

African Snakebite Institute Herpetological Association

HERP BULLETIN



Number 2
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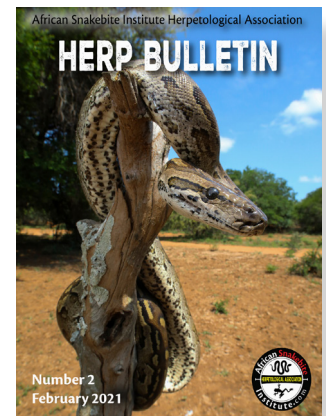


Background - dorsal view of
the Geometric Tortoise
(*Psemmobates geometricus*)



Become a member!

Send an email to
Fin@asiorg.co.za
to join the ASIHA.
This will give you access to the
ASIHA Herp Bulletin a month
before its public release.
We can also assist members with
keeping permits for reptiles in
South Africa.



Submissions

We welcome editorial and
photographic submissions to
the newsletter. If you have any
interesting articles about African
reptiles or amphibians, please
send the article to
Snakes@asiorg.co.za



WELCOME

talk on reptile husbandry, which clearly got those in attendance thinking. Our next meeting will be early in 2021. We hope to add meetings in Durban and Cape Town in the coming year.

We welcome submissions from our readers and are always interested in receiving records such as noteworthy field observations, range extensions, unusual colouration in species, breeding records, male combat records, road cruising statistics and snake removal data, as well as writeups on interesting field trips, book, and equipment reviews. Such submissions can be emailed to Luke Kemp – snakes@asiorg.co.za

The ASI Herpetological Association, although new, is well established and our first bulletin was well received. We've had fantastic feedback from enthusiasts and professional herpetologists and the Herp Bulletin has been downloaded hundreds of times from the African Snakebite Institute website since its release in September. Our first meeting at Cradle Moon Lakeside Lodge in Muldersdrift was really well attended with over 50 delegates present. Dr Robert Campbell delivered a fascinating

In a short space of time the ASIHA has grown to be one of the largest herpetological associations in Africa and our main objective is to bridge the gap between the more scientific associations like the Herpetological Association of Africa and reptile enthusiasts. In addition to full membership, which is a requirement should you wish the ASIHA to assist with the application and signing off of keeping permits for indigenous reptiles, we also welcome corresponding members. Such members will receive the Herp Bulletins and membership for them is free.

With most of the country having had a large amount of rain recently, we are expecting to see a plethora of reptiles and amphibians on the move in the next few weeks and are looking forward to a busy summer with a number of field trips and night cruises before the colder months arrive.

The ASI Herp Bulletin team

A venomous Western Cape Berg Adder
(*Bitis atropos*)





Image - Luke Kemp

Thanatosis - the art of playing dead

Thanatosis, death-feigning or playing dead has been recorded in a number of snake species throughout Africa. Most notably in the Rinkhals (*Hemachatus haemachatus*), which is a master of thanatosis. When threatened and escape is not an option, this snake will form a hood and spit its venom in defence. If this does not deter the attacker, these snakes are quick to roll over onto their backs, often with the mouth agape. This is done in the hope that the attacker will get bored or feel as if the fight is over and leave the snake alone - a useful strategy to avoid predators and stay alive.

Some reptiles, such as Monitor Lizards are known to play dead. Geckos are known to wiggle their tail in the hopes of distracting predators, in order to escape. Snakes such as the Common Purple-glossed Snake (*Amblyodipsas polylepis*) are known to hide their heads under the body and raise the tail in the air to fool predators into thinking it's the head. An attack to the tail would allow the snake to survive and possibly escape. Bibron's Blind Snakes (*Afrotyphlops bibronii*) are also known to travel short distances in reverse. Their stubby tails look similar to the head and may confuse predators and cause them to attack the tail instead.

Often a reptile or amphibian may be turned onto its back and take a while to right itself - this is not thanatosis and generally these animals are cold or severely stressed. Thanatosis is a natural reaction where the animal either becomes limp or rolls over itself.

This article will look at a selection of other snakes that have been observed displaying thanatosis.

Cross-marked Grass Snake (*Psammophis crucifer*) - Ryan van Huyssteen & Melissa Pedford

On the 16th of May 2018, at 9:00 am, we found an adult Cross-marked Grass Snake (*Psammophis crucifer*), underneath a rock on top of a mountain near Sabie, Mpumalanga, South Africa. The conditions were misty and cold and the temperature was roughly four degrees Celsius. While photographing the snake, it began to curl up as if it was going to roll into its characteristic cylindrical defence position, but then dropped its head on the ground and exhibited what looked like thanatosis. After a few minutes it continued to coil up and remained in that position until released.



Speckled Shield-nose Snake (*Aspidelaps s. scutatus*) - Paul Swanapoel

At 19:15 on the 7th of December 2020, I was cruising a section of dirt road near Sekhukhune in Limpopo. A male Speckled Shield-nosed Snake (*Aspidelaps s. scutatus*) measuring around 440 mm was found crossing the road. Whilst the snake was being photographed it was classically defensive and struck out readily for the first couple of minutes whilst trying to escape. The snake started to calm down and I got a few pics. After that, the snake rolled over with the mouth agape, moving slowly on its back with the tongue occasionally flicking. The snake was released in thick bush and remained in this state until I moved off.



Snouted Cobra (*Naja annulifera*)

- Luke Kemp

At 10 am on the 23rd of June 2019, we released a Snouted Cobra (*Naja annulifera*) removed by Riaan Horn from Pretoria north. The snake made a hood and attempted to escape. We handled the snake in order to get pics. After a short while the snake became limp with its mouth open, shamming death. The snake made no movements and only become lively once it had been placed in thick bush, after which it moved off. This same observation was made by Johan Marais in Gaborone, Botswana with a freshly caught Snouted Cobra. The snake rolled the head over and opened the mouth.





Cape Cobra (*Naja nivea*)

- Johan Marais

In 2014, while near Langebaan, Colin Tilbury and myself caught an adult Cape Cobra (*Naja nivea*) crossing a road. We placed it in a clearing of vegetation close by to photograph it, but the snake immediately rolled over with its mouth open. We tried to right it, but it would turn upside down again. After taking several photographs of the snake playing dead we put its head into some vegetation and the snake immediately slithered off. This was the first time that we had observed this species playing dead.

Mozambique Spitting Cobra (*Naja mossambica*) - Kevin Nel

At 6pm on the 22nd of October 2020, I received a callout to remove a juvenile 50cm Mozambique Spitting Cobra (*Naja mossambica*) in a kitchen cupboard in Hennops River, Centurion, Pretoria. During the capturing process, it hooded and spat – typical behaviour for a Mozambique Spitting Cobra. On releasing, I was taking a photograph for record purposes and was handling the snake which continued to hood and spit. At this point it rolled its head and assumed the shaming dead pose as seen in other species of snakes. When touched it assumed its normal defensive position, was aggressive and defensive and then assumed the same shaming dead pose a few times. On releasing it, it proceeded to slither off into the bush. I have captured numerous Mozambique Spitting Cobra of all sizes and this is the first time I have encountered them faking death.



Herald Snake (*Crotaphopeltis hotamboeia*)

- Sheldon Victor

On the 6th of October 2020, I was called to remove a Herald (*Crotaphopeltis hotamboeia*) from residents house on the Kansanshi Golf Estate in Solwezi, North West province of Zambia. When I first caught the snake, it put on quite a show, striking out and flattening the head. When I was releasing the animal a bit later, it started behaving strange, curling itself until it was upside down and went limp. It eventually moved off into the bush.

Natal Black Snake (*Macrelaps microlepidotus*)

- Chad Keates

In late 2018, I accompanied Werner Conradie on a trip to southern KZN/northern Eastern Cape, in search of forest-adapted herpetofauna for a project headed by Stellenbosch University. One morning, whilst rummaging for Rain Frogs (*Breviceps sp.*) in the soil adjacent to a tree, I found and uncovered the body of a snake. I wrapped my fingers around its midbody and pulled it out. To my surprise, it was a Natal Black Snake, one of the target animals for the trip. We bagged the shiny black snake and brought it back to the accommodation to gather genetic material and morphological measurements. Whilst in our care, I decided to snap some pictures of the animal and retreated to a quiet corner of the bed and breakfast grounds. However, when

I put the animal on the ground, its behaviour changed immediately. The animal rolled over, opened its mouth and pushed its tongue out. It was displaying thanatosis, and no matter what I did I could not coax the animal back to life. The theatrics ranged from mild wriggling movements to body rolling and tongue flicking.





HISTORICAL NOTES ON A PUFF ADDER (*Bitis arietans*) BITE

Text and images by **Stephan Spawls**

On 13th May 1970 while based in Nairobi, Kenya, I was bitten by a 75 cm male Puff Adder shortly after 16h00. The snake originated from the plains south of Nairobi and had been in captivity for nearly two months. I was 17 years old at the time, my height was 1.75m and weight 65kg.

Normally, if it was necessary to handle Puff Adders, I would restrain the snake with a grab stick and hold its head with a pair of tongs, but on this occasion, I simply pressed the head down with the tongs. As I brought my hand near the snakes' head it jerked free and managed to insert a single fang into the fleshy part of the bottom joint of my right index finger.

Immediate dull pain was felt. I tied a bootlace

around the finger while a friend prepared a syringe of antivenom (Behringwerke North and East African Polyvalent) and three x 2ml injections were made into the tissue around the bite. I was taken by car to Nairobi Snake Park, and while travelling I injected a further 4ml of antivenom into my inner forearm. At around 16h45 the bootlace was removed, and I was advised to go to Nairobi Hospital. The pain was dull, similar to that felt a few minutes after a blow from a blunt instrument.

Once at the hospital I was seen by a doctor at around 17h15 who examined the bite and assured me that Puff Adder bites were not fatal. I was given a tetanus injection and discharged. The finger joint had turned purple and was oozing watery blood. That night the pain

became increasingly worse. Initially, it felt as though the hand was being crushed and later as though the hand was being struck by a hammer. By dawn my hand and forearm had swollen to twice their original size, the skin was tight and shiny, and the entire finger was surrounded by a violet blood blister. It appeared as though a small elongate purple balloon was attached to the hand. I was readmitted to Nairobi Hospital that morning and received a pain-killing injection but no other medication. That night the blood blister burst, revealing a raw red finger which had turned greenish-black around the puncture site. The swelling remained but the pain had subsided somewhat, although it increased considerably if I moved or tried to bend the arm.

