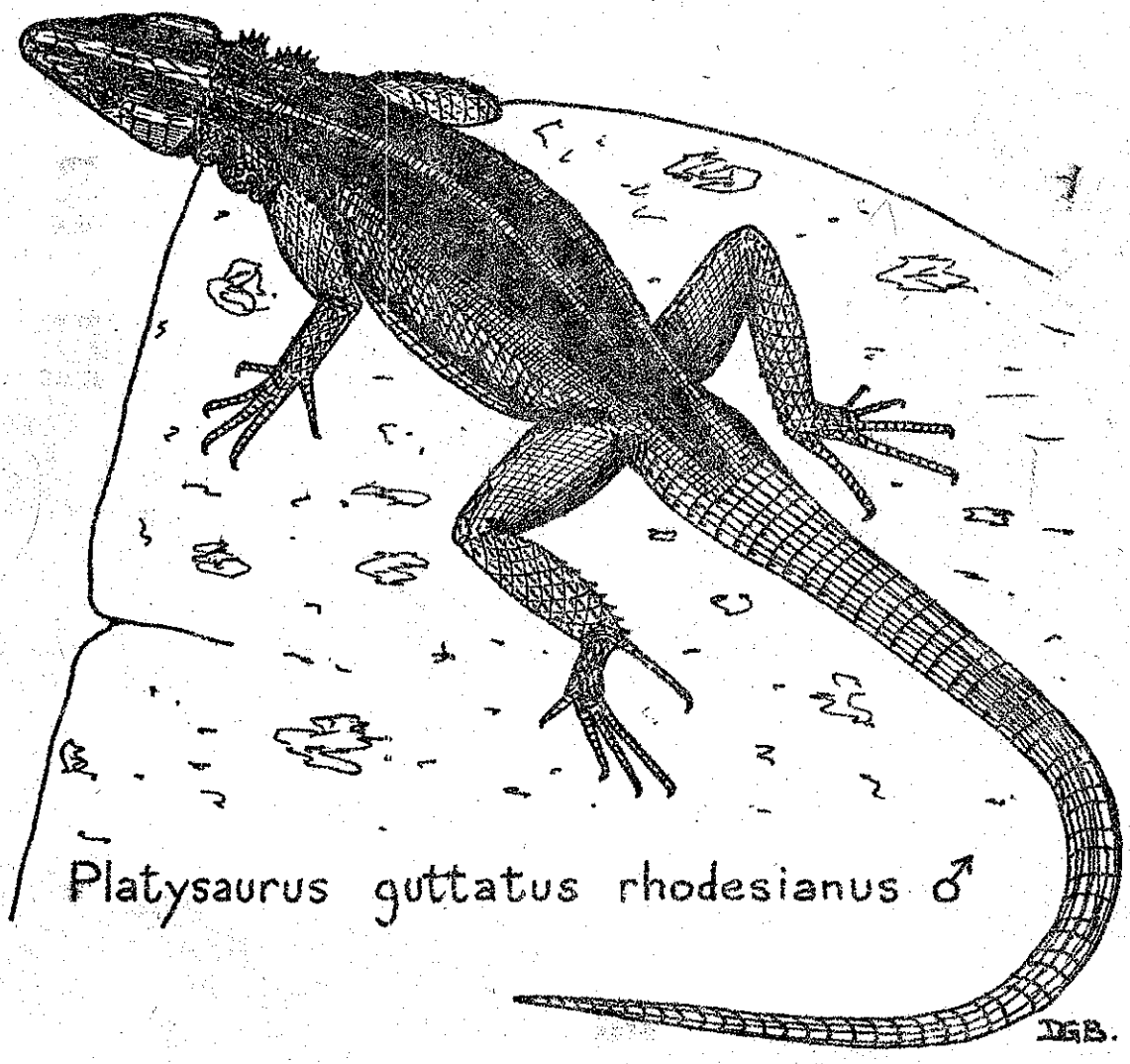
19

H.A.R.
JOURNAL



Platysaurus guttatus rhodesianus ♂

THE JOURNAL OF THE HERPETOLOGICAL ASSOCIATION OF RHODESIA.

No. 19 August, 1962.

CONTENTS

NEW MEMBERS

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HERPETOLOGICAL ASSOCIATION OF RHODESIA. SUBSCRIPTIONS.

Members twelve months in arrears forfeit membership.

MEMBER'S NAME.....Donald G. Broadley,
Hon. Treasurer,
SUBSCRIPTIONS DUE..... Umtali Museum,
UMTALI, S.R.

HON. TREASURER'S REPORT FOR THE YEAR 1961-62.

Balance Sheet for the year ending 31st March 1962.

Cash Balance as at 31st March 1961		£67.. 3.. 3	Current Acct. Netherlands Bank	£19.. 9.. 5
Capital Reserve				
As at 31/3/61	£86.. 8.. 6		C.A.B.S. Savings Acct.	£100..0..0
Less Blazer Badges sold	9.. 7.. 6			
	£77.. 1.. 0		Cash in hand	£ 3.. 8.. 1
Less depreciation on Office Equipment @ 10% p.a.	£ 7..10.. 6		Office Equipment	£60.. 3.. 0
	£69..10.. 6	£69..10.. 6	Blazer Badges on hand	£ 9.. 7.. 6
		£136..13.. 9		
Plus excess of Revenue over Expenditure for the year		£ 55..14.. 3		
		£192.. 8.. 0		£192.. 8.. 0

Revenue and Expenditure Account for the year ending 31st March 1962

Postages	£ 3.. 5.. 6	Entrance Fees and Subscriptions	£60..12.. 3
Bank Charges	£ 2.. 2.. 9	Donations	£ 5.. 0.. 0
Stationary and H.A.R. Journal	£13..17.. 3	Sale of Blazer Badges	£ 9.. 7.. 6
	£19.. 5.. 6		
Balance, being excess of Revenue over Expenditure for the year	£55..14.. 3		
	£74..19.. 9		£74..19.. 9

Being a true and correct statement of the Accounts and Books of the Herpetological Association of Rhodesia as at 31st March 1962.

Donald G. Broadley
Hon. Secretary/Treasurer.

I have examined the Income and Expenditure Account and Balance Sheet of the Herpetological Association of Rhodesia. I certify, that as a result of my audit, that in my opinion the Income and Expenditure Account and Balance Sheet are a true and proper account of the transactions of the Herpetological Association of Rhodesia during the year ending 31st March 1962.

D. Kenilworth Blake
Hon. Auditor.

EDITORIAL

After an economical year, the H.A.R. is in a sound financial position and it is now possible to reduce the annual subscription for Full Members to ten shillings, the same as that for Associate Members. The £1 Entrance Fee for Full Members is retained. It is hoped that the reduction in subscriptions will lead to increased membership, particularly among Rhodesian University students, who have been discouraged by the £2 initial outlay in the past.

Less than 50% of the voting forms on the proposed constitutional amendments have been returned. Will members who have not yet voted please do so on the postal voting form provided.

Following complaints about Journals being damaged in the post, in future they will be sent out in 10½ X 8½ inch envelopes instead of wrappers.

There is still an acute shortage of articles for the Journal and I have had to write up descriptions of my recent field work south of the Limpopo in order to fill in. There is plenty of scope for articles on ecology and I hope that some of the suggestions put forward by Dr. Cott with regard to observations on Crocodylus niloticus (p. 15) will give members an idea of the sort of ecological data required for all our reptiles and amphibians. Even a detailed ecological study of Mabuya striata would be well worth carrying out.

The H.A.R. is now a Group Member of the Rhodesia Scientific Association. Dr. C.K.Brain has been nominated as the Association's representative at meetingsof the Rhodesia Scientific Association.

