HERPETOLOGICAL ASSOCIATION OF AFRICA

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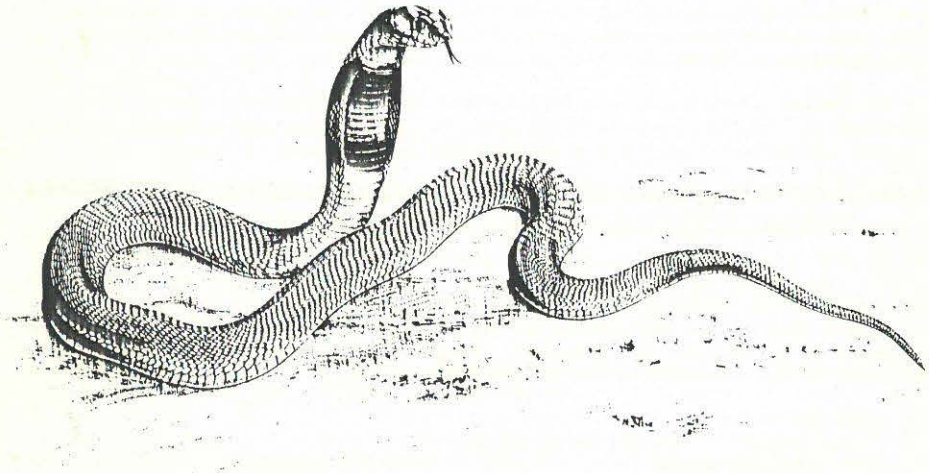
founded 1957

NEWSLETTER 4



FEBRUARY 85

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CONTENTS

EDITORIAL

Dr. Branch has asked me to take over as editor of the *H.A.A. Newsletter*. After giving the idea some thought I decided this was the only way fresh wind could be blown into the calm seas of the H.A.A. Because the Newsletter will in future be produced at the National Museum, Bloemfontein, I have decided to form a team to assist me in keeping this Newsletter on your doorstep. I have already had some positive reaction on sponsorship from various publishers.

The basic idea behind the Newsletter is communication and participation. The H.A.A. Journal is moving more and more towards a recognized scientific journal, and therefore, my aim is to introduce scientific Herpetology to the H.A.A. members.to our members. I think amateur herpetologists can make a valuable contribution to herpetology in Africa if their hobby has a sound scientific base.

We would like to give the *H.A.A. Newsletter* a specific format in order to make it easier for members to contribute. Hopefully this issue will portray what we have in mind. If you have anything on your mind please write to me and I will publish your letter under *"Letters to the Editor"*. Share any practical hints with other members, especially our new Younger members who would appreciate experience in the form of *Practical Tips*.

In each issue we will give you *Institutional News, Introducing usefull books, Abstracts of interesting scientific articles, Short notes* and a short feature article on subjects which may prove helpfull in the study of reptiles and amphibians.

HANDING OVER OF H.A.A. SECRETARIAL RESPONSIBILITIES

It is with great pleasure that I have accepted the position as secretary of the H.A.A. Therefore, with immediate effect, the secretarial functions of the H.A.A. will move to the National Museum at Bloemfontein. I would like to ask members to make a note of the new address so that all future communications relating to membership, both new and renewals, change of address and general enquiries relating to the Association can be addressed to:

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c/o National Museum
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BLOEMFONTEIN 9300
REP. OF SOUTH AFRICA

ROD DOUGLAS
SECRETARY

INSTITUTIONAL NEWS

1. National Museum, Bloemfontein
2. Dept. Zoology UOVS
3. Dept. Nature Conservation

1. NATIONAL MUSEUM

The Staff consists of: J.H. van Wyk, MSc (Stell), Mr. Mike Bates (Nat. Dep. Nat. Consv.), Miss Trudie Saaiman (B. Agric.), Mr. Rod Douglas and Mr. Frans Mokhoeli.
We house a collection consisting of 5 260 reptiles and 2 360 amphibians, mostly collected in the O.F.S. We use a card index system but are hoping to complete computerization of our collection soon.

Research activities centres around a main project initiated in 1984, concerning the ecology of the lizard, *Cordylus giganteus*. We study feeding, food resources, energy utilization, reproduction, behaviour, population dynamics ect. We are busy setting up a microenvironmental monitoring system in the field. We aim to gather enough basic ecological knowledge to assist Nature Conservation departments to save this endangered species from extinction. Trudie Saaiman assists with the sorting of insects, laboratory work and field work. Rod Douglas and Mike Bates assists with the field work concerning this project.
Rod Douglas joined our team in July 1984 and with his interest in snakes he started lookingintothe diet of *Psammophylax* in the O.F.S. During the coarse of this project Rod became acquainted with the identification of mammal hairs and after making a reference collection for the potential prey in the Free State he is now able to identify the small mammal prey items.