Over the following four days the swelling decreased and the wound was treated each day by removing necrotic, gangrenous tissue from around the bite. The tendon sheath had become exposed and it was decided to attempt a pedicle skin graft. A flap of skin was partially excised from my abdomen and stitched to the exposed area of the finger. The graft was detached from my abdomen after four tedious weeks, during which time I had to walk with my right hand attached to my abdomen. The graft initially looked healthy on my finger however my hand was very weak; the arm was painful to flex, and the finger would not bend. I commenced a course of physiotherapy but after the third session the fingertip swelled enormously and on examination the graft was found to have turned black and swollen. The decision was made to amputate the finger, this took place on the 13th July, two months after the bite. The only after-effect was, for several months, an irritating phantom pain as though the finger was present and had something lodged under the nail. The amputated finger was donated to the Nairobi Hospital Medical School for use by the students.

In retrospect this was a poorly managed bite. Although I have no history of allergy, injection of antivenom while not under close medical supervision is a dangerous thing to do. Likewise wrapping the bootlace around the finger is not advised, and both probably contributed to the subsequent gangrene. The hospital should not have discharged me after the tetanus injection but kept me in. The doctor had dealt with Puff Adder bites; he had practiced at Nakuru where this snake is not uncommon. His experience was that antivenom was unnecessary and routine wound treatment could be delivered to an outpatient, but in my case the severe local damage and extreme pain demanded an immediate admission.

As Dr Colin Tilbury has remarked, people tend to survive their snakebites despite treatment.



Above - The author's hand many years after the bite.

ABOUT THE AUTHOR

Stephan Spawls has published a number of books on African herpetofauna and his adventures in Africa including the classic *Sun, Sand and Snakes*, *Dangerous Snakes of Africa* and *Field Guide to East African Reptiles*. He has worked on a number of other reptile and amphibian papers and has lectured widely on the topic.

AFRICAN REPTILES AND AMPHIBIANS

Breeding Records

Common Long-tailed Seps (*Tetradactylus tetradactylus*) ~ Johan Marais

Common Long-tailed Seps (*Tetradactylus tetradactylus*)
Females lay two to four eggs in summer (Branch, 1998). On 6 November a female laid two eggs measuring 10 x 6,3 and 10 x 6,8 mm.

Reference

Branch B. 1998. A Field Guide to Snakes and other Reptiles of Southern Africa. Struik Publishers.



Wahlberg's Snake-eyed Skink (*Panaspis wahlbergii*) ~ Johan Marais

Females lay 2 – 6 oval, white eggs (7-9 x 4-5 mm) in November-December (Branch, 1998). A female produced six eggs measuring 8,9 x 5,9; 7,5 x 5; 7,9 x 5,6; 7,8 x 6; 7,8 x 6,2 and 7,9 x 5,7 mm. The eggs are soft-shelled and dehydrate quickly once exposed.

Reference

Branch B. 1998. A Field Guide to Snakes and other Reptiles of Southern Africa. Struik Publishers.



Large-scaled Grass Lizard (*Chamaesaura macrolepis*) ~ Johan Marais

Females give birth to 6 - 8 babies (Branch, 1998) in March. A small female caught in November dropped two babies during a photographic session.

Reference

Branch B. 1998. A Field Guide to Snakes and other Reptiles of Southern Africa. Struik Publishers.



Snouted Cobra (*Naja annulifera*) ~ Johan Marais

Females lay up to 40 eggs measuring 47-60 x 25–35 mm (Marais, 2004). A captive female laid 9 eggs measuring 53,5 x 32; 56 x 28; 50 x 31; 62 x 30; 64 x 29; 63 x 31; 56 x 29; 54 x 31; 51 x 39 mm. Incubation period was 60 days at 27.5 C.

Reference

Marais, J. 2004. Complete Guide to Snakes of South Africa. Struik Publishers.





A male Guttural Toad (Sclerophyrus gutturals) with extended vocal sac.

A REVIEW OF TYPICAL TOADS OF SOUTH AFRICA

Text and images by **Luke Kemp**

South Africa has seven typical toads distributed across the country. In this article we will look at these seven species plus the common Red Toad. Many of these animals are common in urban gardens and can be tricky to identify. They are large toads, averaging around 10 cm in length. These typical toads are robust and squat and generally quite granular and rough looking. They commonly have symmetrical patterns down the back and prominent parotoid glands behind the eyes. This gland can exude a sticky, white toxic fluid that generally deters most predators. Occasionally dogs will harass toads and the dogs end up foaming at the mouth. This is not life-threatening but may

make the dog a bit sick.

The calls are all series of harsh croaks sometimes compared to snoring. These toads often have large congregations in fishponds or bodies of water where the males will either call from concealed positions in vegetation along the bank or out in the open on the edge of the water or even occasionally whilst floating on the water's surface.

The females leave long strings of eggs in the water after mating. These eggs and the dark tadpoles are predated by a large number of aquatic animals including fish, dragonfly larvae, waterbirds and snakes.

The hatchling toads are small replicas of the adults.

Raucous Toad (*Sclerophrys capensis*)

One of the most common toads in South Africa. This species occurs in the wetter eastern and southern regions of the country from Limpopo south to KwaZulu-Natal and west to the Western Cape. It occurs in the Free State and follows the Orange River into the Northern Cape.

It is a large frog, reaching around 11 cm in

length. A light tan to dark brown colour with dark symmetrical patterns down the back. Animals in the Western Cape are often a bit darker with bright red on the head. Some animals have a pale stripe down the back. The markings on the head form a dark bar between the eyes.



Raucous Toad (Sclerophrys capensis) from Lanseria (left), Drakensberg (top right) and Stellenbosch (bottom right).

Guttural Toad (*Sclerophrys gutturalis*)

One of the most common toads in South Africa. This species occurs in the eastern and northern parts of the country, from northern Eastern Cape, through KwaZulu Natal and north into Limpopo. It occurs in the Free State and eastern Northern Cape and follows the Orange River west.

It is a large toad, reaching 12cm in length. It occurs in a range of colours from tan to red and pink, through to dark brown and almost black. There is often a pale stripe down the

back with dark symmetrical patterns. There are red infusions on the back legs. The males often have yellow on the throat/vocal sac during the breeding season.

A dark form Guttural Toad with the vocal sac extended. Note the yellow on the vocal sac.





Guttural Toad (*Sclerophrys gutturalis*) from Heidelberg (left), Ezemvelo (top right) and Blyde River (bottom right). Note the red infusion between the back legs.

Flatbacked Toad (*Sclerophrys pusilla*)

Found in the north-eastern corner of South Africa including Mpumalanga, Limpopo and the northern corner of KwaZulu Natal.

This is the smallest typical toad, reaching a length of 8 cm. They are light brown to dark brown and sometimes almost orange in

colour. Darker markings on the head create a pale cross between the eyes. There is usually a thin, pale stripe down the back. There is no red infusion on the back legs and the parotoid gland is very reduced. Males have darker throats that may have some yellow.



Flatbacked Toad (*Sclerophrys pusilla*) from Tshipise (left), Barberton (top right) and eSwatini (Swaziland) (bottom right).

Eastern Leopard Toad (*Sclerophrys pardalis*)

Found along the coast and slightly inland in the Eastern Cape just extending into the Western Cape and the edge of KwaZulu Natal. The largest typical toad in South Africa, reaching almost 15 cm in length. They are

light brown with attractive red symmetrical patterns down the back, often with black and yellow edges. The dark marking on the head often forms a bar between the eyes. The parotoid glands are large.



Eastern Leopard Toad (*Sclerophrys pardalis*) from Grahamstown (left) and Port Alfred (right).

Western Leopard Toad (*Sclerophrys pantherina*)

Found along the Cape Peninsula and Cape Flats from Cape Town to around Gaansbaai in the Western Cape.

A large toad reaching 14 cm in length. They are light brown to yellow in colour with attractive red or maroon symmetrical patterns down the back and a pale yellow line down the spine. They have a dark bar between the eyes that is usually broken by the yellow vertebral stripe. The snout and large parotoid gland are

often lighter red in colour. This is one of the few endangered frogs in South Africa. They are common in urban gardens in the greater Cape Town area. Many are killed by passing vehicles whilst crossing the road at night. Due to this, there are conservation organisations that run volunteer projects to remove toads from roads at night and place them in nearby habitat away from roads.



Image Johan Marais



Western Leopard Toad (Sclerophrys pantherina) from Constantia (left), Bergvliet (right).

Western Olive Toad (*Sclerophrys poweri*)

Found in western Free State, into the Northern Cape, North-west, Gauteng and western Limpopo.

A medium sized toad reaching 10 cm in length. They are light brown to olive green in colour with dark brown or red patterns down the back which may be symmetrical

or randomly scattered. There may be a pale vertebral stripe. There are two dark markings between the eyes that do not form a bar and no markings on the snout. There is red infusion on the back legs. Foot length is less than 40% of the body length.



Western Olive Toad (Sclerophrys poweri) from Postmasburg (left), Augrabies (top right) and Nylstroom (bottom right).

Eastern Olive Toad (*Sclerophrys garmani*)

Found in eastern North-west, Gauteng and Limpopo, parts of Mpumalanga and northern KwaZulu Natal.

A medium sized toad reaching 11.5 cm in length. They are light brown to olive green in colour with dark brown or red patterns down the back which may be symmetrical or

randomly scattered. Some specimens are very dark, and the pattern is hardly visible. There may be a pale vertebral stripe. There are two dark markings between the eyes that do not form a bar and no markings on the snout. There is red infusion on the back legs. Foot length is more than 40% of the body length.



Eastern Olive Toad (Sclerophrys garmani) from Pafuri (left), St Lucia (top right) and Hoedspruit (bottom right).

