bluish-white below.

Size. (AM. 9958 D - Isoka Boma) 58 mm from snout to vent (Specimen dissected and tail broken).

Remarks. Loveridge (1937, p. 231) considered M. kilosea to be a race of M. boulangerti. This seems unlikely on zoogeographical grounds, for kilosea is completely surrounded by populations of typical M. boulangerti. M. kilosea is probably either a synonym or a full species.

Distribution. Kenya and eastern Uganda, south through Tanganika to north-eastern Zambia. This species is likely to occur in northern Mozambique.

Nuctag intertexta, forma typica Boulenger, 1917, p. 205 and 1920, p. 17 (Kokong); FitzSimons, 1936b, p. 355 (Kuka).

Nuctag intertexta intertexta FitzSimons, 1943, p. 318.

Seven specimens examined from: BECHUANALAND. Kuke Pan (TM); Lephepe; 10 mls SE of Letlaking (USNM); Molopo River (15 mls S of Tsabong).

RHODESIA. Natal. MOZAMBIQUE. 15 mls S of Maguga (TM).

Literature Records. BECHUANALAND. Kokong (near Lehumtutu); Kuke Pan.

Variation. Granules between supracilia and supraciliaris 3 - 5; supraciliaris 5 - 7; one or two occipitals, in contact with interparietal; collar plates 7 - 11; dorsals transversely at midbody 36 - 44; ventrals in 8 longitudinal and 30 - 36 transverse rows; femoral pores 12 - 14 on each side; lamellae under fourth toe 24 - 27.

Coloration. Reddish brown above, with a dorso-lateral series of pale spots; there may also be a vertebral series of pale spots or a narrow light vertebral line; side of neck and flanks with light and dark vertical barring anteriorly, breaking up into pale ocelli posteriorly; white below.

Size. Largest 7 (TM. 14538 = Kuke Pan) 78 + 178 = 256 mm.

Discussion. N. intertexta appears to be a monotypic species. Its distribution overlaps that of N. t. tessellata in southern South West Africa and it is certainly sympatric with N. t. ornata in the northern Transvaal.

Enemies. The Lephepe specimen was recovered from the crop of a Secretary Bird (Sagittarius serpentarius).

Habitat. Dry grassy flats surrounding pans in the southern Kalahari.

Distribution. South West Africa, northern Cape Province, southern Bechuanaland, northern Transvaal and southern Mozambique. Possibly a relict population in the Balule District of Rhodesia (on Kalahari sand) (See Fig. 7).
Fig. 7. Distribution of *Burmese* in southern Africa.


One hundred and forty-one specimens were examined from:

**BECHUA-LAND.** Francistown; Kanye (TM); Lobatse (MB); Mohudi (SAN); Molepolole (TM); 5 mls S of Nata; Palapye Road (AM); Serowe (AM). **RHODESIA.** Battlefields (TM); Beitbridge (TM); Berbezi; Bindura (SAN); Birchamough Bridge (TM & UK); Bulawayo (MUS, TM & SAM); Child; Chiredzi; Chinsaka River; Epangale (AM); Essarwale; Ferntree Valley; Flibanu (AM); Gumgumyanu; Gwelo; Iriansville; Kapasi; Kariba Lake - Buli Confluence; Kyle Lake; Malimbi (AM); Marandellas (AM); Maranguzi; Mount Darwin; Mount Siminda (TM); Odzi; Old Umtali; Plumtree and 30 mls WW; Que Que; Redcliff; Rusape (AM); Sahi - Lundi Confluence; Salisbury; Shashi - Shashani Confluence; Sembula; Stannore; Tegama; Trelawney (TM); Triangle; Tuli; Umtali; Unsum (TM); Umzilime River; Vumba Mt.; Zana Ponds. **ZAMBIA.** Chete Hills; Livingstone; Siantwinda. **MALAWI.** Cape Maclear. **MOZAMBIQUE.** Boma (TM); Borora; 12 mls SSE of Changara; Chigubo and 30 km NW (TM); Gorongosa Mountain (TM); Navora; 15 km NE of Mosola (TM);
Literature Records. (All material listed by FitzSimons, 1943, has been re-examined and the localities included in the above list). MAMM. Mtambula; Adrakai Mts. MOZAMBIQUE. Amatongs; Charre; Lifidzi; Massangulo; Nazatch; Tete; Vila Peina de Andrade.

Variation. Granules between supracoculars and supraclialaries 2 - 7 (rarely 1 or 8); supraclialaries 4 - 8 (usually 6 - 7); occipital usually in contact with interparietal (rarely absent); collar plates 5 - 13; dorsals transversely at mid-body 36 - 64; ventrals in 8 longitudinal and 25 - 34 transverse rows; femoral pores 11 - 20 on each side; lamellae under fourth toe 19 - 30.

Coloration. Above, reddish brown with 2, 3, 5, or 7 light longitudinal stripes, large adults may be almost uniform, but invariably have faint dorso-lateral stripes on the nape, most specimens have clear vertebral and dorso-lateral stripes, while the flanks have two light stripes or a row of pale spots above a stripe, or there may be light and dark vertical bars anteriorly, or the flanks may be uniformly speckled; tail vermillion to red-brown (powder blue in some south Mozambique populations); white below.

Size. Largest 5 (MZ. 50999 - Tete) 92 * 231 = 319 mm. Largest (BM. 1837.7.2 - Lake Nyasa) 96 * 139 = 231 mm.

Discussion. Although this form is sympatric with N. intertexta, its distribution nowhere overlaps that of N. tessellata (see Fig. 7), so it is provisionally placed as a race of that species.

Dist. A large adult collected 12 mls SSE of Chagare contained a scorpion (Eurinus sp.)

Habitat. Adult specimens were recovered from the stomachs of a Colubromys nigricans at Jersey Estate and Atractaspis bibroni at Plumtree and Balawayo. Both these snakes are nocturnal and must have entered the lizards' burrows to seize their prey.

Habitat. Widespread in savanna, but the populations living at low altitudes on the coastal plain and in the big river valleys reach a much greater size than those from the Rhodesian plateau or eastern Bechuanaland.

Distribution. South-eastern Africa, from Lake Malawi south to Natal, the Orange Free State and north-eastern Cape Province; it occurs in eastern Bechuanaland, is absent from the Kalahari, but reappears in northern South West Africa and south-western Angola.

NUCRA TASSELLATA TASSELLATA (A. Smith)


Nuclus tessellata Hewitt & Power, 1913, p. 155 (part - Ky Ky; Mozob; Lower Kalopo); FitzSimons, 1943, p. 315; FitzSimons & Brain, 1950b, p. 101.
Seven specimens examined from: CAPE PROVINCE - BECHUANALAND BORDER. Auob-Nossob Confluence (MM); Ky Ky (AM & MM); Nossob River (AM & MM); Twex Rivieren (TM).

Variation. Granules between supracoculars and supraciliaries 2 - 4; supraciliaries 6 - 8; occipital in contact with interparietal (abent in one); collar plates 5 - 9; dorsals transversely at midbody 40 - 44; ventrals in 8 longitudinal and 29 - 32 transverse rows; femoral pores 13 - 15 on each side; lamellae under fourth toe 26 - 30.

Coloration. Above, black anteriorly, with four sharply defined yellow longitudinal stripes, flanks vertically barred in black and yellow, posterior half of body and tail uniform buff to orange; white below.

Size. Largest (MM = Lower Nossob River) 77 + 1/2 = 245 mm.

Habitat. Dry sand-void.

Distribution. Dry areas of the southern and western Cape Province and southern South West Africa, occurs on the South-western border of Bechuanaland in the Kalahari Gemsbok National Park.

Genus LATASTIA Bedriaga


Type by designation of Loveridge, 1937: *Lacerta sambarica* Blanford = *L. longicollis* Reuss.

*LATASTIA* JOHNSTONI Boulenger

*Latastia tessellata* (not Smith) Boulenger, 1897, p. 800 (Nyika Plateau and Misaum Mts.).


*Emeritis nitida* (not Günther) Hewitt & Power, 1913, p. 156 (Eldorado).


* Sternfeld, 1911, p. 417 (Cabayra; Chifumbazi).

Fourteen specimens examined from: RHODESIA. Eldorado (MB, type of *L. kidwelli*). SAMBA. Bulaya; Chikwa; 30 mls N of Fort Jameson; Isaka; Kalichere; Mweru-Wantipa.
Variation. Granules between supracoculars and supraciliaries 10 - 13; supraciliaries 5 - 6; occipital in contact with interparietal or separated by an azygous scale; collar plates 5 - 10; dorsals transversely at midbody 40 - 52; ventrals in 6 + 2 longitudinal and 24 - 27 transverse rows; femoral pores 13 - 18 on each side; lamellae under fourth toe 22 - 27.

