

## MORE OF THE HERPETOFAUNA IN THE COMMONWEALTH (ETHIOPIAN ZONE)

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*This article has been developed from some slides shown at the end of the 39th AGM on March 18th 1986*

The African Continent and Indian Ocean Islands include several Commonwealth countries (listed in full in the 118th (1986) Edition of *Whitaker's Almanack*) and constitute zoogeographically the Ethiopian zone. Darlington (1957) defined the Ethiopian zone as Africa, less its north-western corner, and optionally southern Arabia. However, many Western Palaearctic species penetrate northern Africa so that the Sahara Desert, straddling the boundary of the two zones, in effect forms a barrier to faunal exchange, but with the Nile Valley as an escape valve for some subSaharan, Ethiopian forms to extend northwards.

Apart from a private first visit to the Seychelles Islands and neighbouring Africa in 1970, HMG's Overseas Development Administration (ODA) has provided me with the opportunity since 1977 to visit several of the countries of eastern and southern Africa, primarily to investigate the biology contributing to the control of several insect crop pests. As at the 38th AGM of the BHS in 1985 (Lambert, 1985), slides shown hopefully gave an idea of the range of amphibians and reptiles that one might casually observe during cursory inspections of their habitats and, without undue skill or expertise, have the chance to photograph. The herpetology in general of the countries visited is also considered here.

### INDIAN OCEAN ISLANDS

#### Seychelles (October 1970)

The Seychelles became an independent member of the Commonwealth in 1976. But in 1970, there was no airport on the main island of Mahé and the islands were still a British Colony with a Governor, at that time HE Sir Bruce Greatbatch. An earlier Governor, Sir John Thorp, coined the early description of the islands as being "1000 miles from nowhere"! Sadly, he drowned on the Seychelles in the 1950s at Grand Anse when saving his two children from a dinghy that had been taken by a current out to sea. Earlier, in the 19th century, General Gordon, later of Khartoum, visited these granitic islands and was so impressed that he described them as the original Garden of Eden. This thought was perhaps invoked by the curious and rather pudendoid or 'venusian' - looking female nut-seed of the endemic coco-de-mer tree *Lodicea maldivica*, whose double coconut is the largest seed in the world, and the rather phallic appearance of the male cone or inflorescence, the species being dicecious; reminiscent perhaps of Adam and Eve! The coco-de-mer trees grow in a tall forest in the Vallée de Mai on Praslin, making up one of the Mahé group of islands. Port Victoria, the capital on Mahé, could, in 1970, only be reached by ship from Mombasa in Kenya or from Karachi or Bombay on the Indo-Pakistan subcontinent. From "East Africa", the crossing involved four days of wallowing across the Indian Ocean. The voyage of the B & I Liné ship took in Durban - Lorenzo Marques (now Maputo) - Dar es Salaam - Mombasa - Port Victoria - Karachi - Bombay, giving some idea of the cross-section of passengers also travelling Bunk Class! Nowadays, swelled by package tourists bringing in hard currency, there are direct flights from London on Tuesdays.

One's first sight of the Seychelles from an eastbound ship is in the westernmost island of Silhouette, appropriately named as it arises above the horizon, capped with its characteristic greyish-white whig of clouds. Anchored off Port Victoria, a tender took the passengers to the quay of the small capital town, with its bustling local market of fish and brightly coloured tropical vegetables. Port Victoria even boasts a botanical garden.

*Aldabrachelys (Geochelone) gigantea* or *Dipsochelys elephantina* (Bour, 1984) - several giant tortoises were kept in an enclosure in the botanical garden. They were frequently chastised by children riding piggy-back on them. These tortoises had been brought to Mahé from Aldabra

Atoll in the south where a recent census (Bourn & Coe, 1978) has estimated the population at around 150,000. The tortoises have also been introduced to other islands, sometimes experimentally and for exhibition purposes in the Seychelles (e.g. Curieuse and Frigate Is).

*Mabuya sechellensis* – the endemic Seychelles skink is very abundant and seen active all over the Mahe and Praslin groups of islands. It scuttles over and amongst the half-buried granite boulders strewn with a tangle of tropical creepers and other vegetation. Honegger (1966) produced the first comprehensive survey of herpetofauna, but, in a useful chapter of a book, Cheke (1984) reviews our knowledge of the lizards on the Seychelles, drawing together information based on several collections and from a range of recently published papers.