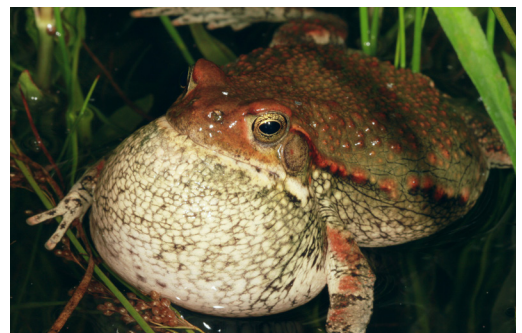
Red Toad (*Schismaderma carens*)

Found from the border of the Eastern Cape through KwaZulu Natal and into Mpumalanga, Limpopo, Gauteng, North-west and the northern Free State.

A medium sized toad of around 9 cm length. They are brick-red to tan or darker brown in colour with a pair of spots on the back. There is a ridge of skin running from the eye to the back leg that is usually dark brown or black in colour with red or light orange above it. The

sides are grey becoming white towards the belly. There are no parotoid glands present.

Males often call whilst floating on the water. Mating may also take place in the water.





Red Toad (*Schismaderma carens*) showing colour variations from the same area (Pretoria).

Follow the key below to help with easy identification of typical toads in South Africa. Start with question one, and follow the number at the end of the row to help distinguish key features of each species. If the feature does not apply, move onto the next question.

Key to typical toads of South Africa

1. Ridge of skin from the eye to back leg..... Red Toad (*Schismaderma carens*)
2. No ridge of skin present.....3
3. Pale cross between the eyes..... Guttural Toad (*Sclerophrys gutturalis*)
4. No pale cross between the eyes.....5
5. Solid dark bar between the eyes.....Raucous Toad (*Sclerophrys capensis*)
6. No solid dark bar between the eyes.....7
7. Obvious parotoid gland.....9
8. No obvious parotoid gland.....Flatbacked Toad (*Sclerophrys pusilla*)
9. Red infusion on backlegs..... 13
10. No red infusion on backlegs.....11
11. Found in the Eastern Cape..... Eastern Leopard Toad (*Sclerophrys pardalis*)
12. Found in the Western Cape..... Western Leopard Toad (*Sclerophrys pantherina*)
13. Foot less than 40% of body length.....Western Olive Toad (*Sclerophrys poweri*)
14. Foot more than 40% of body length.....Eastern Olive Toad (*Sclerophrys garmani*)

ABOUT THE AUTHOR

Luke Kemp is a zoology graduate from Rhodes University and a herp enthusiast that has travelled extensively in South Africa finding and photographing reptiles and amphibians. He has published a number of short articles on reptiles and amphibians in South Africa.



SURVEYING NIASSA RESERVE, NORTHERN MOZAMBIQUE

Text and images by **Johan Marais**

Back in 2003 the late Bill Branch invited me to join him and Mo Rödel on a month long trip to northern Mozambique to do a herpetological survey of Niassa Reserve, the largest protected area in Mozambique.

Niassa Reserve which has the Ruvuma River forming its northern border south of Tanzania, had around 14,000 elephant, 13,000 Sable antelope and thousands of people scattered throughout the reserve in villages. It seems that the bulk of the elephant have been poached for ivory in recent years.

With many years of civil war in Mozambique, the herpetofauna of the country was poorly researched with just about no records of what occurred in Niassa.

We left Johannesburg at 07:45 on 13 October 2003 in my Toyota Landcruiser, heading for Maputo. Bill was employed as the herpetologist at Port Elizabeth Museum and Mo had flown out from Germany – his particular field of interest being amphibians.

We did some last minute shopping on the way - locks, plastic sheeting for the trap lines, a pool net for tadpoles and some batteries. It was a bit of a rush for me – I had just about finished the final manuscript for my book the Complete Guide to Snakes of Southern Africa and the good folks from Struik Publishers were chasing me. My

good friend Graham Alexander kindly agreed to look at corrections and sort out the last bits and pieces in my absence. Bill was trying to explain the rules of cricket to Mo (South Africa was playing Pakistan in a one day international) but I wasn't sure Mo was absorbing much.

Our second stop was Hall's in Nelspruit for fuel and lunch. We had an earlier stop just outside Machadodorp for coffee and some awful dry wors.

581 km from Johannesburg. The border crossing went smoothly and was done in under half an hour, despite the fact that we accidentally

checked out of Mozambique instead of entering it. We were booked into the Hotel Monte Carlo, a smart 3-star hotel close to the harbour in a seedy part of Maputo. Took a walk up to Mimmos and had a good pizza meal. Saw some Palm swifts nesting on the hotel premises as well as Common Dwarf Geckos (*Lygodactylus capensis*) on the same palm tree.

14 October. I started the morning early with a walk through town and I had a coffee at Nautilus, the coffee shop opposite the bank which had the shootout during my last visit.

Breakfast at the hotel was very civilized with yoghurt, fresh fruit, cereals and the greasy stuff. We walked over to the agency where we met with Anabela Rodrigues, who gave us a run-down on Niassa Reserve while we sipped on sweet black coffee in a small, air-conditioned room. Niassa Reserve is about twice the size of Kruger National Park – around 42,000 km² and is the second largest reserve in Africa after Selous Game Reserve in Tanzania. There are around 11,000 people living in various villages in Niassa, with 4,000 of them in Mecula. If one includes the hunting blocks there are around 20,000 people in total living in Niassa reserve (now 60,000).

Mo was very concerned as the first rains are only expected quite late in November and it is close to impossible to get a good collection of frogs in the dry season. We had a quick lunch at the sport café in town and I got myself some Mozambique T-shirts. In the afternoon Michelle took us off to air cargo to weigh our baggage and to send some excess baggage as unaccompanied luggage. Our total weight allowance from Nampula to Niassa, including our own weight, was a mere 430 kg! Nampula is the third largest city in Mozambique and is about a two hour flight from Maputo.

15 October 2003. We drove to the agency where we left the Landcruiser with a lot of our excess

luggage. Had to sacrifice my tripod and some other odds and ends. The airport, needless to say, is third world and seats on flights are not allocated. Fortunately, the first leg of the flight to Pemba was not very full and I had three seats to myself. The flight took 2½ hours and we had to spend an hour in a stuffy transit lounge at the airport. The flight from Pemba to Nampula was brief, lasting 40 minutes. From the air the habitat looked devastated by slash and burn farming practices and regular veld fires.

15:00. Got to Nampula and took a taxi to the Hotel Tropical. Dropped our luggage and started scratching around for herps in some vacant land next to the hotel. It is marshy with clumps of banana trees. Saw lots of Rainbow Skinks (*Trachylepis margaritifera*). The males are golden brown and robust while the females and subadult males have blue tails. Most of them were on concrete block walls with convenient holes and crevices for them to disappear into. Bill and Mo walked off and saw Mozambique Agamas (*Agama mossambica*), Striped Skinks (*Trachylepis striata*), Flat-headed Tropical House Geckos (*Hemidactylus platycephalus*), and Common Tropical House Geckos. We also got some Common Dwarf Geckos, quite near the ground on vegetation such as paw paw trees and banana trees. I got a Boulenger's Skink (*Trachylepis boulengeri*) with a rubber band. It was in dense vegetation, close to the ground in shade amongst some banana trees. Bill was quite excited about it. We also got some East African Puddle Frogs (*Phrynobatrachus acridoides*), Plain Grass Frogs (*Ptychadena anchietae*), Rainbow Skinks and I found five gecko eggs in a hole in the ground, probably Common Tropical House Gecko (*Hemidactylus mabouia*) eggs. They were round, white and appeared too large to be Dwarf Gecko eggs.

19:00. Scratched around in the marshland next to the hotel and got some Greater Leaf-folding Frogs

(*Afrivalus fornasini*), 10 small Snoring Leaf-folding Frogs (*Afrivalus crotalus*), 2 Reed Frogs (*Hyperolius sp.*), Guttural Toads (*Sclerophrys gutturalis*), Grass Frogs of the genus *Ptychadena*, some Puddle Frogs (*Phrynobatrachus sp.*), more Dwarf Geckos (*Lygodactylus sp.*), more Boulenger's Skinks, Flat-headed Tropical House Geckos and Common Tropical House Geckos. It was a hot, dry evening. The Leaf-folding Frogs were all found in a clump of banana trees. Most were found close to the ground (< 1 m). The small Snoring Leaf-folding Frogs were abundant with as many as 13 under one leaf stem. Both Reed Frog species were on top of leaves, about 50 cm off the ground, and at the top of the shrubs covering the ground. Both Common Tropical House Geckos were found on the concrete block wall where we saw the Rainbow Skinks during the day. A Guttural Toad was found hopping amongst some leaf litter next to the hotel.

Thursday 16 October. 15:00. Landed at Mbatamila in Niassa. Mecula mountain lies to the north-east and looks quite spectacular, though only about 600 m higher than the surrounding landscape. It's probably about 20 km away. The warden Chandi Baldere, a tall, lean, friendly Portuguese man, met us. A Brazilian youngster Paulo, who had arrived from Maputo the previous day and was staying in Niassa for about two months, accompanied him. Mbatamila camp is civilized with World Wildlife Fund mud huts and various tents erected on raised platforms. There is also a kitchen area, bush shower, long drop and a lounge area that occasionally has bush E-mail that works on radio frequencies. A generator comes on at around sunset, really spoiling the ambience, and runs 'till about midnight. Chandi was off to town the next day and kindly offered to buy us some food. I climbed an inselberg north-east of the camp but the area had been burnt recently and I saw very little, except for some Purple-

crested Louries. Pulled quite a lot of bark off trees but it's very dry. The Furmont stump ripper came in very handy and it must be the finest bit of herpetological equipment ever designed. Managed to get a Dwarf Gecko (*Lygodactylus cf. capensis*) in the camp as well as some Wahlberg's Snake-eyed Skinks (*Panaspis wahlbergii*). Saw some Flat-headed Tropical House Geckos in the lounge area – they seem to be everywhere! Paulo caught a Mozambique Agama in his hut and I got a few Puddle Frogs (*Phrynobatrachus sp.*) in two small ponds close to camp. One of the ponds appears to be the main water source for the camp. Spoke with Chandi who told me that they killed a Black mamba (*Dendroaspis polylepis*) in his office recently and that he had sent the specimen to Maputo. He caught a Flap-necked Chameleon (*Chamaeleo dilepis*) the previous day but had released it in a tree. Mo and I had a quick dart



Above - Twinspace camp on Mecula Mountain

game and ended up one game each. It was good to get to sleep. We had some elephant chewing very close to our tent during the night.