Coloration. Above, head gray-brown, body dark brown or black, with a pale vertebral stripe that bifurcates anteriorly to form two lines on the nape, a pair of narrow light dorso-lateral lines merge with the vertebral stripe on the tail; flanks with two light longitudinal lines with black blotches between them.

Size. Largest ♀ (BM, Cotype - Nyika Plateau) 60 + 150 = 220 mm.
Largest ♂ (1922, 51003 - Buz River) 63 + 149 = 212 mm.

Breeding. On 25th November the big Buz River held 4 eggs measuring about 6 x 5 mm (Loveridge, 1953a).

Diet. The same ♀ had a spider in her stomach.

Distribution. Central Tanganyika, north-eastern Mozambique, Malawi, northern and eastern Zambia, eastern Katanga, extending south to the Lomagundi District of Rhodesia.

Genus HERMIAS Wiegmann

Hermias Wiegmann, 1834, Herp. Mexicana, p. 9. Type by subsequent designation of Boulenger, 1918; Lacerta velox Pallas.

HERMIAS LIGURRIS (A. Smith)

Lacerta lugubris A. Smith, 1838, Mag. Nat. Hist., 2, p. 93; "District immediately beyond the northern frontier of Cape Colony." = Bechuanaland.

Lacerta lugubris Pears. 1896, p. 1 (Kasungula to Bulawayo); Boulenger, 1910, p. 477 (Lake Ngami District); Wernery, 1910, p. 330 (Kasungula); Hewitt, 1910, p. 113 (Palapye Road); Hewitt & Power, 1913, p. 156, (Francistown; Ky Ky; Moshob); Boulenger, 1921, p. 239 (Bulawayo; Lake Ngami; Nata - Limpopo Confluence); FitzSimons, 1935b, p. 358 (Molepolole - Eke; Eke; Eke - Gomodimo; Gomodimo; Enotse; Olala River; Damara Pan; Sunyame - Machad Pan; Mabeleapudi; Lake Ngami; Maun; Shorobe; Kabalaba) also 1937, p. 269, 1939b, p. 33 (Changadzi River;
Birchenough Bridge) and 1943, p. 329 (Empandeni; Matetai; Gsamland; Filehni - Shabani; Mochudi; Nafula; Masambu); Munjana, 1952, p. 150 (Pafuri); Pita Simons & Brain, 1953b, p. 103; Brodley, 1962d, p. 821.

Eighty-six specimens examined from: BECHUANALAND; Debeesti; Foley; Kang; Kanyu; 9 mls S of Mbare Hills; Lake Dow; Lephepe and 40 mls NW; 10 mls W and 10 mls SE of Letlhatigoe (USHM); Makho; Nata; Nokuneng; Gobii; Sibitwa; Seepa; Sharebo; Toten. RHODESIA; Beithbridge and 30 mls NW; Bings; Birchenough Bridge and 30 mls W; Chagadzi Bridge; Chibi; Devuli Bridge; 4 mls S of Duma; Lakoel Bridge; Malpati Drift and 14 mls upstream; Marama Mission; Marungudzi; Rupisi Hot Springs; Sedi - Lunda Confluence; Sedi - Malumi Confluence; Shashi - Shashati Confluence; Zambani - Matetai and Sahungwa Confluences.

Literature Records. BECHUANALAND. Dansau Pan; Francistown; Cre­dimo; Kabalakula; Kaste; Kuke; Kuke - Gomodimo; Ky Ky; Lake Ngami; Lehutu - Kang; Mabeleapudi; Mabalagye; Maua; Mochudi; Molapola; Kuke; Nwobch River; Notabari - Limpopo Confluence; Gwe River; Felsapye Road; Sharebo; Sunnywidge - Machuw Pan. RHODESIA. Birchenough Bridge; Chagadzi River; Empandeni; Filehni - Shabani; Gsamland; Matetai.

MUSAMBU. Masambu; Pafuri.

Variation. Temporal shield present; tympanic shield present; lower eyelid scaly, opaque; supraoculars 4 - 7; upper labials anterior to subocular 4 - 6 (subocular excluded from lip in one Bings lizard); collar plates 6 - 11; dorsals transversely at midbody 64 - 86; ventrals in 6 longitudinal and 22 - 30 transverse rows; femoral pores 12 - 18 on each side; lamellae under fourth toe 22 - 32.

Coloration. Juveniles, black above and below with a yellow vertebral stripe and symmetrical yellow markings on head and body; tail yellowish distally. Adults - light grey-brown or red-brown above, with three pale dorsal stripes, the median one bifurcates on the nape and continues onto the tail; dark transverse bars on back between the light stripes and also on the flanks; limbs with pale ocelli; white below.

Size. Largest 9 (USNM 7810 - Nata) 28 + 150 = 218 mm. Largest 9 (USNM - 10 mls SE of Letlhatigoe) 61 + 130 = 191 mm.

Enemies. At Laphope, one was recorded from the crop of a Chanting Goo­mduck (Leptopax musitus) and three from a Secretary Bird (Sacitarius ser­pentarius). Specimens were found in the stomachs of Yellow Mongooses (Cynictis penicillata) at Debeesti and Toten; Enemies remains in several other small carnivore stomachs were not identifiable to species.

Habitat. In Rhodesia, this species is largely restricted to the beds of dry "sand" rivers in the major river valleys.
**Distribution.** Southern Angola, South West Africa and Bechuanaland, extending through the Delta Trough to Rungu and down the Limpopo Valley to Hanambo; widespread in south-eastern Rhodesia and north-eastern Transvaal.

**BRHIA S NAMAQUENSIS** Duméril & Bibron

*Breria namaquensis* Duméril & Bibron, 1839, Erpt. Gen. 5, p. 367; Namqueland; Hewitt & Poore, 1913 (Ky Ky; Nossob); Boulenger, 1921, p. 280; Fitzsimons, 1936a, p. 536 (Junction of Nossob and Auob Rivers); also 1935b, p. 360 (Molepolole - Kuke; Kuke; Gamsob; Haotse; Gamsbok; Motlhakalago) and 1943, p. 237; Fitzsimons & Brain, 1950b, p. 101.

Nineteen specimens examined from: NAMIBIA, Lake Dow and 15 mls. S; Mbeo Pan; 10 mls W of Mbeo (USNM); Nossob River 10 mls above Auob Confluence; SWA - BP Border at 24°3S; Tsane; Teeleng-Pan.

**Literature records.** NAMIBIA, Auob-Nossob Confluence; Gamsbok; Kake; Ky Ky Molepolole - Kuke; Motlhakalago; Nossob River.

**Vestiges.** No temporal sncld.; tympanic flhield present; lower eyelid scaly, opaque or semi-transparent; supraoculars 5 - 8; upper labials anterior to subocular 4 - 5; collateral plates 5 - 9; dorsals transversely at midbody 16 - 60; ventrals in 10 - 12 longitudinal and 27 - 32 transverse rows; femoral pores 11 - 16 on each side; lamellae under fourth toe 21 - 29.

**Coloration.** Above, grey to grey-brown with four or five pale dorsal lines, the median one often restricted to the napo and the median lines may merge to form a broad vertebral band, often pale spots between the outer lines; flanks mottled with whitish; white below.

**Size.** Largest 3 (UH 7469 - 15 mls. S of Lake Dow) 55 + 118 = 173 mm.

**Habitation.** One was recovered from the stomach of a polecat (*Ictonyx*), at Chibuta Pan and three from a Secretary Bird (*Sagittarius serpentarius*) at Lake Ngami.

**Habitat.** Hard ground in the acaea belts around the pan in the Kalebari (Fitzsimons, 1935b).

**Distribution.** Dry areas of southern Angola, South West Africa, Bechuanaland, Orange Free State and the Cape Province.
Eremias lineo-ocellata 

Dumeril & Bibron, 1839, Eupet. Gen., 2, p. 316:

"South Africa"; Werner, 1910, p. 324 (Keea; Mochane; Vlei Topan);
Hewitt, 1910, pp. 110, 113 (Mochudi); Hewitt & Power, 1913, p. 156
(Ky Ky; Nossob; Marandellas locality is rejected); Boulenger, 1921,
p. 289.

Mochudi, Bechuanaland, and 1921, p. 299.

Eremias lineo-ocellata lineo-ocellata Fitzsimons, 1935a, p. 536 (Aub and Nossob Rivers) also 1935b, p. 361 (Kuoe; Kuke - Cosmodine; Kaobe;
Mabeleapudi; Ramatudi; Shorobe; Makarikari) and 1943, p. 338; Fitzsimons & Brain 1956b, p. 102.

Sixty-four specimens examined from: BECHUANALAND: Debeoti;
Lephepe and 40 mls NW; 10 mls SE of Létshikalae (USHN); 10 mls W of Mabble (USHN); Molopo River, 15 mls S of Tsabong; 20 mls N. of Nte; Nossob River, 40 mls above Aub Confluence; SWA - BP Border at 21°S.

