ISSN 1017 - 6187

AFRICAN HERP NEWS

NO. 22: MARCH 1995

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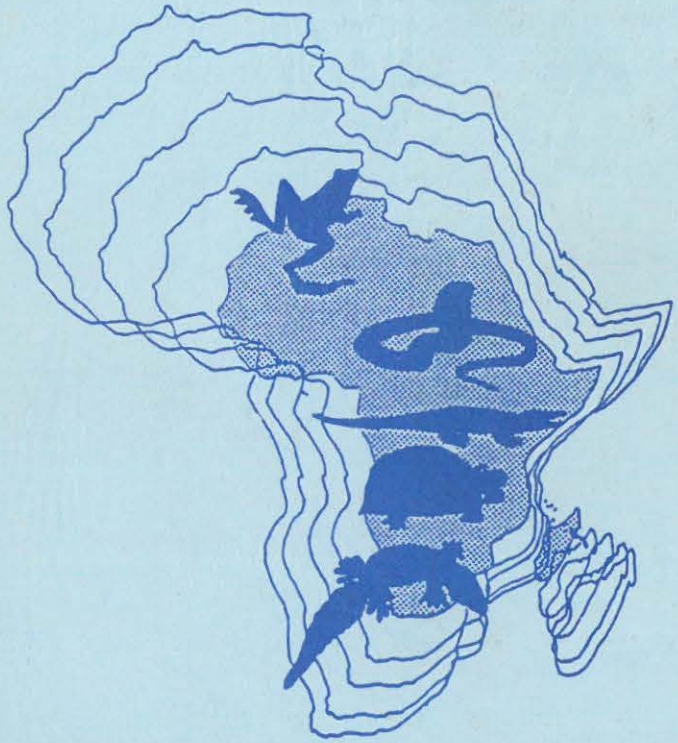
AFRICAN HERP NEWS

HERPETOLOGICAL ASSOCIATION OF AFRICA NEWSLETTER



MARCH 1995 NO. 22

HERPETOLOGICAL ASSOCIATION OF AFRICA

Founded 1965
The HAA is dedicated to the study and conservation of African reptiles and amphibians. Membership is open to anyone with an interest in the African herpetofauna. Members receive the *Journal of the Herpetological Association of Africa* (which publishes review papers, research articles, short communications and book reviews - subject to peer review) and *African Herp News* (HAA Newsletter) which includes short communications, life history notes, geographical distribution notes, venom and snakebite notes, short book reviews, bibliographies, husbandry hints, announcements and news items.

Editor's note:
Articles will be considered for publication as Short Communications provided they are original and have not been published elsewhere.

The views and opinions expressed in articles are not necessarily those of the Editor.

Articles and news items appearing in *African Herp News* may be reprinted, provided the author's name and newsletter reference are given.

Typist:
Mrs H. de Villiers, National Museum, Bloemfontein.

EDITORIAL

This issue of *African Herp News* was due to be sent out in December 1994, but as a result of various delays, it was finalized only in March 1995. Members can, however, look forward to receiving an additional two issues of the newsletter this year.

The *Fourth H.A.A. Symposium on African Herpetology* will take place later this year at St Lucia in KwaZulu Natal. The final dates for the symposium are 23-27 October 1995. Orty Bourquin and his team of symposium organizers have been rather busy arranging things, and apart from papers, posters and slide shows (see list on pages 7 to 9), there will be a variety of other attractions during the symposium, e.g. a visit to the St Lucia Crocodile Centre, an evening cruise boat trip on Lake St Lucia, and a "frog twitching" session. It all sounds quite marvellous! Bearing in mind that the only time H.A.A. members are able to get together is at symposia, why not make a special effort to attend this year's meeting? Although we are not able to host regular meetings on account of the widespread distribution of our members, our symposia more than make up for it!

I would also like to draw your attention to the *Ninth Meeting of the African Amphibian Working Group* to be held in Bristol, England, from 9 to 13 September 1996. Arrangements for this symposium are still at an early stage, but interested parties can contact the organizer, Prof. Richard Tinsley, at Bristol University. The eighth meeting was held at Waterberg Plateau Park in Namibia during January 1994, and in my opinion, was a very worthwhile experience.

H.A.A. members are reminded about the nomination of candidates for the *Exceptional Contribution to African Herpetology* award (see p. 24 of *African Herp News* 20). Any number of candidates from any country may be nominated by any fully paid-up H.A.A. member by means of a written proposal and brief motivation submitted to the Chairman at least six months in advance of the St Lucia symposium. Remember, depending on the H.A.A. Committee's decision, and even if proposals are made, it is not a necessity to present the award at any particular symposium.

It is once again time to elect a new H.A.A. Committee. African members are urged to submit nomination forms (included with this newsletter) to likely candidates. Regrettably, members have shown little interest in previous H.A.A. elections. I therefore urge you to play a more active role in this year's election. After all, it is your interests that are at stake here. Members are also welcome to submit in writing to the Chairman any suggestions they may have concerning the running of the Association, as well as any comments about the journal or newsletter.

I am pleased to say that this issue of *African Herp News* contains several Life History and Geographical Distribution notes, many of which were submitted by persons from outside South Africa, i.e. Zimbabwe, Germany, England and the Czech Republic. I would again like to encourage workers from all parts of the African continent, as well as those based in other parts of the world, to contribute to *African Herp News*. As many of you know, there are very few outlets for the publication of brief natural history and geographical distribution notes. *African Herp News* is there to provide a vehicle through which to make known small bits of important, often vital, herpetological information, unlikely to be accepted for publication in major journals. Your contribution may be

worth far more than you think! It is amazing how little is known about the diet, reproduction, distribution etc. of the majority of our amphibians and reptiles. The information contained in the various short note sections, originally published in the journal, is often the only information on a particular subject ever published. The value of this information can be judged by the numerous references to short notes cited in research papers and university theses.

What I have found particularly disappointing is the lack of life history notes from herpetoculturalists (e.g. reptile keepers). I have recently become aware of the fact that several overseas keepers are breeding southern African lizards and snakes, and some of these keepers are *even* publishing their results. Surely we have some members who have bred African herps? If so, where are your results? I would be more than happy to publish them. Is there a fear of being apprehended by conservation officials?

Once again, I would like to end by thanking all those who submitted articles and news items for this issue of *African Herp News*.

With the very best of wishes for a herpetological New Year.

Mike Bates
CHAIRMAN/NEWSLETTER EDITOR

FOURTH H.A.A. SYMPOSIUM ON AFRICAN HERPETOLOGY

BIODIVERSITY AND CONSERVATION OF AFRICAN HERPETOFAUNA

SECOND NOTICE

VENUE: ST LUCIA, KWAZULU-NATAL
DATE: 23-27 OCTOBER 1995

PAPERS/POSTERS/SLIDE SHOWS

A provisional list of presentations so far offered is attached. Abstracts are required, deadline 31/8/95.

PRESENTATIONS

There will be place for 21 twenty minute talks (15 + 5) and 27 thirty minutes (25 + 5) talks - if more contributions are received, some of the 30 minute talks may have to be shortened.

Poster size: To be about 1,2 m x 0,9 m.
Abstracts: Please do not exceed 200 words.

ACCOMMODATION

Enclosed is a list of hotels and other accommodation in the area. Please place the bookings yourself, but if you need help please let the organising committee know.

TRANSPORT

Those needing transport from (or to) Durban or Richards Bay airports please contact the organising committee.

Within St Lucia we will assist with transport as required.

REGISTRATION FEES

Members, if paid before 01/08/95	- R200
Non-members, if paid before 01/08/95	- R240
Daily rates	- R 60
Extra for late registration (unless special arrangements have been made)	- R 40

IMPORTANT DATES

DEADLINE FOR ABSTRACTS	31 August 1995
DEADLINE FOR REGISTRATION	31 August 1995

SYMPOSIUM FEATURES

Icebreaker; Reedbuck braai; Crocodile Centre visit and tour; Evening trip on the 80 seater "Santa Lucia" cruise boat (with refreshments!); evening "spotting" drive; evening "frog twitching" session (water permitting!) and drinking with old friends!

And, of course, an AGM.

ENQUIRIES AND ADDRESS FOR REGISTRATION

Dr O. Bourquin
H.A.A. Symposium Committee
Natal Parks Board
P.O. Box 662
PIETERMARITZBURG
3200

Tel: 0331 - 471961
Fax: 0331 - 471037

ACCOMMODATION OPTIONS - ST LUCIA

1. **BOMA HOTEL**
P.O. Box 9
St Lucia Estuary
3936

Tel: 035 - 5901330
Fax: 035 - 5901330

ACCOMMODATION
2 bed-roomed flat
Main bedroom en suite
Separate bathroom
Kitchen
Colour TV - M-Net

OTHER
Air conditioned
Swimming pool
Ladies Bar

PRICE
Bed only, min. R160,00 per unit
Up to two persons, additional persons R80,00 per day.

FOOD
No dining room. Breakfast arranged at local restaurant.

- -

2. **LA ROCHELLE** (Time share units)
P.O. Box 80
St Lucia
3936

Bookings: Ask for Delene

Tel: 031 - 523217
Fax: 031 - 527717

ACCOMMODATION
3 bedroom flat - sleeps seven
Main bedroom en suite
Separate bathroom
Kitchen
Not air conditioned - fans
Colour TV - M-Net

OTHER
Two pools
Jacuzzi
Sauna

PRICE
R150,00 per unit/day
No restaurant

- -

3. **LAKE VIEW** (Time share units)

Bookings: Ask for Delene

Tel: 031 - 523217
Fax: 031 - 527717

ACCOMMODATION
Two bedroom flat
Sleeps four
Lounge / Kitchen
TV - M-Net

OTHER
Swimming pool
Restaurant

PRICE
R140,00 per unit per night.

- -

4. **PERNA PERNA** (Time share units)

Bookings: Ask for Delene

Tel: 031 - 523217
Fax: 031 - 527717

ACCOMMODATION
Three bedroom flat
Sleeps six
Lounge / Kitchen
Colour TV - M-Net

OTHER
Swimming pool

PRICE
R140,00 per unit/night

- -

5. **SANDY PLACE**
P.O. Box 35
St Lucia
3936

Tel: 035 - 5901109
Fax: 035 - 5901109

ACCOMMODATION
Two bedroom flat
Sleep six
Lounge
Kitchen, microwave
Colour TV - M-Net
Air conditioners

OTHER
Swimming pool
Snooker/pool room

PRICE
R100,00 per unit/night 1-2 persons
Additional persons R35,00 per night

- -

6. **VILLA MIA**
P.O. Box 96
St Lucia
3936

Tel: 035 - 5901121
Fax: 035 - 5901121

ACCOMMODATION
Two bedroom flat
Main - double bed
Second - four beds
Lounge
Fully-equiped kitchen
Colour TV - M-Net
Fans

OTHER
Swimming pool

PRICE
R68,40 per unit/night
One person additional R34,20/person

- -

7. **STOKKIES DRAAI**
P.O. Box 36
St Lucia
3936

Tel: 035 - 5901216
Fax: 035 - 5901216

ACCOMMODATION
Two bedroom flat
Sleeps six
Bathroom and shower
Open-plan kitchen
Colour TV - M-Net

Note: Does not provide towels

PRICE
R65,00 per unit 1-2 persons only
Additional persons R30,00 per day

- -

8. **CWEBENI**
P.O. Box 57
St Lucia
3936

Tel: 035 - 5901021

ACCOMMODATION
2 bedroom flat
Sleeps six people
Separate bathroom
Fully-equiped kitchen
Colour TV - M-Net

PRICE
R90,00 per unit 1-2 persons only
Additional persons R36,00 per person

- -

PRELIMINARY LIST OF PRESENTATIONS

PAPERS

- The Tongaland turtle story (Hughes)
- Herpetofauna of the Nature Reserves and National Parks of the Free State, South Africa (M.F. Bates)
- Distribution and diversity of amphibians and reptiles in Lesotho (M.F. Bates)
- Worldmap distribution analysis of African bufonids (J.C. Poynton)
- The diversity and conservation status of the herpetofauna of Tongaland (Kyle, G.V. Haagner & W.R. Branch)
- A revision of the *Phyllodactylus lineatus-essexi* complex (W.R. Branch, A. Bauer & Good)
- A new species of gecko allied to *Pachydactylus namaquensis* from the Western Cape (A. Bauer, W.R. Branch & Good)

- Conservation status of the new Western Cape province herpetofauna (E.H.W. Baard)
- Systematics and zoogeography of the genus *Naja* in Africa (D.G. Broadley)
- Conservation education (G. Pieterse)
- Reproductive strategies of agamas in Namibia (N. Heideman)
- Declining amphibian populations (L.H. du Preez)
- Agonistic behaviour in the Southern dwarf chameleon *Bradypodion ventrale* (G.V. Haagner)
- Notes on the ecology of two *Varanus* species in the Eastern Transvaal (G.V. Haagner)
- Notes on male combat in Mole snakes (G.V. Haagner & W.R. Branch)
- Sexual dimorphism in Eastern Cape dwarf chameleon (G.V. Haagner & W.R. Branch)
- Nesting ecology of the Nile crocodile in the Lake St. Lucia ecosystem in KwaZulu-Natal, South Africa (A.J. Leslie)
- The role of the Nile crocodile in the Lake St. Lucia ecosystem in KwaZulu-Natal, South Africa (A.J. Leslie)
- Phylogenetic systematics of *Rhoptropus* (A. Bauer)
- Systematics and biogeography of some squamate reptiles (W.D. Haacke)
- Lizard behavioural ecology (M. Whiting)
- Transvaal Museum collections: Past, present and future (S. Ritter)
- Phylogeny of African vipers, molecular and morphological evidence (R. Herman)
- Feeding ecology of the Puff-adder *Bitis arientans* (L. Egan, G.V. Haagner & W.R. Branch)
- Post-strike trailing in the Puff-adder *Bitis arietans* (L. Egan & W.R. Branch)

- Crocodiles as a resource in KwaZulu-Natal (D. Blake)
- General distribution patterns of reptiles in KwaZulu-Natal (O. Bourquin)
- Dwarf chameleons (no details) (L.R.G. Raw)
- Distribution and status of *Heleophryne natalensis* (R.C. Boycott)
- Distribution of herpetofauna in Swaziland (R.C. Boycott)

POSTERS

- The analysis of spitting cobra venom (Scott)
- Systematics and zoogeography of the genus *Naja* in Africa (D.G. Broadley)
- Amphibians and reptiles in the exotic pet trade (M. Burger)
- Ethology of feeding of the puff-adder *Bitis arietans* (L. Egan, G.V. Haagner & W.R. Branch)
- Post-strike prey trailing in the Puff-adder *Bitis arietans* (L. Egan & W.R. Branch)
- A new *Acontias* species from KwaZulu-Natal (O. Bourquin & A.J.L. Lambiris)

SLIDE SHOWS

- Transvaal Herpetological Association's "Death on the road" survey (G. Pieterse & de Villiers)
- The effects/threats of open cast mining on herpetofauna (A. de Villiers)
- The amphibia of South Africa (G.N. Smit)
- Herpetofauna of Madagascar (M. Burger)

HERP-INFO

Advertisement rates:

H.A.A. members:	No charge.
Non members:	R7.50 per 50 words or part thereof. Over 50 words R4.00 per 15 words or part therof.

Advertisements with payments made payable the H.A.A. should be sent to: Rod Douglas, H.A.A. Herp-Info, National Museum, P.O. Box 266, 9300 Bloemfontien.

The Editor retains the right to exclude any advertisement from publication. The Editor will presume that any persons placing advertisements and/or responding to advertisements shall be fully aware of any regulations and laws governing the sale of reptiles and amphibians in his/her area, and no correspondence will be entered into as regards these matters. Neither the Editor nor the H.A.A. shall be held responsible for any legalities or claims arising from advertisements.

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WANTED

Books and back issues of journals. The following books and back issues of journals are urgently sought:

J. Herpetol. Assoc. Afr. Vols. 1 - 32.
J. Herpetol. Assoc. Rhodesia. Vols. 1 - 24.
FitzSimons (1943). *The lizards of South Africa* (original only).
Smith (1849). *Illustrations of the Zoology of South Africa* (reprint of the reptile volume).
Rose (1943). *The adventures of* Breviceps, *the rain frog.*
Poynton (1964). The amphibia of southern Africa; a faunal study. *Ann. Natal Mus.*
Leistner & Morris (1976). Southern African place names. *Ann. Cape Prov. Mus.*

Also, complete or partial sets of South african regional herpetological societies and clubs. top prices paid or in exchange for your literature needs. **Prof. Aaron M. Bauer, Biology Department Villanova University, 800 Lancaster avenue, Villanova, Pennsylvania 19085, United States of America. Fax: 091-610-519-7863; E-Mail abauer@kin-kong.vill.edu.**

Information on boid breeding. Private breeder seeks contact with persons working with the three Madagascan boids and southern African pythons. Contact: **Stephen Wiseman, Clocktower House, Culzean, Maybole, Ayrshire, KA 19 8 LE, SCOTLAND.**

Information on elapid husbandry. Keepers and breeders of the following species and subspecies: *Naja nigricollis nigricincta, N. n. woodi, N. n. crawshayi, Naja mossambica katiensis, Dendroaspis jamesoni, Walterinnesia aegyptia* and *Pseudaspis cana* are requested to contact: **Alf Sundberg, PL. 1217 Törnemála, 38591 Torsás, SWEDEN.**

Information on tortoises. Keeper and breeder of *Kinixys* tortoises wishes to communicate with persons having field experience of these animals. Contact: **William H. Espenshade III, P.O. Box 26018, Philadelphia PA 19128-0018, UNITED STATES OF AMERICA.**

FOR SALE

Books. The following books are offered for sale to H.A.A. members at special prices:
Cei, J.M. (1987). *Reptiles del Centro, Centro-oeste y Sur de la Argentina. Herpetofauna de las zonas aridas y semiaridas* (528 pp., $56.00 + postage).
Cei, J.M. (1994). *Reptiles del Noroeste, Nordeste y Este de Argentina* (949 pp., 124 colour plates, 112 figures, $76.00 + postage, limited supply).
Write to: **Dr Jose M. Cei, Hilario Cuadros 81, 5501. Godoy Cruz, (Mendoza), ARGENTINA.**

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HERPETOLOGY COMBINED MUSEUM COLLECTIONS DATABASE

The Department of Herpetology, California Academy of Sciences is host to the *Herpetology Combined Museum Collections Database.* At present, the entire herpetological holdings of the following institutions are on-line and accessible: California Academy of Sciences (CAS), Carnegie Museum (CM), Louisiana State University (LSUMZ), Texas Natural History Collection (THNC), University of California, Berkeley (MVZ), University of Texas, Arlington (UTA), Smithsonian (USNM), and the Peabody Museum, Yale (YPM). In addition the database includes the Caudata and Gymnophiona holdings of Harvard University (MCZ).