Recommendation 8A in the 1961 edition of the International Code of Zoological Nomenclature advises zoologists to avoid publishing new names or making statements affecting nomenclature in a publication produced by mineographing or similar processes. In many of my articles for the Journal I have indicated that some forms are doubtfully distinct, but this is not to be taken as an indication that they should be synonymised at the present time. These articles may be regarded as the foundations of studies eventually to be published in recognised scientific journals. They are designed to draw attention to forms of systematic and zoogeographical interest and to invite the assistance of H.A.R. members in assembling the material required before these problems can be solved.

Donald G. Broadley
Hon. Secretary/Treasurer, H.A.R.,
Umtali Museum,
UMTALI,
SOUTHERN RHODESIA.

THE DIET OF DASYPELTIS. By D.G.Broadley

In my review of Charles Sweeney's "Snakes of Nyasaland." in the last Journal I stated that there were no published records of Dasypeltis taking anything but birds' eggs. Sweeney has subsequently drawn my attention to two references which I had overlooked.

Cansdale (1948, p.46 & 1955, p.30) says of Dasypeltis (in 1955): "Birds' eggs are the main diet, but I have known a snake to eat its own eggs soon after they were laid, and it is quite possible that it will take the eggs of lizards, snakes, and even of the giant snail, if no birds' eggs can be found."

Rose (1955, p.102) records the taking of a tortoise (Chersine angulata) egg by a medium-sized Egg-eater.

Sweeney (in litt.) states: "My own records of Dasypeltis eating eggs of lizards refer only to captive snakes, although my snakes were in a large cage with plenty of freedom of movement and there was no question of the eggs being contaminated by any avian smell."

Gans (1952) summarises all the data then available on the diet of Dasypeltis; the only record of non-avian eggs being taken is that of Cansdale(1948). The author then presents a comprehensive analysis of the various modifications and their function, based on over 100 specimens. This indicates an extreme degree of adaption to the ingestion of a single food item, avian eggs. By regurgitation of the egg-shell Dasypeltis prevents waste of digestive juices and storage space on non-nutritive material. It stores fat to tide it over the long period when birds' eggs are not available. The morphological adaptions of Dasypeltis make it extremely difficult for this snake to take anything other than hard-shelled eggs. Although it can cope with the eggs of tortoises and some lizards, it is unlikely to come across these in the feral state.

Any additional records of Dasypeltis taking any food other than birds' eggs are most valuable and should be published.

References

Cansdale, G.S. 1948. "Field notes on some Gold Coast snakes." The Nigerian Field, 13, 43-50.

Cansdale, G.S. 1955. "Reptiles of West Africa." Penguin Books, London.

Rose. W. 1955. "Snakes - mainly South African." Maskew Miller Limited, Cape Town.

Cans, C. 1952. "The functional morphology of the egg-eating adaptions in the snake genus Dasypeltis." Zoologica, New York Zoological Society, 37, 209-244, plates 1-4.

THE "NEW SYSTEMATICS" IN HERPETOLOGY, CLINES VERSUS SUBSPECIES.

By Donald G. Broadley

Systematics in African Herpetology is now entering a new era, heralded by Julian Huxley's introduction of the cline concept as long ago as 1939 and the rapid evolution of "The new systematics" (Huxley et al, 1940). Mayr, Linsley and Usinger (1953) distinguish the new systematics from the old as follows:

"The old systematics is characterised by the central position of a species, typologically conceived, morphologically defined, and essentially non-dimensional. Very little significance is attached to geographic variation. Many species are known from single, or at best a few, specimens; the individual is therefore the basic taxonomic unit. There is great preoccupation with technical questions of nomenclature and the identication and description of "types."

The new systematics may be characterised as follows: The purely morphological species definition has been replaced by a biological definition which takes ecological, geographical, genetic, and other factors into consideration. The population, represented by an adequate sample, the "series" of the museum worker, has become the basic taxonomic unit. Most taxonomic work is done with subdivisions of the species. Nomenclatural problems occupy a subordinate position in systematic work. The interests of the taxonomist are those of a biologist."

The evolution of systematics in African herpetology can be traced through three phases. The first stage began with Linnaeus and was at its peak during the latter half of the 19th century, when most of the species recognised today were described by Smith, Gunther, Peters, Bocage, Boulenger and others. These workers were primarily concerned with the description of new species ("alpha taxonomy"). Their nomenclature was binominal, although names were sometimes proposed for "varieties" of a species (These included individual variants as well as geographic races.). Many of the taxonomists of this period lacked field experience with the animals that they described, and from these days we have the legacy of the layman's conception of a museum worker as a doddering old professor surrounded by dead animals.

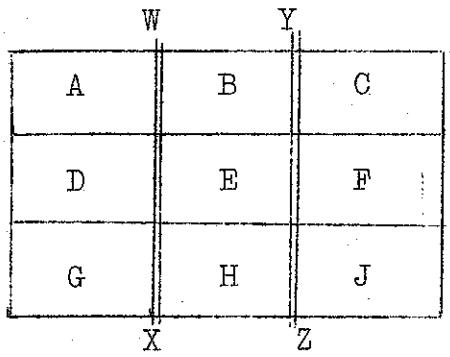
The second stage (beta taxonomy) is the period when the species are arranged into a natural system of higher catagories. It developed rapidly with the general acceptance of evolution by natural selection, broadly overlapping the previous period, and is still far from complete.

The third stage began about 1920, with the general acceptance of the geographical subspecies concept (Boulenger refused to accept "barbaric" trinominals, and stuck to his varieties to the last). Taxonomists are now more concerned with the analysis of infraspecific variation and evolutionary studies (gamma taxonomy) and the study of living animals in their natural habitats (ecology) becomes of increasing importance.

From 1920 onwards many of the "species" and "varieties" of Boulenger and his contemporaries were reframed as geographical subspecies and many new races were described, often on slender grounds.

Now the time has come to apply the cline concept consistently to African reptiles and amphibians. This will not mean the abandonment of geographical races, for in many groups (e.g. Cordylinae), where the distribution is (or has been) discontinuous, clines are poorly developed. Comprehensive material, covering the whole range of the species or group to be revised, is essential before clines can be plotted.

The origin of clines or "character gradients" can be best demonstrated by the use of a simple diagram.



The diagram shows the range of a theoretical species, divided into nine populations, with two transient barriers to gene flow, WX and YZ.

Some parts of the range of any species offer better conditions than others, therefore supporting larger populations, which in turn lead to a higher rate of mutation and more rapid evolution. When a favourable mutation has become established in a population by natural selection, it will spread to other populations if not prevented by geographical barriers (e.g. arid lowlands for montane forms; mountain ranges for savanna forms; etc). In our model, if WX and YZ are non effective, a mutation originating in population E will spread outward like the ripples made by a stone dropped into a pond. If WX and YZ are partial barriers to gene flow, then the mutation will spread rapidly to B and H, but will take longer to become established in the other populations.

If one part of the species' range has optimum conditions not matched elsewhere, then a number of clines may radiate from this centre as new beneficial mutations arise. On the other hand, if several isolated areas offer optimum conditions, mutations may originate in various populations, resulting in clines running in different directions, e.g. one character spreading from A outwards to J, another from C towards G, and a third radiating from E.

When there are no barriers (past or present) to gene flow between populations, there will be smooth character gradients, making it impossible to recognise races. Where there is restricted gene flow it may be possible to recognise races, but with wide belts of intergradation. Where gene-flow is prevented by an impassable barrier, races will in time become well defined, and if the isolation endures long enough the divergence may reach the specific level - "every isolated subspecies is a potential species". If the barrier to gene flow is removed (by a climatic or physical change), there will usually develop a narrow belt of intergradation, unless (a) one form has become much better adapted to its habitat and so swamps the other,

or (b) the forms have diverged to a point where they are reproductively isolated, in which case they will overlap without intergradation.

One interesting phenomenon is the circular cline. If E and H in our model are taken to be unsuitable habitats , the populations G and J will tend to drift furthest apart genetically as they are separated by a series of five other populations. If all the populations are separated from each other by partial barriers, we will eventually have a chain of seven races. If G and J are now able to extend their ranges and meet one another, they may prove to be reproductively isolated and therefore behave like good species. This situation is found in a number cf bird species which have a circum-polar distribution.