Literature records. BECHUANALAND. Aub-Nossob Confluence; Kaobe;
Koee; Kuke; Kuke - Cosmodine; Ky Ky; Mabeleapudi; Makarikari; Mochudi;
Mochane; Nossob River; Ramatudi; Shorobe; Vlei Topan.

Variation. Temporal and Tympanic shields absent; lower eyelid with a large transparent disc, vertically divided by a black suture; supercillaries 4 - 10; upper labials anterior to subocular 4 - 6; collar plates 7 - 14; dorsals transversely at midbody 50 - 61; ventrals in 12 longitudinal and 30 - 38 transverse rows; femoral pores 11 - 13 on each side; lamellae under fourth toe 23 - 29.

Coloration. Above, red-brown, grey-brown or buff, usually with a dorso-lateral series of pale spots or streaks, often with a series of darker spots bordering these dorsally and a double row of small pale spots along the middle of the back; often a lateral series of pale blue ocelli, with a pale longitudinal stripe below; white below.

Locality. At Lephepe, nine specimens were recovered from the crop of a Secretary Bird ( Sagittarius serpentarius) and one from a Chanting Goshawk (Melierax musconus).

Habitat. Usually found in association with E. maboesensis on hard ground around the pans in the Kalahari.

**Genus ICHNOTROPIS** Peters


**ICHNOTROPIS** *SQUAMULOSA* Peters

*Ichnotropis squamulosa* Peters, 1854, *Monatsb. Akad. Wiss. Berlin*, p. 617; Tete, Mozambique, and 1882, p. 49, pl. viii, figs. 2, 2a - b; Boulen-ger, 1887 a, p. 79 (Kalahari Desert; Lake Nyasa); Bosange, 1895, p. 87; Boulen-ger, 1897, p. 800 (Fort Hill) also 1907a, p. 8 (Fatikubai; Luangwa River) and 1910, p. 47b (Delagoa Bay; Bulawayo; Kuyuni River; Salisbury); Sternfeld, 1911, p. 417 (Chibulambi; Gabayra); Headit & Power, 1913, p. 156 (Makandarela; Mochudi); Boulen-ger; 1921, pp. 192, 425 (Molopo River); Power, 1927a, p. 407 (Lobateli); Gott, 1934, p. 162 (Charoe); Pitman, 1934, p. 305 (Luvungi Hills; Machinga); FitzSimons, 1935b, p. 397 (Gabani; Molepolole; Kuku; MatapoPan; Kgotse; Katwe - DamaPan; DamaPan; Sunnyside - Mahalaapadi; Mahalaapadi; Haun; Bhorobe; Kasai; Tsotseroga); Mertens, 1937, p. 9 (Lunda - Chama); FitzSimons, 1939b, p. 32 (Kirchenough Bridge); Themido, 1941, p. 14 (Zomba); FitzSimons, 1943, p. 350 (Thessobe; Kukuan; Mtoko; Kapandu; Chilikungu; Sawmills; Driefontein; Mahalapye; Towni; Umuma; Plintree); Loveridge, 1953, p. 232 (Tete; Cholo).

One hundred and forty-seven species examined from: **NEOCHINAMA-LAND.** Debesi; 35 mls W of Kang; Kanyu; 17 mls N of Marumash; Mita; Nokaneng; 50 mls NW of Sekhonise; Sekhuma Pan; Toben; Tsana. **NGCHEZIA.** Beithbridge; Dzapesi; Zinga; Bulawayo; Charam Plateau; Chilako Bridge; Chilongo; Chinyamunde; Congolo; Eldorado; Fatia; Fern Valley; Glass Block; 5 mls W of Gwali Bridge; Nkany; Heathfield; Helvetia; Ksamativi; 5 & 10 mls. SS of Kang; Kariba Lake; Kariba Lake - Sanyati Confluence; Koton; Malapati Drift and 14 mls Upstream; Malinbasashi; Matopo; Mtako Reservoir; 25 mls NW of Mtoko; Nyanganda; Odzi; Plintree and 30 mls NEW; Redcliff; Ruwnya River Drift; Sandi-Lundi Confluence; Saffron Walden; Sawmills; Sengwe River; Shashi - Shashani Confluence; Sincis; Stansmore; Tagumani; Triangle; Untali; Wankie National Park - Shapi Pan; Zambezi - Selungwe Confluence. **ZAMBIA.** Beona Mubasa; Chambwana River; Chimone River; Fort Jameson and 40 mls N; Kaungash; Kondolilo Falls; Livingstone; Lusaka; Siatanga. **MAJAWI.** Cape Maclear. **MOZAMBIQUE.** Beira; Goenda; Gombe; Inchope; Mange; Maringa; Metuchire; Muda - Lomogoge; 10 mls W of Manguini; Sane; Vila de Manica.
Literature Records. 

*RHODIAEA.* Namara Pan; Gabani; Koeta; Koeta - Namara Pan; Kubu; Kasa; Lobateli; Mabeleapudi; Mabalepye; Matapya Pan; Musa; Machadi; Malapolela; Molopo River; Shorobe; Sunyasa - Mabeleapudi; Tsandi; Tseeso; Tsotsora. EECOCIA.

Burchell's Bridge; Buleawayo; Chilimanzi; Driefontein; Elandere; Hwanyi River; Kutama; Marondera; Mtoka; Plumtree; Salisbury; Sawnills; Umuru. RANKIA. Lavushi Hills; Lusangwa River; Lundazi - Chama; Machinga; Patuuza. MALAWI. Chalo; Fort Hill; Lake Nyasa. 

Zambezi. Cahaya; Charre; Chisumbwa; Delagoa Bay; Tete; Zambo.

Variation. Frontocornal paired; supraoculars 4 (rarely 3 or 5); suboculars excluded from lip; midbody scale rows (including ventrals) 42 - 57; femoral pores 11 - 18 on each side; lamellae under fourth toe 16 - 23.

Coloration. Duff to dark grey-brown above, usually with narrow irregular dark cross bands or series of blotches, upon which are superimposed six longitudinal rows of pale spots, i.e. a double row along the vertebral line, a dorso-lateral and a lateral row; greyish white to plumbeous below, adult males with the lower labials and chin shields mottled with black.

Size. Largest ♀ (Un. 1776 - Ruinya Drift) 76 + 151 = 227 mm. Largest ♂ (Un. 1767 - Sabi - Lundazi Confluence) 74 + 155 = 229 mm.

Life Cycle. This species emerges from the egg in November - December, reaches maturity in eight months and dies after breeding (see under *I. c. maculata*).

Diet. Largely grasshoppers and termites at Charre (Cott, 1934); termites in the Kalahari (FitzSimons, 1935b).

Enemies. One was recovered from the stomach of a Cape Fox (*Vulpes chama*) at Debeati.

Habitat. Widespread in savanna, but most plentiful in sandy country.

Distribution. Tanzania south to Bulawayo, west through Nama, Zambia, Rhodesia, Transvaal and Bechuanaland to South West Africa and southern Angola.

**ICHNOTROPIS HIBITATEA HIBITATEA** (Booanga)

*Ichnotropia hibitata* Booanga, 1866. *Jorn. Sci. Lisboa, 1*, p. 43; Duque de Braganza, Angola.

One specimen examined from: RANKIA. Abercorn.
Description. Frontonasal single; prefrontals in contact with the anterior supracocular; upper labials anterior to subocular 4; midbody scale rows (including ventrals) 36; femoral pores 11 on each side; lamellae under fourth toe 18 - 19; foot/head length ratio 1.00.

Coloturion. Dark grey brown above, back blotched with black, a narrow white dorso-lateral line; flanks blackish, with a white stripe extending from snout, through ear opening to groin; below, chin and throat white stippled with dark grey, chest and belly greyish-white.

Size. Subadult (IBSA - Abercorn) 41 + 31 = 122 mm.

Remarks. Witte (1952, pp. 85, 88) has collected good series of this species and I. leucosoma (= I. capensis) at the same localities in the Upemba National Park, so this form cannot be a race of I. capensis as suggested by Loveridge (1937, p. 234).

It is impossible to say whether I. biyittata collida, described from a single specimen from Biela, Angola, by Laurent (1964b, p. 64) is a valid race.

Distribution. Angola, west through Katanga and northern Zambia to southern Tanganyika.

**Ichnotropius**


*Tropidascosaurus capensis* Bianconi, 1851, p. 61 (Ishambane).