*Mabuya wrightii* – a bigger skink than *M. sechellensis*, its presence on the islands correlates well with the absence of rats. It is also associated, as a scavenger, with sea bird colonies, like *M. sechellensis*, and quantitative information has been produced for Cousin I. (where there is a permanent warden and field station) which gives populations of 50,000 and 20,000 for *M. sechellensis* and *M. wrightii*, respectively. The density of *M. sechellensis* is up to 3600 ha<sup>-1</sup> and for *M. wrightii* 1300 ha<sup>-1</sup>.

*Ailuronyx sechellensis* – a large endemic gecko, which is only common on rat-free islands. Together with *M. sechellensis* at 20 g each (72 g ha<sup>-1</sup>) and *M. wrightii* at 80 g each (104 g ha<sup>-1</sup>), the 225 ha<sup>-1</sup> for *Ailuronyx* (34 g; 7.6 g ha<sup>-1</sup>) adds up to a remarkable lizard biomass supported by the sea bird colony of 184 kg ha<sup>-1</sup>! On Aldabra Atoll, by way of comparison, giant tortoises range from 35.5 to 583.5 kg ha<sup>-1</sup> on Grande Terre or South Island (Coe et al., 1979), a mean of 353.9 kg ha<sup>-1</sup>.

An identification key to the geckos of the Seychelles has recently been published by Gardner (1985), who gave an account of the herpetofauna in general at the BHS meeting in February 1986 (Gardner, 1986). The best known of the Seychelles island lizards are probably the green day geckos of the genus *Phelsuma*. Previous attempts have been made to classify this genus (e.g. Loveridge, 1942; Mertens, 1962, 1966), but since these are best understood when alive in their full bright green colouration (unlike discoloured museum material), Cheke (1982) has successfully re-appraised their taxonomy.

*Phelsuma sundbergi* – a Seychelles endemic, the nominate subspecies occurs on Praslin and other of the north-west granitic islands of the central Seychelles group and is the biggest (snout-vent length 75–95 mm), and was seen abundantly on forest trees and in coconut plantations. *P. s. longinsulæ* (snout-vent length 55–68 mm) was seen in houses on Mahe, while *P. s. landiguensis* (snout-vent length 60–78 mm) occurs on La Digue and other of the north-eastern granitic islands, and was seen near the island's government rest house.

*Phelsuma astriata* – the other species of green day gecko on the Mahe and Praslin groups of islands. The nominate subspecies occurs on Mahe and Silhouette, and is abundant on forest trees, coconut plantations and bananas. It is a smaller species than *P. sundbergi* and separated from the other species by keeled scales on the chest and at least the anterior of the belly. *P. a. semicarinata* was photographed on a banana plant on Praslin and it also occurs on La Digue, where it is abundant on trees, rocks and in houses, several individuals remaining active after dusk catching insects from around the light of a naked veranda bulb in the guest house. Gardner (1984) has considered the biology of this species and *P. sundbergi* in more detail.

*Gehyra multilata* – a nocturnal gecko, introduced, and together with *P. a. semicarinata*, was on the ceiling above the naked light bulb of the Rest House veranda on La Digue. It is a common gecko that is usually associated with houses and is grey-pink in colour.

*Scelotes gardineri* – finally of the lizards (not photographed), a single individual of this species of litter dwelling skink was observed one morning at the edge of the track near the summit of La Digue.

*Chelonia mydas* – the green turtle. A tethered individual that had been speared was seen lying upside-down at the bottom of the small motor launch which returned one from Cousin to Praslin. The species is now protected in the Seychelles.

*Ptychadena mascareniensis* – of the amphibia, the Mascarene frog has been introduced to the

Seychelles from the African mainland. An individual was caught and photographed at the end of the climb down from the Morne Seychellois. It was observed jumping amidst thick grassy vegetation.

*Sooglossus sechellensis* – a small frog, probably this endemic species, was caught on the Morne Seychellois mountain, which is normally, and was when visited, covered by cloud. The frog was on the heavy mossy layer that develops amongst the exposed roots and bases of low trees in the mist. It is a member of the *Sooglossinae*, a group of frogs unique to the Seychelles.