Let us now look at some actual examples of clines in African reptiles. A simple one is found in Mabuya quinquetaeniata, in which races can be distinguished only on the number of mid-body scale rows. The centre of distribution is East Africa, where M. q. obsti has 44-50 rows. This form extends south along the Mozambique plain and penetrates into the eastern districts of Southern Rhodesia, there is a narrow zone where the average scale count is 44, then throughout the rest of Rhodesia, Mozambique and South Africa M. q. margaritifer (40-44 rows) occurs. In Rhodesia, the average count slowly decreases from east to west, this cline culminating in M. q. pulcherrima Witte of Katanga (38-43 rows). From the north-eastern Congo, through the Sudan to Egypt occurs M. q. quinquetaeniata (36-41 rows).

When all the data is plotted it is possible to link points with the same average scale count to form isophenes (which are at right angles to the cline). When the average counts are plotted against the distance along the cline as a graph, one gets a smooth gradient, broken in places by "steps", steeper slopes which indicate the divisions between races. Thus while obsti and margaritifer are separated by a "step" and are good races, it appears that the latter race and pulcherrima are linked by a continuous cline so that the Katanga form is doubtfully distinct (a gap in Northern Rhodesia remains to be filled so that this can be confirmed). It remains to be seen whether pulcherrima, quinquetaeniata and obsti are linked by clines to form a ring.

In the wide-ranging snake Crotaphopeltis hotamboeia there is no common pattern of character distribution. The midbody scale count is very stable, the typical form having 19 (very rarely 17, 18, 20 or 21) scale rows, while C.h.tornieri of montane forests in Tanganyika and Nyasaland has 17 rows and C h.ruziziensis of the Ruzizi-Kivu basin in the Congo has 21 rows.

There is a geocline in average ventral scale counts, which decrease from north to south, but this is partially obscured by ecoclines extending from high to low altitudes (caused by the effect of temperature on the development of the embryo), e.g. Inyanga National Park (6,700 ft.) - ventrals 142: Kariba Lake (1,700 ft.) - ventrals 166-171.

Finally there is variation in the colouration of the upper labials, which are red in the Transvaal, Natal and the Eastern Cape Province; yellow in the Western Cape; white to brown or black in Rhodesia and East Africa. Mertens(1955), followed by Laurent (1960), has proposed that the name C.h.hotamboeia should be restricted to the red-lipped snakes, while the others would become C.h.bicolor (Leach). As the labial colouration is not correlated with scale counts and the red colouration rapidly fades on preservation it seems unwise to revive bicolor until the genus can be fully revised and the clines in labial colouration worked out.

In Aparallactus capensis there is a geocline in average ventral counts, with an increase from east to west (partially obscured in the east by altitudinal ecoclines). The western populations were separated by Loveridge as A.c.bocagei, but there is no evidence of a "step" in the cline. The other character used to separate races in this species is the upper labial formula, which seems to be much more stable in Rhodesia at least.

Naja nigricollis should demonstrate some interesting clines when the species is revised. The species apparently evolved in equatorial Africa and radiated from this centre. The East African race Naja n. mossambica spread southwards along the Mozambique plain to Natal and westwards up the Zambezi and Limpopo valleys. In Northern Rhodesia it meets the much larger race N. n. crawshayi coming in from the Congo. The two forms have diverged to a point where they no longer freely interbreed. Vivian Wilson has collected a fine series of these Spitting Cobras in the Eastern Province and the two forms meet at his camp, Kalichero (near Fort Jameson). All these cobras are assignable to one form or the other, except for a single specimen with the colouration and markings of crawshayi, but 23 midbody scale rows. There is a tendency for the average midbody scale count for local crawshayi to be slightly higher than usual (i.e. 19-21 rows, not 17-19), but local mossambica have 21-25 rows as usual. More material is still required from Northern Rhodesia.

The plotting and interpretation of races and clines is by no means an abstract amusement for the taxonomist. As more groups are worked out, certain patterns in distribution are repeated again and again. These distribution patterns, the mosaic of geographical subspecies and the clines woven into them, are the raw material of the zoogeographer, and, added to the evidence provided by palaentology, palaeobotany and geology, they help to build up a picture of the course of recent evolution and of past climatic conditions and habitats.

References

Huxley, J.S. et al. 1940. The new systematics. Clarendon Press, Oxford.

Mayr, E., E.G.Linsley & R.L.Usinger. 1953. Methods and Principles of Systematic Zoology. McGraw Hill Book Co., Inc., New York.

THE MOZAMBIQUE PLAIN AS A CORRIDOR FOR THE SOUTHWARD PENETRATION OF TROPICAL REPTILES. By Donald G. Broadley.

The warm Mozambique current extends the southern limit of the Palaeotropical Region (the 18 C mean midwinter surface isotherm) as far as Lake St. Lucia, Zululand. Poynton (1960) has drawn attention to the fact that a large percentage of the tropical East African amphibians reach Zululand and the same is true of many reptiles. The composition of the Mozambique plain herpetofauna has not previously been fully appreciated as very little material is available from this territory except for the western area round Tete and the extreme south from Lourenco Marques to Zululand. Wilhelm Peters collected most of his material at Tete, but many of the characteristic Mozambique plain forms fail to penetrate this far up the Zambezi. Loveridge found that many forms which he collected in Nyasaland differed subspecifically from those obtained at Tete, so he concluded that the Zambezi River was a barrier between races. If there is a barrier here it is the Zambezi Valley as a whole, for it is a geographical unit and the forms found on opposite sides of the river are the same. The divisions between local races run mainly north-south rather than east-west.

The Mozambique plain herpetofauna can be divided into four groups. (1) Widespread savanna forms which occur almost throughout Africa, e.g. Bitis a. arietans. (2) West African forest species. (3) East African savanna forms, which often extend up onto the plateau, where they become smaller in size and subspecifically distinct (if a "stepped" cline can be proved). (4) Mozambique plain endemics. The last three groups must be considered in more detail.

The two most obvious West African forest species found in this area are snakes. Naja melanoleuca subfulva extends as far south as Mtunzini in southern Zululand; Bitis g. gabonica also reaches Zululand, but does not seem to penetrate further south than the dune forests at the north end of Lake St. Lucia. The arboreal lacertid Holaspis guentheri laevis has been recorded by Cott from the Amatongas forest between Umtali and Beira and this lizard may yet be found in the Honde Valley of Southern Rhodesia.

The East African savanna forms are very interesting, for they include a series of "subspecies pairs" (some of them doubtfully distinct), which have similar distribution patterns.

Mabuya quinquetaeniata obsti extends into central Mozambique and eastern S.Rhodesia, it intergrades with M. q. margaritifer along a line roughly following the Odzi - Sabi - Limpopo rivers. M. q. margaritifer then spreads north into Northern Rhodesia (intergrading with obsti in the Eastern Province), west to Bechuanaland and south into the Transvaal, Swaziland and Zululand. The meeting place of margaritifer (described from Tete) and obsti in the Zambezi valley remains to be established.

The giant East African form of Riopa sundevallii extends south through Mozambique to Inhambane, but this skink seems to be absent from south Mozambique and Natal. Although Smith's type allegedly

came from "Country to the eastward of Cape Colony" = Natal, no specimens from this area are to be found in the South African Museums. In Rhodesia and the Transvaal the dwarfed form of Riopa sundevallii is common.

Cordylus c. tropidosternum ranges south from East Africa into the eastern districts of Southern Rhodesia and central Mozambique, at about the Sabi - Limpopo line there is a change to C. c. jonesii, which differs only in smaller size. This form then extends south to Zululand and westwards up the Limpopo valley to Bechuanaland.

Nucras intertexta ornata occurs in south Nyasaland and extends south through Mozambique to Zululand, with westward branches up the Zambezi and Sabi rivers into Rhodesia. On the highveld it is replaced by N. i. holubi, which is smaller with well defined dorsal stripes in the adult.