Friday 17 October. Got up around 06:00 and climbed the inselberg west of the camp site. Saw a Mozambique Agama low down on the rocks but it disappeared quickly. Also found two small gecko eggs and collected a large scorpion. Wacked a female Rainbow Skink with a rubber band. It was under a rock on sand but disappeared up a

tree. I had to climb after it. Also got two geckos, possibly the Tete Gecko (*Elasmodactylus tetensis*) and a Speckled Gecko (*Pachydactylus punctatus*). The former was found under a vertical piece of exfoliating rock and the latter under rock on rock with quite a bit of soil present. The walk up the inselberg took about 2½ hours and I was somewhat amazed at the lack of reptiles.

10:00. Mo is busy preparing specimens and is very involved with what he is doing. He places the live frogs in Chlorabutanol to knock them off, then lays them on paper towelling covered in formalin to set the specimens. This is, of course, after he had removed a toe for DNA. Quite a bit of effort is put into posing the specimens, ensuring that all toes are spread out and clearly visible. The vehicle that Chandi had left us was out of order and we ended up spending most of the day in camp with Bill and Mo preparing specimens, mainly those caught in Nampula. Mo prefers to use alcohol when preserving specimens but it's expensive – over R120.00 for a litre. He preserves specimens in 70% ethanol or 50% propanol. DNA samples are

Below - Bill and Mo preserving specimens.



placed in absolute alcohol. Commercial formalin is usually sold in a 40% concentration and that is diluted by adding nine parts water to one part formalin, in other words 10% of the commercial strength or 4% of the actual strength. Formalin therefore works well in the field as you need not carry that much with you. 75% salt added is very good osmotically and will help preserve specimens better. Went out again to find a Variable Skink (*Trachylepis varia*) that I had missed earlier on. It was close to Bill's hut and I got it with a rubber band after doing quite a bit of digging beneath a large rock. Bill got a Mozambique Agama right outside his hut and I got another Wahlberg's Snake-eyed Skink. They are very common in the leaf litter in camp and are most active in the early mornings and late afternoon.

Saturday 18 October. Had some strange sweet pap for breakfast that Paulo made and Bill, Mo, Paulo and I headed out of camp for the big inselberg directly north of the one that I had climbed the previous day. Saw two Tropical House Geckos (*Hemidactylus sp.*) on the way to the inselberg but didn't collect them. Pulled a lot of bark off trees but got nothing. We scratched around along the base of the inselberg on the north-eastern side and Mo got a scorpion. Seems Paulo has the runs as he keeps on disappearing behind a bush. Climbed the northern slope and saw a male Rainbow Skink as well as a Mozambique Agama. At 595 m a.s.l. I removed a piece of exfoliating rock and caught a Speckled Gecko. It was a vertical piece of exfoliating rock with no soil in it. The specimen was dark grey with light spots.

09:45. On top of the inselberg I got a Kirk's Rock agama (*Agama kirkii*). It had an orange-red head and dashed under a large flat rock. I was lucky to get it as I grabbed with one hand while picking up the rock with the other. Also got a Common Tropical House Gecko under a rock in the shade

of some trees. It's 34°C and 932 on the barometer. It was a long walk down and I had used up all of my water. I saw very little on my way down except for two magnificent male Kirk's Rock Rock Agamas in full breeding colours. Their bodies looked bright blue-green and their heads bright orange. They were both very nervous and I didn't get within 20 metres of either specimen.

Walked past Chandi's house and met Keith and Colleen Beggs. The Beggs had been in Mozambique for six months searching for Honey badgers. They told me that the badgers used very little finesse when killing snakes, even Puff Adders (*Bitis arietans*). They lack the agility of other small carnivores such as mongooses and merely close their eyes and rush in, biting. With most snakes, especially Cape Cobras (*Naja nivea*), they just wear their prey down. They often get bitten in the process but appear to have a very high resistance to snake venoms. A badger that was bitten in the chest by a Puff Adder slept for about four hours and had visible swelling on the side of the head, but eventually woke up, ate what was left of the snake and walked off! Badgers move up to 40 km in a night and have home ranges of up to 600 km². They are relentless and suicidally brave, even going up trees to rob prey from leopard. Reptiles make up a substantial part of their diet in the Kalahari with lots of Giant Ground Geckos (*Chondrodactylus* sp.) and Barking Geckos (*Ptenopus* sp.) being dug up. Most of the other lizards, especially lacertids, are probably far too quick for the badgers to catch.

Bill and I made funnel traps from mosquito wire. I could hear Flat-headed Tropical House Geckos calling in the background. Their call is not unlike that of the Barking Geckos but is more of a tika-tika-tika that lasts about three seconds, consisting of anything from 10 – 20 clicks at a time. Common Tropical House Gecko does not call that long, usually just a few tika-tika-tika's. Elephant have become a common sight and walk

past the kitchen area daily. It's usually a cow with two young, probably one of this year and one of last year, or a cow with a single young. Larger groups of elephant are also seen around camp. We had been taking some photographs but the cows are quick to do a mock charge if we get a little too close. Still no sign of Chandi.



Above - Keith and Colleen Beggs, zoologists working on Honey Badgers.

Sunday 19 October. Bill spotted an unusual Dwarf Gecko (*Lygodactylus* sp.) on a satellite dish and we managed to catch it. It has bright black markings dorsally and yellow down the centre of the belly. Mo went off with the pool net to look for frogs and tadpoles and picked up two bee stings in the process. This could be problematic as he is allergic to bee sting. Bill and I went out to set up the trap line, pitfall traps and funnel traps. Mo was feeling very sorry for himself after his altercation with the bees and stayed back in camp. We fixed the plastic sheeting to bamboo stakes at 1,2 m intervals, using a staple gun. The bottom lip of the plastic was folded out and buried, effectively preventing anything from crawling under the plastic. A bucket was buried at either side of the 30-metre trap line as well as one in the middle. At the ends the plastic is extended about 20 cm past the bucket, passing over its centre. Funnel traps were placed on either side of the trap line and covered with leaves for shade. Logs were also placed at an angle at either side of the funnel

traps, steering any crawling creatures towards the funnels. Bill caught a Shovel-footed Squeaker (*Arthroleptis stenodactylus*) and a Dwarf Puddle Frog (*Phrynobatrachus mababiensis*) while we were setting up the traps and Mo, after a brief visit, got a male Mottled Shovel-nosed Frog (*Hemisus marmoratus*). It was hopping about like a toad. Rob got back just after dark and had driven over a 2 m+ Black Mamba. It was around dusk and he already had his vehicle's lights on when he came across the snake. Bill pickled the head, tail with hemipenes everted, and the skin. The carcass was given to the Beggs for their badger traps. We checked the stomach contents of the snake but it was empty.

Monday 20 October. Went out to the traps first thing in the morning filled with anticipation but got very little. A few common frogs that we had already collected, and a bucket filled with army ants. The first trap line had two Dwarf Puddle Frog and a East African Puddle Frog and the second line had one Dwarf Puddle Frog as well as a dried out Squeaker (*Arthroleptis sp.*). It's extremely hot and dry and the reptiles just aren't moving.

On Mbatamila-Matondovela road, about 15,5 km from camp turnoff – stopped at some pools in a drainage line with thicker bush and some water lilies and collected a Broad-banded Grass Frog (*Ptychadena mossambica*) under a log on damp soil about 4m from water. Also caught Flat-headed Tropical House Geckos under bark close to the ground. I saw a Boulenger's Skink but couldn't catch it. It was on the ground in thick grass next to a rotting log, in shade. Mo got various frogs including East African Puddle Frogs and a Dwarf Grass Frog (*Ptychadena taenioscelis*). He uses a plastic bottle with a foam top to catch frogs and it works incredibly well – the transparent plastic bottle is popped over the frog and the foam top used to cut off the frog's escape, in other words from behind.

About 24,7 km from camp turnoff. Stopped at a drainage line with granite bedrock and a few pools in Miombo woodland. Collected one Variable Skink a Snoring Puddle Frog, East African Puddle Frog and Dwarf Puddle Frog. 28.6 km along Mbatamila –Matondovela Road – a deep channel drainage line with leaf-covered water and riverine trees. I got a smallish Water Monitor after quite a chase across some grasslands, during which I slipped and fell twice. I eventually pinned it under my foot just before it disappeared into some water. Also got more *Phrynobatrachus* “red back”, East African Puddle Frog and Dwarf Puddle Frog.

Below - Bill and Mo catching frogs.



Came across a rocky outcrop in Miombo woodland and collected a Variable Skink. Bill saw two Giant Plated Lizards (*Matobosaurus validus*), but they disappeared very quickly. This lizard appears to be very shy as there is a lot of evidence of where they live but they are seldom seen. I don't know how but we're going to have to catch one as it will be quite a range extension for the species, and we need some DNA. Also saw Kirk's Rock Agama, Rainbow Skinks, Tete Fragile-skin Gecko (*Elasmodactylus tetensis*) and what could have been Speckled Gecko eggs.

We worked a drainage line at the southern base of the Namba inselberg. Mo got 3 Dwarf Puddle Frogs, East African Puddle Frog and some red back *Phrynobatrachus*. Bill got four Wahlberg's Snake-eyed Skinks, including two juveniles.

14:00. Back at camp – toast and coffee. It's very hot. Checked the trap line and got one Common Dwarf Gecko in a funnel trap plus two Wahlberg's Snake-eyed Skinks

Night trip to the dambos on the road to Matondovela. We basically collected at one spot only, the second spot that we had visited earlier in the day with water. Got a variety of frogs including East African Puddle Frogs, Dwarf Puddle Frog, Snoring Puddle Frog, *P. sp* (red back), Sharp-nosed Grass Frog, Dwarf Grass Frog, Broad-banded Grass Frog, Flat-backed Toad and Southern Foam Nest Frog (*Chiromantes xerampelina*).

Tuesday 21 October. Checked the traps first thing in the morning but got nothing. Very disappointing and we desperately need some rain to get the reptiles moving. We drove off, heading south for the Lugenda River. On our way we stopped off at Lechengwe village where some women were working in the field. They had killed a small Brown House Snake (*Boaedon capensis*) as well as a Common Wolf Snake (*Lycophidion capense*). Bill paid them 10,000 mc each (about R3.00) for the dead snakes and asked them to keep any snakes that they may come across.