Michael Bates is currently doing his National service. Before going to the army he worked on our curatorial system and supervised the computerization of the catalogue cards. He also started to collect reproductive material from lizards in our collection. We are also hoping to publish a field guide of the snakes of the OFS in the near future. Frans Mokhoeli has been occupied for a year now putting new more informative labels on the specimens in the collection. I have completed a study of the femoral glands of *Cordylus polyzonus* which is in preparation for publication. We are also involved together with Dr. D.J. Kok, Dept. of Zoology, UOFS, in a project concerning a *Polystoma* sp. parasite in the bladder of *Kassina wealei*.

Publications from this department:

Scientific articles

De Waal, S.W.P., 1978. The Squamata (Reptilia)of the Orange Free State, South Africa. *Mem. nas. Mus.*, Bloemfontein, 11 1-160.

De Waal, S.W.P., 1980. The Testudines (Reptilia) of the Orange Free State South Africa. 1980. *Navors. nas. Mus.*, Bloemfontein, 4: 84-92.

De Waal, S.W.P. 1980. The Salientia (Amphibia) of the Orange Free State, South Africa. *Navors.nas. Mus.*,Bloemfontein, 4: 93-120.

Van Wyk, J.H. 1983. Seasonal breeding in the female rock lizard, *Agama atra* (Sauria: Agamidae) in the South Western Cape Province with special reference to possible environmental controlling factors. *Navors. nas. Mus.*, Bloemfontein, 4: 193-208.

Van Wyk, J.H. 1984. Morphological changes during the ovarian cycle of the female rock lizard, *Agama atra* (Sauria: Agamidae) *Navors. nas. Mus.*, Bloemfontein, 4: 237-275.

Van Wyk, J.H. 1984. Physiological changes during the ovarian cycle of the female rock lizard, *Agama atra* (Sauria: Agamidae) *S. Afr. J. Zool.* 19: 253-260.

BATES, M.F. Notes on egg clutches in *Lamprophus inornatus* and *Psammophylax rhombeatus rhombeatus*. *Herp. Arsoc. Afr.* 33.

Popular articles

Van Wyk, J.H. Die Reptiele van die Oranje-Vrystaat. Dele 1, 2, 3, 4, 5, 6. National Museum News 23, 24, 25, 26, 27, 18.

Van Wyk, J.H. Is die ouvolk se dae getel? National Museum News 26.

Bates, M.F. To kill or not to kill snakes. National Museum News 27.

Papers read at Symposiums

Van Wyk, J.H. 1983. Seasonal changes in the femoral glands of the lizard, *Cordylus giganteus*. Z.S.S.A. symposium, 24-27 July 1983, Swakopmund, SWA/Namibia Abstract. S.A.J. Sci 80: 190.

2. DEPARTMENT OF ZOOLOGY, UNIVERSITY OF THE OFS

Dr. D.J. Kok and his students study parasites of amphibians with a special interest in *Xenopus* and lately *Xassina*.

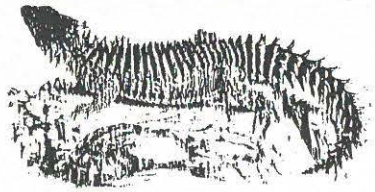
Dr. O.B. Kok has initiated an extensive research program concerning termites *(Hodotermis)* as a food resource. His research naturally includes the utilization of reptiles and amphibians of this resource.

Publications

Van der Linde, G.P.; Kok, D.J. & Duyvenè-De Wit, L.J. 1984. Die invloed van *Protopolystoma xenopodis* (Monogenea) op die urieneblaasweefsel van *Xenopus laevis*. *Proc. Electron Microsc. Soc. South. Afr.* 14: 141-142.

Papers read at Symposiums

Van der Linde, G.; Kok, D.J. & De Wit, L. Parasites of *Xenopus laevis* with particular reference to *Protopolystoma xenopodis* (Monogenea). ZSSA. symposium 2-6 July 1984. Potchefstroom.



3. DEPARTMENT OF NATURE CONSERVATION, OFS

No herpetologist is employed by the O.F.S. department of Nature Conservation. However, under supervision of Dr. L. Stols (CPO) a survey of *Cordylus giganteus* is being conducted in order to determine the status of this endangered lizard in the O.F.S.