*Hypogeophis rostratus* – the Seychelles are one of the few places in the world where caecilians (Apoda – limbless burrowing amphibia) are common and successful. Two specimens of probably this, the commonest, species were caught in a lowland roadside stream near the Vallée de Mai on Praslin. Superficially very like an earthworm, the larger, a 150-mm long, individual was found under a half-submerged slab of rock. The few specimens collected on the Seychelles, including a number of *Scelotes* skinks passed over by Malcolm Penny (then Warden on Cousin), have been deposited in the BM(MH) spirit collection and the *Phelsuma* and other lizards were used by Anthony Cheke for his research interests (Cheke, 1984).

#### Mauritius (May 1981)

Mauritius is another island further south than the Seychelles in the Indian Ocean, and an independent member of the Commonwealth since 1968. Like the Seychelles, Mauritius was under French occupation until 1810. The island enjoys a sub-tropical maritime climate, but is subject to cyclones which hit the island at irregular intervals with demonic force between January and March. Sugar cane cloaks the island wherever the land is flat. Rats have devastated the herpetofauna, except on Round Island to the north-east. Here, the skink, *Leiolopisma telfairii*, and gecko, *Phelsuma guentheri*, survive in quite large numbers together with a species of boa. Both lizards have been captive-bred in Jersey Zoo. (Bloxam & Tonge, 1980; Tonge, 1985) and Gerald Durrell provides an entertaining description of their first capture in *Golden bats and pink pigeons* (1977). In fact, both he and his wife, Lee, together with his assistant, John Hartley, were on Mauritius in May 1981, and later that year, in October, John Hartley talked about their expeditions to Mauritius at a BHS meeting. These two lizard species are in effect ecologically equivalent to *Mabuya wrightii* and *Ailuronyx sechellensis* on Cousin I. in the Seychelles.

*Dipsochelys elephantina* – several Aldabran giant tortoises, as in the botanical gardens on Mahé in the Seychelles, were being exhibited in an enclosure in the Pamplemousse Botanic gardens. Two other giant tortoise species and other recently extinct reptiles from Mauritius and neighbouring Reunion have been described by Nick Arnold of the BM(NH) (Arnold, 1980).

A further visit to Mauritius is anticipated in 1987 and hopefully this will provide the opportunity to describe the herpetology and herpetofauna in more detail, and outline current activity.

#### EASTERN AND SOUTHERN AFRICA

##### Kenya (October 1970 and five subsequent visits, 1977-85)

Back on the mainland of Africa, Kenya, with Nairobi the capital, has been an independent member of the Commonwealth since 1963. Nairobi's Snake Park is situated opposite the National Museums of Kenya off Museum Hill.

*Crocodilus niloticus* – besides a variety of snake species in vivaria and concrete-lined pits, there was in 1970, and probably still is, a pen with a large shallow concrete pool and wire-netting around containing a single large African crocodile. A notice attached to the netting indicated that "Visitors throwing litter into the crocodile pit will be required to retrieve it". Extraordinarily, the enclosure was remarkably free of rubbish! Such is the reputation of the African crocodile.

Arthur Loveridge was for some years Curator of Reptiles at the Museum and I have outlined his part in the development of herpetology in East Africa previously (Lambert, 1984), together with contributions from some other herpetologists. Dr Robert Drewes, Chairman of the Department of Herpetology at the California Academy of Sciences, who was on sabbatical leave at the University of Oxford in 1985, has also worked on the herpetofauna and collected extensively in northern Kenya and elsewhere in recent years. The resident herpetologist presently at the Museum is Alex Duff Mackay. He has worked recently on the amphibia (e.g. Duf

Mackay, 1980) and collaborated with Miss Alice Grandison at the BM(NH). With his wife, Joy, he has just published (1985) a small (4 x 5½) handbook *Poisonous snakes of eastern Africa and the treatment of their bites*. The book took shape over many years and is aimed at enabling anyone to identify all the front fanged snakes (also two back-fanged ones known to be very venomous) of tropical eastern Africa. The principal basis for identification is the detailed line drawings of each species together with a brief account of any features which define them. The handbook describes three groups of snakes; I: back-fanged snakes (two species, including the vine snake, *Thelotornis kirtlandii*, whose accidental bite killed the great German herpetologist, Robert Mertens, in 1975); II: snakes with immovable front fangs (ten species, including the cobras and mambas), and III: snakes with folding front fangs (nineteen species, including the puff adder and other vipers). There is a section on the treatment of snake bite and recommendations for a snake bite outfit. I am sure this little book will prove useful, although, of course, one will have to see what happens in practice, especially in the habitats where local people live and snakes abound in eastern Africa. With a simple means of identification, this handbook might go some way towards preventing the wanton killing of "all" snakes, since no naturalist likes to see animals, including venomous snakes, summarily executed as sadly is so often practiced in most parts of the world, even if the main threat to species is really the destruction or irreversible change of habitat.