*Ichnotropius capensis* Boulenger (part) 1887a, p. 78 and 1910, p. 476 (Delagoa Bay; Matopos); Werner, 1910, p. 329 (Ishambang - Severelela); Hewitt, 1910c, pp. 112, 114 (Modhudi); Hewitt & Power, 1913, p. 156 (Marandellas); Loveridge, 1930, p. 148 (Delagoa Bay); Boulenger, 1921, p. 185; FitzSimons, 1935b, p. 356 (Karea - Dasara Pan; Kabulabulaba; Mkate) and 1937, p. 267; Loveridge, 1953a, p. 230 (Kasungu).
Ichnotropis lemasinae Boulenger, 1902, Proc. Zool. Soc. London, 2, p. 17, pl. 111, fig. 2; Nance, Rhodesia; Chubb, 1909a, p. 594 and 1909b, p. 35 (Bulawayo; Khami River); Boulenger, 1910, p. 476 (Livingstone); Hewitt, 1910c, p. 115; Angel, 1920, p. 616 (Lealui); Boulenger, 1922, p. 188 (Khami; Bulawayo; Livingstone); Fitman, 1934, p. 305 (Mataba District).

Ichnotropis capensis capensis FitzSimons, 1943, p. 252 (Plumtree; Salisbury; Driefontein; Matopos; Mochudi; Masindi); Nance, 1952, p. 151 (Muela); Bradly, 1962a, p. 821.

Ichnotropis capensis lemasinae FitzSimons, 1943, p. 354 (Chishawasha; Livingstone; Masani; Filabusi - Shabani; Kutama; Sanualand; Bulawayo; Bembesi; Mhate).

Ninety-three specimens examined from: BECHUANALAND, Lephepe and 40 mls NW; Tsaos. RHODESIA, Beatrice; Bembesi; Bulawayo; Charama Plateau; Chimara Ranch; Insuza Bridge; 10 mls SW of Kapandi; Kariba; 5 mls E and 15 mls SE of Lupane; Malisibasibisi and 35 mls SW; Marendellia; Matopos; Masi; Matusejikuma; Ondi; Sabi - Lusui Confluence; Salisbury; Shangwe District; Sinolia; 20 mls NW and 10 & 15 mls ESW of Victoria Falls. ZAMBIA, Belowsale; Fakoji Stream; Kalabo; Kasau; Luanga Game Reserve; Lusaka.

Literature records: BECHUANALAND, Kabulala; Kneew - Damara Pan; Lobaneng - Sevelolela; Mochudi; Mhate. RHODESIA, Bembesi; Bulawayo; Chishawasha; Driefontein; Filabusi - Shabani; Sanualand; Khami River; Kutama; Marendellia; Matopos; Masi; Masani; Plumtree; Salisbury.

SANITIA, Lealui; Livingstone; Mataba District. MAIMI. Kasungu,

MEZAMBEZIN. Delagos Bay; Inhambane; Lourenco Marques; Masindi; Muela.

Variation. Frontonasal single; prefrontals usually well separated from anterior supraoculars (rarely in short contact) (the prefrontals are separated by 1 (Livingstone) or 2 (Malisibasibisi) azygous scales in two lizards); upper labials anterior to subocular 3 - 5; midbody scale rows (including ventrals) 32 - 42; femoral pores 9 - 14 on each side; lamellae under fourth toe 19 - 26; foot/head length ratio 1.10 - 1.55.

Coloration. Juveniles pale grey-brown with a white lateral stripe. Adults usually uniform grey to red-brown above; with a narrow white dorso-lateral line which may be bordered dorsally by a series of dark blotches; flanks black, with a broad white lateral stripe extending from snout, through ear opening onto tail; white below. In breeding males the lateral stripe, lower labials, chin and throat are bright yellow and there is a bright red intero-ventral stripe from axil to groin.
Largest \( t \) (MSR, 28,23 - Lunga Game Reserve) 60 + 14.5 = 205 mm.

Largest \( t \) (MSR, 37.34 - Bulawayo) 62 + 11.8 = 180 mm.

Discussion. Loveridge (1953a, p. 231) has already pointed out the futility of trying to recognize *Lamprologus* as a north-eastern race. Working from the measurements supplied to Loveridge by Battersby, the foot/head length ratios for the three cotypes of *Lamprologus* are 1.20, 1.25 and 1.23. Boulanger identified specimens from Bulawayo and Livingstone as *Lamprologus*.

In twenty-one specimens from Livingstone the foot/head length ratio is 1.10 to 1.45 and in four from Bulawayo it is 1.14 to 1.36. Although there is certainly interpopulation variation in average foot length, this is negligible when compared with the variation within a population.

Life cycle. Although *Ichthyopotamia g. capensis* and *I. squamiloosa* frequently occur together, I noticed that any series collected invariably included adults of one species and juveniles of the other. The size range of material collected in each month is summarised in tabular form below:

<table>
<thead>
<tr>
<th>MONTH</th>
<th><em>I. SQUAMILLOSA</em></th>
<th><em>I. G. CAPENSIS</em></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N.</td>
<td>SNOUT - VENT LENGTH</td>
</tr>
<tr>
<td></td>
<td>RANGE</td>
<td>MEAN</td>
</tr>
<tr>
<td>JANUARY</td>
<td>12</td>
<td>40 - 61</td>
</tr>
<tr>
<td>FEBRUARY</td>
<td>11</td>
<td>50 - 70</td>
</tr>
<tr>
<td>MARCH</td>
<td>21</td>
<td>55 - 75</td>
</tr>
<tr>
<td>APRIL</td>
<td>19</td>
<td>59 - 75</td>
</tr>
<tr>
<td>MAY</td>
<td>16</td>
<td>55 - 72</td>
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<tr>
<td>JUNE</td>
<td>14</td>
<td>60 - 76</td>
</tr>
<tr>
<td>JULY</td>
<td>1</td>
<td>76</td>
</tr>
<tr>
<td>AUGUST</td>
<td>-</td>
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</tr>
<tr>
<td>SEPTEMBER</td>
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<tr>
<td>OCTOBER</td>
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<tr>
<td>NOVEMBER</td>
<td>10</td>
<td>24 - 25</td>
</tr>
<tr>
<td>DECEMBER</td>
<td>20</td>
<td>25 - 49</td>
</tr>
</tbody>
</table>

Table 4. Variation in snout-vent length for material of *Ichthyopotamia squamiloosa* and *Ichthyopotamia g. capensis* by month of collection.

These data clearly indicate that *I. g. capensis* reaches maturity in nine months and dies after breeding, the species surviving in the egg form during the months January - March. The emergence of young *I. g. capensis* during March - April and the hatching of *I. squamiloosa* during November - December obviously reduces competition between two sympatric species with similar food requirements.
Habitat. Widespread in savannas.

Genus MERIOLES Gray

Merioles Gray, 1838, Ann. Nat. Hist., 6, p. 291. Type by monotypy:
- Lacerta knoria Milne-Edwards.


Mertens (1955, p. 70) has revived Merioles for the South African species formerly included in the genus Saurotirix Wagmann, now restricted to Asia.

MERIOLES SUBORBITALIS (Peters)

Eremias suborbitalis Peters, 1869, Oefvers. Vet. Ak. Forh., p. 663:
- Damareland.

Saurotirix depressa Bewitt & Power, 1913, p. 157 (Ky Ky).

Saurotirix suborbitalis Boulangar, 1921, p. 354; FitzSimons, 1935a, p. 542 (Nossob River), and 1943, p. 399; FitzSimons & Brain, 1955b, p. 102.

No local specimens examined.

Literature records. CAPE PROVINCE - BECHUANA LAND. Ky Ky; Nossob River.

Habitat. Very common in the Auob - Nossob River area of the Kalahari, in association with Eremias l. lipsicollata and E. massaqueea (FitzSimons, 1935a).

Distribution. South West Africa and arid areas of the Cape Province, occurring on the south-western border of Bechuanaland in the Kalahari Gemsbok National Park.

Family VARIANIDAE

Genus VARIANUS Merrem

Varanus Merrem, 1820, Vers. Syst. Amphib., pp. 13, 53. Type by subsequent designation:
- Lacerta varia Shaw.


*Polydactalus* (including *Varanus niloticus*) and *Emyspugia* (including *V. eunathamanticus*) are recognised as subgenera by Mortens (1942, p. 242).

**VARANUS NILOTICUS NILOTICUS** (Linnaeus)


*Varanus niloticus* Peters, 1854, p. 615 (Gabocima; Boror; Qualisima; Tete); Bouleneg, 1886d, p. 317 (Zambezi) and 1897, p. 300 (Nkata Bay to Lunzwe; Konde to Karonga); Boage, 1896, p. 87 (Qualisima); Bouleneg 1907a, p. 8 (Petauke; Luangwa River) and 1907b, p. 485 (Beira); Chubb, 1909a, p. 593 and 1909b, p. 35 (Saluwayo); Werner, 1910, p. 327 (Lobatai); Cott, 1934, p. 153 (Gala; Chombo; Beira); Pitman, 1934, p. 304 (Nsamala District; Likulu Swamps); Pitaximus, 1935b, p. 352 (Mum; Kalabala) and 1943, p. 405 (Khuni River; Chishawasha); Mitchell, 1946, p. 28 (Lake Nyanza); Turnbull-Kemp, 1960, p. 6 (Inyanga National Park).