Our second stop was at Rio Incaloue, a dry riverbed where I saw a Giant Plated Lizard disappear very quickly. Also got an Agama with the help of a rubber band. It looks like a juvenile Kirk's Rock Agama and saw Rainbow Skinks. Bill got a Plain Grass Frog and two hatchling Johnston's Long-tailed Lizards (*Latastia johnstonii*) and a Variable Skink. Lots of Wahlberg's Snake-eyed Skinks.

Wednesday 22 October. Bill woke us up well before 06:00. He seriously needs a watch. Some guys left the camp in the early hours of the morning, severely disturbing our sleep. Got another Dwarf Gecko (*Lygodactylus cf. capensis*) in a funnel trap as well as around nine frogs,

all Dwarf Puddle Frogs. So far, the traps have produced around 18 specimens. Saw Wahlberg's Snake-eyed Skinks, Variable Skink, Striped Skink, Southern Tree Agama, and another Agama that looks like Northern Ground Agama (*A. armata*). Went back to Lechengwe Village and upon our arrival we were presented with a dead Semi-ornate Snake (*Meizodon semiornatus*), accidentally chopped in half while hoeing. Also got a chopped-up Herald Snake (*Crotaphopeltis hotamboeia*), a dead Flap-necked Chameleon, one dead Northern Ground Agama (*Agama armata*), a Southern Foam Nest Frog and a Sharp-nosed Grass Frog. We drove on to Mecula village to buy some groceries. In town the villagers brought us some live Flat-backed Toads (*Sclerophrys pusillas*) in a variety of containers. Drove back to Lechengwe Village where there were lots of people, including kids and a great deal of excitement. People had sticks and bags with lots of lizards and frogs. There were at least a dozen Southern Foam Nest Frogs, if not more. Some in plastic bags, others at the end of sticks. Most of these mud and grass houses must have at least

Below - local kids with reptiles hanging from nooses.



one or two living inside during the dry season. A dead Spotted Bush Snake (*Philothamnus semivariiegatus*), Striped Skink, Rainbow Skink, Flat-headed Tropical House Gecko, Sharp-nosed Grass Frog and an Agama sp. as well as a few live Flap-necked Chameleons. More and more kids were arriving with dead lizards and frogs, some jammed in forked sticks and others hanging from nooses like in a Gary Larsen cartoon. It was like a scene from a reptile horror movie.

Thursday 23 October 2003. Bill was up early and checked the traps. He got one Shovel-footed Squeaker, a Dwarf Puddle Frog and a Plain Grass Frog. One of the funnel traps had a large water crab in it and the trap was damaged, possibly by an otter trying to get to the crab. We took the damaged trap with the crab to the airstrip to see whether we could trap the *Agama armata* – thought that the crab may attract enough ants to get the lizard in the trap. Saw Variable Skink and a Southern Tree Agama. I was pulling large chunks of bark off a fallen log and exposed an Eastern Yellow-bellied Sand Snake (*Psammophis orientalis*). Got Bill to give me a hand in getting it as it disappeared under the log. We headed on for the mountain.

On our way up the mountain, we saw a Plated Lizard disappear down a leaf-covered hole next to a tree. Both Bill and I started digging frantically but without success. There were just too many tunnels leading off in all directions and I eventually

Below - A content Mo Rödel in his natural habitat.



had my entire arm down a hole. We unearthed a Sundeval's Writhing Skink (*Mochlus sundevallii*) in the process, which Bill grabbed.

We entered an evergreen forest on an eastern sloping drainage line, which ends up in a hidden valley in the east of Mecula Mountain. It is dense and moist with ferns and swampy areas and trees extending some 40 – 50 metres into the sky. Mo went straight to the first bit of water, the spring that supplies the camp with all its water. He got Common River Frog (*Amietia delalandii*), Squeaker (*Arthroleptis sp. large*); (*Arthroleptis sp. hourglass*); and (*Arthroleptis sp. red*); Mo also found four unknown Puddle Frogs, East African Puddle Frog, Snoring Puddle Frog, Dwarf Puddle Frog and a strange Broad-banded Grass Frog. We then moved over to the western side where we were told there is running water. It's quite different from the previous spot and not nearly as moist. I saw a large skink that looked like Boulenger's Skink but Bill thought that it might have been Speckled-lipped Skink (*Trachylepis maculilabris*) or an Eastern Tree Skink (*T. planifrons*). Will have to get back there and get it. It was running along a fallen branch close to the ground and disappeared down a hole. It was quite a bit bigger than the Boulenger's Skink that I got in Nampula. Also saw a Dwarf Geckos (*Lygodactylus sp.*) with lots of yellow but couldn't get it. Mo got two Argus Reed Frog, two small Squeakers (*Arthroleptis sp.*), one reddish and one with the hourglass-marking, East African Puddle Frogs, Dwarf Puddle Frog and Snoring Puddle Frog. It was a good day and our total herp count is now around 45. We headed back to camp.

Friday 24 October. Bill checked the trap line and got one Shovel-footed Squeaker and one Plain Grass Frog. We found the trap about forty metres from where we had left it, totally destroyed. Some small carnivore ate the crab through the wire mesh and wrecked it. We decided to head north

towards Tanzania on the Nyati road, along the western side of Mecula Mountain heading for the Ruvuma River. Got a Striped Skink and Wahlberg's Snake-eyed Skink and, when we made a u-turn, Adam got a Northern Ground Agama. This road, with its black soil, is going to be impassable in the wet season. Stopped at the bridge builders camp and got a Sharp-nosed Reed Frog (*Hyperolius nasutus*), Painted Reed Frog and an odd-looking Dwarf Gecko (*Lygodactylus sp.*) that Bill caught in an antelope skull stuck on a log. Mo and I drove off to the pond that we had visited earlier where the bridge construction guys had set up camp. We got Sharp-nosed Reed Frog, *H. marmoratus*, Muller's Platanna (*Xenopus muelleri*), Guttural Toad, Flat-backed Toad, Greater Leaf-folding Frog, Plain Grass Frog, Broad-banded Grass Frog, Dwarf Grass Frog, East African Puddle Frogs, Dwarf Puddle Frog and *P. sp.* (red back). It was a good evening's collecting and our species count now exceeded 50. The bridge builders also got us a Mozambique Agama and six Variable Skinks.

Below - more specimens from the local kids.



Saturday 25 October. Got up at 06:30 and Bill, as usual, was wondering around like a lost soul, looking at birds. Was having breakfast when one of the game guards brought us a live Herald Snake without any visible injuries! Drove to Mecula to get some soap, sardines and canned tomatoes. Mo stayed behind to prepare some specimens. Bill spotted a marshy area on the northern side of town, just below the market, with banana trees. We scratched around and I got a small Leaf-folding Frog under the stem of a banana leaf. Also got two pairs of eggs under banana leaves, probably Dwarf Gecko eggs. They were small, white, hard and adhered. Also got two East African Puddle Frogs and two *P.* red back. On the way back some kids in the village had a dead Herald Snake and two Rainbow Skinks while another kid had a dead Eastern Yellow-bellied Sand Snake.

There was another Herald snake hanging in a tree, but it must have been there for a few days and was rotten. The Leaf-folding Frog added a new species for the day.

Photographed some snakes and frogs in the afternoon and then went to a rock outcrop near the airstrip for sundowners. Sunset was spectacular with inselbergs fading in the distance. Drove out west at sunset, hoping to find some snakes crossing the road but nothing. We searched the ponds in the drainage line again, out in the dambos. I wondered off quite far south and got some adult Painted Reed Frogs. Some males were calling about 30 cm above water level. Also got some Sharp-nosed Reed Frog close to the water on reeds and one Dwarf Grass Frog on a lily pad. I then walked off into some grassland and ended up in a stampede with about thirty buffalo around me, most of them less than 50 metres away. It was quite scary with shiny eyes everywhere. I was a bit worried about them heading towards Bill and Mo, but they were far off. On the way back to the other two I had a lonely hyena circling me. Mo heard a Tree Frog (*Leptopelis sp.*) close to where

the vehicle was parked and we tried to home in on it but initially without success. It gave one call about every four minutes and sounded quite high up a tree. Bill joined us and we had our torches off for a while when I heard something plonk onto the ground next to me. It was the Tree Frog and looked somewhat like Uniform Tree Frog (*Leptopelis concolor*) or Bocage's Tree Frog (*L. bocagii*). Other species collected included a Leaf-folding Frog (*Afrivalus* sp.), Sharp-nosed Reed Frog, Sharp-nosed Grass Frog, Dwarf Puddle Frog, East African Puddle Frog, Snoring Puddle Frog, P. sp. (red back), Flat-backed Toad and Mo heard a Southern Foam Nest Frog. Mo missed a sleeping Boulenger's Skink. It was about 30 cm off the ground sleeping in some reeds. This is the same spot that I had missed one previously. We headed back to our vehicle with the hyena again circling us. In one of the furthest ponds, I got a good eye shine from a juvenile Nile crocodile (*Crocodylus niloticus*). I tried to get a better view but it disappeared.

Sunday 26 October. Got up a little late and had a quick breakfast. The trap line produced two Plain Grass Frogs and two Dwarf Puddle Frogs. We then photographed a bunch of frogs, mostly those caught the previous night. Around lunchtime we decided to head up Mecula Mountain. Someone brought in a Brown House Snake from Lechengwe Village.

Below- Yellow-spotted Tree Frog (*Leptopelis flavomaculatus*).



Once on the mountain we went into the evergreen forest directly east of the camp and put a 30-metre trap line in. It had eight funnel traps and three pitfall traps. Also had a quick scratch around and both Bill and Mo each caught a Forest Marsh Snake (*Natriciteres sylvatica*). This is the first time that I have seen this species. They were captured at around 16:30 and both snakes were active, crawling around on the surface amongst leaf litter. There were frogs everywhere, jumping in all directions and even climbing up the plastic of the drift net fence. We went back into the eastern forest once it got dark and the funnel traps already had lots of frogs as well as one Forest Marsh Snake. We heard Tree Frogs calling and quickly caught about half a dozen specimens. They were 50 to 180 cm off the ground and superficially resemble Natal Tree Frog (*Leptopelis natalensis*).