Psammophis subtaeniatus sudanensis ranges from the Sudan southwards into Mozambique at least as far as Inhambane, but apparently does not reach Lourenco Marques. There appears to be a definate zone of subtaeniatus X sudanensis intergrades in the eastern Transvaal from the Limpopo to Komatipoort. P. s. subtaeniatus extends from the Transvaal north into the Southern and Eastern Provinces of Northern Rhodesia (P. s. sudanensis occurs in Nyasaland), then westwards to Bechuanaland and Angola.

The Green Mamba, Dendroaspis angusticeps, penetrates further south than most East African reptiles, ranging from Kenya to southern Natal.

The Mozambique plain endemics include a host of burrowing forms, which is not surprising considering the alluvial nature of the plain. These include Scelotes arenicola, Typhlosaurus aurantiacus, Acontias p. plumbeus, Amphisbaena violacea, Monopeltis habenichti, M. spenorhynchus, Prosymna jani, Xenocalamus transvaalensis, X. bicolor lineatus and Amblyodipsas micropthalma. Many of them reach Zululand, others penetrate into S.E.Rhodesia and the N.E.Transvaal via the Limpopo valley. Acontias plumbeus reaches the lower slopes of Vumba Mountain and extends well into the Eastern Transvaal. One of the most interesting snakes in this group is Duberria variegata, for its habitat is exactly the opposite of that favoured by D. lutrix. Two poorly known snakes are Lycophidion semiannulis and Aparallactus nigriceps.

Much more material is required from eastern Africa in general and Mozambique in particular before the zoogeography of this area can be fully worked out.

References.

Poynton, J.C. 1960. Preliminary note on the zoogeography of the Amphibia in Southern Africa. S.A.Jour. Sci., 56, 307-312, 1 fig.

Poynton, J.C. 1961. Contribution to the zoogeography of Southern Africa. S.A.Jour. Sci., 57, 75-80.

SHANGAAN HERPETOLOGY. By P.Taylor

The following names and beliefs were collected from natives of the Shangaan tribe living around the confluence of the Sabi and Lundi rivers in the southeast of Southern Rhodesia.

The Shangaans on the whole are good naturalists, but as far as herpetology is concerned they are not so observant, tending to group all similar shaped creatures under one name. Like all Africans, Shangaans are terrified of most reptiles, although several amphibians and reptiles are considered edible.

AMPHIBIA

Xlamgwa - All agile water-loving frogs, therefore mainly Rana spp. Larger ones are sometimes eaten.

Ikuxla - Pyxicephalus adspersus. The Bullfrog is eaten and considered a delicacy, it is boiled after being gutted, but not skinned.

Keli - all Bufo spp.

Chikwarikwari - Hyperolius, Chiromantis and Kassina spp. The mating call of these frogs is said to bring on rain and therefore they are never killed. The Shangaans recognise that Chiromantis builds "nests."

Chinani - Breviceps spp. Like the Chikwarikwari, it heralds the rains.

Mawuluwulu - All tadpoles come under this name and Shangaans recognise that they are frog larvae.

REPTILES

Ngwenya - Crocodylus niloticus. Treated with great respect, although it is said to be eaten by some of the Mozambique Shangaans. It is the totem or 'matupa' of several clans.

Chibodzi - Testudo and Kinyxs spp. I was surprised that the two are grouped under one name, as they are considered a great delicacy and therefore the Shangaans should be aware of the difference.

Shasha - Larger specimens of Testudo pardalis babcocki.

Hasi - Cycloderma frenatum. Edible.

Gabasodji - Pelusios spp. Eaten despite its strange smell.

Nyoka - snakes in general, but several of the more noticable ones are given individual or group names. These are gradually going out of use and only the older people use them.

Nyoka hasi - all burrowing snakes, not considered harmful.

Shatu - Python sebae. Said to be eaten by Mozambique Shangaans. The 'matupa' of several clans.

Lukuri - Thelotornis kirtlandii capensis and Philothamnus s. semivariegatus. Harmless unless you urinate near its bush, then it will come along and bite you!

Hlamalani - Psammophylax t. tritaeniatus or any other striped snake.

Mfesi - Naja nigricollis mossambica. Greatly feared and treated with the utmost respect.

Mamba - Dendroaspis p. polylepis and Dispholidus t. typus. Greatly feared.

✓ Chinigani - Causus spp. Treated with respect.

✓ Piri - Bitis a. arietans. Greatly feared.

Nyoka hasi - Amphisbaenidae. Considered harmless.

Damarela - Gekkonidae generally. Considered extremely venomous, why I am still alive after catching these creatures is a complete mystery to the Shangaans.

Mashire - Agamidae generally. Equally as dangerous as the Damarela.

Limvani - Chamaeleo d. dilepis. Loathed and dreaded, more dangerous than any snake. Should you have the courage to kill one, you remove its heart, which is then dried and mixed with certain other 'muti'. This concoction is then rubbed into small incisions on the back of the hand. So prepared it is impossible for you to lose any game of chance, as the chameleon's power to change its appearance is passed to you, enabling you to change the appearance of your cards or dice!

Gwahli - Varanus exanthematicus albigularis. Edible.

Gwahli mati - Varanus n. niloticus. Also edible.

Nyashiri - Lizards in general come under this name.

I should like to conclude by pointing out that despite the fact that the Varanidae are protected by law they are killed and eaten by the Shangaans whenever the opportunity arises. As these creatures are fairly elusive they are in no great danger. Not so the Testudinae, particularly the terrestrial species, which are killed and eaten whenever they are come across. Even in so remote an area as the Sabi-Lundi Junction large Testudo p. babcocki are extremely rare.

NOTE: The pronunciation of the above names is more or less as in English, except Hl, which has a sound similar to the Welsh Ll. X is the click made by placing the tongue on the roof of the mouth, slightly opening the mouth, then sharply withdrawing the tongue.

SOME COLLECTING TECHNIQUES AND GENERAL NOTES. By C.E.Gow.

Although naturalists prefer to see all animals protected in the wild state, some of us like to keep some of the more interesting species for behaviour studies, or we may wish to collect for venom extraction or for museum collections. There follow a few notes on methods of catching or collecting the three groups that our interest covers, with a few miscellaneous notes of general interest.

Frogs are usually taken at night, preferably after rain during the breeding season, with torch (head lamp) and net. Toads are best obtained at night during a swarming of winged termites, when they congregate in large numbers. On such a night the odd Causus may be picked up as well.

A little known method of collecting Ranas is to tie an inch square of red material on the end of a length of strong cotton and dangle it in front of them. They hold tight and may be then be flicked from the water onto the bank.

One large frog which I collected in a Basutoland stream was utterly inaccessible, but a close inspection will show where a .22 short did the necessary!

The most interesting frogs that I have kept recently were a pair of Breviceps gibbosus which were copulating when brought to me. This had never been observed before, but it was exactly as described for B.adspersus in Natal by Dr. V.A.Wager in African Wild Life (1960. Vol.14, No.3).

Lizards should never be shot with .22 dust shot except in exceptional circumstances, as they can usually be taken alive.

The skinks and sand lizards and the smaller rock lizards can be very successfully caught by stunning them with elastic bands. Have a box-full as one does not always hit first time!

For sand lizards (Lacertidae) the method described by Dr. W.Rose is very good, i.e. spread a handkerchief or sheet of paper on the ground and head the victims towards it. This is for calm days.

The best methods however are the two types of noose. One is a cotton noose suspended a foot from the end of an eighteen-inch length of sixteen gauge wire. If there is no wind this can be brought over the head of the lizard and pulled tight. This cannot be used on skinks, as they have no "neck" and pull out. One also has a spot of trouble with individuals who insist on biting the cotton!