*Monitor nilotica* Gunther, 1864, p. 307 (Zambesi Expedition).

*Monitor saccus* Peters, 1852, p. 23, pl. iv, fig. 2.

*Varanus niloticus niloticus* Loveridge, 1953a, p. 239 (Ghita River; Mitinuka; Kausi Village; Tete) and 1953b, p. 143 (Zambesi); Broadley, 1962d, p. 825.

Twenty-seven specimens examined from BECHUANALAND, Botlele River; Sepopa. RHODESIA. Bulawayo; Masawale; Hot Springs; Irisvale; Karie; Limpopo - Usinguene Confluence; Matopo; Old Untali; Salisbury and 20 mls. NE; Tali; Untali; Jana Farm. ZAMBIA. Abercorn (IHUN); Ilholenge; Kabembo; Hafine. MEXAMIQUE. Boror; Ponte do Pungue.

**Literature records.** BECHUANALAND: Kalabala; Lobatai; Houn. RHODESIA. Bulawayo; Chishawasha; Khuni River. ZAMBIA. Luangan River; Likulu Swamps; Namala District; Petauke. MALAWI. Chitala River; Kausi Village; Konde to Karonga; Lake Nyasa; Mitinuka; Minta Bay to Lunzwe; Zomba. MEXAMIQUE. Beira; Boror; Cabaceira; Gai; Chombo; Qualisima; Tete.

There are also six specimens from Manyamadzi River, Zambia in the British Museum (Pitman, in litt.).
Variation. Transverse series of yellow spots between axil and groin 6 - 9.

Size. Largest (SN. 10335 - Bulenga) 1880 mm in total length (flat skin).

Breeding. A 1305 mm g from Irisvalls held 27 eggs measuring 65 x 33 mm on 10th September.

Diet. Very catholic, including invertebrates, especially crabs, mussels and land snails (Achatina), also any vertebrate that can be caught and overpowered.

Loveridge (1953a) found three crushed Cyrtodora femoralis eggs in a Mtimblaka specimen, they are also known to dig up and devour the eggs of crocodiles and terrapins.

Parasites. Most specimens harbour some black and gold ticks Agamasparmentum. Loveridge (1953a) preserved nematodes (Tunga sterna) from several Mtimblaka specimens.

Habitat. All rivers, streams, dams, lakes and swamps, also the fringes of mangrove swamps on the Mozambique coast. Rock crevices are the favourite retreat and specimens are sometimes found on kopjes some distance from water.

Distribution. All savanna areas of Africa. Absent from the arid southwest and also from the western rain-forest, where replaced by V. a. ornatus (Daudin).

**VARIUS EXAMINATIONS ALBIGULARIS** (Daudin)


Type locality unknown.

_Various albigularis_ Peters, 1854, p. 616 (Quitangonha; Sara; Tete).

_Monitor albigularis_ Peters, 1862, p. 21, pl. 17, fig. 3.

_Various albigularis_ Boulenger, 1885d, p. 307 (Lake Nyasa); Bocage, 1896, p. 93; Boulenger, 1907a, p. 8 (Lake Nyasa); Chubb, 1909a, p. 593 and 1909b, p. 35 (Salvator); Boulenger, 1910, p. 471 (Salisbury; Fungwe River); Werner, 1910, p. 327 (Kona; Kukula); Hewitt & Power, 1913, p. 155 (Namaswali); Power 1927c, p. 407 (Lobau); Pita Simons, 1935b, p. 352 (Gaborone; Mtimbalala River; Gembok; Tsetseroga and 1939b, p. 31 (Khosho Bridge); Themido, 1941, p. 13.


Varians ocellatus (not Heyden) Sternfeld, 1911, p. 416 (Chifuwabasi).

Varians exanthematicus albimiliaris Schmidt, 1919, p. 483; Pitman, 1934, p. 304 (Chinsali); Loveridge, 1953a, p. 242 (Tete); Manacas, 1961, p. 157 (Vila Machado); Broadley, 1962a, p. 825.

Varians albimiliaris albimiliaris Fitzsimons, 1943, p. 403 (Palapye Road; Bembezi; Rikatla; Chanei - Manj); Mitchell, 1946, p. 28; Manacas, 1952, p. 152 (Chibuto).


Twenty-five specimens examined from: BECHUANALAND, Debesiti; Mato and 10 mls SE; Shorobe, RHODESIA, Hot Springs; Malanga Bridge; Modisa Pass; Plumtree; Lupisi Hot Springs; Zambezi River opposite Feira, ZAMBIA. Abercorn (IREBA); Broken Hill; Isambo Stream; Kalamo; Kariba Lake, MOZAMBIQUE. 10 mls W of Kazane; Nova Freixo; Vila de Mumia, also collected on Inhaca Island, but subsequently escaped.

Literature records. BECHUANALAND, Gaberones; Gansbok; Chanei - Munj; Kazie; Kooa; Lobetsi; Metsimahlabo; Palapye Road; Tsotsoroga, RHODESIA. Bembezi; Birchenough Bridge; Bulawayo; Marendellas; Salisbury, ZAMBIA. Chinsali; Leopans River, MALAWI. "Lake Nyasa"; Mposha. MOZAMBIQUE. Chitumbu.

Chibuto;/ Pungwe River; Quitaongoa; Rikatisa; Sena; Tete; Vila Machado.

Variation. Mucbal scales (without surrounding discs) subequal to, or considerably larger than, those on occiput and dorsum; midbody scale rows 118 - 152; transverse rows of ventrals from collar to groin 76 - 112.

Size. Largest & (UK. 10120 - Debesiti) 630 + 662 = 1333 mm. Largest & (UK. 8087 - Nova Freixo) 400 + 495 = 895 mm. Another & (UK. 10065 - Broken Hill) measures 665 mm from snout to vent, tail truncated.

Discussion. Martens (1942) recognised four races of Varians exanthematicus and Laurent (1964b) has described another subspecies from south-east Tanganyika. Martens divided the species into two groups based on the size of the mucbal scales in relation to those on the occiput and dorsum, i.e. considerably larger in the typical form and microstictus, smaller or only slightly larger in albimiliaris and angolensis. The enlarged mucbal of the typical form are well illustrated by Schmidt (1919, pl. xiv), but the Kenyan specimens of microstictus illustrated by Laurent (1964b, fig. 2) show only slightly enlarged mucbals and specimens from south-east Africa are very variable in this character, as pointed out by Loveridge (1953a, p. 243). Martens' other key characters were transverse and longitudinal scale counts i.e. -
The typical form is distinct enough and need not be considered further. Mitte (1953, p. 73) gives a range of 109 - 144 midbody scale rows and 72 - 99 transverse rows of ventrals for Katanga material referred to *ancolensis*, while Laurent (1964b) gives 126 - 141 midbody scale rows and 94 - 98 transverse rows of ventrals for four *lobito* specimens. The overlap in midbody scale counts between the three races is such that all the material I have examined (except for six specimens from Abercorn and Broken Hill) could equally well be referred to either *microstictus* or *albiviridus*, having "intermediate" counts of 134 - 152. Very high counts (153 - 167) are apparently found only in the extreme south (see, Fig. 3). Ventral counts show a similar tendency.

*Varanus g. ionidesi* Laurent was based entirely on juvenile pattern. A pattern of transverse pale spots of varying size, which may be confluent, or even form crossbands, is common in specimens from south-east Africa. The different patterns illustrated by Laurent (1964b) are all found in the material under consideration, but without much geographical significance, i.e.:

**Fig. 2** (*Kenya microstictus*): Rupesi Hot Springs.

**Fig. 3** (*types of ionidesi*): Nova Freme; Kalomo.

**Fig. 4** (*"typical" albiviridus*): Malong Bridge; Kariba Lake; Vila de Manica.

**Fig. 5** (*Zululand albiviridus*): Mialilunga; Hot Springs.

Several other patterns occur. The normal *ancolensis* pattern is illustrated by Laurent (1964c, fig. 11), this consists of a dorsal row of large pale spots and a dorso-lateral row of much smaller spots, a pattern shown by the Abercorn specimens. Some Buchanaland specimens are very pale, with scattered dark scales which may form reticulated patterns. Many specimens are intermediate in pattern and geographical races based on pattern cannot be justified.