Also got one large Squeaker (*Arthroleptis* sp.) and two Argus Reed Frogs. Bill got a Herald Snake next to his tent. None of the specimens seen so far have any orange or red around the lips.

Monday 27 October. Got up at about 05:15, scratched around a bit and then headed for the traps with a bunch of containers for water – the camp was dry. Some of the funnel traps were bursting with frogs and one had been raided by army ants. There were also two small Forest Marsh Snakes in the funnel traps. While Bill and Mo counted the frogs, I scratched around. Pulling apart a log on some dry ground I got a nice-sized Forest Marsh Snake as well as two Limbless Skinks (*Melanoceps* sp.), that look like shortened Blind Snakes. I also got a Green Water Snake (*Philothamnus hoplogaster*) under a piece of loose bark. It was about 40 cm off the ground and under the bark of a massive log. Also found quite a few gecko eggs in the area, usually around 2 – 6 per location, usually associated with some soil. These eggs looked like Dwarf Gecko eggs, small

and white but not adhered. The traps produced 663 Squeakers (*Arthroleptis* sp. hourglass), 41 Squeakers (*Arthroleptis* sp. red back), three Squeakers (*Arthroleptis* sp. large), five Snoring Puddle Frogs, two Puddle Frogs (*Phrynobatrachus* sp. red back). and the two Forest Marsh Snakes. One of the snakes regurgitated two Squeakers (*Arthroleptis* sp. hourglass). Another 200+ frogs had been killed by ants! The total number of frogs in the traps exceeded 900! It appeared as though driver ants had cleaned the forest and pushed all the frogs through the traps.

Had breakfast and we then walked off into the eastern forest via some rocky outcrops to the south. Mo saw a Plated Lizard but it shot down a hole. I got a Variable Skink, which I chased up a tree and shot down with a rubber band. We then got a few Girdled Lizards, which we later (2005) described as *Mecula* Girdled Lizard (*Cordylus maculae*), all found in rock crevices!



Above - The unknown Girdled Lizard we later (2005) described as *Mecula* Girdled Lizard (*Cordylus maculae*).

Mo spotted a beautiful Giant Plated Lizard in a large rock crack and called for help. It was very dark grey to black with light lines down its back. Bill produced his copper wire/gut noose and noosed the lizard, only to lose it when he pulled it from the rocks as the gut broke. I somehow managed to catch it between the calves of my legs. If it bit me, it may well have got away! I also got a Flap-necked Chameleon about 3 m off the ground in a tree. Next was a Dwarf Gecko

(*Lygodactylus* sp. B), a dark spotted specimen with a bit of yellow underneath. It was close to the ground and even dropped to the ground to escape. Saw very little in the forest on the way back except for a Dwarf Gecko communal laying site in a rotten log, containing around 30 eggs. Common frogs, including *Arthroleptis* and *Phrynobatrachus* were also found on the way back. The afternoon was spent photographing specimens. The *Natriciteres* made no attempt to bite, despite excessive handling to pose them for photographs. Both specimens were quite uncooperative but settled down eventually. One regurgitated an *Arthroleptis* sp.

Tuesday 28 October. Early rise, breakfast and off to clear the traps and fetch water. The traps were not near as full as the previous day and the forest floor seemed much drier. Bill and Mo went further east down the forest while I took water



Above- Forest Marsh Snake (*Natriciteres sylvatica*) were common in the moist eastern forest.

back to camp in the Land Rover. I scratched around in the rocks above the eastern forest and saw a Variable Skink. Pulled a flat rock off another rock and got a Common Tropical House Gecko as well as two eggs. It does appear as though this gecko lays loose eggs while Flat-headed Tropical House Gecko lays two eggs that stick to one another. Went into the forest and got a small Forest Marsh Snake on the prowl at 10:00, also a nice striped *Phrynobatrachus* (red back). Further

down, close to the water and about 90 cm off the ground I got a Tree Frog sleeping under a leaf with its legs tucked in. Mo found a East African Puddle Frog – the first one on the mountain! Bill and Mo found a nice bit of water for an evening visit but no herps.

Went down into the eastern forest again but went further east. Looked in a variety of habitats, desperately trying to find chameleons, but came



Above- One of the strange Tree Frogs found in the evergreen forest.

across very little. Some Tree Frog (*Leptopelis* sp. A), Tree Frog (*Leptopelis* sp. B), Argus Reed Frog and a Common River Frog. A bit disappointing as we will finish our day with no new species. The morning pitfall/funnel trap results as follows: 172 *Arthroleptis* B (hourglass); 8 *Arthroleptis* C (red back); 1 *Arthroleptis* A (large), 4 Snoring Puddle Frogs and 1 Dwarf Puddle Frog. The total for the day around 186 frogs.

Wednesday 29 October. It started raining at about 03:00 and it came down quite hard. At last, some long-awaited rain – probably around 10 mm! Got up at about 05:30 and it's 19 ° C. Bill and I walked down to the eastern forest for a quick look and it's very wet. I found a Forest Marsh Snake at the entrance of a funnel trap. We didn't empty the traps and returned to camp for breakfast. I headed north with a crowbar to check out some rocky areas. My first find was a Flat-headed Tropical House Gecko and a Common

Tropical House Gecko, both under the same piece of exfoliating rock on an east-facing cliff face. A bit further I got a *Mecula* Girdled Lizard in a small rock crevice. It certainly doesn't behave like Tropical Girdled Lizard (*Cordylus tropidosternum*), inhabiting rock cracks and not living under the bark of trees. Found another smaller *Mecula* Girdled Lizard in a large vertical crack in a ravine. I saw the lizard disappear down the crack. Then found another Common Tropical House Gecko under exfoliating rock, close to several pairs of adhered eggs, probably Flat-headed Tropical House Gecko eggs. Also got a beautiful male Rainbow Skink under a vertical sheet of exfoliating rock and a Dwarf Gecko (*Lygodactylus* sp. B) and a Variable Skink. Bill and Mo did the trap line and got a new Tree Frog (*Leptopelis* sp. C) in one of the funnel traps. Also, two Forest Marsh Snake s in funnel traps and another two hunting on the forest floor. One specimen in a funnel trap was in the process of eating a *Phrynobatrachus* sp. Bill also got a Green Water Snake and a Boulenger's Skink. Great excitement back in camp as the guys got a Brown House Snake and two caecilians! Bill paid the guys 50 000 Metacales (around R18) for them. They scratched around and found another two dead caecilians. These were all found while raking away leaves close to the kitchen. The rain the previous evening certainly got a few creatures moving! These are the first caecilians ever found in Mozambique. Results for the pitfall/funnel traps for the previous evening: 146 Squeaker (*Arthroleptis* sp. hourglass); nine Squeakers (*Arthroleptis* sp. red back); two Squeakers (*Arthroleptis* sp. large); 13 Snoring Puddle Frogs; two Forest Marsh Snake, one eating a Snoring Puddle Frog and one Tree Frog (*Leptopelis* sp. C.). Photographed a bunch of stuff, wrote some labels for Mo and took a walk – got one Grote's Dwarf Gecko (*Lygodactylus grotei*) on a tree.

Thursday 30 October. Headed for the trap line before breakfast. Quite amazing how few frogs we found in the traps after our earlier success. There were 5 Squeakers (*Arthroleptis* sp. hourglass), a Forest Marsh Snake in a funnel trap and another one crawling along the drift fence. One funnel trap had a large river crab and a Forest Marsh Snake, the latter mauled by the crab. We also got one Snoring Puddle Frog. Just a few days back we had over 900 frogs in the same traps! In the debate that followed it was suggested that it was wet enough elsewhere for the frogs to disperse to and that it was in their interest to move away from the driver ants.

Friday 31 October. Surfaced at 05:30. The traps were not very productive, and we got four Squeakers (*Arthroleptis* sp. hourglass) and one Snoring Puddle Frog. We headed out for Mecula Mountain peak. Got a Mecule Girdled Lizard in a rock crack as well as a Variable Skink and a Common Tropical House Gecko.

We were walking on Mecula Mountain and saw three Mecule Girdled Lizards basking near rock crevices, quite unusual as most lizards disappeared the moment they saw us. The top of the mountain peak had very little reptile activity as there are few rock crevices but the view was magnificent! Got a Variable Skink and missed a second specimen. These lizards are extremely nervous. Bill had seen an unusual Angulated dwarf gecko (*Lygodactylus angularis*) on a dead tree, about 3 m up, and we went back looking for it. We spotted one on another tree and Bill got him with a rubber band, doing surprisingly little damage in the process. It is a beautiful little gecko with black on the sides and a yellow belly, quite unlike anything that we have seen to date. I got another one, also with a rubber band, again doing very little damage. We saw another individual on a thin dead tree and we pulled the tree down. It produced three Dwarf Geckos (*Lygodactylus cf chobiensis*) and

a Common Tropical House Gecko, as well as three batches of Dwarf Gecko eggs, eight eggs in each batch. The eggs were small, white and not adhered, usually with a bit of soil in the cavity where they were laid. The Dwarf Geckos appear to be largely tree-living and quickly move high up when threatened or disturbed, easily going as high as 4 – 5 m. Mo pulled a loose flake off the side of a granite rock, just a few metres east from the spot where we had caught the Dwarf Geckos and exposed a communal Dwarf Gecko nesting site. There were lots of old eggshells and some fresh eggs. I counted 523 eggs with about eighty of them fresh and seemingly viable. Scratched around some more but found very little. Headed back to camp to photograph the specimens. The guys at the camp had caught a Snouted Night Adder (*Causus defilippii*), freshly shed and in excellent condition. Got lots of pics



Above- The freshly shed Snouted Night Adder (*Causus defilippii*)

Saturday 01 November. Checked the traps. Six Squeakers (*Arthroleptis* sp. hourglass) and one Snoring Puddle Frog in the funnel traps but about half of them dead. I started turning rotten logs and found a Black-headed Centipede-eater (*Aparallactus capensis*) under a rotting log on the ground. It later regurgitated a centipede. Close by I got a Brown House Snake, also while turning rotting logs. It was in the log, not under it. It was a juvenile and looked just like the specimens from Durban. I walked further down the hill

and eventually came across the bridge building team. It was incredibly hot, well over 40 °C. They informed me that they had two snakes that they had placed in the jar of formalin back at their base camp. I followed the road to their camp, the formalin jar contained two snakes, a Snouted Night Adder and a large Zambezi Blind Snake (*Afrotyphlops mucruso*). Bill and Mo, despite Mo putting a lot of effort into getting some Rain Frogs, caught nothing. After dinner we sat at the view site looking at the stars with elephant close by. It was half-moon with a few thin clouds high up and a bit on the chilly side. Rain Frogs were calling in the background.