Data are limited to numbers of specimens held in each institution by genus and/or species; i.e., who has what and how many. The HCMC Database is accessible by (1) searching gopherspace via Veronica using the keyword "herpetology", (2) by accessing the CAS gopher directly: %gopher gopher.calacademy.org; or (3) via World Wide Web: http://www.calacademy.org.

Institutions wishing to add their data to the HCMCD should contact:

Jens Vindum
California Academy of Sciences
jvindum@calacademy.org

or

Jose Rosado
Museum of Comparative Zoology
jrosado@mcz.harvard.edu

Robert C. Drewes
Curator & Chairman
Department of Herpetology
California Academy of Sciences
casherp@mercury.sfsu.edu

MADAGASKAR ADVENTURES

MADAGASCAR HERPING TOURS WITH MARIUS BURGER: 1995

GROUP 1: 12 - 25 NOVEMBER 1995
GROUP 2: 26 NOVEMBER - 9 DECEMBER 1995
GROUP SIZE: MAXIMUM 14 PEOPLE PER GROUP

BOTH GROUPS WILL BE LED BY HERPETOLOGIST / WRITER / PHOTOGRAPHER MARIUS BURGER AND ACCOMPANIED THROUGHOUT BY EXPERIENCED MALAGASY GUIDES FLUENT IN ENGLISH, GERMAN AND FRENCH.

Madagascar, the world's 4th largest island, is a herpetologist's dream, with approximately 270 species of reptiles and 170 species of frogs described to date. The endemicity rate is extraordinarily high, given at 99% for frogs and about 90% for reptiles. Nearly every expedition turns up new taxa, with a staggering 48 species having been described in the 1990's alone.

Like everything on Madagascar, the herpetofauna is nothing short of remarkable, including some of the world's most bizarre life forms. Marius Burger will be escorting 14 people around the reptile "hotspots" of Madagascar and the itinery involves visiting prime localities in the three main climax habitat zones on the island.

The tour begins with a visit to the western dry deciduous forests, where we will be sure to encounter the world's largest chameleon, spiny tailed iguanids and a variety of snakes including boas. A bonus for visitors to this part of Madagascar will be "Project Angonoka" (Jersey wildlife Preservation Trust) where rare endemic tortoises are being bred in captivity.

We will then return to Madagascar's capital city, Antananarivo, and head east for the high altitude central-eastern rain forests. This area is renowned for its richness in terms of frog diversity, with more than 75 species having been recorded from the locality we are to explore. Most celebrated of these is the Golden Mantella. Chameleons and snakes abound. On our way back to the capital we will stop at the Peyrieras reptile and butterfly farm where a large selection of very rare and localised species are kept in captivity.

The next leg of the tour will take us to the semi-arid southern part of Madagascar, a striking contrast to the habitats we will have seen so far: this is Madagascar's "botanical lunatic asylum" where the scenery never fails to fascinate. The herps of this region include desert tortoises such as the Spider and Radiated Tortoises, while lizards are particularly abundant.

Finally, we fly north-east to Madagascar's largest remaining tropical lowland rain forest, the Masoala peninsula. Highlights of this poorly known region include Giant Day Geckos, *Uroplatus* geckos, hog-nosed snakes and the Tomato Frog.

PRICE PER PERSON, DOUBLE ROOM SHARING: R8 496,00
SINGLE SUPPLEMENT: R1 337,00

Prices include: all air fares (ex-Johannesburg), all land arrangements, transfers and accommodation, Malagasy guide throughout tour, airport taxes, and visa fees.

For more information, please call Derek Schuurman or Rita Griessbach at: Madagaskar Adventures (SA) at Tel: 011 - 728 7384 / 483 3254 and Fax: 728 2419.

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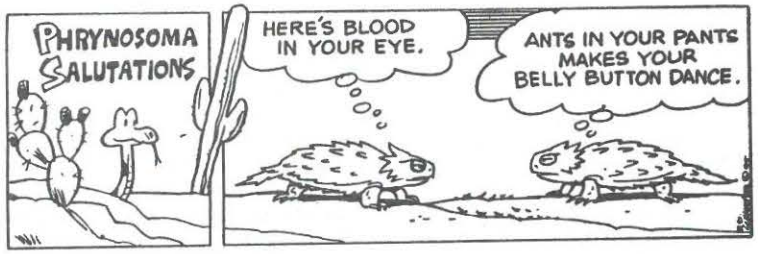
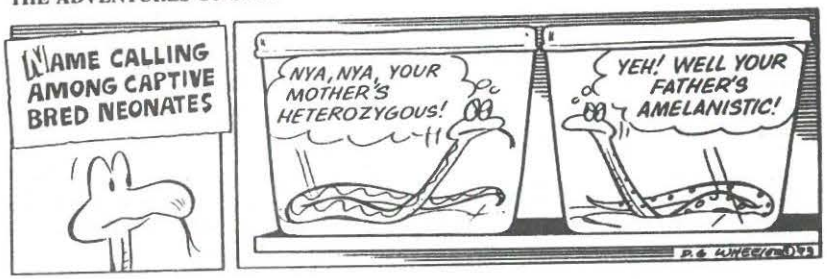
THE ADVENTURES OF SPOT



THE ADVENTURES OF SPOT



A THIRD GENERATION BIOLOGICAL CLASSIFICATION SYSTEM

R.B. Yeadon

5 Armadale Road, Sea View 4094, South Africa

"And God created great whales, and every living creature that moveth,
which the waters brought forth abundantly, ...
And God said, Behold, I have given you every herb bearing seed,
which is upon the face of all the earth, and every tree, ...
And to every beast of the earth, and to every fowl of the air,
and to every thing that creepeth upon the earth, ..."

Holy Bible, Genesis 1, verses 21, 29 & 30

For thousands of years man had to be content with the rough classification of the living things around him into great whales and other creatures of the waters, of beasts of the earth, of things that creepeth upon the earth, of fowls of the air, of herbs, and of trees. As man the explorer and man the scientist increasingly came to study the things around him, so a more detailed and scientific classification system became necessary. This need culminated in the classification system developed by Linneaus, which has stood the test of time and which, although having been expanded, remains in use today.

In this age of computers, a third generation classification system has become possible, and even desirable. When used intelligently, computers can remove much of the drudgery previously required in searching for data, drawing up of lists of data and sorting or re-arranging lists of data.

The key to the expanded system here proposed is an alphanumeric code which is given to each valid taxon. Attempts have been made in the past to give numbers to different species of plants and animals - e.g. trees and birds. However, because there was a failure to allow for additions and changes to these lists, original numbers have been changed over time, leading to some confusion. Also, no attempt was made to relate the numbers to one another, or to levels of classification - e.g. the numbers (1) and (2) given to the Ostrich and Jackass Penguin (respectively) in early editions of *Roberts Birds of South Africa* (e.g. Roberts, 1942) give no indication that these two birds belong to very different bird families. A numbering system which did would be more useful and informative.

The *Encyclopaedia Britannica* (1974) lists twenty-two possible levels of classification. In the system proposed here, only thirteen levels are used, the upper ten needing only a single character code and the lower three a double character code, giving each taxon a sixteen character alpha-numeric code in the full form.

The levels used are: Kingdom, Phylum, Subphylum, Class, Subclass, Order, Suborder, Superfamily, Family, Subfamily, Genus, Species, and Subspecies. For levels below Order, the first six characters will be left off in general use, leaving a manageable ten character code.

As an example, the full taxon code 111313-1111-140302 is broken down as follows:

1 = Metazoa (Kingdom)
1 = Chordata (Phylum)
1 = Vertebrata (Subphylum)
3 = Reptilia (Class)
1 = Lepidosauria (Subclass)
3 = Amphisbaenia (Order)

1 = Amphisbaenia (Suborder)
1 = Amphisbaenoidea (Superfamily)
1 = Amphisbaenidae (Family)
1 = Amphisbaenia (Subfamily)

14 = Chirindia (Genus)
03 = langi (Species)
02 = occidentalis (Subspecies)
= Jacobsen's Round-headed Worm Lizard

Knowledge of a taxon's code will make possible the easy extraction of the above classification tree information, and any other information, such as taxon distribution, from an appropriate computer data bank.

Codes are allocated to taxa according to the chronological order in which they are placed into higher level taxa. This means that earlier described taxa may have codes greater than those of more recently described ones. Once used, a taxon code will never be used for another taxon, even if the taxon originally given the code is synonymised. Of course if a taxon is revived, then its original code will also be revived.

Should a higher taxon have more than nine members, or a double character code taxon more than 99 mumbers, then the alpha characters A-Z will be used. This will allow up to 35 members in a taxon with a single character defining code, and 359 in a taxon with a double character defining code. If this is insufficient, then the higher taxon will be divided. For example, if a genus contains more than 359 species, the species taxa will be divided into two or more groups, each with a different genus taxon code, but with the same genus name.

All species of animals and plants, and everything else in between, both extant and extinct (even members of the mineral kingdom), could be given unique classification codes as exampled above.

It is important to decide whether an alpha-numerically coded classification system is really necessary and worth the effort needed to implement it. It is characteristic of the human mind to categorise things. Taxonomists are continually trying to relate both living and extinct life forms to one another. Having an alphanumeric method suitable for use by computers will assist in their work. The genus names *Scelotes* and *Mabuya* tell us nothing of their relationship, but their possible taxon codes of 4114010000 and 4114020000 respectively, tell us that they belong to the Scincidae family (code 4110000000).

Certainly, the numbering of species in a reference book makes for quicker and more easily located information. FitzSimons' (1943) *The Lizards of South Africa* does not have numbered species, with the result that it is irritatingly time consuming to relate plate figures at the back of the book to text within the book. Compare this to the *National List of Indigenous Trees* (Von Breitenbach, 1987) where all drawings and distribution maps are neatly numbered and tie up with the text. Unfortunately however, the numbering system for trees falls down when newly discovered trees are inserted into the list - e.g. tree number 21.1 *Welwitch* (ed
rather clumsily after 21 Willowmore Cedar, which belongs to a different plant family. Had a coding system, as is being suggested here, been adopted, the insertion would have been easily and logically accommodated. If the suggested coding system was accepted and adopted universally, lists of flora and fauna from all countries in the world would blend in with and complement each other.

A minor shortcoming of this proposed encoding of taxa is that the code number sequence of taxa within a higher taxon will correspond to their chronological entry into the higher taxon rather than according to some biological relationship. However, there are methods which can be used to "force" a computer to sort and print taxa into other sequences as required. As an example, the lacertid lizard *Tropidosaura montana* is the genotype and therefore the first species placed in the genus *Tropidosaura*, and will therefore be allocated the species code 01. *T. essexi* appears to be the next species placed in the genus and will be allocated the species code 02. If a printout by code is made, *T. essexi* will print after *T. montana*, but if an alphabetical printout by name is made, *T. essexi* will print out before *T. montana*. By using suitable flags in the taxa data records, other useful arrangements could be listed.

As research continues, some species will undergo name changes, while others may even be moved into different genera or families. This would mean that a new code will be necessary. The old code record for the changed or moved species will be tagged 'synonym of (new code)' when the new code has been determined, and a record with the new code entered into the data base. For example, *Tropidosaura cottrelli*, was initially described as *Basutosaura cottrelli* but later moved to the genus *Tropidosaura*. If its initial code and name was 1216020100 *Basutosaura cottrelli*, the note 'is synonym of 1216010400 *Tropidosaura cottrelli*' would be entered into the record of 1216020100 *Basutosaura cottrelli* in the data base. Historical records of 1216010400 *T. cottrelli* would reflect that *Basutosaura cottrelli* is a synonym. As each synonymised taxon will inherit the taxon code of the taxon that it is made a synonym of, it is a simple procedure to create a list of valid taxon synonyms.

Although the creation of a coded taxon computer data bank will be a mammoth task, once created it will be of immense value to future workers. It can easily be updated and its contained information easily and cheaply made available to anyone, in part or complete form, through the post by means of computer storage discs.

List 1 shows examples of the use of taxon codes. It is an abbreviated list of suggested codes for the higher levels of biological classification. List 2 is for southern African amphisbaenians, and List 3 is a list of synonyms (so far located), arranged historically, for *Dalophia pistillum*.

Any comments and suggestions on this proposed coded classification system would be welcomed by the author.

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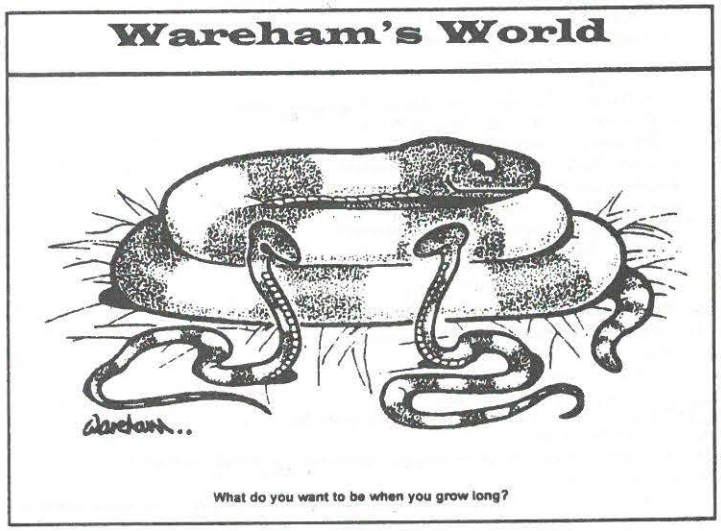

Code	Taxon Name
100000	Metazoa Kingdom (Animals)
110000	Chordata Phylum (Chordates)
111000	Vertebrata Subphylum (Vertebrates)
111100	Mammalia Class (Mammals)
111200	Aves Class (Birds)
111300	Reptilia Class (Reptiles)
111310	Lepidosauria Subclass (Lepidosaurians)
111311	Sauria Order (Lizards)
111312	Serpentes Order (Snakes)
111313	Amphisbaenia Order (Amphisbaenians)
111314	Rhynchocephalia Order (Beaked Reptiles)
111315	Eosuchia Order (Eosuchians) (Extinct)
111320	Archosauria Subclass (Ruling Reptiles)
111321	Crocodylia Order (Crocodilians)
11132x	Other Orders (Extinct)
111330	Anapsida Subclass (No Common Name)
111331	Testudines/Chelonia Order (Turtles)
11133x	Other Orders (Extinct)
1113x0	Other Subclasses (Extinct)
111400	Amphibia Class (Frogs,Salamanders,Caecilians,Sirens)
111410	Salientia Subclass (Frogs)
111411	Anura Order (Frogs,Toads)
111412	Proanura Order (Extinct)
111420	Lepospondyli Subclass (Salamanders,Caecilians,Sirens)
111421	Caudata Order (Salamanders)
111422	Gymnophiona Order (Caecilians)
111423	Trachystomata Order (Sirens)
1114x0	Other Subclasses (Extinct)
111500	Osteichthyes Class (Bony Fish - Typical Fishes,Lungfishes)
111510	Actinopterygii Subclass (Typical Fishes)
111520	Sarcopterygii Subclass (Lungfishes)
111600	Selachii Class (Sharks,Skates,Rays,Chimeras)
111700	Agnatha Class (Jawless Fish - Lampreys,Hagfishes)
111800	Placodermi Class (Primitive Extinct Fishes)
112000	Cephalochordata Subphylum (Amphioxus,Lancelets)
113000	Urochordata Subphylum (Sea Squirts,Tunicates)
113100	Ascidiacea Class
113200	Thaliacea Class
120000	Uniramia Phylum (Arthropods - Insects,Centipedes,Millipedes)
130000	Chelicerata Phylum (Spiders,Horseshoe Crabs)
140000	Crustacea Phylum (Crustaceans)
150000	Mollusca Phylum (Mollusks)
1x0000	28 Other Animal Phyla (Worms etc.)
200000	Parazoa Kingdom (Animals with some Plant characteristics)
210000	Porifera Phylum (Sponges)
300000	Protozoa Kingdom (Single-celled Protozoans - unassignable as Animals or Plants)
3x0000	7 Phyla and 2 Divisions
400000	Monera Kingdom (Algae,Flagellates,Diatoms,Bacteria,Viruses - Plants with some Animal characteristics)
4x0000	13 Divisions
500000	Plantae/Metaphyta/Embryophyta Kingdom (Plants)
5x0000	7 Divisions
600000	Mineral Kingdom (Minerals)

List 1. Suggested Taxon Codes for the Higher Classification Levels.