The data available suggest that only two races are recognisable, the typical form as defined by Hertens and *V. e. albiviridus*. Ethiopia, the type locality for *microstictus*, may be considered a region of intergradation between the two races.
Fig. 8. Mean midbody scale rows for some populations of *Varanus exanthematicus* in south-east Africa.
Breeding. In September a ♀ from Villa Machado contained 15 eggs measuring 61.5 x 27.5 mm (Mameo, 1961). A 997 mm ♀ from Mpena (near Blantyre) contained 28 eggs, each 25 mm in diameter, on 12th March (Hanney, 1961).

Diet. This species is a scavenger which devours decomposing rats and snakes with relish. It will eat any animal that it can catch, but beetles, snails and millipedes form a large proportion of its diet.

Parasites. Ticks (Argasoma asperratum) identified by Dr. Thilier from Iririala and Beithridge specimens. Nematodes (Ancyrotyla ceraden; Polydelphis sp.; Tanque blare) preserved from Tete specimens by Loveridge (1933).

Behaviour. Unlike Varanus niloticus, which relies on speed to escape an enemy, the present species is relatively slow and if no suitable tree or hole offers a refuge, it often "plays possum", but not very convincingly, because it keeps its eyes open.

Habitat. This species is most plentiful in dry country - the Kalahari and the major river valleys. It lives in rock crevices or hollow trees, juveniles are often found under loose bark on dead trees.

Distribution. Savannahs of southern and eastern Africa.

Suborder AMPHIBIANIA

Family AMPHIBAMIDAE

Much of the published morphological data on amphisbaenids are difficult to evaluate because procedures (particularly methods of counting annuli) were not standardised.

Gans and Alexander (1962, p. 75) have made a careful evaluation of morphological characters in Antillean amphisbaenids of the subfamily Amphisbaeninae and have worked out standard methods for counting annuli, including the separation of lateral annuli, previously included with either body or tail annuli counts.

Gans is at present working on East African amphisbaenids of the genus Chirinda and will be revising all the African genera in due course, which will involve the standardisation of procedures for the subfamily Rhinurinae (including the genera Monopeltis and Neorhynocryptis).

In the circumstances I have not attempted an analysis of variation within this group and have concentrated on the identification of biological species. The genera recognised are defined by Vanzolini (1951; 1953) and are accepted by Gans.
Subfamily AMPHISBAENINAE

Genus ZYGASPIS COPE


Shreve & Vanzolini, 1951, Herpetologica, 5, p. 115. Type by original designation: Amphibiaenas quadrifrons Peters.

ZYGASPIS QUADRIFRONS Peters

Amphibiaenas quadrifrons Peters, 1862, Monatsb. Akad. Wisse Berlin, p. 25,
Neu Darmen, Barotseland, South West Africa; Boettger, 1887, p. 144
(Noi Xes, near Ghanzi); Boulenqer, 1894, p. 724 (Kalabari); Reux, 1907, p. 82 (Baroteseland); Boulenqer, 1910, p. 472 (Sesheko); Pareaca, 1910, p. 1 (Baroteseland); Werner, 1910, p. 327 (Severeala - Kafia; Several; Vlei Topen); Hewitt & Power, 1913, p. 155 (Mochni); Angel, 1920, p. 614 (Lealun); Cott, 1934, p. 160 (Charr); Pittman, 1934, p. 304; FitzSimons, 1935b, p. 353 (Molepole - Kuke; Canicio; Chukula; Kowwe; Sunnaiide; Ganzbok; Sunnaiide - Mochua Pan; Mabolaipudi - Lake Ngami; Notlawatlogo; Shaleshonto; Kabulukula).

Amphibiaenas capensis Thouinot, 1887, Bull. Soc. Philom. Paris (7) 11, p. 188
Lake Ngami, Bechuanaland.

Amphibiaenas violacea (part), Boulenqer, 1910, p. 472 (Bechuanailand).
Amphibiaenas quadrifrons quadrifrons Leveridge, 1941a, p. 385; FitzSimons, 1943, p. 376.

Amphibiaenas quadrifrons capensis Leveridge, 1941, p. 387 (Chirinda Forest; Mbul); FitzSimons, 1943, p. 377 (Serowe; Masani); Tavman, 1957, p. 36; Broadley, 1962, p. 822.


Seventy-one specimens examined from: BECHUANALAND. Debeeti; Kwebo Hills; 100 mls. S of Mann; 14 mls W of Sohita; SWA - NP Border at 24°S; Toten; Tscw. BUTTERWORTH; Boro; Gilston Estates; 4 mls W of Gwai Bridge; 2 mls S of Kasangula; Kasnour; Lake Miiivaine; Navurudiona Mts.; Mount Bilinda; Maso; 10 mls W of Nyamalhloovu; Oosi; St. Swithin's Block; Saumilla; Shaari - Shashani Confluence; Silverstreams; Victoria Falls and 3 mls W; Wankie National Park - Nyamalhloovu Pen. ZAMBIA. Kalabo; Kasunsu; Livingstone; Muer - Wantipa (IRSNB). MOZAMBIQUE. 8 mls SE of Inharinga.
Literature records. IGISHAHA LAND. Chukudu; Gasmbok; Gomodimo; Kabulala; Kaotwe; Lake Ngami; Mabelapudi - Lake Ngami; Mochudi; Molepolole - Kuko; Motlhathlogo; Nosi Xas; Sererella; Sererella - Kalis; Serowe; Shaleshento; Sunnyside; Sunnyside - Mochudi Pan; Viel Tepan. RHODESIA. Chirinda Forest; Mloko; Mzamul. ZAMBIA. Lelil; Sesheke. MOZAMBIQUE. Charre.

Variation. Annuli on body 194 - 230, on tail 37 - 50; segments in a midbody annulus 14 - 20 dorsol + 12 - 18 ventral = 26 - 38; preanal pores 4.

Coloration. Purple brown above, pink below.

Size. Largest (NM. 8333 - Silverstream) 220 + 36 = 256 mm; NSR. 1220 from Chirinda Forest measures 230 mm from snout to vent (tail truncated).

Discussion. There is certainly a tendency for counts of body annuli to increase from east to west, but there is no definite "stop" in the cline that would justified the recognition of an eastern race. There are some marked differences in counts of body annuli for neighboring populations, e.g. PittsSimons (1935b) gave an average of 217.6 for Kabulala specimens, but two specimens which I collected just over the border in Wankie District have 230 and 227 body annuli. On the north bank of the Zambezi at Livingstone, the range of body annuli for 7 specimens is 217 - 222. Witte (1954, p. 287) records 193 - 219 body annuli for Katanga material and Laurent (1964, p. 34) gives 183 - 195 for a series from Alto Chipasa, north-east Angola.

Enemies. Recovered from the stomachs of the following small carnivores: Bat-eared Fox (Otocyon megalotis) 20 miles W of Rakops; Striped Polecat (Mustela stribata) at Tsen; Yellow Mongoose (Cynictis penicillata) at Tsen; African Wild Cat (Felis libycus) at Sehitwa. One had been eaten by a Calo-

melanus w. ventricosangulatus at Kalabo.

Habitat. Kalahari sand in the west and alluvium on the Mozambique Plain. In the Melsetter and Chipanga Districts of Rhodesia this species lives in red clay soil and specimens from this area are certainly larger than those from sandy substrates.

ZYGASPIE "Higher"

Twenty-seven specimens examined from: ZAMBIA, Kalabo.

Variation. Annuli on body 183 - 203, on tail 46 - 53; segments in a midbody annulus 18 - 22 dorsal + 14 - 16 ventral = 32 - 38; preanal pores 4.

Coloration. Black above, on flanks and ventrum the black is confined to the front half of each annulus, giving a ringed effect, throat white.

Size. Largest (un. 10071 - Kalabo) 375 + 56 = 433 mm; un. 1419 measures 250 mm from snout to vent (tail truncated).

Discussion. This species differs from Z. quadrifrons in coloration and larger size. It also differs from sympatric specimens of Z. quadrifrons in a much lower count of body annuli, i.e. 183 - 203 instead of 218 - 222.

Distribution. Western Barotseland and adjoining Angola (11 specimens from Cago Coutinho District.).

Genus AMPHIBISBAENA Linnaeus


AMPHIBISBAENA VIOLACEA VIOLACEA Peters

Amphibisbaena violacea Peters, 1854, Monatsb. Akad. Wiss. Berlin, p. 520; Inhambane and Lourenco Marques, Mozambique and 1882, p. 85, pl. xiii, figs. 2 - 2h; Boulegger, 1885d, p. 146; Bocage 1396, p. 99; Boulenger, 1910, p. 472 (part - Zululand and Portuguese East Africa); Hewitt, 1910a, pp. 60, 70; FitzSimons, 1930, p. 34 (Lourenco Marques); Love ridge, 1948a, p. 389.


One specimen examined from: MOZAMBIQUE, Lourenco Marques.

