

AFRICAN HERP NEWS

No. 34

FEBRUARY 2002

ISSN 1017-6187

CONTENTS

EDITORIAL _____	1
SHORT COMMUNICATIONS	
BROADLEY, D. An appropriate English name for <i>Pseudohaje goldii</i> (Boulenger)_____	2
DOUGLAS, R. The semantics of resting states in reptiles and amphibians_____	4
JAUCH, H. Breeding of white-throated monitors (<i>Varanus albigularis</i>) under semi-natural conditions _____	8
SCHMIDT, W. The herpetofauna of Sun City, North West Province, South Africa _____	14
NATURAL HISTORY NOTES	
POBLETE, G.H. <i>Adolfus jacksoni</i> _____	23
GIRARD, F. <i>Ptenopus garrulus maculatus</i> _____	24
GIRARD, F. <i>Cordylus tropidosternum jonesi</i> _____	25
STRUJIK, R. <i>Cordylus tropidosternum tropidosternum</i> _____	25
POBLETE, G.H. <i>Dispholidus typus kivuensis</i> _____	27
CUNNINGHAM, P.L. <i>Lamprophis fuliginosus</i> _____	28
GEOGRAPHICAL DISTRIBUTION	
GIRARD, F. <i>Pacontias meleagris meleagris</i> _____	30
NEWS & ANNOUNCEMENTS _____	31
FINANCIAL STATEMENTS _____	34
PRESS INFORMATION _____	38

AFRICAN HERP NEWS

NEWSLETTER OF THE
HERPETOLOGICAL ASSOCIATION OF AFRICA



No. 34

February 2002

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 Association's journal, *African Journal of Herpetology* (which publishes review papers, research articles, short communications and book reviews – subject to peer review) and newsletter, *African Herp News* (which includes short communications, life history notes, geographical distribution notes, venom and snakebite notes, short book reviews, bibliographies, husbandry hints, announcements and news items).

NEWSLETTER EDITOR'S NOTE

Articles will be considered for publication provided they are original and have not been published elsewhere.

Articles may be submitted for peer review (at least two reviewers) at the Editor's discretion. Lists of reviewers will be published in the newsletter from time to time.

Authors are requested to submit long manuscripts on disc or by e-mail in Word 6.0/7.0 format.

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.

COMMITTEE OF THE HERPETOLOGICAL ASSOCIATION OF AFRICA

CHAIR

DR. A. J. LESLIE, Department of Conservation Ecology, University of Stellenbosch, Private Bag X1, Matieland, 7602, South Africa. E-mail: aleslie@land.sun.ac.za

SECRETARY/TREASURER

MR. F. L. FARQUHARSON, PO Box 20142, Durban North, 4016, South Africa.
E-mail: haasec@freemail.absa.co.za

JOURNAL EDITOR

DR. G. ALEXANDER, Department of Animal, Plant and Environmental Sciences, University of the Witwatersrand, Private Bag 3, WITS, 2050, Gauteng, South Africa. E-mail: graham@gecko.biol.wits.ac.za

NEWSLETTER EDITOR (CO-OPTED)

MS. L. VISAGIE, Terrestrial Ecology Research Unit, Department of Zoology, University of Port Elizabeth, PO Box 1600, Port Elizabeth, 6000, South Africa. E-mail: zlrluv@zoo.upe.ac.za

ADDITIONAL COMMITTEE MEMBERS

DR. M. J. WHITING, Department of Animal, Plant and Environmental Sciences, University of the Witwatersrand, Private Bag 3, WITS, 2050, Gauteng, South Africa.

MR. M. F. BATES, Department of Herpetology, National Museum, PO Box 266, Bloemfontein, 9300, South Africa.

DR. W. R. BRANCH, Department of Herpetology, Port Elizabeth Museum, P. O. Box 13147, Humewood, 6013, South Africa.

MR. R. M. DOUGLAS, Department of Herpetology, National Museum, P. O. Box 266, Bloemfontein, 9300, South Africa.

MR. W. D. HAACKE, 26, 22nd Street, Menlo Park, Pretoria, 0081.

COVER ILLUSTRATION: White-throated monitor (*Varanus albigularis*). Photograph by Herbert Jauch.

HERP CARTOONS: C.A. Searby

EDITORIAL

Last year ended on a high note, as can be attested by all delegates who attended the 6th HAA Symposium held at the University of Stellenbosch in September 2001. The conference was hugely successful as a wide variety of relevant herpetological topics were presented, stimulating debate until the late evening hours when delegates had the opportunity to learn the enjoyable art of wine tasting at select wine farms in the district. Eddie van Dijk was the recipient of the Association's award for *Exceptional Contribution to African Herpetology*, handed over during an afternoon function during which Alan Channing provided a brief synopsis of Eddie van Dijk's research achievements. The only shadow cast on the proceedings were the unfortunate events of September 11th, necessitating our international delegates to contact family members and reschedule flights back home. On the whole, though, the 6th HAA Symposium was a memorable one, thanks to the hard work and efficient organization of Alison Leslie and Aliko Strydom.