Sunday 02 November. Up at about 5:30 and we are about to pull up the pitfall traps and trap line as we're heading down the mountain today. Wonder if I will ever be on Mecula Mountain again. Checked and lifted the trap line. It had a total of 32 frogs, 30 Squeakers (*Arthroleptis sp.* hourglass), one Puddle Frog (*Phrynobatrachus sp.* red back) and one Snoring Puddle Frog. Time to pack up and head down the mountain. Mo got himself stung by a small scorpion that was hiding in his camera bag – had a swollen finger and sore arm for a few days! Got back to base camp and unloaded in our new house. The trip down the mountain produced a Green Water Snake which was crossing the dirt road. Adam spotted it – I was again scanning low trees for Vine Snakes. The Beggs left us a Serrated Hinged Terrapin (*Pelusios sinuatus*) shell that they found next to the Lugenda River and a half rotten Mozambique Spitting Cobra (*Naja mossambica*) – it was still good enough to pickle. It was found about 20 km downstream of Mbamba Village on the Lugenda River. We met the pilot Peter who informed us that he could easily take 150 kg of luggage. Good news. Bill asked Chandi about snakes – he recalled having seen Puff Adder, Southern African Python, Vine Snake and Tiger Snake. Also mentioned a

few snakebite incidents, one caused by a Snouted Night Adder. He recalled three crocodile attacks in the rivers over the last two or three years.

Mo and I drove to the village as they had some snakes for us. They had one Semi-ornate Snake in the formalin and a kid brought us a freshly-killed Spotted Bush Snake, its tail still twitching. They also had a rotten Puff Adder hanging from a piece of bamboo. Mo photographed it but it was beyond being useful as a specimen. As Bill had mentioned before, the colour on the back was most unusual and appeared as though the snake had some Gaboon Adder patterns on the tail. The back was light with pastel shades.



Above- One of the Semiornate Snakes brought in by the villagers.

Monday 3 November. Heading for Lusingi in Block C, one of the hunting concessions. The Beggs reported good rain down there. The drive to the Lugenda river was quick and we were at the bridge around 09:00. I saw a Zambezi Soft-shelled Turtle (*Cycloderma frenatum*) with a carapace of around 20 cm just below the bridge. It hid under some reeds and looked quite easy to catch. I made a gaffe from my stump ripper and a large hook and approached it from upstream while Mo waded closer from downstream, it evaded us, but Mo managed to get a pic. Some of the local guys came to help us catch it and stuck their arms down burrows in the riverbank. On two occasions they actually felt it but didn't manage to catch it.

We saw a tree Agama run up a dead tree trunk and pushed the trunk over, anticipating the Agama popping out of the hole on top of the tree. As the tree hit the ground the Agama ran off, but a hatchling Rock Monitor (*Varanus albigularis*) also dropped out. We were so excited about the Monitor that we lost sight of the Agama and it disappeared. The habitat consisted of dry Miombo, well burnt and with a lot of dead trees around. The young Monitor was beautifully marked with lots of yellow and pastel browns.

The drive to the hunting camp dragged on and it was very hot. We stopped a few times to turn logs but saw nothing. It was 38°C and the tsetse flies were eating us alive.

We had a really nice evening, listening to Derek and the Beggs. Mo got two Dwarf Geckos (*Lygodactylus cf capensis*) and I saw two small Nile Crocodile below the camp in some backwaters. Also saw a Grass Frog and caught a Guttural Toad. The camp is full of Flat-headed Tropical House Gecko. Derek told us that he had seen a lot of Southern African Pythons, Black Mambas (especially in May), Bark Snakes (*Hemirhagerrhis sp.*) (coming out of cracks of firewood) and Spotted Bush Snakes but no Vine Snakes or Boomslang. Also, lots of Bullfrogs but no land tortoises. The biggest croc that they shot measured 15 feet! That's a monster and as big as Footloose, the legendary crocodile at Kwena Gardens.

Wednesday 5 November. Up at 05:30, will be heading for another hunting camp in the west, a few kilometres west of the Lugenda bridge. It has some backwaters with lily pads and, hopefully, some Red-legged Running Frogs (*Phlyctimantis maculatus*). The drive to Napata camp was long and hot and the tsetse flies were very active. Tried fishing at night but kept on losing hooks. While scratching around for bait I found two Green Water Snakes under the bark of trees, about 50 cm off the ground and close to one another. Also

found a shed skin. The earlier trip to the stretch of water behind the camp with lily pads produced Painted Reed Frogs, Water-lily Reed Frogs, Sharp-nosed Grass Frog, Plain Grass Frogs, Dwarf Grass Frog, East African Puddle Frog, Snoring Puddle Frog, Dwarf Puddle Frog, Guttural Toad and Muller's Platanna. We also found skeletons of a Serrated Hinged Terrapin, Zambezi Soft-shell Turtle and a Nile Crocodile in and around the camp. Also saw Mozambique Agama, Rainbow Skink, Variable Skinks and Flat-headed Tropical House Gecko.



Above- Bill catching a barbel in one of the rivers.

Thursday 06 November. Tomorrow we fly out to Pemba. We stopped on the way to the Lugenda River – Bill spotted a lacertid on the road. He eventually got it with a rubber band and it's a Johnston's Long-tailed Lizard. Also saw Giant Plated Lizards, Variable Skink, Rainbow Skink and what appeared to be an Northern Ground Agama. From there we drove on to Lechengwe Village where we picked up one Brown House Snake and one Rufous Beaked Snake (*Rhamphiophis rostratus*).

Friday 07 November. Up at about 04:00 to get ready for the flight to Pemba. The flight took about 1¾ of an hour and was both pleasant and scenic. We booked into the Nautilus Hotel. Luckily, while waiting for a taxi, we ran into Derek again, and he gave us a lift to the hotel. Derek arrived later and drove us out to his house to do some collecting. The house is in Taratara Village, about 5 km west of Pemba bay. Went down into the swampy area below the house where there were lots of banana trees and found two Turner's Gecko under stones on sand, one Sundeval's Writhing Skink under some building rubble behind a derelict building and we saw Variable Skink, Striped Skink and Flat-headed Tropical House Gecko. Mo and Bill also got two Red Toads and some Muller's Platanna. Also got Greater Leaf-folding Frog, another Leaf-folding Frog (*Afrixalus* sp.), East African Puddle Frog, Snoring Puddle Frog, Dwarf Puddle Frog, Puddle Frog (*Phrynobatrachus* sp. red back) and Sharp-nosed Grass Frog.

Saturday 08 November. Had a good breakfast at the hotel and took a taxi to Blackfoot Camp, the local backpacker's hangout about 5 km south of the hotel. Bill and I decided to look for Coral Rag Skinks (*Cryptoblepharus africanus*) along the beach. They are extremely common right below the Pemba Beach Hotel and we got nine in no time.

Sunday 09 November. Got up quite early and did a bit of photography. Got some Dwarf Geckos and also saw Mozambique Agama, Variable Skink, Striped Skink and Rainbow Skink. One Agama, on a palm tree, was quite tame and managed to get quite a few pics. Flew to Maputo without problems and took a shuttle to the Monte Carlo Hotel.

Monday 10 November. We collected all our goods and headed out of Maputo by 10:30, heading for the eastern foothills of the Lebombo

Mountains in the south. We scratched around in a few spots, but it was too dry and we couldn't get into the Lebombos as the road doesn't get close enough. Came across a clump of Mountain Aloes (*Aloe marlothii*), including several dead plants and found four Jone's Girdled Lizard (*Cordylus jonesii*) and one Speckled Gecko. All specimens were found amongst the leaves of dead aloes on the ground. We decide to call it a day head back to South Africa via the Komatipoort border.

Tuesday 11 November. Went to the Alexander's for dinner where we enjoyed good homemade sushi. Mo left for Germany the next day and Bill departed for Port Elizabeth a day later. It was an amazing trip.

Below- Bill Branch with a few Flap-necked Chameleons.



ABOUT THE AUTHOR

Johan Marais has undertaken numerous field trips throughout Africa in search of reptiles and amphibians. His photography and knowledge has resulted in several fieldguides on reptiles and many scientific publications as well as magazine and newspaper articles.



2020 was a strange year and in many ways, a year not many people anticipated or enjoyed. Many trips had to be postponed and many of us had severe cabin fever. Scientists and researchers, on the other hand, may have welcomed the compulsory break from field work. Many researchers spend their whole career running from expedition to expedition, collecting samples and amazing observations but often do not have the time to write them up and publish them all. By the end of their career, they have so many projects and ideas in their heads or gathering dust on their desk and sadly, many times their biological clock runs out and the information is lost.

The break from the norm due to lockdown, has given many researchers time to sit down and write up projects and observations. This is often a lengthy process and several drafts are circulated between experts before a final paper is submitted to a journal. The article is then reviewed by the journal and may be rejected, accepted or suggested edits are sent back and the researchers may have to refine the paper. This whole process can be lengthy and may take a couple of months or even years. So, we can anticipate a number of papers coming out this year as a result of last years forced holiday.

2020 has seen many papers on African herpetofauna being published and quite a few taxonomical changes with a handful of new species being described and others being moved between genera. Here is a recap of the year.

Branch's Swamp Snake (*Limnophis branchi*).

A swamp snake closely related to Bicoloured Swamp Snake (*L.bicolor*) and the Bangweulu Swamp Snake (*L.bangweolicus*), collected from the Luele River in Lunda Norte Province, in northern Angola.

This species was named in honour of the late Bill Branch.

Branch's Swamp Snake can be distinguished from the other two swamp snakes as it has a darker belly colour, forming bars across the ventral scales compared to a clean white belly in Bicoloured Swamp Snake and the three to four faint dark stippled stripes on the belly in Bangweulu Swamp Snake.

There are also higher ventral scale counts in Branch's Swamp Snake and fewer maxillary teeth.



Bocage's Brown House Snake (*Boaedon bocagei*).