#### **Tanzania (October 1970 and five subsequent visits, 1977-85)**

I have described my herping in Tanzania during a visit in 1983 previously (Lambert, 1984). An earlier visit of much longer duration was made in 1978 (March to May) when a forecasting trap network for the African armyworm moth was set up in the eastern half of the country. Alice Grandison of the BM(NH) had collected in the Usambara mountains before this while based at Lushoto and was taking an interest in the frogs of the genus *Nectophrynoides*, which are found at high altitudes (above 2000 m). Concentrating on the amphibia, I made a small collection in the Poroto mountains to the south-east of Mbeya and just north of the northernmost part of Lake Malawi. Just 5 km before Isongole, a dirt track going east led into the Rungwe Forest Reserve with mixed pine and deciduous trees. A small toad basking in the diffuse sunshine (it was 9th April and during the long rains) at the edge of a shrubby area in open grassland was collected and later identified as a juvenile *Nectophrynoides vivipara*, the Rungwe viviparous toad (BM 1980:297). It is an arboreal species which, as its name suggests, gives birth to live young, and at about 2500 m was about 6 km west of Mt. Rungwe summit (2961 m).

A further visit was made to Tanzania in November 1985. Journeying overland by Land Rover from Nairobi, across the now-open border at Namanga into northern Tanzania and thence via Arusha (at the foot of Mt. Meru) and Moshi (at the foot of Mt. Kilimanjaro - Africa's highest mountain) to Dar es Salaam (a distance of 913 km), one breaks for a night at Moshi. Departing from Lyamungu Research Station (coffee) the next morning (16.xi), a big, freshly-killed cobra, probably *Naja nigricollis*, lay on the side of the drive. The tarmac road continues through an area of dry country between Moshi and Korogwe formed in the rain shadow on the south-west side of the North and South Pare and Usambara mountains. Almost invariably, one sees a tortoise clicking its way across the road, especially in the vicinity of Same, an area between the North and South Pares.

***Kinixys belliana*** - Bell's hinged tortoise, probably the commonest species of tortoise in eastern Africa. A specimen was photographed 16 km north of Same. In 1978 (19.iii), another adult was seen in almost the same spot (14 km north of Same)!

***Geochelone pardalina*** - the leopard tortoise, two half-grown individuals were seen (19.iii.1978) on the road during a sunny morning after a night of heavy rain 38 km north and 8 km south of Same. About six adults of this same species were also later seen in an enclosure in the Oyster Bay Hotel in Dar.

***Bitis arietans*** - a heavy-bodied puff adder was seen dead (26.xi.85) at the side of a murrem road 38 km north of Kilosa. There was a sisal plantation to either side of the road which at the time was being control-burned. The snake had presumably been flushed out by the fire and killed with a pangas by one of the plantation workers.

The short rains broke late in 1985 and during the afternoon just after a very heavy storm

(30.xi), the flooded, near impassable murrem road through savannah country between Morogoro and Kilosa was almost alive with frogs, probably *Rana oxyrhynchus* and *Ptychadena anchietae* jumping in cohorts across unflooded sections. These were followed by their potential food, termites, in flying swarms, their dispersal brought about by the rain. Their fat-filled bodies left opaque oily smears behind the hard-worked windscreen wipers of the Land-Rover which only detergent added to the sprayer water removed.

*Psammophis subtaeniatus orientalis* – two juvenile southern stripe-bellied grass snakes, one of which was collected (BM 1985: 1270), were found inside and by the bungalow (24.xi) providing a base at Ilonga Research Station, Kilosa. They were identified using FitzSimon's (1980) *A field guide to the snakes of southern Africa*, London: Collins.

Earlier in 1985, Hercules Pakenham drew my attention to his paper (Pakenham, 1983) on the herpetofauna of Zanzibar and Pemba Islands off the Tanzania coast. This is a useful paper worked up over many years, and based largely upon the author's own collecting and observation from 1938 to 1948, supplemented by museum material. Agricultural Officers and the Superintendent of Prisons sent in specimens turned up by their working parties! The author was initially encouraged in this work by no less than Arthur Loveridge.