The second type of noose is used for rock lizards which dive into cracks before one can approach. This time the wire (of suitable length and easily bent into any shape) is bent at the ends to form a small loop at one end and a handle at the other. A length of nylon (6-10 lbs breaking strain) is tied to the loop and led through it to form a noose of any size (it is often useful to start with a large noose). Then, holding the free end of the nylon in the left hand, the noose is worked over the lizard's head (often with the help of a second length of wire) with the right hand and the noose tightened. The success of this method outweighs the disappointments.

Rock turning for lizards is only practical during cold weather, otherwise too much futile effort is involved.

Something to guard against with lizards in captivity is the danger of cannibalism, even if food is supplied regularly.

Once a friend chased an Eremias into a bush and on looking for it heard a loud hiss. When I ran across the Bitis cornuta was speedily bagged, whereupon we found the lizard lying dead with two fang punctures in its back. That was just one of those things that make some days' collecting stick in the memory.

With snake catching, which I suppose we will all admit gives us our biggest kicks, individualism is rife. Some purists insist on catching everything by the tail; this can be quite amusing when a Naja nigricollis or Atractaspis bibronii turns up!

Others prefer to pin everything behind the head, which is probably the safest for both parties. In this connection, a friend of mine has developed an interesting gadget. It consists of a stick with a four inch wide metal fork set into one end. Across the fork a piece of rubber pressure tubing is stretched and this will hold most snakes without fear of injury or escape.

The most rewarding method of collecting is to dig open disused termitaria with a garden fork. Plea - don't overdo it chaps!

Concerning the habits of snakes, I would like to record a few interesting observations.

I hear from John Wood, who has shown me slides in support of this, that Pseudaspis cana males fight with often fatal results during the mating period. The wounds inflicted are truly gruesome.

A friend and I have both had specimens of Dasypeltis scabra taking pigeons' eggs in daylight recently, this has been recorded on 35 mm transparencies. The most interesting part was the way in which both snakes would raise their heads an inch above the ground while getting rid of the shell, which slipped out fairly quickly and dropped to the ground.

A correspondent of mine has observed an Atractaspis bibronii to take Duberria and Crotaphopeltis in captivity. The same friend had a night adder which took 28 Bufo regularis in as many weeks and grew three inches in two months.

Rodent prey, as most of us learn by bitter experience, should never be left overnight with any snake. I have had a black rat make a skeleton of a four foot Naja nivea and a white mouse do the same to a 3½ foot Boaedon fuliginosus.

Recently Dr. Rose gave me one of the Vine Snakes which he collected in Natal. This snake had not eaten for something like four months when I got it. I put two of our local Microsaura pumila in with it: the first it took immediately and completely swallowed in half an hour. The second went the same way ten minutes later. To me the most fascinating part of the whole procedure is the way the snake moves the chameleon across its mouth until the head is reached. During swallowing one could plainly see the pterygoid bones being alternately advanced and that the fangs never touched the victim's body.

THE DIET OF CROCODYLUS NILOTICUS.

During his work on the ecology of Crocodylus niloticus Dr. H.B. Cott has recently analysed the stomach contents of 716 crocodiles, mainly from Northern Rhodesia. Some of his data are briefly summarised here.

Diet for five age groups.

Group I (Up to 1 metre) - Essentially insectivorous (water beetles, dragonflies and their larvae, etc), spiders are taken, sometimes crabs and frogs.

Group II (1-2 metres) - Still largely insectivorous, but more crabs, molluscs, frogs and fish are now taken.

Group III (2-3 metres) - Insects and spiders are rarely taken: fish form the main item of diet, supplemented by molluscs. Frogs are no longer taken, but mammals, birds and reptiles become more important.

Group IV (3-4 metres) - As group III, but mammals and reptiles are more important food items.

Group V (4-5 metres) - No invertebrates are now taken. Fish are neglected in favour of mammals and reptiles.

The crocodile feeds infrequently and devours its own body weight in about 150 days (a Pelican may consume fish ammounting to one third of its own body weight at one meal).

The fish eaten by Crocodylus niloticus are mainly Synodontis ("Squeaker"), Clarias (Barbel) and Hydrocyon (Tiger Fish), rarely Tilapia (Bream). Thus the crocodile is an asset to commercial fishing as it keeps the predatory fish in check.

Reptiles taken by crocodiles are Crocodylus niloticus and Pelusios spp., less commonly Varanus niloticus and Python sebae. Birds commonly taken are ducks, cormorants. etc. The mammals usually taken are otters, water mongoose (Atilax), cane rats and large ungulates up to adult Buffalo, with an occasional Hippo calf.

For a fuller account of the ecology of Crocodylus niloticus see:

Cott, H.B. 1961. Scientific Results of an Inquiry into the ecology of the Nile Crocodile (Crocodilus niloticus) in Uganda and Northern Rhodesia. Trans. Zool. Soc. London, 29, 211-356.

Cott, H.B. 1962. Life of the Nile Crocodile. Black Lechwe, 3, 4-13.

Further investigations required - suggested by Dr. H.B.Cott.
(Taken from Black Lechwe, 3, 14-15, June 1962)

There remain many gaps in our knowledge of crocodile ecology. A valuable contribution to the subject could be made by members of the Game Department Staff, by professional hunters, and others who have opportunities for field work. To encourage such assistance, the following suggestions are offered as to the nature of investigations which could usefully be made.

1. TERRITORY. Territorial defence and inter-male fighting has rarely been observed. Such activity is most likely to occur prior to the breeding season, i.e. in Northern Territory during August.

2. COPULATION. Again, existing knowledge is scanty. Is the meeting of the sexes facilitated by vocal activity in the male? Does copulation take place by day or by night? In the water or on land? What is the position of the pair?

3. BREEDING SEASON. Records are required for Lakes Nyasa and Tanganyika, the Zambezi and Southern Rhodesia. The breeding season can be established from (a) the presence of shelled eggs in the oviduct, or (b) new-laid eggs in the nest.

4. INCUBATION PERIOD. Although this is known to be approximately 12 weeks, no exact information from the field is yet available. Laying and hatching dates at a particular nest,or nests, are required to settle this point.

5. EGG LAYING. Hardly anything is known of the details. Does laying occur at night or by day? How is the nest-hole excavated? How long does the process take? How is the nest filled in?

6. HATCHING. What part does the female play in liberating the young? Does the mother conduct her offspring to the water? What enemies prey upon the newly-hatched young - for example, Fish Eagle, Marabou, Nile Monitor, adult crocodiles, Tigerfish, etc.?

7. CAPTURE OF PREY. Observations on the technique of capture and mode of disposal of prey of all kinds - fish, waterfowl, mammal, etc. would be of interest.

8. STOMACH CONTENTS. Examination of stomach contents is required as follows: (a) Zambezi crocodiles of large size (3-5 metres) - what is their relation to game animals (mammalian prey)? (b) Lakes Nyasa and Tanganyika - information of prey recovered from crocodiles of all size-groups is required. (c) Lake Mweru - Nothing is known of the feeding habits of juvenile crocodiles (up to 2 metres) in this lake; in view of the special conditions obtaining in these alkaline waters and the apparent scarcity of insect food, such information would be of particular interest.

9. GASTROLITHS. Data are required for a comparison of crocodile weight and the weight of the cargo of stomach stones. The entire stomach should be removed and care taken to ensure that no stones are left behind in the oesophagus.

10. INJURIES AND ABNORMALITIES. Crocodile hunters could provide useful information on the nature and position of wounds, healed injuries, and abnormalities, this to be accompanied by data on crocodile length and sex.

11. SUBMERGENCE. What is the maximum period during which a crocodile (of given length) can remain submerged? In favourable circumstances crocodile hunters operating at night would have opportunities for such observations, i.e. on river beds or in papyrus channels.

12. EXTERNAL PARASITES. The position on the body and approximate number of leeches. Areas to be examined include the groins, armpits, cloaca, jaws and tongue. Again, such information to be accompanied by details of length and sex. This information is particularly required for crocodiles of large size.

13. DECLINE IN NUMBERS. Evidence of changes in the crocodile population during recent years in specified areas would be most valuable. Are trade figures available for the number, skin-grades and value of skins annually exported from the various hunting grounds in Northern Rhodesia?