Taxon Code	Taxon Name	Describer	DsYr	EfYr	Distribution
1000000000	Amphisbaenia Suborder (130s4f 89b)	Gray	1844	1844	/Afr/InO/Eur/Asi/SAm/NAm/AtO
1100000000	Amphisbaenoidea Superfamily	Fitzinger	1826	1826	/Afr/InO/Eur/Asi/SAm/NAm/AtO
1110000000	Amphisbaenidae Family (120s 89b)	Gray	1825	1825	/Afr/InO/Eur/Asi/SAm/NAm/AtO
1111000000	Amphisbaeninae Subfamily	[Roser]	1956	1956	/Afr/InO/Eur/Asi/SAm/NAm/AtO
1111060000	Monopeltis Genus (16s 89b)	Smith	1848	1848	/AfrCSWSSE/Bot/Nam/RSA/CaP/Nat/OFS/Tra/Zim
1111060000	Monopeltis Genus (Dist Cont)	Smith	1848	1848	/AfrWC/Ang/Cam/Con/Gab/Mal/Moz/RMu/Zai/Zam
1111060100	capensis Species	Smith	1848	1848	/AfrSWSSE/Ang/Nam/Bot/RSA/CaP/OFS/Tra/ZimS/MozS
1111060200	sphenorhynchus Species	Peters	1879	1879	/AfrSWSSE/Zai/Nam/RSA/CaP/Nat/Tra/Bot/Zim/Zam/Moz
1111060201	sphenorhynchus Subspecies	(Peters)	1879	1978	/AfrSWSSE/MozS/NamNE/RSA/CaP/NatN/TraN/ZimS/ZimS
1111060202	mauricei Subspecies	(Parker)	1935	1982	/AfrSWSSE/Nam/RSA/CaP/Bot/Zim/Zam
1111060400	anchietae Species	(Bocage)	1873	1885	/AfrSW/AngS/NamN
1111060700	leonhardi Species	Werner	1910	1943	/AfrSWSSE/Nam/RSA/CaPN/TraN/Bot/Kalahari/Zim
1111061300	zambezensis Species	Gan & Bro	1974	1974	/AfrS/ZimN/Urungwe District/Mana Pools
1111061700	rhodesianus Species	(Br/Ga/Vi)	1976	1988	/AfrS/Zim/Zam/Mal/Moz
1111100000	Dalophia Genus	Gray	1865	1976	/AfrSWSSE/Zai/Ang/Nam/Bot/RSA/CaP/Tra/Moz/Zim/Zam
1111100200	pistillum Species	(Boettger)	1895	1976	/AfrSWSSE/Nam/RSA/CaP/Tra/Bot/Zim/Moz
1111100600	longicauda Species	(Werner)	1915	1982	/AfrSWS/Nam/Bot/Zim
1111120000	Zygaspis Genus	Cope	1885	1885	/AfrSWSSE/Bot/Nam/RSA/CaP/Nat/Tra
1111120000	Zygaspis Genus (Dist Cont)	Cope	1885	1885	/AfrSWSSE/Ang/Moz/Zai/Zam/Zim
1111120100	violacea Species	(Peters)	1854	1947	/AfrSWSSE/RSA/NatN/TraNE/Moz/Zim
1111120300	quadrifrons Species	(Peters)	1862	1970	/AfrSWSSE/Zai/Ang/Nam/RSA/CaP/Tra/Bot/Zim/Moz
1111170000	Chirindia Genus	Boulenger	1907	1956	/AfrSE/RSA/Tra/Moz/Zim/AfrE/Tan
1111170100	swynnertoni Species	Boulenger	1907	1907	/AfrS/Zim/Melsetter Distrct/Chirinda Forest/MozS
1111170300	langi Species	FitzSimons	1939	1939	/AfrSE/RSA/Tra/Moz
1111170301	langi Subspecies	(FitzSim)	1939	1988	/AfrSE/RSA/TraNE/MozW
1111170302	occidentalis Subspecies	Branch	1988	1988	/AfrSE/RSA/TraN

List 2. Amphisbaenians of Southern Africa.

DsYs = Year taxon first described.

EfYr = Year taxon given present name.

Taxon Name	Describer	DsYr	S	EfYr	Renamer	Valid Name Reference/(Original Name)	Describer	DsYr
Monopeltis granti	Boulenger	1907	S	1933	FitzSimons	Monopeltis granti granti	[FitzSimn]	1933
Monopeltis jallae	Peracca	1910	S	1941	Loveridge	Dalophia jallae	[Loveridg]	1941
Monopeltis pistillum	Boettger	1895	S	1941	Loveridge	Dalophia pistillum	[Loveridg]	1941
Monopeltis granti	Boulenger	1907	S	1941	Loveridge	Dalophia pistillum	[Loveridg]	1941
Monopeltis colobura	Boulenger	1910	S	1941	Loveridge	Dalophia pistillum	[Loveridg]	1941
Monopeltis ellenbergeri	Monard	1931	S	1941	Loveridge	Dalophia pistillum	[Loveridg]	1941
Monopeltis granti granti	[FitzSimn]	1933	S	1941	Loveridge	Dalophia pistillum	[Loveridg]	1941
Monopeltis granti transvaalensis	FitzSimons	1933	S	1941	Loveridge	Dalophia pistillum	[Loveridg]	1941
Monopeltis mossambica	Cott	1934	S	1941	Loveridge	Dalophia pistillum	[Loveridg]	1941
Monopeltis granti kuanyamarum	Monard	1937	S	1941	Loveridge	Dalophia pistillum	[Loveridg]	1941
Monopeltis colobura	Boulenger	1910	S	1943	FitzSimons	Monopeltis granti colobura	[FitzSimn]	1943
Monopeltis longicauda (R+)	Werner	1915	S	1943	FitzSimons	Monopeltis granti colobura	[FitzSimn]	1943
Dalophia longicauda (R+)	[Loveridg]	1941	S	1943	FitzSimons	Monopeltis granti colobura	[FitzSimn]	1943
Dalophia pistillum (part)	[Loveridg]	1941	S	1943	FitzSimons	Monopeltis granti colobura	[FitzSimn]	1943
Monopeltis colobura	[Loveridg]	1920	S	1943	FitzSimons	Monopeltis granti granti	[FitzSimn]	1933
Monopeltis mossambica	Cott	1934	S	1943	FitzSimons	Monopeltis granti granti	[FitzSimn]	1933
Dalophia pistillum (part)	[Loveridg]	1941	S	1943	FitzSimons	Monopeltis granti granti	[FitzSimn]	1933
Monopeltis ellenbergeri	Monard	1930	S	1943	FitzSimons	Monopeltis granti transvaalensis	FitzSimons	1933
Dalophia pistillum (part)	[Loveridg]	1941	S	1943	FitzSimons	Monopeltis granti transvaalensis	FitzSimons	1933
Monopeltis colobura	Boulenger	1910	S	1964	Laurent	Tomuropeltis colobura	[Laurent]	1964
Tomuropeltis colobura	[Laurent]	1964	S	1964	Laurent	Tomuropeltis colobura colobura	[Laurent]	1964
Monopeltis mossambica	Cott	1934	S	1964	Laurent	Tomuropeltis mossambica	[Laurent]	1964
Monopeltis pistillum	Boettger	1895	S	1964	Laurent	Tomuropeltis pistillum	[Laurent]	1964
Monopeltis granti	Boulenger	1907	S	1964	Laurent	Tomuropeltis pistillum granti	[Laurent]	1964
Monopeltis granti granti	[FitzSimn]	1933	S	1964	Laurent	Tomuropeltis pistillum granti	[Laurent]	1964

Monopeltis granti kuanyamarum	Monard	1937	S	1964	Laurent	Tomuropeltis pistillum kuanyamarum	[Laurent]	1964
Tomuropeltis pistillum	[Laurent]	1964	S	1964	Laurent	Tomuropeltis pistillum pistillum	[Laurent]	1964
Monopeltis granti transvaalensis	FitzSimons	1933	S	1964	Laurent	Tomuropeltis pistillum transvaalensis	[Laurent]	1964
Dalophia jallae	[Loveridg]	1941	S	1976	Br/Ga/Vi	Dalophia pistillum	{Br/Ga/Vi}	1976
Tomuropeltis colobura	[Laurent]	1964	S	1976	Br/Ga/Vi	Dalophia pistillum	{Br/Ga/Vi}	1976
Tomuropeltis colobura colobura	[Laurent]	1964	S	1976	Br/Ga/Vi	Dalophia pistillum	{Br/Ga/Vi}	1976
Tomuropeltis mossambica	[Laurent]	1964	S	1976	Br/Ga/Vi	Dalophia pistillum	{Br/Ga/Vi}	1976
Tomuropeltis pistillum	[Laurent]	1964	S	1976	Br/Ga/Vi	Dalophia pistillum	{Br/Ga/Vi}	1976
Tomuropeltis pistillum granti	[Laurent]	1964	S	1976	Br/Ga/Vi	Dalophia pistillum	{Br/Ga/Vi}	1976
Tomuropeltis pistillum kuanyamarum	[Laurent]	1964	S	1976	Br/Ga/Vi	Dalophia pistillum	{Br/Ga/Vi}	1976
Tomuropeltis pistillum pistillum	[Laurent]	1964	S	1976	Br/Ga/Vi	Dalophia pistillum	{Br/Ga/Vi}	1976
Tomuropeltis pistillum transvaalensis	[Laurent]	1964	S	1976	Br/Ga/Vi	Dalophia pistillum	{Br/Ga/Vi}	1976
Dalophia pistillum	{Br/Ga/Vi}	1976	S	1976	Br/Ga/Vi	Dalophia pistillum	(Boettger)	1895
Monopeltis granti colobura (part)(R-)	[FitzSimn]	1943	S	1982	Welch	Dalophia longicauda	{Welch}	1982
Monopeltis granti colobura (part)	[FitzSimn]	1943	S	1982	Welch	Dalophia pistillum	(Boettger)	1895
Dalophia pistillum	(Boettger)	1895	V	1976	Br/Ga/Vi	(Monopeltis pistillum)		

List 3. Synonyms of Dalophia pistillum. Arranged historically. (Taxon Code 1111100200).

(R+)&(R-) = Taxon made a synonym but later revived.

Describer

Author = Original describer of taxon and author of taxon name.
(Author) = Original describer of taxon but not author of name.
[Author] = Not original describer of taxon but first known user of taxon name.
{Author} = Synonymised taxon/name revived by this author.

CLADISTICS AT THE EDGE OF ITS MEADOW?

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Every year the Willi Hennig Society holds a meeting that attracts a sizeable number of biologists who - with one or two exceptions - are eager to talk about and hear about cladistics.

Some three decades ago Willi Hennig provided the basis for cladistics by developing a rigorous system of classification. The system attempts to identify groups that are defined by features exclusive to all its members and which distinguish the group from all others. In taxonomy, the species is normally the lowest ranking group recognized. Each species is regarded as a terminal branch (or clade) of a branching lineage. A primary cladistic aim is to represent a group's lineage as a cladogram - a branching diagram showing the grouping and relationships of the various clades. The logo of the Willi Hennig Society is a simple cladogram which, on the cover of its journal *Cladistics*, links together the three different kinds of lungfish and their positions on the three southern continents. This is a neat taxon-area cladogram, taxonomy and geography all in branched agreement.

To the disadvantage of neat ideas, though, nature herself is not neat. Now and again a paper presented at a Willi Hennig meeting comes more-or-less to grips with the complexities that nature has outside the neat conceptual meadows of cladistics. When I attended the society's fourth meeting in London in 1984 I did not notice any deep excursions into the wilds beyond the conventional meadows. There was only some picking over the problem of a lack of congruence between character sets: for example, data from tadpole and adult characters could yield cladograms that did not match each other (Poynton, 1985). But serious problems were not welcome at that meeting. It was an occasion for launching the journal *Cladistics*, amid a quasi-political atmosphere of badges with pro-cladist slogans, pamphlets declaring rivalry with other taxonomic methods, and claims of being the most "advanced field" in systematics.

A symposium on the biogeography and biodiversity of Afromontane biotas involved me in the 1994 meeting of the society, held in Copenhagen. I had the impression of a mellowing of attitude, even at the Banquet, which is the focal time for cladistic self-congratulation. Here, in the banquet speech, a moment was even taken to consider whether the Willi Hennig Society had served its purpose: a very different thought from the aggressive assertiveness at the 1984 banquet. Signs of maturation were also evident in some papers, which took adventurous excursions outside the bounds of conventional cladistic acceptability.

The trouble with the cladistic method is that one has to have clear-cut units to work with in the first place. The term "clade" was coined by Julian Huxley (before the time of cladistics) to apply to *delimitable* units: a lineage has to have clearly defined branches if one is to arrange anything according to Hennigian rules. But what if the branches are fuzzy and cannot be clearly distinguished one from another? The question was broached most decisively by a young botanist from the University of Michigan, Steven Jessup, who unfortunately ran out of time in his presentation about handling a fuzzy

species concept. He did however succeed in making the point that what we call "species" should be viewed as a model that we make, and that our upbringing in Aristotelian logic channels our models into requiring an organism (or a lineage) either to be species X or not species X; we expect criteria of delimitation that give us crisp, distinguishable units and branches.

Yet why should we expect this? It is not an uncommon experience that, as population and geographical sampling increases, a crisp delimitation of species tends to recede. One finds oneself trying to work with heterogeneous entities that show no respect for Linnean taxonomic rules, or even for the Aristotelian logic that is the basis for these rules. A "species" can be X in some places, and XY or even Y in others. Our models seem to get less and less relevant the further we move to the outskirts of our conventional meadows, into the complex wilds of nature. This is what chaos theory may be thought to predict: the more data, the more complexity, the more confusion.

Discussions at the Hennig meeting did not suggest that this situation was taken to be particularly threatening to the cladist programme, even though the programme needs crisp, sequential branchings of phylogenetic trees for it to work. But the fact that the problem was raised at all seemed to me to be a significant pointer in the direction of maturation. It gave me confidence to take on the role of a Socratic gadfly during the final symposium of the meeting, and run the risk of irritating people in the service of clear thinking.

The symposium was on Afromontane biotas. One could think that for the symposium to work at all, the term "Afromontane" would have to have a clear conceptual and operational definition. Yet, in my experience, the literature generally tends to sidestep the question of definition; indeed, only scant attention has been given even to the question of *how* a definition of "Afromontane" can be arrived at, either to characterize a biotic assemblage or to demarcate some geographical area. A notable exception is provided by Charles Griswold, one of the organizers of the symposium and at one time on the staff of the Natal Museum. His paper on Afromontane spiders (Griswold, 1991) is worth reading, although arthropods are much more amenable to the delimitation of species and cladistic analysis than are, for example, amphibians, thanks to clearer morphological characters and seemingly more ancient lineages.

Broadly, the criteria to be looked for in defining "Afromontane" are: i) the perception of a distinctive clustering of taxa, which ii) is given geographical definition by the presence of some kind of transition zone, as shown by a heightened geographical turnover of taxa, or a marked reduction in numbers of taxa. The second criterion can be investigated by the use of transects, as in Poynton & Broadley (1991) and Poynton (1992). Much more work needs to be done in this direction, but it is of little direct interest to cladists. The first criterion, the perception of a distinctive clustering of taxa, is very much a matter of cladistics. Several people think of the Afromontane region as an area occupied by (even defined by) distinctive groups, such as spiders (Griswold, 1991) or ericoid plants (although the trees used by White, 1983 to define the region are not phylogenetically related). Herpetologists could think of a few likely defining genera or subgenera, such as the grass frogs, *Strongylopus*.

A successful cladistic analysis of *Strongylopus* should first of all settle whether the genus is monophyletic, that is, a discrete taxonomic group descended from a (presumed)

single ancestor; and the analysis should be able to show where the more primitive species are centered, and were the more derived species have moved to. Presumably, in the case of *Strongylopus*, the analysis would show that the centre of the genus is in the eastern highlands of South Africa, where most species occur (including the seemingly most primitive), and that the most derived species are now on isolated highlands north to Tanzania (Poynton & Broadley, 1985).

The trouble with trying to apply cladistic analysis to Afromontane amphibians is, the better most "species" become known, the more difficult their definition becomes. *Strongylopus* presents immense difficulties in this respect and the fuzziness of Afromontane species in other groups was commented on by a couple of participants at the symposium. Evidently the fuzziness has been caused by recurrent separation and joining of populations during the Pleistocene climatic cycles, resulting in a mishmash of taxonomic characters. I used the word "mishmash" in my presentation and it was taken up with some approval in the discussion. But I wondered whether the full implications for the cladistic enterprise were grasped: a situation like this thwarts cladistic analysis, which requires characters that yield crisply delimitable taxonomic units, not a soup of characters. This situation accounts in part for the absence of phylogenetic analyses in the papers on Zambezian amphibians by Don Broadley and myself. Here, taxonomy is at the edge of its comfortable meadow, where one can find clearly demarcated taxonomic units.

Perhaps a future Willi Hennig meeting will be more willing to try to find paths through the fringing brambles and nettles. In the meantime, can African herpetologists come up with some way of handling the problem of taxonomic delimitation? In the case of amphibians, a shift from the use of morphological to biological characters has some promise of revealing what delimitable taxonomic units there may be, as in the recent separation of two species of bullfrog on the basis of breeding biology and advertisement call by Channing, Du Preez & Passmore (1994). Previous attempts at morphological separation of bullfrog taxa had not been too successful. But, as bullfrog populations in only a few sites were subjected to close scrutiny, these authors recognize that their delimitation of species is still tentative. To monitor the whole range of a widespread species in this way requires a huge amount of fieldwork. Perhaps the greatest challenge to African herpetology in the future is to provide enough competent investigators to extract the needed data.

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UNUSUAL MORTALITIES OF ANGULATE TORTOISE *CHERSINA ANGULATA* JUVENILES ALONG THE WEST COAST OF SOUTH AFRICA

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During a routine inspection on 20 October 1994, Mr Anthony Roodt (senior marine conservation inspector from the Cape Nature conservation marine control office at Yzerfontein) came across an unusual sight along the dirt road to Churchhaven, about 9 km north of the Yzerfontein tarred road (33°15'S, 18°10'E; 3318Ac; altitude 40 m a.s.l.).

Along a distance of about 30 m, about 100 dead juvenile Angulate Tortoises of different sizes and ages were found on the road with no apparent indication as to the cause of death. The average size of the tortoises was 51,4 ±7,2 mm carapace length (n = 13) and their estimated ages ranged from approximately one to three years. Searches along the road verges and in the adjacent veld yielded no further individuals and it was therefore firmly established that all shells were found only on the road. It is interesting to note that most shells faced east. Only two showed outward signs of predation, the rest being intact. Unfortunately no *post mortem* examinations were carried out because of the state of decay of the specimens.

The first option to be considered is whether mortality was caused by inclement weather (cold snap, rain etc.) prevailing during the days preceding the incident. Second, it could be argued that once reaching the road, the tortoises were exposed to excessively high temperatures from which they could not escape because of high road shoulders. Third, mortalities could have been caused by unnaturally high predation by avian predators picking up tortoises in the veld and dropping them onto the road surface to be consumed later. Fourth, if one considers all options, it could be that deaths occurred in captivity, the owner simply dumping the bodies on the road. Fifth, spraying of chemicals (herbicides or pesticides) on road verges or in the immediate vicinity could have caused the deaths.

Weather patterns during the 20 days prior to this incident indicate four overcast days, and two overcast and windy days (19-20 October) with rain on 20 October. Rainy conditions along the West Coast are usually accompanied by a drop in temperature, and the combination of cold and wet conditions could have caused these mortalities. Regarding the second option, the tortoises should have been able to get out of the exposed road since road shoulders are virtually non-existent in the area. Predation (both avian and terrestrial) could almost be ruled out since virtually no sign of predation was noted. The two "predated" shells may well have been attached by scavengers only after death. The fourth option is, in my opinion, unlikely, because I believe that a person would be more likely to drop the bodies at one site and not scatter them across the road surface in the observed pattern. I also regard the fifth option as unlikely, since no crops are grown in the immediate vicinity, and if herbicide

spraying of weeds on the verge of the road took place, why would tortoises be affected only along a 30 m stretch of road? Perhaps it should be left to the reader to make up his or her own mind regarding this unusual situation.