### Malawi (March-August 1977)

Malawi has been a member of the Commonwealth since independence in 1964 and is among the smaller of the countries in Africa. Formerly the Nyasaland Protectorate, the country stretches along the western shore of Lake Malawi; and down the escarpment from the Shire Highlands, the Lower Shire Valley forms a tongue into Mozambique and almost reaches the Zambesi River. Herping expatriates have left their mark, including Sweeney (1961) on the snakes and again none less than Loveridge (1953a, 1953b) on both the amphibia and reptiles from his fifth collecting expedition to Africa. Steward (1967) produced a most useful work on the amphibia and Stevens (1974) published an annotated check list for south-eastern Malawi. Since my visit, Simon Tonge & Morgan (1984) have listed species that they recorded in southern Malawi. While based just off the Blantyre road 13 miles (21 km) from Zomba at Makoka Research Station for six months, I took the opportunity to visit much of the country, although time for making observations on the herpetofauna was limited by involvement with organising the completion of an ODA project on the use of sex pheromones to control the red bollworm of cotton. The rainy season, lasting until early May, was followed by cool weather with occasional Chiperoone mists in the Blantyre/Zomba region from damp, warm air from the east rising up the Thyolo Escarpment into the Shire Highlands (1000-1500 m). A small collection was made, concentrating on the amphibia, especially during the rainy season, and notes were taken on the species seen.

*Xenopus muelleri* – a single individual of Mueller's clawed toad was seen in an ornamental garden pond by Chitipa Inn at Chitipa (formerly Fort Hill) in northern Malawi (5.viii).

*Bufo maculatus* – this common African toad was frequently seen at Makoka and several were collected (BM 1978: 856-858) by the bungalow used as a base and one on bare ground by an experimental cotton plot with a waterlogged area nearby 1 mile (ca. 21) north of Masawa.

*Rana angolensis* – eight males of the dusky-throated frog were collected (8.v) in water at the edge of the Mulunguzi Dam on Zomba Plateau at about 2000 m (BM 1978: 839-845). The frogs were basking in the sun (14.30-15.00 h) and jumped into the water upon being disturbed where they could be photographed without difficulty.

*Ptychadena oxyrhynchus* – a male and two other sharp-nosed ridge frogs were observed (29.vi) jumping into the water or deep grassy vegetation by the side of a small dam at Makoka. One was collected.

*Ptychadena chrysogaster guibei* – two yellow-bellied ridged frogs were collected in long grass by a stream (BM 1978: 846-847), into which they jumped when disturbed while basking in morning (10.50-11-15 h) sunshine, at Kapalassa Farm, 2 miles (3 km) north of Namadzi (4.v).

*Ptychadena mossambica* – a specimen of the Mozambique ridged frog (probably this species) was collected with the two *P. c. guibei* above (BM 1978: 848).

*Phrynobatrachus parvulus* – a small frog of this species was collected (BM 1978: 853) on an area of mud by the water's edge of the small dam at Makoka (28.iii) at night (22.00 h). Other frogs were calling – pink-pink-pink, probably *Arthroleptis stenodactylus*, and urrk-urrrk, probably *Hyperolius pictus*, which was collected three days later here. The small lake formed by a dammed stream at Makoka provided irrigation water to areas of crops (maize, bananas) in the vicinity.

*Phrynobatrachus moorii* – a specimen of this frog was collected (BM 1978: 850) and two more seen at the edge of a field of recently cut grass one morning at 11.30 h (6.iv); Kapalassa Farm, 2 miles (3 km) north of Mamadzi. Two more frogs, probably also this species, were also collected here the next day (BM 1978: 854-855), and also on the bungalow lawn at dusk (17.00 h) two days after rain (30.iv) at Makoka (BM 1978: 851-852).

*Arthroleptis stenodactylus* – after hearing the common squeaker (probably) in the Makoka dam earlier, an individual was collected (31.iii) on the bungalow lawn at night (21.30 h) with the sky clear and a heavy dew (BM 1978: 849).

*Leptopelis angolensis* – the Angola tree frog was only seen once. An individual with a bright green dorsum and dark blotches laterally was photographed after being found one morning on the bungalow lawn damp from dew at Makoka (30.iii), and was collected (BM 1978: 867).