IN SEARCH OF PLATYSAURUS, FROM RHODESIA TO NATAL. By D.G.Broadley.

In February this year I spent ten days collecting rupicolous lizards while on the way down to the University of Natal. The principal objective was Platysaurus, more material being required for my forthcoming monographic study of the genus.

Leaving Umtali on 20th February, my first stop was at White Waters Bridge (30 miles south of Umtali), where I collected a series of the eastern form of Platysaurus g. rhodesianus, in which the male is all green above and has a green or blue chest. Specimens of Mabuya q. obsti and Mabuya longiloba rhodesiana were also taken here. A typical P. g. rhodesianus was collected at Cheyire Bridge in Melsetter District, but the local Mabuya quinquetaniata are intergrades with 44 midbody scale rows.

West of Birchenough Bridge there is an abrupt change in the colouration of adult male Platysaurus, the posterior half of the body is now reddish and the chest is dull red or terra cotta. This western phase was collected at regular intervals from the first kopjes 2 miles west of Devuli Bridge to Fort Victoria and then southwards to just beyond the Lundi River. Two species of rupicolous geckos, Afroedura transvaalica and Pachydactylus c. affinis, were collected between the Tokwe and Lundi Rivers, but a more exciting capture was a rare bat, Platymops petrophilus, one of three living in a fissure near the summit of a kopje. The only previous record of this genus in Southern Rhodesia was from Tuli.

Platysaurus is patchily distributed in the Limpopo valley and the local populations are intergrades between typical P. guttatus and the western phase of rhodesianus, there is a dense population on a roadside sandstone outcrop at Mutamba, south of Messina.

Four miles beyond this outcrop there is a pass through the first low ridge of the Zoutspansberg. I parked by a stream and pushed through some bushes to climb up the steep slope: watching me from a crevice opened up by the roots of a big fig tree was a Cordylus warreni depressus. This lizard was eventually "winkled out" of its fissure, but two others seen higher up the slope evaded capture by retiring into deep cracks. There was no sign of Platysaurus here.

The next specimen was a Thelotornis k. capensis DOR at Bandolierkop. It was very flattened, but I was able to get an accurate ventral count and preserved the head.

Specimens of typical Platysaurus guttatus were collected at Munnik and Moeketsi in the Eastern Transvaal, but I failed to locate any Cordylus w. vandami around Gravelotte, the type locality. South of Mica I turned west into the Drakensberg, via the Erasmus Pass, where Platysaurus minor orientalis was fairly common and a nice Cordylus w. perkoensis was also collected.

The next objective was Platysaurus g. fitzsimonsi, known only from the male type, but a small kopje north of Ohrigstad still swarmed with P. m. orientalis and the few outcrops between here and Lydenburg produced nothing. A torrential storm did not improve visibility, but there appeared to be no suitable Platysaurus habitats in the immediate vicinity of Lydenburg (type locality of fitzsimonsi). East of the town one rapidly climbs back into the Drakensberg. It was verywet, but I examined the first rock outcrops encountered - the only reptile seen was a Bush Snake (Philothamnus semivariegatus), which was too torpid to make good its escape when flicked out of a crevice. The summit of the Drakensberg was swept by a bitterly cold wind and covered in swirling mist. I reluctantly left the van, armed with a crowbar, to see whether the local rock fissures sheltered any reptile life. I have never collected in worse conditions, but when almost ready to call it a day I peered into a crack and saw a cordylid head. The lizard could not be "winkled out", so I levered the upper rock off the lower one; unfortunately it was on a slope and slipped out of control, smearing the unfortunate Pseudocordylus all over the rock face. Further efforts yielded a juvenile Pseudocordylus, a Pachydactylus c. capensis and three "montane" Mabuya striata, huddled together under one rock. An adult male and female Pseudocordylus melanotus transvaalensis were subsequently captured, and the next morning I got another fine male at Spitzkop, southeast of Sabie, in a recently felled plantation of mixed pines and gums.

The next collecting point was Mahosha, a granite kopje 5 miles west of Numbi Gate, Kruger National Park. Here Platysaurus g. wilhelmi was common and I managed to kill two with a single round of .22 dust shot, a feat difficult to accomplish with the larger forms of Platysaurus found in Rhodesia.

After passing through Nelsruit, type locality of wilhelmi, I stopped for the night in the hills above Barberton, close to the Swaziland border. The local rock crevices yielded a couple of Cordylus vittifer. Next morning I climbed up the hillside and found a Dwarf Gecko in a wide crack, it escaped despite extensive demolitions. It was presumably Lygodactylus ocellatus, which in the field looks remarkably like L. bernardi of Inyanga, which lives in a very similar habitat. A little later I had more success with a Homopholis wahlbergii, but also missed a fast-moving reptile in the grass, which was probably a Chamaesaura (snake-lizard).

The first Swaziland specimen was an adult Duberria l. lutrix at Piggs Peak, a much larger and more brightly coloured snake than D. l. rhodesiana. This area is covered with continuous coniferous plantations, making it unattractive to the herpetologist!

Near Forbes Reef, about 15 miles north of Mbabane, is a grassland area with fissured granite boulders and small kopjes, swarming with Pseudocordylus m. transvaalensis and "montane" Mabuya striata. Some lizards were "winkled out" of crevices, others were flicked into the open and caught, using a flexible brass rod with a hook on the end. The Pseudocordylus rarely venture from their retreats and are less easily shot than Platysaurus.

Rain the next morning (28th Feb.) prevented me from collecting between Mbabane and Bremersdorp. After a stretch of unsuitable country, I ran into granite again about 15 miles ESE of Bremersdorp, but at first could find no lizards. When on the point of giving up, I noticed a promising little flake and levered it off with my crowbar. Out dashed a brilliant green Platysaurus with a vivid orange tail, which vanished under a huge boulder. P. g. wilhelmi had been recorded from Bremersdorp, but this was not that form. I spent the remainder of the afternoon on the kopje, shooting six Platysaurus g. natalensis (previously known only from the two male types) and catching two more alive. The Bremersdorp specimens in the Natal Museum subsequently proved to be natalensis, which lacks the uniform black ventral surface of wilhelmi. Several Cordylus w. barbertonensis were seen in crevices and two captured.

I camped for the night near some kopjes 30 miles further south, but the next morning these outcrops could offer nothing more exciting than Mabuya q. margaritifer and Gerrhosaurus v. validus. Just inside the Natal border a Psammophis sibilans crossed the road in front of me, but I pushed on towards my next objective - Louwsburg, the type locality of Platysaurus g. natalensis. A tiny sandstone outcrop on the pass just east of Magut produced a nice male Platy, but I found no more suitable habitats until just before Louwsburg. Here the road runs along the edge of a cliff, while on the opposite side of the road are flat fissured outcrops and boulders. This area yielded a couple of Cordylus vittifer and a Pachydactylus m. maculatus, but there was no sign of Platysaurus. I crossed the road and walked along the cliff-edge, but saw no lizards. Then, turning to go back to the van, I spotted a lizard siloutted in a fissured boulder. Having shot it and confirmed the presence of Platysaurus, I had lunch and then settled down to collect a good series of the topotypes which were now emerging to bask in the afternoon sun. This was rendered more difficult by the terrain, for lizards shot on a vertical or steeply sloping rock face often fell over the precipice and were easily lost in the long grass and scrub below. Fortunately Platysaurus are usually not shy and will often emerge from their crevices after all has been quiet for a few minutes.

While patrolling the cliff edge I noticed a female Platysaurus beyond a boulder. Circling it to get a better shot, I discovered that the rock screened from view a male Flat-Lizard which had just

caught a grasshopper. I fired, but the lizard was not hit in a vital spot and it vanished under the boulder, leaving the insect behind. I began to reload, while waiting to see if the unwounded female would show up again, but before the revolver was loaded she dashed out and siezed the feebly moving grasshopper. The male then ran out to defend his prey and the female reliquished it to him, but a second round of dust shot prevented him from enjoying it. Platysaurus has excellent eyesight, and while waiting for adult males I often saw females and juveniles observe and catch tiny insects which landed a couple of yards away from the basking lizard.