Having explored a number of options, the cause of death in this case still remains unclear and will remain speculation. However, cases such as these should be brought to attention in order to supply additional information about the life (and death) of these and other animals.

ACKNOWLEDGEMENT

Anthony Roodt is thanked for bringing this incident to our attention, thus demonstrating the value of accurate field recordings.

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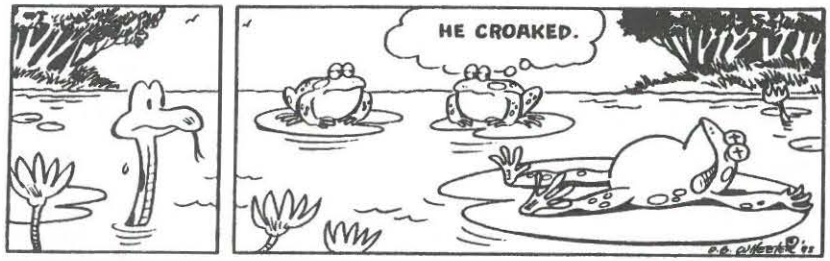
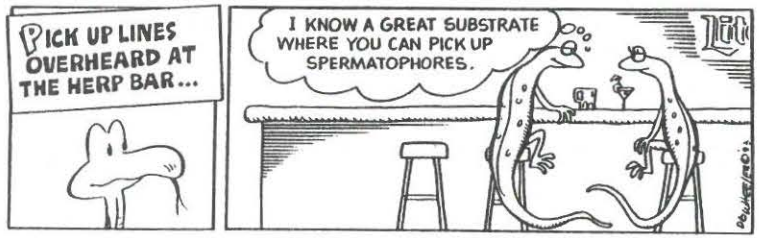
THE ADVENTURES OF SPOT



THE ADVENTURES OF SPOT



ON THE OCCURRENCE OF THE EASTERN BARKSNAKE *HEMIRHAGERRHIS NOTOTAENIA* IN ZULULAND

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Many of us remember the late Hennie Erasmus, and in particular, the fantastic reptile collection he maintained in Pretoria North. Following his death in 1979, his son passed on several specimens that had died during his dad's time. Amongst these were two specimens of the Eastern Barksnake *Hemirhagerrhis nototaenia* from Zululand. The specimens were in separate bottles with formalin and locality labels. I knew that Hennie had collected with Rod Pattersen and the late Roy Robinson in the Dukuduku area and therefore had no reason to question the locality data. The specimens were eventually deposited in the herpetological collection of the Transvaal Museum. On the basis of these specimens, the presence of the species in Natal was established and published (Haagner, 1990). The latter paper included an update of the species' distribution throughout southern Africa. The distribution map was later followed by Marais (1992).

During a subsequent visit to Hennie's son it came to my attention that the specimens may have been mislabelled, or the labels may have been transposed. Amongst the material were specimens of other species (e.g. *Lamprophis aurora, Psammophis angolensis* and even *Hemachatus haemachatus* [TM 63754]) not recorded from Zululand, yet all were labelled "Dukuduku forest".

The distribution of reptiles in Zululand has been fairly well documented by FitzSimons (1943, 1962) and Bruton & Haacke (1975, 1980), but no other records exist of *H. nototaenia* in Natal. Broadley (1983) recorded the species from tropical east Africa southwards to northern Botswana, Caprivi Strip, Zimbabwe, Mozambique, and the Northern and Eastern Transvaal provinces of South Africa.

In over a decade of sporadic field work in Zululand I have never come across any *Hemirhagerrhis*, nor have I spoken to anyone who has. Because of their small size and cryptic colouration these snakes are seldom encountered and remain poorly known. Nevertheless, their occurrence in Natal should now be discounted until confirmed by subsequent specimens.

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POSSIBLE BANDED SEA SNAKE SEEN OFF SOUTH AFRICAN EAST COAST

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On 18 December 1994 a group diving at Aliwal Shoal off Umkomaas saw what was accepted by the group as being a sea snake. This, however, was not the Pelagic Sea Snake (*Pelamis platurus*) sometimes seen along our coast, but looked more like a coral snake with alternating light and dark bands around its body.

There is a local eel which has these markings, but two of the divers, Dianne and Steven Raubenheimer, are adamant that what they saw was more like a snake than an eel. When shown a picture of a Black-banded Sea Snake (*Laticauda cobubrina*) they believed that this was close to what they had seen. They became even more convinced when they came across another picture of a Banded Sea Snake in a diving magazine. This picture showed up well defined body scales, something which had imprinted in their memory.

Although the Aliwal individual had a cylindrical body, its tail was vertically flattened. With a body diameter of about 35 mm and a length of about 75 cm, it fits the description of a Banded Sea Snake. As these are found in the Coral Sea to the east of Papua New Guinea, the Aliwal individual seems to be a long way from home. Are there any other records of this snake possibly having been seen?

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REPORT ON A COLLECTION OF AMPHIBIANS AND REPTILES FROM THE NORTHERN CAPE AND NAMIBIA

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INTRODUCTION

On 14 January 1994 a group consisting of myself, Rod Douglas, Louis du Preez, Tyrone Hayes and Daniele Murith set off from Bloemfontein on route to the *Eighth Meeting of the African Amphibian Working Group*, to be held at Waterberg Plateau Park in north-central Namibia from 16 to 18 January. Having obtained permission from the relevant conservation authorities, we intended collecting amphibians and reptiles for the wet collection of the National Museum, Bloemfontein (NMB) both on route to and from the meeting.

We travelled on the main road to Kimberley, then on to Upington, where we spent the night. On a stone wall in the grounds of the Protea Hotel, we collected our first specimen, a *Mabuya spilogaster*. The next day we set off for Hardap Dam on the R32 route, collecting several lizards and some *Tomopterna cryptotis* tadpoles along the way. On 16 January we travelled from Hardap Dam to Windhoek and then on to Waterberg Plateau Park. More lizards were collected on the way, as was a worm lizard (*Monopeltis anchietae*) in a devastating state of decomposition, and an adult *T. cryptotis*.

During the symposium period additional and lizards were collected outside the reserve, especially at night, while dead-on-road specimens of *Psammophis s. subtaeniatus* and *Naja nigricollis nigricincta* were found at Benade de la Bat rest camp in the reserve.

On 18 January Mike Griffin was kind enough to take us on a guided tour of a section of the Eastern National Water Carrier canal near the reserve. Several dead as well as live amphibians and reptiles were fished from the canal, including some massive bullfrogs, another *M. anchietae* and live specimens of both *Atractaspis bibronii* and *A. duerdeni*. At the 1987 H.A.A. Symposium in Stellenbosch, Mike presented a paper assessing the impact of the ENWC canal on the local herpetofauna. This paper was later published in H.A.A. journal 36.
Nearly 3 000 snakes removed from the canal in a 150-day-period (Griffin, Panagis & Berriman, 1989).

On our return trip, which began on 19 January, we spent nights at the same places as before. Only a few reptile specimens were collected on the way back, no doubt a reflection of our desire to escape the intense heat of the semi-desert and the accompanying unquenshable thirst. The highlight of the return trip was the discovery of both *Phrynomantis annectens* (numerous specimens seen, including calling males) and *Bufo hoeschi* about 1 km east of the Hardap Dam wall.

Specimens of six amphibian and 23 reptile species were collected during the trip. Reptiles comprised 13 lizard, one amphisbaenian, six snake and three chelonian species. Apart from the frogs *P. annectens* and *B. hoeschii*, other highlights included finding the amphisbaenian *Monopeltis anchietae*, and the snakes *Atractaspis duerdeni* and *Naja nigricollis nigricincta*, none of which I had previously seen, dead or alive. These as well as other specimens collected made welcome additions to the herpetological collection of the National Museum.

What follows is an annotated list of specimens collected and sight records made, presented in the style and format used in the Geographical Distribution section of *African Herp News*. Localities at which specimens were collected were usually determined using road signs (indicating distance to the nearest town) together with readings from the motor vehicle odometer. Eighth-degree locus codes were later determined after using a map odometer to determine, as accurately as possible, the collection area. Localities are generally presented in the following format: "18 km WNW of Upington on R32 route", indicating the distance from a particular town on a particular road (= route), i.e. not necessarily the straight line distance from the nearest given town; while the direction is given "as the crow flies" from the collection site to the nearest town. Namibian route names, e.g. 1/7, refer to the main road between towns.

AMPHIBIA
ANURA

BUFONIDAE

BUFO HOESCHI Ahl, 1934: Ahl's Pigmy Toad; Namibia, 1 km E of Hardap Dam wall (2417Bd3); 19 January 1994; R.M. Douglas, L.H. du Preez & M.F. Bates; National Museum, Bloemfontein, NMB A5831-35, six frogs (12,6 - 38,4 mm snout-vent-length [SVL]) collected either in rocky pools or on the side of a tarred road, after recent rains. Dorsum grey-brown with darker patches and scattered reddish warts; pale blotches, tending to form a band in the vertebral region, in NMB A5831 and 5834; dark patches with distinct dark outline and brown centre in NMB A5832; upper head, and snout, pale grey; legs barred; underparts cream-white, usually with a few dark patches on the chest; throat moderately granular; snout smooth with occasional small, reddish warts (absent in NMB A5831); tympanum small, indistinct; tarsal fold absent; parotid glands poorly defined; poorly developed margin of webbing on free parts of toes; two phalanges of 3rd toe free of webbing. Poynton (1964) considered *B. hoeschi* Ahl, *B. jordani* Parker and *B. dombensis* Bocage as belonging to the *vertebralis* "Ressenkreis", listing them all as subspecies of *B. vertebralis* Smith. Poynton (1964) noted that the three forms were difficult to distinguish, and that *hoeschi* differed from *jordani* mainly on account of the presence vs absence, respectively, of marginal webbing on the toes. Poynton & Broadley (1988) later recognized "four taxa" of dwarf toads in Namibia, namely *B. kavangensis* Poynton & Broadley, *B. dombensis* Bocage, *B. damaranus* Mertens (*B. fenoulheti damaranus* treated as synonym of *B. fenoulheti* Hewitt & Methuen by Channing & Griffin, 1993) and *hoeschi/jordani*. They also noted that *dombensis, damaranus* and *hoeschi* form a "particularly closely knit group as far as external features are concerned". According to the features of the Hardap Dam material, as described above, as well as their distribution (see maps in Poynton, 1964 and Channing & Griffin, 1993), it is certainly either *hoeschi* or *jordani* (? same taxon), the marginal webbing on the toes placing it as *hoeschi*. This record is a 160 km SSE range extension for the species, the nearest other locality being at locus 2317Ac; and is

about 50 km N of one of the only two recorded quarter-degree localities for *B. jordani* (Poynton, 1964; Channing & Griffin, 1993).

MICROHYLIDAE

PHRYNOMANTIS BIFASCIATUS BIFASCIATUS (Smith, 1847): Banded Rubber Frog; Namibia, two localities: (1) Farm Rodenstein, Waterberg district (2017Cb1); 18 January 1994; L.H. du Preez; NMB A5850, eggs found in a depression alongside the Eastern National Water Carrier (ENWC) canal; (2) 20 km SE of Otjiwarongo on 1/7 route (2016Da2); 18 January 1994; L.H. du Preez; NMB A5857, four tadpoles found in dam on side of road.

PHRYNOMANTIS ANNECTENS Werner, 1910: Marbled Rubber Frog; Namibia, 1 km E of Hardap Dam wall (2417Bd3); 19 January 1994; L.H. du Preez, M.F. Bates & R.M. Douglas; NMB A5819-23, five adults measuring 29,8 - 36,6 mm SVL found on the rocky edges of a small stream, some calling from crevices and spaces between rocks; NMB A5852, 28 tadpoles; NMB A5860, 23 tadpoles; NMB A5886, one tadpole (all tadpoles collected in rocky pools of stream).

RANIDAE

PYXICEPHALUS ADSPERSUS Tschudi, 1838: Highveld Bullfrog; Namibia, Farm: Rodenstein, Waterberg district (2017Cb1); 18 January 1994; L.H. du Preez & R.M. Douglas; NMB A5844, two tadpoles; NMB A5845, three tadpoles; NMB A5849, three tadpoles (all tadpoles found in water-filled depressions alongside ENWC canal); NMB A5865-70, six adults (114,3 - 175,0 mm SVL) found in ENWC canal.

TOMOPTERNA CRYPTOTIS (Boulenger, 1907): Tremolo Sand Frog; South Africa, Northern Cape province, 64,5 km WNW of Upington on R32 route (2820Bc2) 15 January 1994; L.H. du Preez; NMB A5841, two tadpoles; NMB A5842, three tadpoles; NMB A5843, five tadpoles (all tadpoles collected in pools on sides of road); Namibia, six localities: (1) 8 km SSE of Okahandja on 1/6 route (2216Bb2); 16 January 1994; L.H. du Preez; NMB A5818, adult measuring 36,5 mm SVL; (2) 7 km E of entrance to Waterberg Plateau Park (2017Ca); 17 January 1994; L.H. du Preez; NMB A5863, two tadpoles found in pool on side of road; (3) Farm: Klein Hamakari, Waterberg district (2017Cb1); 18 January 1994; M.F. Bates & R.M. Douglas; NMB A5839-40, two adults (38,4 and 46,1 mm SVL respectively) found on a dry sand bank beside a stream; (4) 20 km SE of Otjiwarongo on 1/7 route (2016Da2); 18 January 1994; L.H. du Preez; NMB A5858, six tadpoles found in pool on side of road; (5) 1 km E of Hardap Dam wall (2417Bd3); 19 January 1994; L.H. du Preez, R.M. Douglas & M.F. Bates; NMB A5851, six tadpoles; NMB A5861, nine tadpoles (all tadpoles found in rocky pools); NMB A5824-29, six adults (37,6 - 43,1 mm SVL) found in and around pools along stream; (6) 1,5 km E of Hardap Dam wall (2417Bd3); 19 January 1994; R.M. Douglas, L.H. du Preez & M.F. Bates; NMB A5830, adult measuring 38,3 mm SVL; NMB A5836-38, three adults (37,6 - 41,3 mm SVL) found in a rocky pool at 22h30. The 64,5 km WNW of Upington locality is the most westerly record for the species in South Africa (see Poynton, 1964).

HYPEROLIIDAE

KASSINA SENEGALENSIS (Duméril & Bibron, 1841): Bubbling Kassina; Namibia, two localities: (1) 7 km E of entrance to Waterberg Plateau Park (2017Ca); 17 January 1994; L.H. du Preez; NMB A5817, adult male measuring 43,2 mm SVL; (2) 20 km SE of Otjiwarongo on 1/7 route (2016Da2); 18 January 1994; L.H. du Preez; NMB A5859, one tadpole found in pool on side of road.

REPTILIA
SAURIA

GEKKONIDAE

CHONDRODACTYLUS ANGULIFER ANGULIFER Peters, 1870: Giant Ground Gecko; Namibia, 95 km SE of Keetmanshoop on 1/2 route (2718Ba3); 15 January 1994; L.H. du Preez; NMB R6987, large male measuring 107,2 mm snout-vent-length (SVL) + 61,5 mm tail length = 168,7 mm total length, collected under corrigated asbestos sheet on flat area in vicinity of rocky hills. Colour in life: dorsum yellowish-brown with a prominent series of four white spots on either side of back, together with a few additional white spots (see distribution maps in Haacke, 1976 and Visser, 1984a).

PACHYDACTYLUS BIBRONII A Smith, 1846: Bibron's Gecko; South Africa, Northern Cape province, two localities: (1) 19 km WNW of Upington on R32 route (2821Ac3); 15 January 1994; T. Hayes & M.F. Bates; NMB R6951, male measuring 89,6 mm SVL; NMB R6991, female measuring 88,6 + 80,6 = 169,2 mm (both collected in dolerite rock piles); (2) 64,5 km WNW of Upington on R32 route (2820Bc2); 15 January 1994; R.M. Douglas; NMB R6954, juvenile measuring 34,6 + 32,4 = 67,0 mm found under rusty drum in Kalahari sands area; Namibia, three localities: (1) 95 km SE of Keetmanshoop on 1/2 route (2718Ba3); 15 January 1994; M.F. Bates; NMB R6988, female measuring 82,8 + 35,9r = 118,7 mm found in a dolerite rock crevice; (2) 15 km N of Windhoek on 1/6 route (2217Ac3); 16 January 1994; R.M. Douglas; NMB R6994, female (82,0 mm SVL) found in a concrete sump on a mica schist outcrop; (3) 3 km SE of entrance to Waterberg Plateau Park (2017Ca); 17 January 1994; L.H. du Preez; NMB R7004, large adult measuring 94,7 + 39,1r = 133,8 mm collected on gravel road at night (see distribution map in Visser, 1984b).

PACHYDACTYLUS LAEVIGATUS LAEVIGATUS Fischer, 1888: Button-scaled Gecko; Namibia, 1 km E of Hardap Dam wall (2417Bd3); 19 January 1994; M.F. Bates & L.H. du Preez; NMB R7005, adult measuring 75,2 mm SVL collected on a rocky outcrop at sunset (see distribution map in Visser, 1984b).

AGAMIDAE

AGAMA ATRA ATRA Daudin, 1802: Southern Rock Agama; South Africa, Northern Cape province, 19 km WNW of Upington on R32 route (2821Ac3); 15 January 1994; M.F. Bates & T. Hayes; NMB R6949-50, two females measuring 97,8 and 101,9 mm SVL respectively; NMB R6990, male measuring 123,5 mm SVL (all specimens collected in dolerite rock piles) (see distribution map in Visser, 1984c).