*Hyperolius pictus* – after hearing the call probably of the variable montane sedge frog three evenings earlier, an attempt was made to find the species in the Makoka dam. Three recently metamorphosed juveniles were collected (BM 1978: 859-861) with tails not completely resorbed. The adult had yellow and brownish-gold longitudinal stripes on the dorsum, reddish orange line markings on the hind legs, light green between the eyes and yellow vocal sac. Later (23.iv), three more were caught on grass stems by the edge of the dam when heard calling during the day (BM 1978: 862-864).

*Hyperolius parallelus albofasciatus* – an adult of the white-banded sedge frog was found in a rain gauge supported by a four-foot (118 cm) wooden post on the bungalow lawn at Makoka, resting during the heat of the day (21.v); and individuals on other occasions were collected in the garden (4, 14, 20, 27 and 29.vi, 1.vii), three also in the rain gauge! The dorsum was greyish-white and the undersides of the fore and hind feet, and inner surfaces of the thighs, calves and tarsi of the latter were red (BM 1978: 856-858).

*Hyperolius* sp. – two froglets with pale brown dorsum and slight hour-glass markings were found at night (20.45-22.00 h) on blades of grass by the Makoka dam (BM 1978: 865-866), but have not been identified.

A few reptiles were also recorded in Malawi.

*Pelusios sinuatus* – the serrate terrapin; a half-grown individual probably of this species was found on the road between Mangochi and Monkey Bay, Lake Malawi, by an American biologist visiting the lake with his family who was working at Chancellor College (University of Malawi) in Zomba. He kept the creature in a small vivarium.

*Kinixys belliana* – an individual of Bell's hinged tortoise was kept in a large wired enclosure attached to the house of Kapalassa Farm, not far from Mamadzi. The animal had been found by a local Malawian. Tortoises are seldom seen in Malawi for they are eaten. A colleague also recently saw a full-grown individual (2.iii.1986) on the road 15 km north-west of Mangochi.

*Hemidactylus mabouia* – the common house gecko was seen in the eaves of the bungalow veranda at Makoka (30.iv) and was collected (BM 1978: 873).

*Hemidactylus platycephalus* – this common gecko was caught on the ground amongst leaves from a grove of trees by buildings (8.viii) about 400 m from the shore of Lake Malawi at Karonga in the north of the country.

*Lygodactylus capensis* – a single Cape dwarf-gecko was found in the rain gauge (23.iv) on the bungalow lawn at Makoka where four *Hyperolius parallelus albofasciatus* were found on other occasions (BM 1978: 874).

*Agama kirkii* – Kirk's rock agama, several, probably of this species, were seen on rocks by

Otter Bay, near Cape Maclear, Lake Malawi (19.vi) and again on boulders by the Livingstone (Kapuchiri) Falls of the Shire river as it flows down the escarpment in the Majete Game Reserve (18.vii).

*Chamaeleo dilepis* – a single flap-necked chameleon was caught on the branch of a tree by one of the field officers of Makoka Research Station just by an experimental field cage (18.v). Another individual was also once seen on the road between Zomba and Liwonde. It is a common African species and has been used as the logo for the first World Congress of Herpetology (1989).

*Mabuya quinquetaeniata* – a rainbow rock skink was caught on the floor of a laboratory at Makoka (24.iv). The tail was blue in colour (BM 1978: 875) and the body with pale stripes.

*Mabuya striata* – the common striped skink is often seen by and on buildings. One was caught on a laboratory outside wall at Makoka (25.iv) and collected as an example (BM 1978: 876).

*Mabuya varia* – the variable skink, another common skink in eastern Africa, an individual was collected (21.iii) after being seen in a patch of grass between maize and cotton plots at Mfumba Farm (Admarc Estate), Lunzu, 10 miles (16 km) north of Blantyre (BM 1978: 877).

*Varanus niloticus* – the Nile monitor. A big individual was disturbed amongst the rocks by Otter Bay, near Cape Maclear, Lake Malawi (19.vi). It crashed through the bushes and dived with a noisy splash into the lake. Another big animal behaving in a similar way was seen the same afternoon on Mumbo I. (also known as Elephant I.), 5½ miles (9 km) offshore from Cape Maclear.

*Typhlops schlegelii dinga* – the Zambesi blind snake, normally subterranean and typically occurring in this part of Africa, was found (8.iv) on the open surface of a muddy path through a grassy area one morning (09.45 h) at Makoka and a half-grown specimen later, at night (19.50 h), on the bungalow lawn (BM 1978: 880-881). The weather was dry, there had not been rain for 11 days.