Alison is currently in Botswana overseeing the launch of her Okavango Crocodile Project, thus I am temporarily standing in as newsletter editor. She will be back in the country by March, and contributions for future newsletter editions can still be e-mailed to aleslie@land.sun.ac.za. If any of your contact details have changed and need to be updated, details should also be sent to this e-mail address. In the meantime we would like to wish Alison the best of luck with her project.

Louise Visagie

Newsletter Editor (Co-opted)

SHORT COMMUNICATIONS

AN APPROPRIATE ENGLISH NAME FOR *PSEUDOHAJE GOLDII* (BOULENGER).

By Donald G. Broadley

Biodiversity Foundation for Africa, P.O. Box FM 730, Famona, Bulawayo, Zimbabwe

I noticed that Armand Poblete (2001) follows Cansdale (1955), Pitman (1974), Spawls (1978), Stucki-Stirn (1979), Hedges (1983) and Spawls & Branch (1995) in referring to "Gold's Cobra" or "Gold's Tree Cobra". The name should be "Goldie's Tree Cobra", as Boulenger (1895) named the species after Sir George Taubman Goldie, Governor of the Royal Niger Company, hence the double "-ii" termination is required for the specific name. This has previously been pointed out by Pauwels et al. (1999).

It is actually debatable whether "tree cobra" is the most appropriate name for the two species of *Pseudohaje* Günther 1858. When Bogert (1942) revived *Pseudohaje*, he referred to "two West African arboreal cobras", but Cansdale (1961) and Hughes & Barry (1969) called them "Hoodless Cobras". Pitman (1974) called *P. goldii* Black Forest Cobra, Tree Cobra or Gold's Cobra. Hughes (1976) referred to the "West African False Cobras", a translation of the generic name. Spawls (1978) listed the same names as Pitman (1974), but placed "Gold's Cobra" first. Frank & Ramus (1995) used "Black Forest Cobra" for *P. goldii* and "Hoodless Cobra" for *P. nigra*!

"Black Forest Cobra" is best reserved for typical *Naja melanoleuca* of the equatorial forest belt (the status of the various savanna forms is under investigation). Although adult *Pseudohaje* do not have elongate ribs anteriorly like *Naja*, they can flatten the neck, as illustrated by Spawls & Branch (1999), and James Ashe (in Pitman, 1974) observed that hatchlings of *P. goldii* "were able to make a very respectable hood, which was formed at the slightest provocation." So perhaps the "hoodless" aspect should not be emphasised!

What about "tree cobra" - are *Pseudohaje* that much more arboreal than *Naja melanoleuca*? Cansdale (1961) records one *P. nigra* caught in a wire snare on a game trail, another had coiled up in a new fish trap in a riverside village, and a third was on the side of a road through swamp forest. Pauwels & Ohler (1999) recorded predation on two *Bufo maculatus* by a *P. nigra* in grassfield savanna at Nimba, Liberia. Both species feed on terrestrial amphibians, while Stucki-Stirn (1979), Pauwels et al. (1999) and Chippaux

(1999) all include fish in the diet of *P. goldii*. As *P. goldii* has more ventrals (191-204 vs 180-187) and subcaudals (81-96 vs 76-82) than *P. nigra* (Hughes, 1976), it may be more arboreal in habits; this is the impression given by Pitman (1974), with input from James Ashe and Jonathan Leakey.

My conclusion is that Barry Hughes' name for the genus is the most suitable and that *Pseudohaje goldii* should therefore be known as "Goldie's False Cobra", with "Goldie's Tree Cobra" a reasonable alternative. *Pseudohaje nigra* would become the "Black False Cobra" or "Western False Cobra".

References

- Bogert, C.M. 1942. *Pseudohaje* Günther, a valid genus for two West African arboreal cobras. *Amer. Mus. Novitates* No. 1174: 1-9.
- Boulenger, G.A. 1895. On some new or little known reptiles obtained by W.H. Crosse on the Niger. *Ann. Mag. Nat. Hist.* 16(6): 32-34.
- Cansdale, G.S. 1955. *Reptiles of West Africa*. Penguin West African Series.
- Cansdale, G.S. 1961. *West African Snakes*. Longmans West African Nature Handbooks.
- Chippaux, J.-P. 1999. *Les serpents d'Afrique occidentale et centrale*. IRD Éditions, Paris.
- Frank, N. & Ramus, E. 1995. *A complete guide to scientific and common names of reptiles and amphibians of the world*. N.G. Publishing, Pottsville, PA.
- Hedges, N.G. 1983. *Reptiles and amphibians of East Africa*. Kenya Literature Bureau, Nairobi.
- Hughes, B. 1976. Zoogeography of West African False Cobras (*Pseudohaje* spp.). *Bull. Inst. fond. Afr. noire* 38(A): 457-466.
- Hughes, B. & Barry, D.H. 1969. The snakes of Ghana: a checklist and key. *Bull. Inst. fond. Afr. noire* 31(A): 1004-1041.
- Pauwels, O.S.G., David, P., & Lenglet, G. 1999. *Pseudohaje goldii*: Diet. *Afr. Herp News* 30: 32-33.
- Pauwels, O.S.G. & Ohler, A. 1999. *Pseudohaje niga*: Diet. *Afr. Herp News* 30: 33.
- Pitman, C.R.S. 1974. *A guide to the snakes of Uganda*. (Revised edition) Wheldon & Wesley, Codicote.
- Poblete, A.G.H. 2001. Geographical Distribution, Reptilia: *Pseudohaje goldii* (Boul.) Gold's Tree Cobra. *Afr. Herp News* 33: 18.
- Spawls, S. 1978. A checklist of the snakes of Kenya. *J. E. Afr. nat. Hist. Soc. & natm. Mus.* 31(167): 1-18.
- Spawls, S. & Branch, B. 1995. *The dangerous snakes of Africa*. Blandford, London.
- Stucki-Stirn, M.C. 1979. *Snake Report 721*. Herpeto-Verlag, Teuffenthal, Switzerland.