AGAMA ACULEATA ACULEATA Merrem, 1820; Western Ground Agama; South Africa, Northern Cape province, 64,5 km WNW of Upington on R32 route (2820Bc2); 15 January 1994; T. Hayes; NMB R6986, gravid female (105,9 + 117,3 = 223,2 mm)

with 16 embryos (eight per oviduct; see Bates, 1995) collected after taking shelter at the base of a small thorn tree in Kalahari sand. Dorsal head shields smooth; ventrals smooth; 18-19 lamellae under 4th toe; 4th toe only slightly longer than 3rd; at least eight stripes on bluish throat; venter cream, unmarked; three rows of enlarged, spiny scales on either side of vertebral crest; Namibia, 8 km N of Mariental on 1/4 route (2417Db2); 20 January 1994; L.H. du Preez; NMB R7007, male (115,3 mm SVL) found in a sandy area with small bushes. Dorsal head shields rugose (not smooth!); ventrals smooth; 21-22 lamellae under 4th toe; 4th toe longer than 3rd; 12 precloacal pores; eight stripes on a bluish throat which was is dark blue centro-posteriorly; venter with dark mottling; three distinct rows of enlarged, spiny scales on either side of vertebral crest; several mites (red in colour) under ventral scales (see distribution maps in McLachlan, 1981 and Visser, 1984d).

SCINCIDAE

MABUYA OCCIDENTALIS (Peters, 1867): Western Three-striped Skink; South Africa, Northern Cape province, 64,5 km WNW of Upington on R32 route (2820Bc2); 15 January 1994; R.M. Douglas & L.H. du Preez; NMB R6953, adult (74,4 + 83,6 r = 138,0 mm) found under a rusty drum in Kalahari sand. This specimen escaped and climbed into the branches of a small bush before being re-captured. Dorsum brown with pale stripes, but no dark markings between stripes; two lobules on anterior part of ear opening; 21-22 lamellae under 4th toe.

MABUYA VARIEGATA PUNCTULATA (Bocage, 1872): Eastern Variegated Skink; Namibia, two localities: (1) 15 km N of Windhoek on 1/6 route (2217Ac3); 16 January 1994; R.M. Douglas; NMB R6993, large adult measuring 51,5 + 63,7r = 125,2 mm found on a mica schist outcrop; (2) 1 km SE of Hardap Dam wall (2417Bd3); 20 January 1994; L.H. du Preez; NMB R7006, specimen measuring 40,4 mm SVL found in a stony area. Both specimens have 31 midbody scale rows (MBSR), 22 lamellae under 4th toe of right foot, three distinct, lanceolate lobules on the anterior part of each ear opening, and pale lateral and dorsolateral stripes (NMB R6993 also has a distinct, pale vertebral stripe). In NMB R7006, there are four longitudinal series of dark patches between the dorsolateral stripes; such patches are more irregularly arranged in NMB R6993. The Windhoek specimen has quinquecarinate dorsal scales (moderate keeling), while the Hardap Dam specimen has distinctly tricarinate dorsals (strongly keeled). The colour pattern of the Windhoek specimen is similar to *M. v. punctulata* from the Free State province of South Africa, while that of the Hardap Dam specimen is similar to *M. v. variegata* from the Free State (see De Waal, 1978; Bates, 1992). Broadley (1975) recognized the latter two subspecies, separating them mainly on the basis of tricarinate dorsals throughout life in *variegata*, and quinquecarinate dorsals in adult *punctulata*; but he also noted that although both subspecies had a range of 2-3 (occasionally 4) lanceolate lobules on the anterior part of each ear opening, there were always two such lobules in eastern populations of *punctulata*. De Waal (1978) separated Free State material by: "anterior border of ear opening with three pointed lobules; dorsal scales tricarinate" (= *M. v. variegata*) vs "anterior border of ear opening with two (or one) pointed lobules; dorsal scales quinquecarinate" (= *M. v. punctulata*). However, after examining 91 *punctulata* from the Free State, including all De Waal's material and, *inter alia*, 64 specimens collected in funnel and pit-traps at Florisbad Research Station (2826Cc1), central Free State province, South Africa, it was determined that 15,4% (including all juveniles - 29,0 mm SVL and smaller; largest specimens 45,0 mm

SVL) had tricarinate dorsals (although several other specimens had very poorly defined or weakly developed lateral keels and may also be considered as having tricarinate dorsals), and ear lobules varied from 1 to 3 (one in four specimens, three in seven specimens) (Bates, in prep.). Adults with either tricarinate or quinquecarinate dorsals, and specimens with 1-3 ear lobules, occurred together at Florisbad; and one adult specimen (NMB R5605; 45,0 mm SVL) from Florisbad had both tricarinate dorsals and three lobules at the anterior borders of both ear openings (Bates, in prep.). While both Namibian specimens discussed above fall within the general distribution range of *punctulata* as plotted by Broadley (1975), the use of trinomials for *M. variegata* material is used with reservations. Bauer, Branch & Haacke (1993) discuss material collected in the Kamanjab area in the vicinity of Broadley's (1975) intergrade populations, noting that "Both morphs are represented at single localities and it appears impossible and undesirable to apply subspecific appellations to this material at this time". Clearly, the taxononic status of *M. variegata* requires re-evaluation.

MABUYA SULCATA SULCATA (Peters, 1867): Western Rock Skink; South Africa, Northern Cape province, 19 km WNW of Upington on R32 route (2821Ac3); 15 January 1994; L.H. du Preez; NMB R6952, adult male measuring 74,1 + 94,9 r = 179,0 mm found amongst dolerite rocks. In life the specimen had a copper-brown dorsum and orange throat; Namibia, 95 km SE of Keetmanshoop on N1 route (2718Ba3); 15 January 1994; M.F. Bates; NMB R6989, adult female measuring 79,4 + 100,2 r = 179,6 mm found in dolerite rock crevice.

MABUYA SPILOGASTER (Peters, 1882): Kalahari Tree Skink; South Africa, Northern Cape province, Protea Upington Hotel, Upington (2821Ac4); 14 January 1994; M.F. Bates, L.H. du Preez & T. Hayes; NMB R6947, specimen measuring 55,9 + 61,0r = 116,9 mm found on a stone wall. Dorsals tricarinate; venter with black speckling; five upper labials anterior to subocular (= sixth upper labial).

LACERTIDAE

NUCRAS INTERTEXTA (A. Smith, 1838): Spotted Sandveld Lizard; Namibia, Waterberg district, Farm: Klein Hamakari (2017Cb1); 18 January 1994; R.M. Douglas; NMB R7000, partially decomposed adult (70,4 mm SVL) found floating in the ENWC canal; lamellae under 4th toe: 25 (left) and 27 (right) (see distribution maps in Broadley, 1972 and Visser, 1984f).

HELIOBOLUS LUGUBRIS (A. Smith, 1838): Bushveld Lizard; South Africa, Northern Cape province, 18 km WNW of Upington on R32 route (2821Ac3); 15 January 1994; M.F. Bates; NMB R6948, male measuring 56,4 + 137,1 = 193,5 mm found on red Kalahari sand under road culvert; 12 femoral pores per thigh (see distribution map in Visser, 1984g).

PEDIOPLANIS NAMAQUENSIS (Duméril & Bibron, 1839): Namaqua Sand Lizard; Namibia, 31 km NW of Kalkrand on 1/4 route (2317Cd2); 16 January 1994; M.F. Bates; NMB R6992, adult measuring 53,3 mm SVL dug from burrow (into which it ran) in sandy area with sparse grass cover; ten longitudinal ventral scale rows; femoral pores 14-15 (see distribution map in Visser, 1984g).

VARANIDAE

VARANUS ALBIGULARIS ALBIGULARIS (Daudin, 1802): Rock Monitor; Namibia, 31 km NW of Kalkrand on 1/4 route (2317Cd2); 16 January 1994; M.F. Bates, R.M. Douglas & L.H. du Preez; sight record of large, dead-on-road specimen; South Africa, Northern Cape province, 32 km E of Groblershoop on R64 route (2822Cd3); 21 January 1994; M.F. Bates, R.M. Douglas & L.H. du Preez; NMB R7008, adult specimen found dead-on-road in Kalahari sand area (see distribution map in Visser, 1984h).

AMPHISBAENIA

AMPHISBAENIDAE

MONOPELTIS ANCHIETAE (Bocage, 1873): Angolan Spade-snouted Worm Lizard; Namibia, two localities: (1) 60 km N of Okahandja on 1/7 route (2116Bd3); 16 January 1994; T. Hayes; NMB R6995, partially decomposed adult (319 + 15 = 334 mm) found in flooded grassland on side of road after rains; (2) Farm: Klein Hamakari, Waterberg district (2017Cb1); 18 January 1994; R.M. Douglas; NMB R6999, dead adult (247 + 13 = 260 mm) found floating in the ENWC canal. Description, both specimens: Dorsum uniform grey from nuchal region to tip of tail, extending onto lateral sulci, rest of venter cream; body annuli 193 (NMB R6995) and 186 (NMB R6999) (counted dorsally from first row encircling body to row in line with vent, excluding half annuli); caudal annuli 10 and 9 respectively; precloacal pores 2, one on either side of divided anal plate; four longitudinally parallel pectoral segments; two discrete azygous head shields; 1st transverse row of parietals comprises 8-9 scales; ocular separated from 2nd supralabial. The Okahandja locality is a small SW extension of the known range, the nearest other record being at locus 2116Bb (Visser, 1984i).

SERPENTES

COLUBRIDAE

PSAMMOPHIS LEIGHTONI TRINASALIS Werner, 1902: Fork-marked Sand Snake; Namibia, Waterberg district, Farm: Klein Hamakari (2017Cb1); 18 January 1994; R.M. Douglas; NMB R6998, subadult measuring 98 + 78 = 206 mm found dead in the ENWC canal; midbody scale rows (MBSR) 17; ventrals 163; subcaudals 103; supralabials 7 (left) and 8 (right); 4th and 5th supralabials enter orbit; preocular not in contact with frontal.

PSAMMOPHIS SUBTAENIATUS SUBTAENIATUS Peters, 1882: Stripe-bellied Sand Snake; Namibia, Waterberg district, Benade de la Bat rest camp at Waterberg Plateau Park (2017Ca); 19 January 1994; L.H. du Preez, M.F. Bates & R.M. Douglas; NMB R7013, dead adult found beside a sand road in mixed woodland; MBSR 17; ventrals 169; tail truncated.

ATRACTASPIS BIBRONII A. Smith, 1849: Bibron's Side-stabbing Snake; Namibia, Waterberg district, Farm: Klein Hamakari (2017Cb1); 18 January 1994; R.M. Douglas; NMB R7001, adult (478 + 28 = 450 mm) found alive in the ENWC canal in thornveld area; black above; grey below, with patches of white in gular region; MBSR 21; ventrals 238; subcaudals 22 (see distribution map in Broadley, 1991).

ATRACTASPIS DUERDENI Gough, 1907: Duerden's Side-stabbing Snake; Namibia, Waterberg district, Farm: Rodenstein (2017Cb1); 18 January 1994; M. Griffin; NMB

R7002, adult (395 + 24 = 419 mm) found alive in the ENWC canal; black above, cream-white below; MBSR 25; ventrals 226; subcaudals 22; anal undivided; infralabials 6 (see Broadley, 1991).

PROSYMNA BIVITTATA Werner, 1903: Two-striped Shovel Snout; Namibia, Waterberg district, Farm: Klein Hamakari (2017Cb1); 18 January 1994; R.M. Douglas; NMB R7003, adult (223 + 19 = 242 mm) found alive in ENWC canal; MBSR 15; ventrals 177; subcaudals 22.

ELAPIDAE

NAJA NIGRICOLLIS NIGRICINCTA Bogert, 1940: Western Barred Spitting Cobra; Namibia, Waterberg district, Benade de la Bat rest camp at Waterberg Plateau Park (2017Ca); 18 January 1994; L.H. du Preez; NMB R6997, subadult (321 + 65 = 386 mm) found dead beside a tarred road in mixed woodland; MBSR 21; ventrals 212+; subcaudals 68. It should be noted that the symbols used by Broadley (1990, and 1983 edition) to plot the distribution of the subspecies *N. n. nigricincta* and *N. n. woodi* have been transposed (see correct versions in Broadley, 1974).

CHELONIA
PLEURODIRA

PELOMEDUSIDAE

PELOMEDUSA SUBRUFA SUBRUFA (Lacépède, 1788): Cape Terrapin; Namibia, 32 km SE of Otjiwarongo on 1/7 route (2016Db3); 16 January 1994; L.H. du Preez; NMB R6996; adult, carapace length 159,0 mm, plastron length 130,1 mm, found injured (? by car) on tar road. Some recent authors no longer recognize subspecies of *P. subrufa* (e.g. Boycott & Bourquin, 1988; Bauer, Branch & Haacke, 1993). The status of the three subspecies (i.e. *subrufa, olivacea* and *nigra*) is in need of revision.

CRYPTODIRA

TESTUDINIDAE

GEOCHELONE PARDALIS (Bell, 1828): Leopard Tortoise; South Africa, Northern Cape province, 21 km W of Kimberley on R64 route (2824Bd4); 21 January 1994; R.M. Douglas & M.F. Bates; sight record of specimen on side of tarred road. Although Greig & Burdett (1976) and Boycott & Bourquin (1988) doubt the validity of *G. p. babcocki* Loveridge, Broadley (1989) still considers it valid. If so, the above sighting is probably referable to *G. p. babcocki* (see distribution maps in Greig & Burdett, 1976 and Broadley, 1989).

PSAMMOBATES OCULIFERUS (Kuhl, 1820): Serrated Tortoise; South Africa, Northern Cape province, 49 km W of Griquastad on R64 route (2822Dd3); 21 January 1994; R.M. Douglas; NMB R7009, adult, carapace length 75,0 mm, plastron length 61,2 mm, collected on side of tarred road. This taxon was originally called *Testudo oculifera.* The binomial was corrected to *oculiferus* by Iverson (1992) (see distribution map in Branch, 1989).

ACKNOWLEDGEMENTS

I wish to thank Dr E.H.W. Baard and Ms K. van der Merwe for arranging a permit to collect in the Cape Province, and Dr M. Griffin and others for permission to collect in Namibia. Special thanks to Dr Griffin for his hospitality and the guided tour of the Eastern National Water Carrier canal.

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LIFE HISTORY NOTES

African Herp News publishes brief notes concerning the biology of the herpetofauna of the African continent and adjacent regions, including the Arabian peninsula, Madagascar, and other islands in the Indian Ocean.

A standard format is to be used, as follows: **SCIENTIFIC NAME; Common name** (using Bill Branch's *Field Guide to the Snakes and other Reptiles of Southern Africa* for reptiles and Passmore & Carruthers' *South African Frogs* for amphibians, as far as possible); **Keyword** (this should be one or two words best describing the topic of the note, i.e. Reproduction, Avian predation etc.); the **text** (in brief English with only essential references quoted and in abbreviated form); **Locality** (country, province or state, location, quarter-degree grid unit, and latitude and longitude if available; elevation above sea level; use metric distances); **Date** (day, month, year); **Collector(s); Place of deposition and museum accession number** (required if specimens are preserved); Submitted by: **NAME**, address in parentheses. New South African province names must be used.

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AMPHIBIA
ANURA

RANIDAE

PYXICEPHALUS ADSPERSUS
Highveld Bullfrog
DIET, CANNIBALISM, BEHAVIOUR AND SIZE

An attending male *P. adspersus* collected in March 1985 at Dam van Trane (2926Aa), 10 km west of Bloemfontein, Free State province, South Africa, was dissected and a detailed microscopic examination made of its stomach and intestinal contents. Mammal hairs recovered from the stomach were identified by preparing negative cuticular scale imprints on gelatin slides and comparing these to an existing gelatin imprint reference collection and other criteria (see Keogh, 1975, *The study of fourty two species of South African Muridae and the taxonomic application of these definitive criteria*, Unpublished M.Sc. thesis, University of Cape Town; Keogh, 1985, *S. Afr. J. Wildl. Res.* 15: 109-159; Douglas, 1992, *J. Afr. Zool.* **106**: 401-411). Stomach contents of 235 (N = 2349) randomly chosen juvenile *P. adspersus* collected in funnel and pit traps (July 1987 - July 1988) at Florisbad Research Station (2826Cc) in the central Free State were examined for signs of cannibalism. Table 1 shows that 80% of the attending male's stomach contents comprised vegetable matter, 11% *P. adspersus* tadpoles, and 10% invertebrate remains. Of the 1,03 g (wet mass) insect remains in the intestine, 0,88 g was represented by a single millipede (*Juliformia* sp.). Other invertebrates found in the stomach were: Mollusca, Hymenoptera (*Apis*), Myriapoda (Diplopoda), Orthoptera (Acrididae) and Coleoptera (Lycidae, Carabidae, Curculionidae, Tenebrionidae). Mammal hairs were identified as those of the Striped Mouse, *Rhabdomys pumilio*. Stomach contents of the 235 juveniles contained only insect remains and a little vegetable matter.

The fact that adult *P. edulis* prey on conspecific tadpoles was recorded as early as 1947 (Loveridge, 1947, *J. E. Afr. Nat. Hist. Soc.* 19: 253-255). Despite subsequent evidence (Grobler, 1972, *Arnoldia Rhod.* 6: 1-4; Carruthers, 1983, *Fauna & Flora* 40: 5-7; Wager, 1986, *The Frogs of South Africa*, Delta Books, Johannesburg) of such behaviour by *P. adspersus*, Kok, Du Preez & Channing (1989, *J. Herpetol.* 40: 56) felt that it was a misconception that attending male *P. adspersus* prey on conspecific tadpoles. The presence of conspecific tadpoles in the stomach and intestine indicates that at least some "guarding" males do ingest conspecific tadpoles, but the question still remains as to how intentional such ingestion is. Tadpoles in both the stomach and intestine of the adult bullfrog also suggests that "predation" had occurred on more than one occasion. Due to the soft-bodied nature of tadpoles it was not surprising that the tadpole component decreased so greatly between the stomach (15,4%) and intestine (0,5%). Contrary to this, there was an increased percentage of invertebrate remains in the intestine due to the presence of undigestible chitin. Chitinous insect remains tend to accumulate in the intestine, this being consistent with findings for reptile gut contents (Douglas, *op. cit.*). The entire intestinal tract content was half the wet mass of the stomach content.

The large proportion of vegetable matter (79,6%) in the digestive tract was unexpected and contrary to Van Wyk, Kok and Du Preez's (1992, *J. Herp. Assoc. Afr.* 40: 56) report of only a few seeds in the stomachs of juvenile *P. adspersus*. The possibility of vegetable matter acting as a food reserve which could be slowly digested during dormancy, particularly through long periods of hot weather when metabolism may be higher, was considered, but not investigated. Van Aardt (1992, *J. Afr. Zool.* 106: 39-43) noted that in dormant bullfrogs there was an indication of temperature sensitivity for oxygen affinity of haemoglobin and a temperature related increase in the half saturation oxygen partial pressures of the haemolysate. Temperature related increases in blood oxygen in dormant bullfrogs could be indicative of a rise in metabolism during periods of dormancy.