*Natriciteres olivacea* – olive marsh snake, a dead snake of probably this species was on a track at Makoka (20.vi) not far from the dam. A very damaged specimen, just recognizably of the same species, had been found in nearly the same spot two and half months previously, and another, a road-kill, by the side of the main road 7 miles (11 km) kwest-north-west of Liwonde (24 miles (38 km) kfrom Zomba) not far from marshy ground (18.vi).

*Lamprophis (or Boaedon) fulliginosus* – two juveniles of the common house snake were seen by the side of the bungalow veranda at Makoka.

*Dendroaspis angusticeps* – the green mamba, one half-grown individual was seen on the zomba Plateau (1500-2000 m) on a track that proceeded through mixed coniferous and broad-leaved forest (7.viii). It is essentially an arboreal species and bright leaf green in colour. The venom is barely half as toxic as the black mamba's.

*Bitis arietanas* – the puff adder, an individual was seen on a murrem road passing through the Wallace Estate, 3 miles (5 km) south-west of Thondwe (13.vi). It was lying on the warm road at dusk (18.00 h) when the air was only 16°C. As still as a log in the poor light of dusk, it was stepped over and promptly arched its neck ready to strike! This snake was reported to be abundant on the hillside by the Thondwe women's seminary! It is treated with much "respect" by local Malawians. Another big individual was later seen (18.viii) dead by the side of the road just outside the town of Karonga in northern Malawi. It is a common snake in eastern Africa.

A visit was made one weekend to Mulanje Mountain (11.12.vi). On the Lichenya Plateau (1200-1600 m), small green lizards which could not be identified were seen on rocks and several large tadpoles, probably of *Arthroleptis stenodactylus*, were to be seen in small pools of streams.

Material collected has been deposited in the BM(NH) collection, the first collection from Malawi since material was received in exchange from Arthur Loveridge of the Agassiz Museum at Harvard University, and I am grateful to Alice Grandison for identification of the amphibia.

### Zimbabwe (June-July 1981)

Formerly Southern Rhodesia and then simply Rhodesia with the independence of Zambia (Northern Rhodesia) in 1964, Zimbabwe became an independent member of the Commonwealth as recently as 1980. The leading herpetologist in Zimbabwe, even southern Africa, is undoubtedly Dr Donald Broadley (BHS Honorary Life Member 1983), who is Curator of Herpetology of the National Museums and Monuments, situated at Bulawayo since 1981. Other active herpetologists include Dr J.P. Loveridge at the University of Zimbabwe, Harare (formerly Salisbury), and David Blake, who was certainly still at the Department of National Parks and Wildlife Management, Causeway, Harare, in 1981. Undoubtedly through the influence and international reputation of Don Broadley, a substantial interest in herpetology has been taken in Zimbabwe. Issue 10, volume 8 of the *Rhodesia Science News* (October 1974) had a special feature on herpetology with an editorial by Don Broadley, then Keeper of Herpetology when the National Herpetological Collections (from 1961) were in the Umtali (now Mtare) Museum. In this issue, Broadley described current research projects in the Museum and gave a bibliography of his herpetological publications, 1956-74. With Blake, he wrote on a preliminary investigation into the status of the Zimbabwean terrapins, while Blake contributed on account of crocodile (*Crocodilus niloticus*) rearing for commercial and conservation purposes, giving statistics on hatching success and annual stocks held by five rearing stations in Zimbabwe: Kariba Crocodile Farm, Bingi Crocodile Farm, Mini Crocodile Farm (Mubizi) (closed 1969) and Spencer's Creek Crocodile Ranch, Victoria Falls (slides of the last were shown at the BHS AGM on 18th March 1986). John Loveridge contributed an account on overwintering strategies in frogs, referring to his paper (Loveridge, 1970) in which he made the sensational finding that a common amphibian in central Africa *Chiromantis xerampelina* is able to conserve water by excreting its nitrogenous waste in the form of uric acid, like reptiles, as solid crystals in only a little water.