Louwsburg is the southern limit of the genus Platysaurus, so while at Pietermaritzburg I turned my attention to Pseudocordylus. In June, returning to Umtali via Pretoria, I spent an hour on an outcrop midway between Warmbaths and Nylstroom, in order to get a series of Platysaurus m. minor. None were seen in the open, but 17 were obtained by dislodging a few flakes with my crowbar. This "random collection" comprised 2 males and 15 females, which is a normal ratio. When shooting basking lizards, the tendency is to collect the largest males, for several useful taxonomic characters are found only in this sex. Even when striving to get a representative series, the larger specimens provide bigger targets and are more likely to be killed than small juveniles. Thus a series collected by opening up cracks during cold weather will give a better sample of the population.

Considering the very limited ammount of time available for actual collecting, the deviation from the normal route to Natal proved well worth while. Altogether 108 specimens, representing six forms of Platysaurus, were collected, in addition to much other useful herpetological material. The only Transvaal - Natal form which I failed to get was the elusive Platysaurus g. fitzsimonsi of Lydenburg, which is probably restricted to cliff faces bordering some of the deep river valleys in the area. Perhaps one of our Transvaal members can run it to earth?

THE HERPETOFAUNA OF THE CATHEDRAL PEAK AREA OF THE NATAL DRAKENSBERG.

By Donald G. Broadley

While at the University of Natal, I took the opportunity to spend three weekends in the Natal Drakensberg; the area selected being Cathedral Peak, about half-way along the escarpment between Monts-aux-Sources and Giant's Castle. The main objective was to collect a good series of Pseudocordylus from the lower slopes to the summit of Cleft Peak and sort out the local forms.

At the foot of the mountain (5,000 ft.) there are forest patches along the streams. A day was spent in the Ndumeni Forest, but it was strangely devoid of life. Two male Dwarf Chameleons (Microsaura melanocephala) were found fighting in a tuft of grass at the forest edge. Three specimens of Arthroleptella hewitti, a rare forest floor frog, were taken, plus tadpoles of Rana wageri in a tiny stream.

A forestry road climbs up the mountainside through Mike's Pass, which is cut into the side of a towering cliff of Table Mountain Sandstone. Here the dark montane phase of Mabuya striata (as found along the eastern escarpment through to Inyanga) is common and an Afroedura nivaria was found behind a flake.

The T.M.S. is capped with hard lava, forming a plateau on which is situated a Meteorological Station at 6,100 feet. Numerous boulders at the roadside were overturned, but the only reptiles found were a Typhlops bibronii and a few Mabuya striata. Near the Met. Station is a small, steep-sided kopje with a rocky top, here there was a large population of Mabuya striata and I caught a single juvenile Pseudocordylus spinosus in a crevice.

The highest road is at 6,900 feet, this is in montane grassland with frequent rock outcrops, except where pines have been planted. Fleeting glimpses of several Mabuya capensis were obtained. They bask in grass tufts beside the path, but burrow down into the herbage when disturbed. Above the last of the coniferous plantaions a path cut into the mountainside zig-zags up to the Fire Lookout Hut (7,677 ft.). The low bank beside the path is riddled with rodent holes, which provide shelter for numerous skinks and a few lacertids (Tropidosaura essexi), which are hard to catch. Here too were the first Pseudocordylus m. melanotus encountered.

The path gains height slowly, following a knife edge with a drop of 2,000 feet on either side, it then runs along the face of the mountain beneath beetling lava cliffs. Pseudocordylus m. melanotus is common; Afroedura nivaria is scarce, despite ideal narrow fissures for these "flat-geckos". Three Many-spotted Snakes (Amplorhinus multimaculatus) were captured in this area, but no Bitis atropos were seen. Towards the end of this stretch the first small colony of Pseudocordylus langi was encountered.

The path drops down to a small mountain stream and a pool containing many large Rana vertebralis tadpoles, then one climbs up between the pinnacles of the Organpipes Pass. Here is the main local concentration of Pseudocordylus langi, about a dozen of my 16 specimens being collected here, but no P. melanotus.

At the summit of Organpipes Pass (9,600 ft.) one stands on the watershed (and border) between Natal and Basutoland, surrounded by bare rock outcrops and pinnacles, with snow drifts on the lee side of each rock formation. Here P. melanotus and P. langi occur together, the former being perhaps the more common. I found only one Afroedura nivaria locally, where the name "Snowy Gecko" is most apt!

When I first went up the mountain P. langi was known only from the holotype in the Museum of Comparative Zoology and some 'paratypes' in the Transvaal Museum, which Loveridge had not examined when he described the species. FitzSimons was unable to distinguish these specimens from P. subviridis (= P. melanotus) and therefore synonymised P. langi. On the way up the mountain I had collected a dozen P. melanotus, none of them very large. At the summit I walked down a small canyon and saw the head of a large red-flanked male Pseudocordylus peering out of a crack. The head withdrew, but the lizard

fell into an ambush a few minutes later and it was then possible to compare it with the even larger males of P. melanotus transvaalensis which I had earlier collected in the Transvaal Drakensberg and Swaziland. Both forms have huge heads, but in the typical race the body is proportionally smaller and the lateral scales are small and widely separated by granules. In P. m. transvaalensis the lateral scales are large and juxtaposed. In both forms the males have the underside and flanks brilliant orange, the females are much smaller and less brightly coloured.

I moved on to another rock face and spotted two dull coloured 'Pseudos' together. I fired, killing one, which was immediately recognisable as the controversial P. langi, the body being entirely covered with granules except for 6-8 rows of tiny flat scales along the spine. As I waited for the second 'Pseudo' to emerge from its crevice, I detected a movement on the opposite edge of the rock face. When shot, this proved to be a large male P. melanotus, and the lizard I was waiting for turned out to be a female of the same species, establishing that P. langi and P. melanotus are sympatric in the narrowest sense.

Most of the P. langi series were collected in a hectic half hour in the Organpipes Pass during my second trip to Cathedral Peak, accompanied by Orty Bourquin. On subsequent climbs dense cloud prevented further collecting in this area. P. langi males are smaller than those of P. melanotus, usually grey-bellied like the females, the body is olive grey with narrow black longitudinal streaks and a large black patch on the side of the neck, followed by a series of 3-6 sky-blue spots. The femoral pores are very small and number 11-17, compared with 5-9 large pores in P. melanotus and 3-5 in P. spinosus. Nearly half the P. langi stomachs contained vegetable matter (leaves and flowers), while the P. melanotus stomachs contained only insects.

The path to the summit of Cleft Peak (10,860 ft.) follows a knife edge, with a 4,000 foot sheer drop into Natal on one side and a steep snow-covered slope dropping to the Orange River tributaries on the other. Under stones lying on the two-foot wide ridge I captured three Tropidosaura cottrelli, living in a very restricted habitat which gets all the available sun. At the summit a Tropidosaura essexi was captured. The last P. langi was found under a stone at about 10,500 feet.

The ice-fringed rivulets, fed by the melting snows, contained numerous Rana vertebralis tadpoles; Orty Bourquin caught an adult frog.

AN EXPEDITION TO INHACA ISLAND AND SOUTH MOZAMBIQUE.

By Donald G. Broadley

A party of 25 zoologists from the University of Natal, led by Dr. D.E. van Djik, left Pietermaritzburg on the evening of 22nd April 1962 for Inhaca Island. We spent the first night, a cold and miserable one, just beyond Amersfoort in the eastern Transvaal.