Wager (*op. cit.*) stated that *P. adspersus* attack any intruders at breeding sites, while Loveridge (*op. cit.*) described guarding male *P. edulis* as "indiscriminately voracious". Although personal observations support the aforementioned aggressive behaviour in some attending males, *P. adspersus* males have often been observed slinking off into the reeds without attempting to intimidate the intruder. Adult specimens have also been observed deliberately attacking and biting humans when the frogs were about 300-500 m from the nearest water, indicating that the guarding of tadpoles is not the only cause or reason for aggression. Whether or not the "attending male hypothesis" is a parental care or feeding strategy, and what induces aggression in bullfrogs, requires further investigation.

Despite records of juvenile cannibalism in *P. edulis* (Loveridge, *op. cit.)* and *P. adspersus* (Grobler, *op. cit.*; Wager, *op. cit.*), such behaviour was not observed in the field during the year-long survey at Florisbad, and juveniles were not found in the stomachs of other juveniles. Considering the large number of juveniles moving through the small trapping area (100 m^2) some pressure on food availability may have been expected. Cannibalism by juveniles on conspecific juveniles has been observed in captivity (unpub. obs.), but only where there was a size advantage. Cannibalism by individuals of different size classes was also noted by both Grobler (*op. cit.*) and Wager (*op. cit.*).

The adult bullfrog (170 mm snout-vent-length) discussed above, now in the wet collection of the National Museum, Bloemfontein (NMB A5999), is the largest recorded for the Free State, the previous largest being a 140 mm SVL specimen recorded by De Waal (1980, *Navors. nas. Mus., Bloemfontein* 4(4): 93-120).

Table 1: Digestive tract contents of an adult male *Pyxicephalus adspersus* (by wet mass).

Digestive tract content	Stomach Mass (g)	%	Intestine Mass (g)	%	Total Mass (g)	%
Vegetable matter	10.68	77.4	5.68	84.3	16.36	79.6
Invertebrate remains	1.00	7.2	1.03	15.3	2.03	9.9
P. adspersus tadpoles	2.12	15.4	0.03	0.5	2.15	10.5
Rhabdomys pumilio	few hairs	-	-	-	-	-
Total (g)	**13.80**		**6.74**		**20.54**	

REPTILIA
SAURIA

AGAMIDAE

AGAMA ACULEATA ACULEATA
Western Ground Agama

SIZE AND REPRODUCTION

On 15 January 1994 a heavily gravid female *Agama a. aculeata* was collected under a thorn bush in Kalahari sand 64,5 km WNW of Upington on the R32 route, Northern Cape province, South Africa (2820Bc2) by T. Hayes. For description of specimen, see Bates (1995, *African Herp News* 22: 31-40). The female was kept in captivity in the hope that she would lay eggs, but she died in early February and was deposited in the wet collection of the National Museum, Bloemfontein (NMB R6986). She measured 105,9 mm snout-vent-length, 117,3 mm tail length and 223,2 mm total length (after fixation in 4% formaldehyde). Upon dissection she was found to contain 16 eggs (eight per oviduct) measuring: length, mean 15,2 mm, S.D. 0,465 mm, range 14,4 - 16,0 mm; width, mean 10,3 mm, S.D. 0,372 mm, range 9,6 - 10,9 mm.

The largest female *A. hispida aculeata* recorded by FitzSimons (1943, *Mem. Transvaal Mus.* 1: 1-528) measured 103 + 123 = 226 mm, while McLachlan (1981, *Cimbebasia* A5(6): 219-227) reported 105 mm as maximum SVL for *A. aculeata* females. The largest recorded *A. a. distanti* females measured 94 + 82 = 176 mm (as *A. hispida distanti*, FitzSimons, *op. cit.*) and 96 + 65 = 161 mm (as *A. hispida* "Eastern variety", De Waal, 1978, *Mem. nas. Mus., Bloemfontein* 11: 1-160). The present specimen therefore has the largest recorded female SVL for the species.

FitzSimons (*op. cit.*) noted that female *A. h. aculeata* produce 14-18 eggs (14 x 10 mm), while Auerbach (1987, *The Amphibians and Reptiles of Botswana*, Mokwepa Consultants, Gaborone) reported that 10-14 eggs (9,5 x 14 mm) are laid. A clutch of eight eggs (mean length 15,4 mm) was produced by a Windhoek female measuring 77,6 mm SVL (Heideman, 1990, *J. Herpetol. Assoc. Afr.* 37: 50). Female *A. a. aculeata* from Windhoek contained 8-17 (mean 11,5) oviducal eggs from November to February; and newly-born hatchlings measured on average 58,9 mm total length (Heideman, 1994, *Amphibia-Reptilia* 15(4): 351-361). A 97 mm SVL female from the Eastern Cape province laid 14 eggs (14,4 - 15,4 x 9,8 - 11,1 mm; mean 14,9 x 10,5 mm) (Haagner & McCartney, 1992, *J. Herpetol. Assoc. Afr.* 41: 40-41). Data for the Windhoek, Eastern Cape and Upington specimens indicates that clutch size increases with increasing female SVL, but larger samples are required to test this correlation.

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AGAMA ACULEATA ACULEATA
Western Ground Agama
AVIAN PREDATION

Whilst driving along the Willowmore-Steytlerville road an adult Greater Kestrel (*Falco rupicoloides*) was observed flying towards the main road near the farm Fairview, Steytlerville district, Eastern Cape province (33°17'52"S, 24°07'40"E; 3324Ac). As it flew across the road another car passed by at great speed, startling the bird, which consequently dropped its prey. On inspection it was identified as an adult male *Agama a. aculeata* measuring 204 (98 + 106, tail tip truncated) mm, with a mass of 39,8 g. It was an overall grey-brown colour above, with a prominent white dorsal ridge with three dorsal scale rows on each side. It had the characteristic reticulated pattern on the belly, throat and both front and hind limbs. The chest and flanks were of a pale pink colour and the central throat area was dark grey. The tail had alternating light and dark grey bands throughout its length. The hemipenes were everted and the specimen deposited in the herpetological collection of the Port Elizabeth Museum (PEM R10349).

The prey/predator ratio appears to be fairly large, as Maclean (1984, *Roberts' Birds of Southern Africa*, John Voelker Bird Book Trust, Cape Town) reported that the average mass of an adult Greater Kestrel is 261,3 - 333 g. The potential prey therefore comprised 12,0 - 15,2% of the kestrel's mass. Branch (1988, *Field Guide to the Snakes and other Reptiles of Southern Africa*, Struik, Cape town) illustrated a nestling Booted Eagle (*Hieraatus pennatus*) feeding on an adult male *A. atra*, while Haagner & Morgan (1992, *J. Herpetol. Assoc. Afr.* 40: 90-92) reported that a captive female Intermediate Shieldnose Snake (*Aspidelaps scutatus intermedius*) consumed juvenile *Stellio atricollis*.

Acknowledgements: Dr W.R. Branch is thanked for commenting on the text.

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CHAMAELEONIDAE

CHAMAELEO DILEPIS DILEPIS
Flap-neck Chameleon
REPRODUCTION AND CANNIBALISM

On 2 January 1994 an adult female *Chamaeleo d. dilepis* was collected near Port Shepstone (3030Cb) in southern KwaZulu Natal province, South Africa. It was taken to Bloemfontein by Mrs Erika Bowen who kept it as a pet. On 12 March 1994 the female produced a clutch of 37 eggs which she buried in the soil of an indoor potted plant. The eggs hatched on 15 January 1995 after an incubation period of 339 days. Most of the hatchlings were first noticed between 06h30 and 08h00, with two apparently hatching between 09h00 and 10h00, and three at about 16h30. One average sized hatchling had a snout-vent-length of about 25 mm when measured about a week after hatching, at which time the adult female measured about 115 mm SVL. On 18 January 1995 the female was observed ingesting a hatchling. According to Branch (1988, *Field Guide to the Snakes and other Reptiles of Southern Africa*, Struik, Cape Town), 25-50 (maximum 57) eggs measuring 13-15 x 8-9 mm are laid in damp soil in a self-constructed 15-30-cm-long tunnel during late summer; eggs usually take about 150 days to hatch, but incubation may last for as long as 300 days if laying is followed by a cold winter. The 339 days incubation period reported on here appears to be a record, but the cold winter in Bloemfontein no doubt had a delaying influence on the development of embryos. It is not known whether the reported instance of cannibalism is unique.

Acknowledgement: We thank Mrs Erika Bowen who supplied the information reported on above.

Submitted by: **M.F. BATES** and **R.M. DOUGLAS** (Department of Herpetology, National Museum, P.O. Box 266, Bloemfontein 9300, South Africa).

VARANIDAE

VARANUS NILOTICUS NILOTICUS
Nile Monitor
SIZE

On 19 April 1994, staff at the National Zoological Gardens in Pretoria captured a large female Nile Monitor (*Varanus n. niloticus*) on the sports grounds of Hatfield Primary School, corner of Schoeman and Glyn Streets near to the Hartebeestspruit railway station in Hatfield, eastern Pretoria. It was possible to subdue the monitor only after it became entangled in a mesh fence. Unfortunately it died about a month later, apparently from an infected wound under the right front leg. The carcass was handed over to Mr Groves, a taxidermist, on 26 June 1994. He determined that the monitor measured 980 mm snout-vent-length + 1440 mm tail length = 2420 mm (i.e. c. 8 feet) total length; length of head from tip of snout to anterior edge of ear = 130 mm; mass = 30 kg. Mertens (1942) accepted that this species, which he considers to be one of the largest varanids, exceeds 2 m in total length, although he had no specimens of that size available. While Branch (1988, *Field Guide to the Snakes and other Reptiles of Southern Africa*, Struik, Cape Town) accepts 2 m as the maximum total length for this species, the longest recorded specimen appears to be that of De Waal (1978, *Mem. nas. Mus.*, Bloemfontein 11: 1-160), which measured 740 + 1140 = 1880 mm. The specimen under

discussion can thus be considered the largest lizard ever recorded in Africa. Although the skin and skeleton were used for mounting purposes, the skull was saved and deposited in the collection of the Transvaal Museum, Pretoria (TM 79217). It measured 111 mm from tip of snout to back of occiput, 134 mm from tip of snout to the left angle of the jaw, and had a greatest width of 76 mm. It is assumed that the specimen was the very large Nile Monitor known from a dam in the Hartebeestspruit stream in the Experimental Farm of the University of Pretoria. This stream joins the Morelettaspruit river which empties into the Roodeplaat (previously Pienaar's River) Dam where a well established *Varanus n. niloticus* population exists. This area was probably the origin of the record sized individual. An article, together with a photograph of this specimen, was published in the South African popular magazine *Keur* ("Slanggif in sy bloed - Kom, Oom Blackie!", 7 October 1994, pp. 20-21).

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CORDYLIDAE

CHAMAESAURA AENEA
Transvaal Grass Lizard
SIZE AND REPRODUCTION

In April 1991 an exceptionally long *Chamaesaura aenea* was collected 2,5 km SSE of Glen Reenen Caravan Park, Golden Gate Highlands National Park, Bethlehem district, Free State province, South Africa (28°31'40"S, 28°37'20"; 2828Da1; about 2250 m a.s.l.) by D.J. Kok. It weighed 8,8 g and measured 101 mm SVL, 319,5 mm tail length and 420,5 mm total length, and was deposited in the wet collection of the National Museum, Bloemfontein (NMB R6448). On 4 April 1994 a large, gravid *C. aenea* was collected at Little Switzerland (holiday resort) in the Natal Drakensberg, farm: The Nook (9350) Bergville district, north-western KwaZulu Natal province, South Africa (28°35'S, 29°03'30"E; 2829Ca1; 1600 m a.s.l.) by S. van Rensburg. The specimen was captured as it crossed a road in montane grassland. It was donated to the National Museum in August 1994, and after being photographed (see Bates, 1994, *Culna* 47: 32-33), was deposited in the museum's wet collection (NMB R7093). The specimen measured 137 mm SVL + 270 mm tail length (of which the distal 60 mm was regenerated) = 407 mm total length. Upon dissection it was found to contain 12 small embryos (seven in the left and five in the right, oviduct) with large yolk sacs (the yolk being at least eight times the volume of the embryo). The yolk sacs (with embryos) were more-or-less square-shaped (about 8 x 8 mm) and tightly packed along the sides of the body.

The largest recorded specimen of *C. aenea* is a female (Port Elizabeth Museum, PEM R6143) from Gatberg, Ugie district, Eastern Cape province (3128Aa) measuring 120 + 333 = 453 mm (Branch & Haagner, 1992, *J. Herpetol. Assoc. Afr.* 41: 42-43). This specimen was re-examined by G.V. Haagner (pers. comm.) who obtained the following measurements: 119 + 329 = 448 mm. However, FitzSimons (1943, *Mem. Transvaal Mus.* 1: 1-528) recorded a female from Lothair, Eastern Transvaal province (3128Aa) with a SVL of 134 mm (134 + 263 = 397 mm). The Golden Gate specimen is thus the second longest (420,5 mm total length) known specimen, while the Little Switzerland female has a record SVL (137 mm) for the species.

The first and only report on reproduction in *C. aenea* is that of Branch & Haagner (*op. cit.*) who discuss two gravid females. One of these (120 mm SVL), collected at Gatberg (see above) in April, contained eight "yolked ova" (10 x 7 mm) without signs of embryonic development; while the other (112 mm SVL), collected at Lothair, Eastern Transvaal province (2630Ad) in November, contained a single full-term embryo (31 + 70 = 101 mm). The Little Switzerland female reported on here has a record-sized clutch (12 embryos) and provides only the second report on reproduction in *C. aenea*.

Submitted by: **M.F. BATES** (Department of Herpetology, National Museum, P.O. Box 266, Bloemfontein 9300, South Africa).

SERPENTES

COLUBRIDAE

DUBERRIA LUTRIX LUTRIX
Southern Slug-eater
REPRODUCTION

An adult female *Duberria l. lutrix* was collected in Port Elizabeth (3325Dc) and brought into the snake park. On 3 March 1979 she gave birth to seven neonates, with an additional nine being born overnight. The female and neonates are preserved in the herpetological collection of the Port Elizabeth Museum (PEM R836, 9982-10003). The female had a total length of 374 (312 + 62) mm and weighed 18,8 g. On subsequent dissection, additional full-term embryos were found in the female (three in the left and two in the right, oviduct) which appeared to have been close to birth when the female was preserved. One neonate was facing head down, in the right oviduct, bringing the total number of neonates to 22. Neonates measured: snout-vent-length (SVL), mean 72,3 mm, SD 3,64 mm, range 67-77 mm; tail length, mean 17,9 mm, SD 3,03 mm, range 15-22 mm; total length, mean 90,1 mm, SD, 4,47 mm, range 82-96 mm; mass, mean 0,46 g (*en masse*). The neonates had a total mass of 10,2 g, 54,3% of the female's post-partum mass.

Another adult female *D. l. lutrix* (226 + 41 = 267 mm, mass 12,2 g) was collected in Port Elizabeth (3325Dc) on 9 February 1980 by W.R. Branch. This female gave birth to four neonates the following day: SVL, mean 86,3 mm, SD 1,79 mm, range 84-88 mm; tail length, mean 20,3 mm, SD 3,11 mm, range 17-25; total length, mean 106,5 mm, SD 4,27 mm, range 101-113 mm; mass, mean 0,73 g (weighed *en masse*). The neonates had a total mass of 2,92 g, 23,9% of the female's post-partum mass. The female and neonates were preserved in the Port Elizabeth Museum collection (PEM R1503, 10004-10007). The small number of young born to this female is surprising considering her size.

Another female (304 + 48 = 352 mm; 12,2 g; PEM R835) from Mbabane, Swaziland (2631Ac) gave birth to 13 stillborn young measuring: SVL, mean 63,0 mm, SD 2,56 mm, range 59-67 mm; tail length, mean 15,9 mm, SD 1,55 mm, range 14-18 mm; total length, mean 78,9 mm, SD 1,64 mm, range 77-82; mass, mean 0,46 (weighed *en masse*). These neonates had a total mass of 8,4 g, 68,9% of the female's post-partum mass. The stillborn young appear under-developed and may have been born prematurely. No collection data is available.

Branch (1988, *Field Guide to the Snakes and other Reptiles of Southern Africa*, Struik, Cape Town) reported 6-8 young, with a maximum of 12, born in late summer. Kofron (1990, *Amphibia-Reptilia* 11: 15-21) reported liters of 4-16 for *D. l. rhodesiana* in Zimbabwe. He found a positive correlation between litter size and female size. Haagner (1987, *J. Herpetol. Assoc. Afr.* 33: 36) reported on a litter of 15, born to a female measuring 342 mm, while McCartney (1993, *J. Herpetol. Assoc. Afr.* 42: 39) reported on a litter of 17, born to a large female from Port Elizabeth. The litter of 22 appears to be a record size.

Submitted by: **G.V. HAAGNER and W.R. BRANCH** (Port Elizabeth Museum, P.O. Box 13147, Humewood 6013, South Africa).

PSAMMOPHIS SIBILANS BREVIROSTRIS
Shortsnouted Grass Snake
HISSING

After recently receiving live specimens of the Shortsnouted Grass Snake (*Psammophis sibilans brevirostris*) from the Transvaal, some interesting observations were made. Cages were sprayed with water every day , at which time the snakes would immediately begin licking dripping water from branches or the glass front of the enclosure. However, the snakes apparently disliked it when the spray jet was pointed directly towards them. They did not only throw their body into coils, similar to observations recorded by Rudnai (1987, *E. Afr. Nat. Hist. Soc. Bull.* 17(2): 22-23) for *P. sibilans*, but started hissing loudly and extensively. This happened every time water was sprayed towards them and, in general, when the animals were annoyed because of handling in the cage for cleaning purposes or refilling of the waterbowl. The hissing sound was apparently produced by a pumping motion of the flanks. Air was sucked in, inflating the body, and upon emitting the air a distinct hissing sound was produced. The mechanics of this behaviour are different from that described by Werner (1985, *Israel J. zool.* 33: 69-71) for throat inflation in *P. aegyptius*, as in this case it was not the throat that was inflated, but the anterior part of the body.