Literature records. MOZAMBIQUE. Inhambane; Lourenco Marques; Manhica.
Variation. Annuuli on body 180 - 206, on tail 46 - 59; segments in a midbody annulus 14 - 20 dorsal + 14 - 18 ventral = 28 - 38; preanal pores 4.

Coloration. Pale brown above, pink below.

Size. Largest (Manica, 1954 - Manhica) 147 + 37 = 184 mm.

Discussion. Amphibiames violaceus is the only non-neotropical species in the genus (Vanzolini, 1951, p. 114) and its circumscribed distribution and peripheral position in relation to the more specialised amphiamesnidae of the genus Chirindia are characteristic of a relict group.

Distribution. Southern Mozambique and northern Zululand, extending into the north-eastern corner of the Kruger National Park in the Transvaal.

Genus CHIRINDIA Boulenger

Chirindia Boulenger, 1907, Ann. Mag. Nat. Hist. (7), 20, p. 43. Type by

monotypy: C. swynnertoni Boulenger.

CHIRINDIA SWYNNERTONI Boulenger

Chirindia Swynnertoni Boulenger, 1907, Ann. Mag. Nat. Hist. (7) 20, p. 43,

fig.: Chirinda Forest, Rhodesia and 1910, p. 472; FitzSimons, 1939b,
p. 32.


Amatongas, Mozambique.

Amphibiames bushbri Loveridge, 1941a, p. 397; FitzSimons 1943, p. 383.

Amphibiames swynnertoni Loveridge, 1941a, p. 397; FitzSimons, 1943, p. 382;


Six specimens examined from: MOZAMBIQUE. Mada - Lamego;
15 mls SE of Vila de Manica; 15 mls S of Vila Paiva de Andrada.

Literature records. RHODESIA. Chirinda Forest. MOZAMBIQUE.

Amatongas.

Variation. Annuuli on body 235 - 259, on tail 22 - 27; segments in a midbody annulus 12 - 14 dorsal + 12 - 16 ventral = 24 - 30; preanal pores 0 or 6.

Coloration. Pale brown above, pink below.

Size. Largest (Map. 3568 - 15 mls SE of Vila de Manica) 131 + 16 = 147 mm.
Discussion. Three specimens were collected under stones within a few yards of one another 15 miles south-east of Vila de Manica. The variability of head shields within this population bridges the differences between most of the forms in the genus. Loveridge (1941a, p. 376) separated a northern group (everbeckii, rondoensis and orientalis) from a southern group (hushbrii, suymertoni and langi) on the first lower labials being separated by the postmentals. In one of the Vila de Manica specimens the first lower labials are in broad contact, in the others they are separated. One of the specimens agrees with suymertoni in having the temporals in broad contact behind the postfrontals, in another the temporals meet at a point as in hushbrii, while these shields are separated by two asyggous scales in the third specimen. The eight known specimens of Chirinda from this area are provisionally included under G. suymertoni, although the Vila de Manica series have high counts for both body annuli (249 - 259) and segments in a midbody annulus (14 + 16 = 30).

Enemies. The type of G. suymertoni was recovered from the crop of a Kingfisher (Halcyon albiventris) shot in the outskirts of Chirinda Forest by the late C. F. M. Sulymertoni.

Habitat. Chirinda Forest is on red loam derived from dolerite, where Eumolpus quadrifrons also occurs. The specimens from 15 miles SE of Vila de Manica were under stones lying on sandy soil near the foot of a granite outcrop. The Muda - Lemato specimens had fallen into an oil pipeline trench crossing the Pungwe Flats, this is seasonal swamp. The specimen from 15 mls S of Vila Paiva de Andrade was under a log in heavy Brachystegia woodland growing on granitic sand.

Distribution. Central Mozambique (between the Zambezi and Save Rivers) and adjoining Rhodesia. (See Fig. 9).

Subfamily RHINOCURIDAE

Genus MONOPHELIS A. Smith


MONOPHELIS MAURICAI Parker


Known only from the type in the British Museum (N.H.).
**Two large shields covering head; nasal excluded from lip, but in contact with a small quadrangular ocular; upper labials 3; lower labials 3; chin shields bordering postmental 2; annuli on body 289; on tail 12; segments in a midbody annulus 40 dorsal + 30 ventral = 70; pectorals 6; anal 4; preanal pores 1 + 1.**

**Size.** $127 + 5 = 132$ mm.

**Distribution.** Known only from the type locality. (See Fig. 9).

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**MISOPETUS ANCHITAE (Bocage)**


Missoniti vernardi FitsSimons, 1932, Ann. Tvl. Mus., 15, p. 36 and 1935b, p. 354, figs. 15 and 16; Gomodimo; Bechuanaland, also Eku; Loveridge, 1941a, p. 409.

Missoniti devrei Monardi, 1937, Arqu. Museu Bocage, 8, pp. 65, 69, fig. 3, no. 3; Mapa, Angola.

Missoniti anchitae Loveridge, 1941a, p. 410; Broadley, 1962a, p. 823.

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**Five specimens examined from: RHODESIA. 4 mls. W of Gwai Bridge; Lupane District; Saurills; Woodvale (Dulawayo).**

**Literature records.** BECHUANALAND. Gomodimo; Kgokong - Kang; Eku; Nossob River; Palapye Road.

**Variation.** Two large shields covering head; nasal excluded from lip, not reaching ocular; upper labials 3; lower labials 3 (2 in one Lupane specimen); chin shields bordering postmental 2 - 4; annuli on body 182 - 224, on tail 9 - 12; segments in a midbody annulus 20 - 28 dorsal + 16 - 26 ventral = 36 - 54; pectorals 4 - 6; anal 4; preanal pores absent.

**Coloration.** Purple-brown above, pink below.

**Size.** Largest (UK. 2718 - Lupane District) $260 + 13 = 273$ mm.
Discussion. Loveridge (1941a, p. 425) suggests that *M. anchietae* and *M. capensis* are conspecific. In Rhodesia *M. anchietae* is immediately distinguishable from *M. capensis* by its dark dorsal coloration and lack of preanal pores, in addition to its two head shields. These characters do not hold good in other areas, but here there appear to be two good sympatric species.

Habitat. Kalahari sand.

Distribution. Angola, South-West Africa, northern Cape Province, Bechuanaland and western Rhodesia. (See Fig. 9).

**MONOPELTIS OCULARIS** FitzSimons.


Four specimens examined from: BECHUANALAND, Dikgomo - di - Kae; 10 mls W of Naboone. ZAMBI. Seake; Shaka-longa (Kafue National Park).

Variation. A single large shield covering head; nasal excluded from lip, but in contact with ocular or a small preocular; upper labials 3; lower labials 3; chin shields bordering postmental 2; annuli on body 286 - 298 (300 in type), on tail 12 (15 in type); segments in a midbody annulus 34 - 38 dorsal + 20 - 22 ventral = 54 - 60; pectorals 6; anal 4; preanal pores 1 + 1.

Coloration. Uniform pink.

Size. Largest (MSH. 3498 - Seake) 245 + 11 = 256 mm.

Habitat. Kalahari sand.

Distribution. Western Zambia, south through Bechuanaland to the northern Cape Province. (See Fig. 9).

**MONOPELTIS CAPENSIS CAPENSIS** A. Smith

*Monopeltis capensis* A. Smith, 1843, Ill. Zool. S. Africa, Capt., p. lvii; "Latitude 24°S" (i.e. near the Limpopo River in the western Transvaal); FitzSimons, 1943, p. 392 (Kwalapye); Broadley, 1962a, p. 823.

Forty-seven specimens examined from: RHODESIA. Kariba Lake - Bumi, Charara and Sanyati Confluences; Inkezi Bridge; Lupane; Mana Pools Road; Mudzi Bridge; Wankie. ZAMBI. Jeki.
**Literature record.** BUCHEMUALAND. Mahalapye.

**Variation.** A single large shield covering laxa; maxal excluded from lip, not reaching the ocular; upper labials 3 (rarely 2); lower labials 3; chin shields bordering postmental 4 (rarely 3); analii on body 174 - 218 (210 - 250 in four specimens from Bumi Confluence, Kariba Lake), on tail 8 - 12; segments in a midbody annulus 18 - 24 dorsal + 14 - 20 ventral = 32 - 44; pectorals 4 - 6; anals 4; preanal pores 1 + 1 (rarely 0 + 0 or 2 on one side).

**Coloration.** Pink dorsum speckled with pale brown posteriorly, upper surface and tip of tail grey-brown.

**Size.** Largest (UM. 485 - Lukosi Bridge) 270 + 13 = 283 mm.

**Discussion.** I have previously (1962d) noted some geographical variation in counts of body annuli for Rhodesian material. The very high counts for four subadults from Bumi Confluence is remarkable, for normal counts of 208 - 210 have been recorded for specimens from the Shungati area only 30 miles away. It appears that the poor dispersal powers of these animals results in the development of demes and consequent "mosaic variation" rather than smooth elines. It means that caution must be exercised in evaluating differences between samples.