Next morning my van was found to have a flat tyre, but the wheel was quickly changed and we pressed on, stopping for breakfast ten miles beyond Carolina. Rock turning produced a few specimens - Typhlops bibronii, Lygodactylus ocellatus, Cordylus vittifer and Breviceps adspersus. Five miles further on my spare tyre blew out and this delayed us for some time, but a large Psammophylax rhombeatus was captured under a roadside boulder. Our troubles were not over yet, for ten miles short of Komatipoort the VW's engine siezed up without warning and the van had to be towed into Komatipoort and left there for repairs. We shared out the van's load among the other cars and half a dozen students continued the journey as hitch-hikers.

After passing through customs, we stopped ten miles inside Mozambique to wait for the other cars. A dead tree with loose bark looked promising and a 3½ foot Varanus e. albigularis fell to the ground when the bark was dislodged. The next specimens to be captured were two Cordylus c. jonesii under loose bark on a fallen tree, so the first ten minutes collecting in Portuguese territory was quite rewarding.

We stopped for lunch at Menonde, where we left the main Lourenco Marques road. A bridge over a dry river swarmed with Mabuya striata, and an Agama cyanogaster was collected here. We continued to Namaacha, on the eastern slopes of the Lebombo Mountains, and camped by a stream in rocky country north of the town.

I had pressed for the inclusion of Namaacha on the Expedition's itinerary because it was a likely place to find Platysaurus g. wilhelmi and this species had never been recorded from Mozambique. These Flat-lizards proved to be common locally and a good series was collected: other rupicolous forms taken were Homopholis wahlbergii, Mabuya q. margaritifer and Gerrhosaurus v. validus. While collecting frogs at night a juvenile Python sebae was found on the edge of a reed bed, the only other snake collected locally was a Dispholidus t. typus.

A kopje right on the edge of the Mozambique plain near Menonde was inhabited by Mabuya q. margaritifer, but no Platysaurus were seen. The local roadside trees were occupied by Mabuya v. varia, this is an unusual habitat for this species.

Between Namaacha and Menonde we stopped to pick up a snake DOR. I was delighted to find what I took to be a Psammophis subtaeniatus sudanensis, but I then noticed that there were no ventral hair-lines, although the snake had the habitus, well-marked dorso-lateral stripes and transverse neck-bands of subtaeniatus. The subcaudal count of 92 was too low for subtaeniatus and this snake is probably a sibilans X subtaeniatus hybrid. Although P. sibilans and P. subtaeniatus are sympatric (sensu lato) over a huge area of Africa, they are ecologically separated. P. sibilans is plentiful in well-wooded areas and along rivers, while P. subtaeniatus abounds in dry savanna and on rock outcrops. South Mozambique is ideal country for P. subtaeniatus, but apart from the snake just mentioned the only Psammophis seen were sibilans, which was very common.

On 22nd April we moved camp to Boane, 15 miles west of Lourenco Marques. The only reptiles collected locally were geckos, both Lygodactylus capensis and Hemidactylus mabouia being common under loose bark. There was plenty of snake spoor on the bare, sandy ground and a big Psammophis sibilans was picked up DOR a few miles further south. A local 'river', actually a chain of deep reed-fringed pools, yielded nine species of amphibians in an evening's collecting made interesting by unidentified aquatic animals (probably young crocodiles). We had collected Xenopus l. laevis at Namaacha, but this platanna is replaced at Boane by X. muelleri, the tropical species which extends south to Lake St. Lucia.

Early next morning we drove into Lourenco Marques and embarked for Inhaca Island on the tug "Polana". Although Inhaca is 20 miles east of L.M. by sea, its south-eastern tip (Ponta Torres) is separated from the mainland at Cabo de Santa Maria by a channel only a kilometre wide. The island is about 7 miles long and 4 miles across , with deep mangrove-fringed inlets on the northern and southern coasts. It is composed of parallel sand dunes, which are heavily forested except where cleared for cultivation on the western side of the island. There are extensive freshwater swamps in the interior. About a mile and a half off the north-western coast lies the tiny Ilha dos Portugueses.

The striking feature of the Inhaca herpetofauna is the absence of many common mainland forms. At Lourenco Marques docks Mabuya striata swarms on buildings, as it does throughout eastern Africa, but none were seen on Inhaca and Mabuya v. varia is also missing. The only "normal" skink found on Inhaca is Mabuya homalocephala depressa, which may be found basking on rubbish heaps, tree trunks or in bushes right down to high water mark. There are a variety of fossorial skinks, with Ablepharus wahlbergii the most common, others are Scelotes arenicola, Acontias p. plumbeus and Typhlosaurus aurantiacus. With no competition for its "diurnal tree-trunk" nitche, Lygodactylus capensis abounds: I counted eight basking on one large tree. Hemidactylus mabouia is also common under loose bark on trees, but it is a nocturnal hunter and thus does not compete with Lygodactylus. The shortage of arboreal and terrestrial lizards is acute: no agamas or lacertids have yet been recorded on the island, though we did get a single young Gerrhosaurus flavigularis.

Inhaca Island has a good variety of snakes, but the commonest is Psammophis sibilans, which also occurs on the Ilha dos Portugueses. There are again a number of fossorial species, Typhlops fornasinii, Prosymna jani and Amblyodipsas microphthalma have already been recorded. No Philothamnus s. semivariegatus have yet been found on Inhaca, although Lygodactylus is an important item of its diet. P. natalensis is quite common and a Lycodonomorphus r. rufulus (the first recorded from Mozambique) was collected in a reed bed at night with a Hyperolius concolor in its stomach.

The Marine Biological Institute has a huge Naja melanoleuca subfulva from the Ilha dos Portugueses, in life it would have

measured over eight feet in length. This cobra is common on Inhaca, but Naja h. haje is probably gaining ground in areas where the dune forest has been cut out for cultivation.

Other snakes found on Inhaca are: Boaedon f. fuliginosus (sensu lato, Loveridge); Duberria variegata; Crotaphopeltis h. hotamboeia (upper labial colouration not known, no fresh specimens); Thelotornis k. capensis; Bitis a. arietans. Two common mainland species not so far recorded are Dispholidus t. typus and Naja n. mossambica, I would also expect Bitis gabonica to occur in the dune forests.

The extensive fresh-water swamps provide habitats for a variety of frogs, but the characteristic Inhaca amphibian is Breviceps adspersus, for its breeding habits make it independant of water. Pelusios subniger occurs in the artificially excavated water holes, together with Xenopus l. laevis. Xenopus muelleri is absent from the island, so it probably reached Delagoa Bay very recently, subsequent to the isolation of Inhaca.

We left Inhaca on 29th April and reached Komatipoort late that afternoon, only to find that my VW was still held up for spares. With University lectures resuming the next day, the only course was to leave most of the equipment for me to bring on when the van was repaired.

I spent a couple of days turning over stones around Komatipoort, which produced three species of Pachydactylus (capensis, punctatus and bibronii), a few Mabuya v. varia and a Scelotes brevipes. The only snake I found was a young Boaedon with a Lygodactylus in its stomach, but two adult Egyptian Cobras were killed on the road and one was salvaged. While walking along the firebreak that marks the Transvaal - Mozambique border, hoping for the odd basking snake, I was arrested for entering the border cordon. Just after this I missed a basking Psammophis subtaeniatus, which would have been the most south-eastern record of the species (there are two from Hectorspruit, 10 miles west of Komatipoort, in the Transvaal Museum).

I finally got away from Komatipoort late on 2nd May and had a good run of DORs, a big Bitis a. arietans that evening between Kaapmuiden and Nelspruit, and the next morning three in quick succession between Machadosdorp and Ermelo (Lycodonomorphus r. rufulus; Crotaphopeltis h. hotamboeia; Psammophylax rhombeatus).

LIVE SNAKES EXCHANGED. By J.D.Visser.

John Visser (P.O.Box 1132, PORT ELIZABETH, S.Africa) requires live snakes of the following species for photography and venom studies: Telescopus, Elapsoidea, Naja nigricollis, Atractaspis bibronii. In exchange he can offer: Puff Adder, Cape Cobra, Boomslang and smaller back-fanged types, all immediately available.