No *Psammophis* species has so far been reported to hiss. According to Mertens (1973, *Salamandra* 9(1): 18-21) they are not able to do so. However, perhaps the most well known species in the genus has been named *P. sibilans* (Linné, 1758) (from Latin *sibilo* - to hiss). As FitsSimons (1970, *A field Guide to the Snakes of Southern Africa*, Collins, London) stated, the name is "in no way appropriate". Broadley (1959, *Afr. Wild Life* 13: 29-31) even termed it "misleading". *P. sibilans* is not known to hiss under any circumstances. Nevertheless, generations of herpetologists proceeded to use the name "Hissing sand snake" for *P. sibilans*, even though most pointed out that the name is not particularly suitable. Even in 1922, Brehm (*Die Lurche und Kriechtiere II*, Bibliograph, Inst., Leipzig) commented that the name "Zischnatter" is a pitiful mistake. Thus, it seems, the Shortsnouted Grass Snake is the first species in the genus definitely known to hiss in any way.

Acknowledgement: I am grateful to Monika Schneider for revising the English text.

Submitted by: **F. BRANDSTAETTER** (Universitaet des Saarlandes, FR 13.4 Zoologie, D-66041 Saarbruecken, Germany).

PHILOTHAMNUS ANGOLENSIS
Western Green Snake
DIET

On 5 May 1993 an adult male *Philothamnus angolensis* was collected dead on the road by Pieter Bos in Zomba town, Zomba district, Malawi (15°24'S, 35°21'E; 1535Ad). The snake measured 1001 (672 + 329) mm and weighed 101,7 g. It was deposited in the herpetological collection of the Port Elizabeth Museum (PEM R10015). On dissection it was found to contain the remains of a large *Rana angolensis* (swallowed head first) in its stomach. The frog was identified by the extent of the webbing, which did not extend beyond the distal tubercle of the longest toe (Passmore & Carruthers, 1979, *South African Frogs*, Witwatersrand University Press, Johannesburg). An estimate of prey size was made by comparing the tibia to that of another preserved *R. angolensis* from the area (PEM A2681, Zomba forestry station, Zomba Plateau, Malawi; 15°21'S, 35°18'E; 1535Ad). The prey's tibia measured 36,7 mm, giving a calculated snout-urostyle length of 65 mm and mass of 34,0 g. The prey would therefore have comprised approximately 33,7% of the snake's live mass.

It is well known that *P. angolensis* feeds on anurans. FitzSimons (1939, *Ann. Transvaal Mus.* 20: 273-281) reported it feeding on *Bufo regularis* (= *B. gutturalis*), while Loveridge (1953, *Bull. Mus. comp. Zool.* 110: 141-322) recorded *Ptychadena oxyrhynchus* in the diet. Broadley (1966, *Herpetology of south-east Africa*, Ph.D. thesis, University of Natal) noted that the species (as *P. i. irregularis*) readily preys on ranids of the genera *Rana* and *Ptychadena*.

Acknowledgements: Mr Peter Bos and Mrs Anna Haagner are thanked for pleasant field assistance; Dr W.R. Branch confirmed identifications and commented on the text.

Submitted by: **G.V. HAAGNER** (Department of Herpetology, Port Elizabeth Museum, P.O. Box 13147, Humewood 6013, South Africa).

THELOTORNIS CAPENSIS CAPENSIS
Southern Vine Snake
REPRODUCTION

A heavily gravid female *Thelotornis c. capensis* (total length 1127 mm; mass 63,8 g) was collected in a *Pterocarpus capassa* tree at the Dixie vista point, Manyeleti Game Reserve, Eastern Transvaal, South Africa (24°42'S, 31°31'E; 2431Da). On 31 December 1988 she was maintained in a large, off-display cage (1000 x 300 x 300 mm containing a cardboard hide box and plastic nest box with moist vermiculite) at the Manyeleti Reptile Centre. On 8 January 1989 she laid 10 eggs in the nest box. Egg biometrics were taken and volume determined for elipsoidal eggs using the formula in Douglas (1992, *S. Afr. J. Wildl. Res.* 20(3): 111-117). Egg measurements: length, mean 27,7 mm, SD 2,07 mm, range 25,8 - 32,7 mm; width, mean 16,8 mm, SD 0,44 mm, range 16,2 - 17,5 mm; volume, mean 4,09 cm^3, SD 0,32 cm^3, range 3,66 - 4,66 cm^3; mass, mean 6,06 g (weighed *en masse*). Eggs were incubated at 28°C, half-buried in moist vermiculite as described by Tryon (1975, *Bull. New York Herpetol. Soc.* 11: 33-37). The eggs weighed 60,6 g, 95,2% of the female's post-partum mass. Eggs hatched on 5-6 March 1989 after 56-57 days. Hatchlings were very active and aggressive, regularly inflating their throats, not unlike adults. They measured: total length, mean 310,2 mm,

SD 13,14 mm, range 292-331 mm; mass, mean 3,5 g, SD 0,27 g, range 3,0 -3,9 g. Ecdysis first occurred 7-9 days after hatching, after which hatchlings were offered new-born pink mice. None of the young or the adult female accepted mice, although they readily took young *Lygodactylus c. capensis* and *Hemidactylus mabouia*. They were all released at the capture site.

Reproductive information on *T. capensis* is scanty, and sometimes even contradictory. Broadley (1983, *FitzSimons' Snakes of Southern Africa*, Delta Books, Johannesburg) reported 4-13 eggs laid during summer, with hatchlings measuring 230-250 mm. FitzSimons (1970, *A Field Guide to the Snakes of Southern Africa*, Collins, London) stated that 6-10 eggs are laid, averaging 38 x 19 mm, hatching after 30-52 days. Bennefield (1982, *J. Herpetol. Assoc. Afr.* 28: 13-14) reported a captive female *T. c. mossambicanus* laying 18 eggs after a gestation period of 52-58 days. Loveridge (1953, *Bull. Mus. Comp. Zool.* 110(3): 143-322) reported eight eggs measuring 35 x 14 mm from Matipa Forest, Mozambique; while Barbour & Loveridge (1928, *Mem. Mus. Comp. Zool., Harv.* 50(2): 87-265) recorded five eggs from the Uluguru Mountains in Tanzania measuring only 15 x 5 mm. Dyer (1979, *J. Herpetol. Assoc. Afr.* 20: 6) reported on a clutch of five eggs which hatched after 92-94 days, the hatchlings measuring only 110 mm (this is questionable!). The eggs reported on here are slightly smaller than those recorded for a clutch of six eggs from Mapelane, Zululand (Haagner & Els, 1986, *Lammergeyer* 37: 14-21; Haagner & Els, 1987, *J. Herpetol. Assoc. Afr.* 33: 35). Hatchlings were similar to those reported by Haagner & Els (*op. cit.*), although considerably larger than those mentioned by Broadley (*op. cit.*).

Acknowledgements: Dr. W.R. Branch is thanked for commenting on the text.

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ELAPIDAE

NAJA MELANOLEUCA
Forest Cobra
COPROPHAGY

An adult male *Naja melanoleuca* (approxim. 2,0 m) originally from Nigeria but held in zoo collections in the United Kingdom for 20 years, and housed on its own in the Reptile House of the West Midland Safari Park in Worcestershire, England for almost five years, was observed on about 24 occasions ingesting its own faeces. This behaviour was usually noticed in the evening, although it also occasionally occurred in the morning, and may also have occurred at night when the snake was not observed. The cobra was fed a single, whole, thawed, adult laboratory rat every 7-10 days and would defaecate 6-7 days later. Coprophagic behaviour would be initiated by the cobra digging around in the leaf-litter and sand base of the cage until it encountered fresh, wet faeces which it would then immediately ingest. Neither uric acid deposits nor old, dried faeces were eaten. Fresh faeces of other cobra species (*Naja haje, N. kaouthia*) were also ignored.

It is possible that this specimen suffers from a deficiency caused either by its age or diet, the latter composed entirely of laboratory rats. Forest cobras naturally take a wide

variety of prey, especially fish, toads, frogs, lizards, other snakes including their own species, birds, bird eggs and small mammals (see Pitman, 1974, *A Guide to the Snakes of Uganda*, Wheldon & Wesley; Stucki-Stirn, 1979, *Snake Report* 271. Herpeto Verlag; Broadley, 1983, *FitzSimons' Snakes of Southern Africa*, Delta Books, Johannesburg). Coprophagy has previously been reported for an Australian captive *N. melanoleuca* at Melbourne Zoo (Banks, 1984, *Herp. Review* 15(4): 113), but does not seem to be a common occurrence in captivity, and no other instances have been reported by keepers of these snakes, nor had this behaviour been observed previously by this individual when it was younger and housed in the collections of Drayton Manor Park and Zoo, Tamworth; Knowsley Safari Park, Liverpool; and Chester Zoo.

Acknowledgements: I am grateful to Gerald Haagner of the Port Elizabeth Snake Park who brought the Melbourne account to my attention, and to various keepers who responded to my requests for information, especially Chris Banks with whom I discussed the behaviour of *N. melanoleuca* at the SWCH.

Submitted by: **MARK O'SHEA** (Reptile House, West Midland Safari Park, Bewdley, Worcestershire, England).

VIPERIDAE

CAUSUS RHOMBEATUS
Rhombic Night Adder
CANNIBALISM

At 17h00 on 4 April 1994, two adult night adders were delivered to me in an opaque, woven-plastic bag by Mr R. Syme, who found them on Clanwell Farm, Natal (2930Ac; 1220 m a.s.l.). One snake had an open wound in its neck. The two snakes were placed indoors in the bag, and at 20h30, when examined again, it was found that the wounded snake had been swallowed by its companion. The bag was left *in situ* and disturbed as little as possible. At 18h00 on 6 April 1994, the ingested snake was found disgorged, an action which had taken place after 16h00 (± 48 hours after being swallowed) on the same day the snakes had last been looked at. The disgorged snake showed little sign of having been digested, except in its rostral region. Both snakes were subsequently weighed, measured and preserved: specimen A - male, 170 g, 547 mm SVL + 77 mm tail length = 624 mm total length; specimen B (wounded snake) - male, 122 g, 534 + 65 = 599 mm. Apparently there are no published records of ophiophagy in *C. rhombeatus* (see Broadley 1983, *FitzSimons' Snakes of Southern Africa*, Delta Books, Johannesburg; Branch, 1988, *Field Guide to the Snakes and other Reptiles of Southern Africa*, Struik, Cape Town).

Submitted by: **O. BOURQUIN** (Natal Parks Board, P.O. Box 662, Pietermaritzburg 3200, South Africa).

GEOGRAPHICAL DISTRIBUTION

African Herp News publishes brief notes of new geographical distributions (preferably at least 100 km from the nearest published record) of amphibians and reptiles on the African continent and adjacent regions, including the Arabian peninsula, Madagascar, and other islands in the Indian Ocean.

A standard format is to be used, as follows: **SCIENTIFIC NAME; Common name** (for source, see Life History Notes); **Locality** (country, province or state, location, quarter-degree grid unit and latitude and longtitude if available; elevation above sea level; use metric distances); **Date** (day, month, year); **Collector(s); Place of deposition and accession number** (required); **Comments** (including data on size, colour and scalation, especially for taxonomically problematic taxa; and nearest published record/s in km; references to be quoted in text); Submitted by: NAME, address (in brackets). Observation records are acceptable only in exceptional circumstances (as in the case of large or easily identifiable reptiles, e.g. pythons, tortoises). Records submitted should be based on specimens deposited in a recognised institutional collection (private collection records are discouraged). New South African province names must be used.

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REPTILIA
SAURIA

GEKKONIDAE

COLOPUS WAHLBERGII WAHLBERGII Peters, 1869: Kalahari Ground Gecko; Zimbabwe, Hwange National Park, 5 SW of Dotama Pan (1924Cd); 14 June 1994; G.S.A. Rasmussen and Raleigh-International venturers; Natural History Museum of Zimbabwe NMZB 13426. An adult male taken on the border road at 11h30. Second record for Zimbabwe and the first for Hwange National Park, linking the earlier Zimbabwean record from Victoria Falls (Broadley & Spawls, 1991, *J. Herpetol. Assoc. Afr.* 39: 19) with records to the SE of Makgadigadi Pan (Haacke, 1984, *Koedoe (Suppl.)*, pp. 171-176).

Submitted by: **D.G. BROADLEY** and **G.S.A. RASMUSSEN** (Department of Herpetology, Natural History Museum of Zimbabwe, P.O. Box 240, Bulawayo, Zimbabwe).

CORDYLIDAE

PLATYSAURUS MACULATUS MACULATUS Broadley, 1965: Northern Flat Lizard; Tanzania, Mtwara province, Masasi district, Masasi (1038 Db); May 1936; H. Zerny; Naturhistorisches Museum Wien, NHW 23491: 1 & 3. An adult male (72 + 110 = 182 mm) and juvenile (43 mm SVL). New genus and species for Tanzania, and a northward range extension of 460 km from a locality 30 km E of Ribaué in northern Mozambique (Broadley, 1965, *Arnoldia Rhod.* 1(33): 1-4). Otto Wettstein had planned to describe these specimens as a new subspecies of *Platysaurus torquatus*, but no paper was published.

Acknowledgement: I am grateful to Dr F. Tiedemann of the Vienna Natural History Museum for sending these specimens for identification.

Submitted by: **D.G. BROADLEY** (Department of Herpetology, Natural History Museum of Zimbabwe, P.O. Box 240, Bulawayo, Zimbabwe).

SERPENTES

TYPHLOPIDAE

TYPHLOPS SCHINZI Boettger, 1887: Beaked Blind Snake; South Africa, Northern Cape province, Kenhardt district, Farm: Johnniesluck (29°36'S, 21°38'E; 2921Da); 5 September 1993; J. Irish; National Museum, Bloemfontein, NMB R7113. Small specimen collected under a stone. The body is cream coloured with brown dorsal blotches which often fuse; the snout is strongly hooked with a sharp cutting-edge. Broadley (1990, *FitzSimons' Snakes of Southern Africa*, Jonathan Ball & Donker, Johannesburg) recorded *T. schinzi* at only 16 quarter-degree units in Namibia, western Botswana and the Northern Cape province of South Africa. Branch (1990, *J. Herpetol. Assoc. Afr.* 37: 17-44) later recorded a specimen from as far south as 3120Ad. The Johnniesluck record fills the gap between northern and southern populations in the Northern Cape, being about 120 km SE of Kakamas (2820Dc) and 150 km NNW of Carnarvon (3022Cc) (see Broadley, *op. cit.*). Broadley (*op. cit.*) incorrectly plotted an Upington record at locus 2821Ca instead of 2821Ac.

Submitted by: **M.F. BATES** (Department of Herpetology, National Museum, P.O. Box 266, Bloemfontein 9300, South Africa).

COLUBRIDAE

TELESCOPUS OBTUSUS (Reuss, 1834): Moroccan Tiger Snake; southern Morocco, vicinity of Quarzazate (approxim. 06°55'W, 33°05'N; 0633Cc; altitude about 1250 m a.s.l.); 5 April 1991; a 45 cm long specimen found under a stone. Because of conservation measures, it was examined and photographed only (photographs deposited in private collection of first author) and then released at the collection site. The body and tail were a uniform greyish-brown, belly uniform white, and head black, sharply separated from the body colouration on the neck. The following reptile species were also collected at this locality: *Tarentola mauritanica, Ptyodactylus hasselquistii, Acanthodactylus* sp., *Agama bibroni, Uromastyx acanthinura, Malpolon* sp. and *Cerastes vipera*. According to Böhme, Schmitz & Meser (1989, *Salamandra* 25(2): 73-76) this is only the second record of *Telescopus* in Morocco, documenting the relict occurrence of this formerly widespread genus in north-western Africa, and extending the known range limit of the genus about 270 km westwards in this country.

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BOOK REVIEW

Endoglyphs and other major venomous snakes of the world. A checklist.

By P. Golay, H.M. Smith, D.G. Broadley, J.R. Dixon, C. McCarthy, J.C. Rage, B. Schatti, and M. Toriba. Azemiops Herpetological Data Center (obtainable from Foundation Culturelle Elapsoidea, CP 98, 1219 Aire-Geneve, Switzerland), SF75.00 (US$50.00). Hardback, 150 x 215 mm, 478 pp.

My first reaction on hearing of this volume, and I bet I'm not the only one who thought it, was: Not another checklist of venomous snakes! In recent years there have been at least four such checklists, including one other that appeared in 1993 (Welch, 1993) which I reviewed (Branch, 1994) and I take the liberty of repeating a few of the introductory comments concerning checklists that I made there.

A good checklist is a thorough synthesis of a diverse, and often contradictory, database, that has been crafted into a coherent and up-to-date summary of existing knowledge in a particular field, be it geographical or taxonomic in scope. Its usefulness, as measured by the diverse questions it may answer, is directly related to the amount and organization of the information it contains. But checklists are not just lists of names; they require an intellectual 'filter' through which supurious or debatable taxonomic decisions, or geographical records, have been passed. A name included without comment or reservation in a checklist has a certain "stamp of authority" on which users, unfamiliar with the field, place faith. For these reasons a checklist compiler has an obligation to undertake a thorough literature survey and to be sufficiently familiar with the subtleties of either the taxonomy or geography of the chosen area so as to be able to make valued judgements or comments.

So how good is this volume, given that it is not the first, or likely to be the last, on this recurrent topic? It gives as its scope "... fossil and living endoglyphous (venomous snakes with a closed groove in the fang) and medically significant (i.e. potentially able to inflict life-threatening bites) ectoglyphous snakes, and in this restricted, albeit somewhat artificial field, it succeeds admirably. It is certainly up to date, both in terms of the nominal taxa, current thinking on phylogenetic relationships, and distributions. The potted summaries are excellent and give original citation, type localities and present location of type(s) (where known), detailed synonymies and updated distributions. For ease of use true synonyms are listed in bold type, misprints or lapses in italics, and wrong identifications are followed by "(in error)". All are arranged chronologically. Most appear to be complete, although *Vipera atropoides* is missing from the synonymy of *Bitis cornuta*, where there apparently remains confusion as to whether it should be placed under the typical race *B. cornuta albanica* or revived as a valid taxon. The status of this poorly differentiated and inadequately described taxon will be discussed in fuller detail elsewhere (Branch, in prep.). Fossil taxa are also included, which is useful in both phylogenetic and zoogeographic analyses. References validating name changes are rare and some taxa have been relegated to synonymy without comment (e.g. *Naja haje legionis* Valverde 1989 and *Bitis arietans peghullae* Stewart 1973). There is a full and useful index, and although no cut-off date is mentioned, a few 1993 publications are listed.