Publications

Stols, L.P. en Blom, J. 1981. Ekologiese aspekte van die ouvolk *(Cordylus giganteus)* in die Oranje-Vrystaat. *P.A.-OVS Afdeling Natuurbewaring Projek 7/7/2.*

SYMPOSIUMS

H.A.A. ONE-DAY SYMPOSIUM

A one day herpetological symposium will be held at the University of Pietermaritzburg on 26 July 1985. Your participation will be highly valued.

Cheap accommodation will be available at the University Student hostel for H.A.A. members.

The proceedings of the symposium will be published in a special issue of the H.A.A. Journal that will be distributed free to members attending the meeting

People wishing to submit papers should contact Dr. E. van Dijk
Department of Zoology
P.O. Box 375
PIETERMARITZBURG 3200

AFRICAN AMPHIBIANS

The 6th International Symposium on African Amphibians, sponsored by the Working-group on African Amphibians will be held the week of 13 April 1987 in South Florida, with the University of Miami, Department of Biology as host. Participation will be by invitation only and is restricted to scientists actively working on African amphibians. Qualified individuals may contact the chairman of the local committee to receive further information on the program as it develops. Please write: African Amphibia, Jay M. Savage, Department of Biology, University of Miami, Coral Gables, Florida 33124.

WORLD CONGRESS OF HERPETOLOGY

Planning for the first World Congress of Herpetology is proceeding on schedule. The Executive Committee, an international group of 17 persons, and the recently-elected 50-member International Herpetological Committee are now evaluating the criteria to be used in choosing a site and date, and discussing the format and content of the Congress. It is our plan to organize a Congress to be held in about 4 years that will be accessible to and of interest to all persons who study amphibians and reptiles. Potential hosts should contact the Secretary-General: Kraig Adler, Cornell University, Seeley G. Mudd Hall, Ithaca, New York 14853, USA. As soon as a decision on venue and date is reached, an announcement will be published in this journal giving the full details and the address to write for further information.

The Congress itself will be self-supporting, but in the meantime, during these all-important planning years, the organization will have considerable expenses—mostly printing and postage—yet it has, at the moment, no budget. The Committee has decided to raise the necessary funds by asking interested individuals to make a one-time contribution. Those persons donating 100 Dutch guilders (U.S. $35) would be named as "Sponsors," a designation that would appear in the formal program of the meeting; those able to contribute 1000 guilders would be designated "Benefactors." In the meantime, all such persons will receive copies of our *Newsletter* which will keep them informed of Congress planning activities. We hope that many colleagues will join with us in promoting herpetology on an international basis through the Congress. If you are able to do so your contribution can be made to one of our official accounts:

—POSTAL CHECKING ACCOUNT: Dr. M. S. Hoogmoed, Leiden, account number 5327161.

—BANK ACCOUNT: World Congress of Herpetology, Algemene Bank Nederland (A.B.N.), Leiden, account number 566274078.

—BANK ACCOUNT: World Congress of Herpetology, Marine Midland Bank, New York City, account number 006667341.

Contributions can be made in Dutch guilders to either account in Leiden or in U.S. dollars to that in New York. Checks may also be sent directly to the **Treasurer: Marinus S. Hoogmoed, Rijksmuseum van Natuurlijke Historie, P.O. Box 9517, 2300 RA Leiden, The Netherlands.**

PRACTICAL TIPS

A TECHNIQUE FOR INDIVIDUALLY MARKING FROGS IN BEHAVIOURAL STUDIES

There are a number of methods for individually marking anurans (reviewed in Ferner, 1979). Toe-clipping and tattooing are particularly useful in long term studies of marked populations. In behavioural studies, however, these techniques have the severe disadvantage that the frog has to be captured and its mark examined before its identity can be established. It is often impossible to be sure of the identity of the protagonists throughout a fight or courtship display.

In a behavioural study of bullfrogs, *Rana catesbeiana*, Emlen (1968) marked individuals with colour-coded elastic waistbands so that they could be identified without disturbance. I tried this technique on the following Australian hylids and leptodactylids: *Litoria aurea, L. raniformis, L. peroni, L. verreauxi, Limnodynastes tasmaniensis, L. dumerli, Uperoleia rugosa, U. marmorata, Pseudophryne bibroni* and *Neobatrachus sudelli*. In all cases the frogs would not tolerate the waistbands but attempted to shake the bands off by twisting, jumping and somersaulting. The larger hylids, particularly *Litoria aurea* and *L. raniformis*, began struggling as soon as bands were placed on them and did not stop until the bands were removed. The other species of frogs reacted to the bands more intermittently, but it was clear that the bands were disrupting their normal behaviour. It is also difficult to make waistbands small enough for the smaller species of frogs. I describe below a method which I developed for use in a behavioural research project on the breeding biology of the small (< 40 mm snout-vent length) leptodactylid *Uperoleia rugosa* in which it was essential to identify individuals without disturbance (Robertson 1982, in press and in preparation). This technique was only tested with *U. rugosa* but it is likely to work with other species.