The *Rhodesia Science News*' primarily herpetological issue followed an earlier one (issue 5, volume 8, May 1974) in which the history of the Umtali Museum had been recounted by Broadley, he himself being Curator in 1964 when the Museum was officially opened by Sir Alfred Beit. A description of the departmental activities of the Museum starts with one of the Department of Herpetology from which Broadley's (1959) work was the first major publication to emerge. The amphibian collection was made available to Dr J.C. Poynton for his definitive work (Poynton, 1964). More recently (1983), Broadley has completely revised and rewritten *FitzSimon's Snakes of southern Africa* and Loveridge contributed a paper on thermoregulation in the Nile crocodile to the joint symposium held with the Anatomical Society of Great Britain and Ireland and the Zoological Society of London in honour of Prof. Angus Bellairs on the occasion of his retirement. The symposium proceedings, including Loveridge (1984), were published as a Festschrift volume by Academic Press *Symposia of the Zoological Society of London*, no. 52) and has recently been reviewed in the *Herpetological Journal* (Ricqlès 1986).

Among other herpetologists, John Akester has taken an interest in the captive breeding of Gaboon vipers (e.g. Akester, 1980) and other viperids, and Angelo Lambiris, a long-standing BHS member (now in Pietermentzburg, South Africa), has considered general aspects of the herpetofauna of Zimbabwe (Lambiris, 1980, 1981), having also carried out a programme of investigation at the Atlantica Ecological Research Station, situated about 12 miles (20 km) west of Harare (Lambiris et al., 1981).

The establishment of a Department of Herpetology in the National Museum in 1956 (then at Bulawayo) marked the beginning of intensive studies on the herpetofauna, and in 1957, the Herpetological Association of Rhodesia was founded. This was absorbed into the Herpetological Association of Africa in 1965 with, in 1974, over 100 members.

A check list of the reptiles of the national parks and other conservation areas of Zimbabwe was published in *Arnoldia* 8(35), September 1979, by Broadley and Blake, and included species in the Victoria Falls and Matopos National Parks, which, together with Kyle (Zimbabwe Ruins), I had the opportunity to visit. It was winter and dry, and fewer herpetofauna were seen than one might have expected. Two species were photographed and later kindly identified by Don Broadley himself when he attended a BHS meeting in September later in 1981.

*Mabuya striata wahlbergi* - Wahlberg's striped skink. This is a common species and an individual



was observed (24.vi) mosaic-basking on a tree base in woodland adjacent to the rain forest formed by the spray from the Victoria Falls (known in the local tongue as & "Mosi on Tunya" – the smoke that thunders!). The species is widespread in Zimbabwe, in national parks and elsewhere in southern Africa, like the nominate subspecies.

*Platysaurus intermedius rhodesianus* – Vumba flat lizard. A male was basking (2.vii) at the base of a huge rock by the grave of Cecil Rhodes, founder of Rhodesia, on a flat rock face, part of the Matopos, from which there is a fine view overlooking many miles of dry woodland and rocky terrain as far as the horizon, and described by Rhodes himself as "the World's view". From a colour description, this species was also seen on flat rocks by the Chiwira Estates, about 20 miles (32 km) south of Centenary, to the north of Harare (27.vi).

*Gerrhosaurus major* – the tawny plated lizard. An attempt was made to catch a lizard, probably of this species, as it ran actively across a patch of roadside grass on the Zambian side of Victoria Falls (24.vi).

*Python sebae* – a big 7-8 foot (2.1-2.4 m) rock python was seen on marsh ground by the overflow of an irrigation dam on Tavydale Farm owned by a settler of Belgian nationality (Chevalier Charles de Burbure de Wessenbeek) about 10 miles (16 km) from Mazoe, north-west of Harare (26.vi). The snake proceeded slowly along the edge of the marsh and quietly slid out of view over the lip of the dam into a clump of thick vegetation. Unfortunately, there was no time to photograph it.

This account essentially constitutes a miscellany of herpetological activities that one might become involved with or experience in some tropical developing countries of Commonwealth Africa and elsewhere in the Ethiopian zoogeographical zone. The number of local, or even expatriate, herpetologists in these countries can almost be counted on one hand and yet they cover a vast geographical area with a rich tropical herpetofauna. Cranbrook & Lambert (1983) have already placed down some ideas on how the BHS can help to further herpetological work in these regions, and in this context, it is important that fellow herpetologists working in often often difficult circumstances in the tropical developing "south", not only in the Commonwealth, should be given every encouragement and indeed the financial wherewithal to enable them to attend the first World Congress of Herpetology in 1989. Fortunately, the Congress is to be held in the U.K., a country which happens to have links with the tropical developing world through the medium of the Commonwealth.

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