A house snake in the Brown House Snake group (*Boaedon fuliginosus/capensis complex*). It was collected in the Kissama National Park and is known from the coastal lowland areas of Luanda, Bengo, Zaire, and Cuanza Sul Provinces in Angola. It differs from other house snakes in that area by having different midbody and ventral scale counts and different colours.

Branch's Brown House Snake (*Boaedon branchi*).

A house snake in the Brown House Snake group (*Boaedon fuliginosus/capensis complex*). It is known from south-eastern Angola but is expected to occur in northern Namibia and adjacent south-western Zambia. Branch's House Snake can be distinguished from all other house snakes in the area by its yellow-olive coloured body and differences in midbody and ventral scale counts. This species was named in honour of the late Bill Branch.



Bug-eyed House Snake (*Boaedon mentalis*).

A house snake in the Brown House Snake group (*Boaedon fuliginosus/capensis complex*). It had previously been considered a subspecies of the African House Snake (*Boaedon fuliginosus*) by Günther in 1888. Hallermann *et al.* (2020) recently completed genetics on the House Snakes of Angola and found that specimens in southern Angola and northern Namibia were a valid species. It appears there may be differences between the northern Namibian animals and those of southern Namibia and Northern Cape

province of South Africa but further research is still required. This species can be distinguished from other House Snakes in the area by its large bulging eyes, light brown to pink or yellowish colouration and three upper labial scales in contact with the eye. The pale lines above and below the eyes are usually pale yellow in colour. The chin shields also show some differences to other house snakes.

Zambezi House Snake (*Boaedon fradei*)

A house snake in the Brown House Snake group *Boaedon fuliginosus/capensis* complex. A widespread species from northern Namibia, Angola, northern Botswana, western Zambia and southern DRC. It can be distinguished from other House Snakes in the area by its olive brown colour and a number of morphological differences.



Image Johan Marais

Hetfield's Bush Viper (*Atheris hetfieldi*).

A new bush viper found on the Bioko Island in the Gulf of Guinea. The species is known from two specimens collected on the island. The Green Bush Viper (*Atheris squamigera*) is also known from the high mountainous areas of the island. The new species differs from the Green Bush Viper having a higher number of suprarostrals scales and two rows of subocular scales. The species was named after the lead singer of the heavy metal band Metallica.



Image Nick Shaller

Swazi Dragon Lizard (*Smaug swazicus*).

A new Dragon Lizard, previously thought to be the Barberton Dragon Lizard (*S. barbertonensis*) was shown to be genetically and morphologically distinct. This species occurs from northern eSwatini (Swaziland) south into northern KwaZulu Natal. It differs from the Barberton Dragon Lizard and Warren's Dragon Lizard by having a barred pattern on the ventral that extends up the sides of the lizard compared to the black or dark ventral colour in Barberton Dragon Lizard and cream ventral colour in Warren's Dragon Lizard.

Moçamedes Snake-Eyed Skink (*Panaspis mocamedensis*).

A new Snake-eyed Skink from Angola. This species was discovered in the Namibe Province in the Republic of Angola. It is genetically distinct from other Snake-eyed Skinks and has some unique morphology. Within the species that occur in Angola and Namibia, Moçamedes Snake-Eyed Skink can be told apart by absence of supranasal scales, its coppery-brown colouration with a light stripe down the sides and black dots that start behind the eye and extend to the tail.

Böhme's Grass Skink (*Trachylepis boehmei*).

Discovered at Ankober, North Shewa, Amhara Region, Ethiopia. A small skink of around 12 cm total length. This species is named in honour of Wolfgang Böhme, German herpetologist who worked on African herpetofauna. It was originally collected in 1975 but new collections allowed the description of the species. There are a number of morphological features that separate this species from other skinks in the area. The colouration, having multiple stripes running down the body and, on the throat, are unique for this species.

Angolan Sandveld Lizard (*Nucras broadleyi*).

Discovered near Lola, edge of Bentiaba River valley, Namibe Province, south-western Angola. A large lizard measuring over 21cm total length. It is named in honour of Don Broadley for his contributions to the herpetofauna of Africa. There are numerous morphological features that separate this species from other Sandveld Lizards in the area.

There are three colour forms present:

-Black with pale longitudinal stripes that join at the base of the orange tail.

-Black with pale longitudinal stripes ending in an orange tail and large pale spots down the flanks.

-Black with broken longitudinal stripes ending in an orange tail and large pale spots down the flanks.

Queen Nzinga's Tropical Gecko (*Hemidactylus nzingae*).

Discovered in Cangandala National Park Malanje Province, Angola. This species is named after Ngola Nzinga Mbande an Angolan queen who ruled the Ndongo and Matamba kingdoms in the 1700s. Her kingdom spanned roughly the same area as the distribution of the new gecko. Queen Nzinga's Tropical Gecko is a medium sized gecko of around 10cm total length. It has a number of morphological variations from other geckos of the same genus in the area.

Paiva's Tropical Gecko (*Hemidactylus paivae*).

Discovered on the outskirts of Gabela, Kwanza Sul Province, Angola. The species is named after Jorge Américo Rodrigues de Paiva, an Angolan botanist with major contributions to the knowledge of the flora and biodiversity of Angola. Paiva's Gecko is a medium sized gecko of around 12cm total length. It has a number of morphological variations from other geckos of the same genus in the area.

Sabin's Tropical Gecko (*Hemidactylus hannahsabinae*).

Discovered at Pavalange, Luando Natural Reserve, Bié Province, Angola. This species is named after Hannah Sabin, a philanthropist and supporter of conservation in Angola. It is a medium sized gecko of around 9cm total length and has several morphological variations from other geckos of the same genus in the area.

Vernay's Tropical Gecko (*Hemidactylus vernayi*).

Discovered at Lobito, Benguela Province, Angola. The species is named in honour of Arthur Stannard Vernay, an American explorer who first found this species in 1925 on the Vernay Angolan Expedition for the American Museum of Natural History. It is a small sized gecko of around 8cm total length. It has a number of morphological variations from other geckos of the same genus in the area.

Baptista's Dwarf Gecko (*Lygodactylus baptistai*).

Discovered on the Serra de Neve Inselberg, Namibe province, Angola. This species is named in honour of the Baptista family who run the Omauha Lodge in Angola and contributed and supported the team for the discovery of this species. It is a medium sized Dwarf Gecko being grey or brown with fine yellow spots. In breeding males, the throat region is bright yellow with black lines. Colouration and morphology separate this species from other Dwarf Geckos in the area.

Nyaneka Dwarf Gecko (*Lygodactylus nyaneka*).

Discovered at Lubango, Kimbo do Soba, Huíla Province, southwestern Angola. The species is named in honour of the local people of the area, the Nyaneka people. It is a small Dwarf Gecko of around 7cm total length. Colouration and morphology separate this species from other Dwarf Geckos in the area.

Tchokwe Dwarf Gecko (*Lygodactylus tchokwe*).

Discovered at Alto Cuílo, Lunda Sul Province, northeastern Angola. The species is named in honour of the local people of the area, the Tchokwe people. It is a medium sized Dwarf Gecko. Colouration and morphology separate this species from other Dwarf Geckos in the area.

Southern Sand Frog (*Tomopterna adiaastola*).

Channing *et al.* (2020) did a genetic revision of Tremelo Sand Frog (*Tomopterna cryptosis*) and discovered that animals in South Africa, Namibia, Botswana, Mozambique and Zimbabwe did not match the original material from up north and so elevated the southern material to the new name Southern Sand Frog (*Tomopterna adiaastola*). Tremelo Sand Frog is now only found from the Caprivi region northwards.



Ambangulu Puddle Frog (*Phrynobatrachus ambanguluensis*).

Discovered in the Usambara Mountains in north-eastern Tanzania in 2007. This is a large Puddle Frog of around 4cm in total length. They are brown in colour with some dark banding on the back legs and a white belly. Males have bright yellow throats in breeding season. This species was named after the Ambangulu Forest where it was first found.

Hidden Puddle Frog (*Phrynobatrachus arcanus*).

Discovered at Mount Gangirwal in the Gotel Mountains along the Nigerian-Cameroon Border. It was first collected in 1988. Three more recent surveys (2009 and two in 2016) only produced seven adults giving it the common name Hidden Puddle Frog. This is a tiny Puddle Frog ranging from 1.3 - 1.7cm in length. Like many other Puddle Frogs, this species is usually brown but may be shades of light or dark green and may have a pale dorsal stripe. Its small size is characteristic as well as several morphological features distinguishing it from other Puddle Frogs in the area.

Tchabal Mbabo Puddle Frog (*Phrynobatrachus mbabo*).

Discovered in Tchabal Mbabo massif in western Cameroon. It is a small frog of around 1.4 – 1.79cm in length. It was collected in January 2000, although the call was recorded in 1972 as an unidentified frog. It is closely related to the Hidden Puddle Frog and is similar in size. It is estimated these two species were separated around 1, 8 million years ago with a change in habitat in Africa and increase in dry areas at lower altitudes.

Angolan Rain Frog (*Breviceps ombelanonga*).

A rain frog considered part of the Mozambique Rain Frog (*B. mossambicus*) and Bushveld Rain Frog (*B. adspersus*) group. It was collected in the Kissama National Park in the Luanda Province, Angola and appears to occur from central Angola to the west coast. It can be distinguished from other Rain Frogs in the area by lacking a visible tympanum. Males have a single dark gular patch that connects to the dark facial mask. The call is also distinct from other Rain Frogs in the area.



Gauteng Permits Price List 2020/2021

| Permit | Detail | Price | Validity |
|---------------|--------------------------------------------------------------------------------------------------------------|--------------|-----------------|
| CPB1 | To catch wild animal (Incl to capture falcons and problem snakes) | R88 | Varies |
| CPB2 | To convey wild animal | R88 | Varies |
| CPB3 | To convey and display wild animal within Gauteng | R88 | 1 year |
| CPB4 | To keep wild animals in captivity | R188 | 2 year |
| CPB5 | To export or remove live animals from the Province | R88 | 1 year |
| CPF6 | To import live wild animals into Province | R88 | 1 year |
| CPK | To establish and operate a game park, zoological garden, bird sanctuary, reptile park or similar institution | R1879 | 2 years |
| CPS | CITES import / re-export / export | R250 | 1 year |