Each frog was marked with a unique combination of one to three squares (c 1 mm x 1 mm) of Scotchlite® brand reflective sheeting (3M company) attached to the head. The head of the frog was first wiped dry with tissue paper and the reflective squares were glued in place with a fast-setting cyanoacrylate tissue cement (Ethicon Bucrylat). The frogs were also marked by excising the last digit of one to three toes in a unique sequence (Nace, 1974). The reflective squares would stay in place for up to ten days, which was sufficient for some short term experiments but not enough for long term studies. The reflective squares were apparently becoming detached because of the secretions from the skin glands under the adhesive. Freeze-branding the top of the head for 10 sec with a pressurised refrigerant (Lazarus and Lowe, 1975) inhibited the skin glands.

This method has been used successfully on about 100 individuals of *U. rugosa*. I did not always record when the reflective squares needed to be replaced, but in general they stuck to the brand for about three weeks and sometimes as long as six weeks. For 15 frogs on which I have detailed notes, the reflective squares remained attached for between 16 and 41 days ($\bar{X}$ = 26.27, S.D. = 6.49). The length of time that a reflective square remains attached will probably vary with other species of frogs but by experimenting with the timing of the freeze-branding it should be possible to attach the reflective squares for at least three weeks.

In combination with toe-clipping this is a useful method for identifying frogs in behavioural studies. Frogs can be identified without disturbance for several weeks and when the squares of reflective Scotchlite® sheeting fall off, the frog can still be identified from its toe-clips. The reflective squares can be replaced successfully after a fresh freeze-branding. The reflective squares shine well in the light of a head-torch and the frog can be identified at up to 5 m which is far enough away to avoid disturbance. The range at which the frogs can be identified can be increased by using binoculars or by attaching larger squares of reflective sheeting to the frogs. The frogs seem to suffer no ill effects from this marking technique and their behaviour was indistinguishable from that of unmarked frogs.

LITERATURE CITED

Emlen, S. T. 1968. A technique for marking anuran amphibians for behavioral studies. Herpetologica 24:172-173.

Ferner, J. W. 1979. A review of marking techniques for amphibians and reptiles. SSAR Herp. Circ. 9:1-41.

Lazarus, A. B. and F. P. Rowe. 1975. Freeze marking rodents with a pressurized refrigerant. Mammal Rev. 5:31-34.

Nace, G. W. (ed). 1974. Amphibians: Guidelines for the Breeding, Care and Management of Laboratory Animals. Nat. Res. Council Inst. Lab. Animal Resources Subcomm., Amphibian Standards, National Academy of Sciences, Washington, D.C.

Robertson, J. G. M. 1982. Territoriality and sexual selection in *Uperoleia rugosa* (Anura: Leptodactylidae). PhD. thesis, Australian National University, Canberra.
Robertson, J. G. M. Acoustic spacing by breeding males of *Uperoleia rugosa* (Anura: Leptodactylidae). Z. Tierpsychol. in press.

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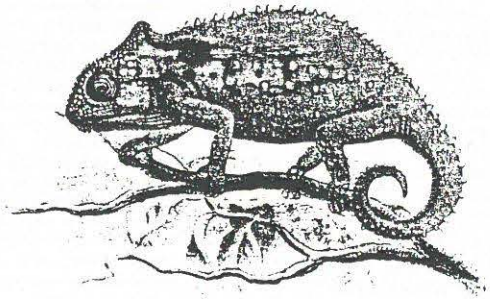

BOOK REVIEWS

The object of this column is to introduce those interested in reptiles, or as they are now more affectionately known as 'Herps', to interesting books which are perhaps not widely advertised or are thought to be of interest to a broad spectrum of those interested in the subject. These reviews will be brief by nature and will discuss mainly content. They are not intended as a criticism or a detailed analysis of the book concerned. It is however hoped that they will be found useful as references to various aspects of herpetology.

Snakes-a natural history

Parker, H.W., revised by A.G.G. Grandison, 2nd edition 1977, Cornell University Press. 108pp., 32 species illus., 10 B&W drawings and 18 diagrams.

As each subject is dealt with briefly the book does not become tedious reading and the interesting points are easily understood and remembered. This book concerns the fascinating natural history of snakes and takes the reader right back to the serpentine beginning. Some physiology and anatomy are dealt with under such headings as reproduction, senses, tooth replacement and locomotion. The snake, its environment, thermoregulation and behaviour are also dealt with. Nutrition and defence are yet other subjects which make interesting reading.