**Habitat.** Alluvial sand overlying paragneiss and sandstone in Wankie and Kariba Districts. Moisture content of sand inhabited by Kapeni specimens was 5% (i.e. of dry weight).

**Distribution.** Southern Angola, South West Africa, northern Cape Province, north-western Orange Free State, eastern Bechuanaland, western Transvaal, Rhodesia and southern Zambia (Zambezi Valley). It extends down the Zambezi to within 55 miles of Feira, so may reach Mozambique in the Zambe area. A population has recently been found at Mpalai Bridge (Ustali District), which is further evidence for the extension of Kalahari sands to the Subi - Odi valley during at least one interpluvial.

The range of *M. capensis* almost completely encircles central Bechuanaland and Barotseland, a region occupied by *M. ocularis* (See Fig. 9). The ecological relationships of amphibians present some interesting problems.

**Monopeltis habensichti** FitzSimons 1937, Mon. 3, 7, p. 276, Fig. 3 - 5; Lourenço Marques, Mozambique; Leveridge, 1941, p. 426; FitzSimons, 1943, p. 394; Ross, 1952, p. 6 (Munhica).

No specimens examined.
**Literature records.** MOZAMBIQUE. Lourenço Marques; Manhiça.

**Variation.** A single large shield covering head; nasal bordering lip, not reaching the ocular; upper labials 3; lower labials 3; chin shields bordering postmental 2; annuli on body 265 - 277, on tail 9 - 11; segments in a midbody annulus 24 - 26 dorsal + 18 ventral = 42 - 44; pectorals 6; anal 4; preanal pores 1 + 1.

**Coloration.** Uniform pink.

**Size.** Largest (TM. 3400 = Lourenço Marques) 236.5 + 8.5 = 245 mm.

**Habitat.** Coastal alluvium.

**Distribution.** Southern Mozambique, sympatric with *Mesophenorhynchus* (See Fig. 9).

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**MONOPELTIS**

**SINGORHYNCHUS**

Peters

**Monopeltis capensis** (not A. Smith) Peters, 1854, p. 620 (Inhambane).

**Monopeltis sphenorhynchus** Peters, 1879, Konatsh. Acad. Wiss. Berlin, p. 275;

Inhambane, Mozambique, and 1882, p. 87, pl. xiii A, figs. 1 - 3; Boulenger, 1894, p. 455 (Zambezi; Shire Valley); Bosage, 1896, p. 99;

Bewitt, 1910a, pp. 60, 70; Loveridge, 1941a, p. 427 and 1953a, p. 233;

Broadley, 1962a, p. 826.

**Monopeltis decorteri** Boulenger, 1910, Ann. S. African Mus., 5, pp. 472, 495; Delagoa Bay, Mozambique; FitzSimons, 1937b, p. 377, figs. 6 - 9; Loveridge, 1941a, p. 426.

Eighteen specimens examined from: RHODESIA. Birchencough Bridge; Chipinda Pools; Chiredzi; 40 mls. S of Fort Victoria; Lundi Bridge; Ngundu; Manetsi; Runare; Sabi - Lundi Confluence; Triangle.

**Literature records.** W.LAW (†). Shire Valley. MOZAMBIQUE. Delagoa Bay; Inhambane; Zambezi River.

**Variation.** A single large shield covering head; nasal bordering lip, not reaching the ocular; upper labials 2 - 3; lower labials 2 - 3; chin shields bordering postmental 2 - 4; annuli on body 193 - 229, on tail 9 - 12; segments in a midbody annulus 16 - 26 dorsal + 14 - 20 ventral = 30 - 42; pectorals 4 - 6; anal 4; preanal pores 1 + 1.

**Coloration.** Uniform pink.

**Size.** Largest (UK. 2535 = Birchencough Bridge) 255 + 14 = 269 mm.
**Discussion.** *H. decorti* differed from *H. sphenorhynchus* only in having three lower labials and is invalidated by the great variability in both upper and lower labials shown by the present series.

**Shmetics.** The largest specimen was recovered from the stomach of a *Xenocalamus transvalensis*.

**Distribution.** Central and southern Mozambique and south-eastern Rhodesia. Possibly extends up the Shire Valley into southern Malawi. (See Fig. 9).

**Genus **TOMIROPHTIS** Laurent**


**TOMIROPHTIS LONGICAUDA (Werner)**


*Dalophia Longicauda* Loveridge, 1941a, p. 432.

*Dalophia Ellenbergerti* Loveridge, 1941a, p. 433.

Twenty specimens examined from: HECHUANALAND. Temafupi.

Teau. ZAMBIA. Kalabo.

**Literature record.** ZAMBIA. Lealui.

**Variation.** A single large shield covering head; nasal excluded from lip, in contact with ocular; upper labials 3; lower labials 3; chin shields bordering postmental 4 (rarely 5); analii on body 320 - 332, on tail 37 - 45; segments in a midbody annulus 14 - 20 dorsal + 12 ventral = 26 - 32; pectorals 6; analis 6; no preanal pores.

**Coloration.** Centre of each segment opaque white; see redescription of type (Loveridge, 1941a).

**Size.** Largest (Wil. 7911 - Kalabo) 365 + 72 = 437 mm.
Discussion. As pointed out by Loveridge (1941a), *ellenbergerti* differed from *longicauda* only in its count of tail annuli, 43 - 45 instead of 38. In a series of eighteen specimens from Kalabo (30 miles from the type locality for *ellenbergerti*) the range for tail annuli is 37 - 43, so *ellenbergerti* must be placed in the synonymy of *f. longicauda*.

Enemies. The remains of one specimen were found in the stomach of a Striped Polecat (*Jasovx striatus*) at Tsau. A large specimen was recovered intact from the stomach of a Rhinoceros *grus* from Kalabo.

Habitat. Kalahari sand.

Distribution. Barotseland and northern Bechuanaland, extending along the Chokwe River into South West Africa. (See Fig. 9). This species is sympatric with *T. pistillum* in Barotseland and seems to be the commoner species, R. G. Japp having collected 13 *longicauda* and only 9 *pistillum* at Kalabo.

**TOXIREPTILS PISTILLUM** Boettiger


*Pelechis distill us* Loveridge, 1941a, p. 434.


*Toxiroptilis pistillum* Broadley, 1962a, p. 825.
Thirty-five specimens examined from: NEVHUANALAND. 20 mls N of Tsumafui. ZAMBIA. Charuma Plateau; Del.; Det.; Kapasi and 6 mls NE; Kariba Lake - Bush and Sanyati Confluences; Karoi; Lusulu; Mano Pools Road. ZAMBIA. Chalwenga River; Kabembo; Kalabo; Katete; Livingstone; 15 mls NE of Lundazi; Pendela River; Zambezi River at 13° 01' S; 24° 44' E.

Literature records. ZAMBIA. Lealui; Sesbaha. MOZAMBIQUE. Beira; Cia; Lumbo.

Variation. A single large shield covering head; nasal excluded from lip, extending back towards ocular, which it may or may not reach; upper labials 3; lower labials 3; chin shields in contact with postmental 4 (rarely 5); anals on body 276 - 337, on tail 22 - 28; segments in a midbody annulus 13 - 25 dorsal + 10 - 16 ventral = 23 - 42; pectorals 6 (rarely 4); anals 4 - 6; no preanal pores.

Coloration. Colourless, scales not white-centred as in T. longicauda.

Size. Largest (UK. 10076 - Kalabo) 560 - 72 = 632 mm.

Discussion. Laurent (1964a, p. 37) has suggested that this species should be split into three sympatric species - T. distillum, T. sussakien and T. colorba, distinguished by number of body annuli, relative length of tail and arrangement of chin shields. I think that one must allow for considerable intraspecific variation in wide-ranging amphibi similar and all the available material can be included in a single monotypic species.

Breeding. A Lumbo 9 laid 4 eggs measuring 26 to 35 x 3 to 9 mm on 20th September, two other 9 each held 4 eggs in August (Loveridge, 1920).

Diet. Gott (1934) found insect remains, probably beetle larvae, in one of his Oria specimens.

Enemies. Adult specimens were recovered from the stomachs of a Xenopelus mus, mochni from the Balovales District and a Xenopelus m. inermis from Kalabo.

Habitat. The Kapasi specimens were within 2 - 3 inches of the surface in sandy topsoil above paragrade.

Fig. 9. Distribution of some species of Amphisbaenidae.
- Chirinda avynortonii
- Monopeltis mauricii
- Monopeltis anchietae
- Monopeltis ocularis
- Monopeltis capensis capensis
- Monopeltis habenichti
- Monopeltis sphenorhynchus
- M. haberichti and M. sphenorhynchus
- Tomopeltis longicauda