The main strength of the book is its broad base of expertise, as reflected in the list of co-authors. The book is Phillipe Golay's brainchild, and is a logical continuation of his earlier checklist to the Elapidae (Golay, 1985; reviewed by Branch, 1986). This time however, Golay has invited a panel of experts to review the status of all species covered in the book. As with any large taxonomic group, especially one as artificial as this, some species, genus, and even in some exceptional cases family boundaries, remain unresolved.

Following the paper of Underwood & Kochva (1993), *Homoroselaps* is returned to the Elapidae, although it would take a further application to the ICN to reinstate the original name *Elaps*! However, this may be premature, as even Underwood & Kochva concede that *Homoroselaps* has only weak affinities to the remaining elapids, and the two species may be viewed as surviving members of a primitive branch of the Elapidae. Presently *Homoroselaps* shares two features with other elapids (the position of the accessory gland on the course of the venom gland duct, and the presence of large single and double cones in the retina) but also shows affinities to atractaspids, including features of the sphenoid bone, the condition of the nasal bones, and the relationship between the palatine and pterygoid bones in the skull. Other unusual features of *Homoroselaps* can be interpreted as primitive features that give no insight into its phylogenetic relationships. The problem thus remains equivocal, and it is possible that *Homoroselaps* reflects a basal group from which both elapids and atractaspids radiate.

Other areas of taxonomic contention relate to *Echis*, particularly the validity of some of Cherlin's (1990a,b) taxa, including *E. jogeri*, *E. hughesi* and *E. megalocephalus*. These are accepted without comments, although many of Cherlin's other taxa are relegated to synonymy (e.g. *E. khosatzkii*, *E. varius*, *E. arenicola* and *E. sochureki*). The authors of other checklists (e.g. Largan & Rasmussen, 1993) have grappled with these problems, and the present checklist would have served its audience better by noting the problems still unresolved.

My main query however, is what is the target audience? If it is professional herpetologists, why a checklist restricted to venomous species? Why not one of aquatic or arboreal snakes? If it is the medical profession, why no indication of the relative clinical significance of the venoms of the different taxa? Large numbers of the included taxa are venomous only in a technical sense, possessing modified fangs and associated venom glands. The toxicity of their venoms is minimal and of no clinical significance (e.g. *Homoroselaps dorsalis*). There is also nothing to educate clinicians as to what are dangerous and non-dangerous "venomous" snakes. Despite these comments, however, this checklist of venomous snakes is by far the best in its field. Should you want a checklist of elapids, viperids and miscellaneous colubrids, this is the book to get.

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Reviewed by: W.R. BRANCH (Department of Herpetology, Port Elizabeth Museum, P.O. Box 13147, Humewood 6013, South Africa).

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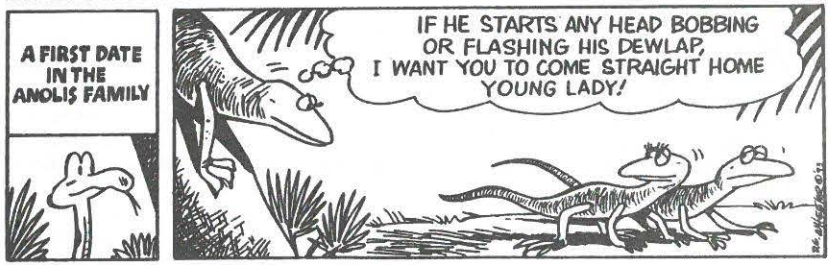
THE ADVENTURES OF SPOT



THE ADVENTURES OF SPOT

SUPPORT THE TASK FORCE

Dear Recipient of FROGLOG:

As an individual who has been receiving FROGLOG, you know the importance of the Task Force activities. I write to ask your financial support if you are at all able to help.

The Task Force office operations, which include serving as the central communications point for Task Force members, maintaining the amphibian decline database and producing FROGLOG, cost only about $50,000 per year. This has been successfully met with funding from foundations. Although many of these foundations are interested only in one time funding and one has indicated it cannot continue its present level of funding, we believe this can be dealt with.

Our priority now is to re-establish the Seed Grant Fund which is indispensable to the achievement of our goals. Some of the important progress to date stems from these grants, which have enabled Task Force Members to explore the relationship between disease, stress, and temperature; UV-B radiation and amphibian declines; and to monitor populations.

Foundations supporting our work require a showing of diversified support. We are now looking to individual donations as a primary source of funding for the Seed Grant Fund. This letter is the first in an annual appeal for funds to support the Task Force.

Your continued receipt of FROGLOG is not dependent on donating funds to the Task Force. But in the long run, the continued production of FROGLOG, as well as all our other activities, rests on our ability to demonstrate that we have a program which stimulates progress in our work. Your support is the tangible vote of confidence which will play a vital part in assuring that the effort goes on. Please use the attached form and mail your contribution today. Thank you in advance for your support.

W. Ronald Heyer, Chair, DAPTF

Yes, I wish to make a donation to the Declining Amphibian Populations Task Force in the amount of:

$25	$50	$100	$500	Other

Please make cheques out to: "Declining Amphibian Populations Task Force" and mail this form with cheque to the following address:

Ronald Heyer, Chair, DAPTF
NHB mail stop 180
Smithsonian Institution
Washington, DC 20560 USA

Donations from US contributors are tax deductable to the extent allowed by law.

The H.A.A receives all issues of the newsletter FROGLOG. Interested members should write to: Mike Bates, P.O. Box 266, Bloemfontein 9300, South Africa for photocopies (20c per page, return postage required).

CIRCULAR TO MUSEUMS AND INSTITUTIONS

We are proud to announce that the

Catalogue of valid species and synonyms
Volume 3 (Elapidae)

is due to appear approximately in April 1995.

If you have placed a standing order with us, you will be sent this volume at pre-subscription conditions without any further action being necessary. If you have hesitated to date, this is the right time to think twice.

This series is a unique encyclopaedic concept that grows with the time and is always kept up to date. Whilst book-like publications of this kind may contain unadjustable errors and are outdated after a while, the concept of this catalogue series allows to update it at any given time, fully or in part, according to the latest state of scientific research. Over the time, it should grow to THE bibliographical reference every taxonomist has always dreamed of. Errors, mistakes, and misprints are no longer a problem since exchange pages will promptly adjust them upon discovery.

The *Catalogue of valid species and synonyms* appears family by family for reptiles and amphibians. It comes in a high quality 4-D-ring-binder presenting all valid species page by page with their known synonyms, mis-identifications, partim-misidentifications, errata typographica, etc. and a multitude of references assigned. Every purchaser of a volume is recorded by the publishers and sent the subsequent exchange pages without request and on account. He will only be charged for pages representing a real extension, whereas those eliminating errors contained in the basic set of pages will be absolutely free of charge - an obviously unique kind of quality warranty. Subscribers to the first two volumes will confirm that this is no commercial promise, but that they have indeed been experiencing this service.

Contributions to the Catalogue hardly cause any additional work to authors. Since it is based on officially published papers exclusively, nothing else need be done than to submit a copy of the respective paper to the publisher. The submitter is duly credited on the respective page. The Catalogue is however no medium for original publications or expression of opinions. The length of a bibliographical list for each species is unlimited. Authors interested in contributing to forthcoming or existing volumes of this series are welcome to contact us for co-ordination. Subsequent volumes are in a very advanced stage of preparation already. Subscribers to all volumes will also receive a bonus in the form of receiving the General Index free, which itself will be a gigantic cross-reference to all scientific names existing in herpetology.

Volume 3 consists of approximately 430 pages containing about 8 900 references in the form of synonymy lists per taxon - and this is only the basic set of pages!

As you will see below, the price of this volume is again very reasonable taking into account the shrinking budgets of those who need things like this most. The deadline for new orders at the pre-publication special is:

30 March 1995

and deliveries are scheduled for April 1995.

Pre-publication special Volume 3 (P & P incl.): R195.80 (VAT included)	US$ 55.00
Regular Price (P & P incl.): R249,20 (VAT included)	US$ 70.00
Future Extension Pages:	USCent 25 each
Future Adjustment Pages:	FREE
Volume 1 (Crotalidae) incl. all updates	US$ 56.50
Volume 2 (Viperidae/Atractaspididae) incl. all updates	US$ 40.00

Shipments are made by surface mail.

Payments are strictly in advance unless otherwise agreed. If not otherwise requested, invoices will be included in the delivery. Currencies other than US$ are acceptable if freely convertible and calculated at an actual exchange rate. Please do not use Postal Money Orders in a currency other than South African Rand, American Express Money Orders or similar means of payment. Please make cheques payable to HERPRINT INTERNATIONAL cc.

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HERPETOLOGICAL NATURAL HISTORY

Herpetological Natural History is a peer-reviewed journal devoted to all aspects of natural history (e.g. behaviour, biodiversity surveys, conservation biology, disease, ecology, evolution, geographic distribution, palaeontology, reproduction) of free-ranging amphibians and reptiles. U.S. subscriptions to *Herpetological Natural History* are $25.00/yr. International subscriptions are mailed by surface and require an additional $5.00 for postage. Air mail quotes will be provided upon request. Back issues (1993) are available at $17.00/number (postpaid). Payment (by check or money order and in U.S. Dollars) should be made to **International Herpetological Symposium, Inc.**

ORDER FROM: *Herpetological Natural History*
c/o Allen Anderson
P.O. Box 176
Norwalk, IA 50211
United States of America

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INTERNATIONAL CONGRESS OF CHELONIAN CONSERVATION

GONFARON (near NICE) FRANCE - 6,7,8,9 & 10 July 1995

PROGRAMME
Each day is devoted to a geographical area or continent.

08:30	The sessions start with an overview by the Chairman. Papers being presented will have a duration of 15 minutes, with 5 minutes for questions. 15 to 18 Papers will be presented each day.
10:30	Tea-break.
12 to 13:30	Lunch
16:00	Tea-break
18:00	End of Papers and conclusion by the Chairman

Wednesday, 5th July
Afternoon and evening; reception of participants.

Thursday, 6th July
Opening of the Congress.
ASIA and THE PACIFIC. Chairman, Indraneil DAS.

Friday, 7th July
AFRICA and MADAGASCAR. Chaired by Bill BRANCH and Lee DURRELL.

Saturday, 8th July
EUROPE and MIDDLE-EAST. Chairman, Jacques FRETEY.

Sunday, 9th July
NORTH AMERICA and SOUTH AMERICA. Chaired by John BEHLER and Peter PRITCHARD.

Monday, 10th July

Morning	General Papers, and summary by the Managing Committee and the Scientific Council of SOPTOM. Prizes will be awarded to outstanding projects or programmes in progress concerning chelonian conservation.
Afternoon	Transfer to CANNES (80 km), with some free time in the town.
Evening	19:00. Key note lecture by Peter PRITCHARD *Tortoises and turtles in the world - a triumphant past, and uncertain future* in the "PALAIS DES FESTIVALS de CANNES". "Fête meal: on the beach of the MAJESTIC HOTEL near the PALAIS DES FESTIVALS.

Tuesday, 11th July
Excursion possibilities (see further).

SOMPTOM-CONGRES, B.p. 24, 83590 GONFARON / FRANCE
Tel. (33) 94782641 / Fax. (33) 94782427

FIRST CALL FOR PAPERS

The International Herpetological Symposium, Inc.
announces the

19th INTERNATIONAL HERPETOLOGICAL SYMPOSIUM

hosted by the Denver Zoological Gardens
June 14-18, 1995
Denver, Colorado

Special Theme
"HERPETOLOGY IN MEXICO"

The agenda will include papers and posters on a variety of topics relating to herpetological natural history, including ecology, biogeography, conservation biology, husbandry, veterinary medicine, diet and nutrition, behaviour, and other areas of interest to the professional and avocational herpetologist.

Herpetologists wishing to present a paper on the special theme of *Herpetology in Mexico*, or on other areas of herpetology, are invited to contact:

Dr Richard Ross, Program Chairman
Institute for Herpetological Research
at the Santa Barbara Zoological Gardens
500 Niños Drive, Santa Barbara, CA 93103-3798
FAX: (805) 565-9490

NINTH MEETING OF THE AFRICAN AMPHIBIAN WORKING GROUP

FIRST NOTICE

The *Ninth Meeting of the African Amphibian Working Group* is scheduled to take place in Bristol, England from 9 to 13 September 1996.

Contact the organizer, Prof. Richard Tinsley at Bristol University, for further details.

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H.A.A. COMMITTEE ELECTION 1995

All paid-up African Members of the H.A.A. (excluding memberships registered in a name other than that of a person - see paragraph 12.1 in *African Herp News* 15, p. 11) are hereby invited to submit nomination forms (copy included) to persons they wish to stand as candidates for election. There is no restriction on the number of persons you may nominate. You may also nominate more than one person per position (e.g. Additional Committee Member) on the committee. The nominator must sign the form and send it to the nominee. If agreeable, the nominee should then sign the form and return it to the Electoral Officer. The nominator and nominee must both print *and* sign their names on the nomination form, and the nominator must indicate the position he wishes the nominee to accept (e.g. Additional Committee Member). The nominee should return one form only (more than one nomination may be received) and he or she would therefore be eligible for election to only one position on the committee.

Nominees wishing to obtain information regarding the duties of any particular portfolio on the committee are invited to contact the Chairman at tel. (051) 479-609.

The final list of candidates will be included in *African Herp News* 23. H.A.A. members will then be requested to indicate their choice of a new committee.

Nomination forms may be returned by post or fax and must be received by the Electoral Officer no later than 30 May 1995.

Electoral Officer
Mr R.M. Douglas
P.O. Box 266
Bloemfontein 9300
South Africa

Tel: (051) 479-609
Fax: (051) 479-681

UK CLUB/SOCIETY DIRECTORY

ASSOCIATION
Mr L.Gregory (P.R.O.)
'The Shambles' 25 Wallin Close,
Roade, Northants
(0604) 862703

ASSOCIATION for the STUDY of REPTILIA and AMPHIBIA
The Membership Secretary
P.O.Box 73
Banbury, Oxon. OX15 6RE

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BM Tortoise Trust
London. WC1N 3XX
(0225) 318022

BRITISH ASSOCIATION of TORTOISE KEEPERS
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323 Hagley Road,Birmingham,
B17 8ND
(021) 4559606

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Mr & Mrs R.W.Davies
5 Richards Road, Standish, Wigan.
WN6 0QU

BRITISH HERPETOLOGICAL SOCIETY and YOUNG HERPETOLOGISTS CLUB
c/o Zoological Society of London
Regents Park, London, NW1 4RY

BRITISH REPTILE & AMPHIBIAN SOCIETY
Mr S Churchman. - Secretary
85 Devon Road, Barking, Essex.
(081) 5913067

CUMBRIAN REPTILE ASSOCIATION
Bryan Ballantyne
11 Longthwaite Crescent, Wigton, Cumbria
CA7 9JN
(06973) 43944

EASTERN HERPETOLOGICAL SOCIETY
Colin Ware
113 Thunder lane, Norwich, Norfolk
NR7 0JG

EAST SUSSEX HERPETOLOGICAL SOCIETY
Mr Peter Martin
20 Silverlands Road, St.Leonards-on-Sea,
East Sussex.
(0424) 440895

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c/o Val Clark
Secretary
6 Chestnut Way, Tiptree. Colchester, Essex.
CO5 0NX

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Bedfordshire. SG17 5SS
Phone: Kelly on (0462) 816892

INTERNATIONAL HERPETOLOGICAL SOCIETY
c/o Mr A. Dibobs
65 Broadstone Ave,
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West Midlands. WS3 1JA

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Chapel Farm Cottage, Clapton,
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MK3 7PW.

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(0293) 538398

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(0329) 833017 after 6pm weekdays

PROTEUS REPTILE RESCUE
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Kingstanding,
Birmingham, B44 9TD
(0831) 257066

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Garvald,East Lothian.
EH41 4LN

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Bill Mackenzie - Chairman
55 Boscobel Drive,
Heath Farm, Shrewsbury,
Shropshire.
(0743) 246097 (after 6pm)

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'Acanthus'
50 St.Marychurch Road,
Torquay,
Devon. TQ1 3HQ

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Hardanger, Littleworth, Partridge Green,
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THAMES and CHILTERN HERPETOLOGICAL GROUP
Mr Colin Clark
7 Teasdale Close
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(091) 266 0824

WIRRAL HERPETOLOGICAL SOCIETY
Mrs Eve Cavanagh
4 Elm Park Road, Wallasey
Wirral. L45 5JH
(051) 6391197

HERPETOLOGICAL ASSOCIATION OF AFRICA

MEMBERSHIP FEES AS AT 1 JANUARY 1995

AFRICAN MEMBERSHIP

ORDINARY MEMBERSHIP

1 year membership **R40.00.** Submit in Rand or equivalent U.S. Dollar plus 10%.
3 year membership **R110.00.** Submit in Rand or equivalent U.S. Dollar plus 10%.

SCHOLARS MEMBERSHIP

1 year membership **R30.00.** Submit in Rand or equivalent U.S. Dollar plus 10%.

OVERSEAS MEMBERSHIP

DOLLAR PAYMENTS

1 year membership **$25.00.** Submit in U.S. Dollars by personal cheque or money order.
3 year membership **$70.00.** Submit in U.S. Dollars by personal cheque or money order.

RAND PAYMENTS FROM OVERSEAS

1 year membership **R80.00.** Submit in ZAR or Rand by bankers draft or money order.
3 year membership **R220.00.** Submit in ZAR or Rand by bankers draft or money order.

Owing to numerous banking problems, members are kindly requested not to submit payments directly to any Building Society or Bank account. All payments must be submitted directly to:

THE SECRETARY/TREASURER
HERPETOLOGICAL ASSOCIATION OF AFRICA
P.O. BOX 20142
DURBAN NORTH 4016
SOUTH AFRICA

PLEASE STATE IN WHICH YEAR YOU REQUIRE MEMBERSHIP TO BEGIN. MEMBERSHIP RUNS FROM 1 JANUARY TO 31 DECEMBER OF ANY YEAR. SHOULD MEMBERSHIP BE TAKEN OUT IN THE LATTER PART OF THE YEAR, YOU WILL RECEIVE ALL JOURNALS AND NEWSLETTERS PERTAINING TO THAT YEAR.