The book then takes the reader on a discussion through the major groups of snakes. Starting with the primative blind and burrowing snakes, it moves through the groups up to the more advanced cobras and vipers giving descriptions of various members of the group and why they have been placed into the various groups. Having evolved over some 130 million years and still being in existance today makes snakes unique in their own right. To learn and understand how they live and function can only lead to a better understanding of all reptiles.

R.M.D.

Introduction to Herpetology

C.J. Goin, O.B. Goin and Zug G.R., W.H. Freeman and Company; San Francisco. Third edition 1978. 378 p.

This book was first publishedin 1962 and is now in its third edition. The initial intention was to produce a book to be used as text for a course in herpetology. The main goal was to convey basic biological principles as exemplified by amphibian and reptiles, therefore, herpetology that would apply throughout the world.

The Introduction begins with the taxonomic position of Amphibians and Reptiles in the animal kingdom followed by a discussion on the basic principles of classification and the system of nomenclature. The origin of Herpetology as a science is also discussed.

The next two chapters deal with the structure of Amphibians and Reptiles. Although very basic they introduce the reader to characteristic morphological features of these animals. The following chapters give insight into the origin and evolution of the two classes. Chapter 6 through to 10 are concerned with aspects of the natural history with special reference to reproduction and growth. A chapter on Homeostasis follow, including thermoregulation gas exchange and water balance. Chapter 9 introduce the reader to the whole idea of ecology, including population dynamics, feeding, competition, predators and parasites. The study of behaviour follows in chapter 10. The basic principles of speciation and reference to geographic distribution is discussed in chapter 11.

The last six chapters summarize the living amphibians and reptiles. World distribution maps of families are included with a few general notes up to sub-familial level. The first appendix is a summary of the classification of living amphibians and reptiles set out to sub-familial level. The second appendix gives a short list of useful reading for eachzoogeographic region. A Scientific name and a author index complete this very useful book. JHVW

ABSTRACTS

THE BIOLOGY OF IGUANINE LIZARDS: PRESENT STATUS AND FUTURE DIRECTIONS

KATHERINE TROYER

ABSTRACT: The recent symposium volume *Iguanas of the World* presents new information on members of an unusual group, the iguanine lizards. The features that characterize this subfamily include herbivorous habits, large body size, long life, large clutch size, and in many species, attractiveness as a human food. This review describes the current state of knowledge of iguanine biology, based in part upon the contents of *Iguanas of the World*, and recommends topics and appropriate methodologies for future investigations. Successful conservation of many endangered iguanines will require much more detailed information than is presently available. Notably deficient or lacking are comprehensive data on feeding ecology, digestive physiology, energetics, reproduction and nearly all aspects of demography.

Herpetologica, 39(3), 1983, 317–328

Courtship, Male Combat and Dominance in the Western Diamondback Rattlesnake, *Crotalus atrox*

JAMES C. GILLINGHAM, CHARLES C. CARPENTER, AND JAMES B. MURPHY

ABSTRACT.—**The courtship behavior of *Crotalus atrox*, always initiated by males, follows a triphasic schema: tactile-chase, tactile-alignment, and intromission and coitus. The third phase is longer than in other snakes (20–28 h). Female lateral tail-whipping and the slower tail-waving are apparently not indicative of her receptivity, although the latter is correlated with an increased male tongue-flick rate. Cloacal gaping by females apparently indicates female receptivity and occurs prior to successful intromission. Combat behavior between males is similar to other viperids. The vertical display is punctuated by periodic topping movements until a dominant individual is established. Evidence is presented that indicates subordinate males are refractory to courtship while dominant males actively court females following combat. In one instance a female assumed a vertical stance similar to that of a combatting male.**

Journal of Herpetology, Vol. 17, No. 3, pp. 265–270, 1983

TAIL LOSS IN LIZARDS: THE SIGNIFICANCE OF FORAGING AND PREDATOR ESCAPE MODES

LAURIE J. VITT

ABSTRACT: The correlations of tail morphology, tail loss frequency and position at which tails are autotomized relative to the tail base with foraging mode and predator escape tactics are examined in 12 species of sympatric tropical lizards. Species that are widely foraging habitat generalists, and use their running speed for escape, have relatively longer tails than most species that are sit-and-wait predators, habitat specialists, and use crypsis to escape detection by predators. There were, however, no significant differences in tail loss frequency or position at which tails are lost between sit-and-wait and widely foraging lizards.

Herpetologica, 39(2), 1983, 151–162