THE SEMANTICS OF RESTING STATES IN REPTILES AND AMPHIBIANS

By Rod Douglas

Department of Herpetology, National Museum, P.O. Box 266 Bloemfontein
9300, South Africa
Reptile@nasmus.co.za

Up until not so very long ago most animals resting states were simply described as hibernation, be they long periods, short periods, during summer, or during winter. Today there are numerous definitions in the literature describing the various resting states found in animals, insects and plants, and under various conditions and situations. The usage of such terms may be somewhat confusing at times, because often one definition may vary from another, definitions are completely contradictory, or definitions may not be specific enough. In other instances, such terms may even be analogous to one another. Another perplexing aspect is that a particular state may either be defined on physiological aspects, or simply as an observation of the animal's state of rest. This would imply that there might be difficulty in accurately determining the observed state of the resting animal without knowing anything about its physiological state. In behavioural and environmental studies it would appear that many of the terms used are based largely on the observed state of the resting animal. Further confusion may also be added through the misuse and perpetuation of a particular term in the literature, for example, hibernation. Therefore, the lack of precise definitions has resulted in there often being no clear distinction between different states.

In an attempt to encourage some degree of consistency, as well as discussion, in the correct usage of such terms, a brief attempt has been made to define some of these resting state terms in their broadest sense, and to relate their usage to reptile and amphibian resting states.

Aestivation: A summer dormancy state in animals in response to largely hot or dehydrating conditions. Examples would be, the African bullfrog (*Pyxicephalus adspersus*) and the African lung fish (*Protopterus*) during dry periods. The term is applicable to amphibians, reptiles and mammals. It is usually associated with extended periods.

Brumation: A long-term winter dormancy state, specifically in reptiles and amphibians. The term is used in association with both ectotherms and heterotherms.

Carnivore lethargy: The body temperature drops to only a few degrees, resulting in prolonged torpor during winter. This term is also referred to as winter sleep and is applicable to bears.

Cryptobiosis: A state where all external signs of metabolic activity are absent from a dormant organism. This may be seen as a state within a state.

Denning: A winter dormancy state where heart rate may drop to 12 beats per minute and in which metabolic rate decreases by 50 %. This is seen as a state of sleep, rather than true hibernation, but allows for wakeful times and movement. The term is synonymous with carnivore lethargy.

Diapause: A resting state occurring between two developmental stages, or a state of suppressed metabolism. This is applicable to the rest periods in developmental stages of insects and is associated with physiological changes. Using token environmental stimuli, such as photoperiod, these changes may take place before the onset of unfavourable conditions. The term is often confused with quiescence.

Dormancy: A resting state usually applicable to plants, parts of plants and seeds. The state of dormancy requires an event such as fire or scarring to trigger activity. Among animals, dormancy is viewed as a state of relative metabolic quiescence for which there are other terms such as aestivation, brumation, hibernation and quiescence that describe the particular resting state more specifically.

Ectothermic: Used for an animal that must absorb heat from the environment in order to function. The body temperature of an ectotherm is usually slightly higher than that of the environment.

Endothermic: Used for an animal that is capable of generating its own body heat.

Heterothermic: Used for an animal lacking a body temperature regulatory system.

Hibernation: A winter dormancy state of inactivity in smaller mammals. The term is used in association with endotherms and homeotherms, in which the heart rate drops to 2-3 beats per minute and the metabolic rate decreases to 25% of normal.

Homeothermic: Used for an animal that has the ability to regulate its body temperature.

Hypobiosis: A state where only minimal external signs of metabolic activity are present in a dormant organism. This may be seen as a state within a state.

Torpor: A short-term resting state that is brought about by a self-induced reduction in metabolic rate and temperature. It allows for wakeful times and movement in homeotherms. Such a state may be induced during the day or night and is not necessarily brought on by environmental factors.

Poikilothermic: Used for an animal whose body temperature matches that of its environment. This state is found, for example, among sea snakes and amphisbaenians.

Quiescence: The temporary cessation or suspension of activity, usually due to unfavourable environmental conditions in heterothermic animals. It can also be seen as a state of suppressed metabolism imposed by such unfavourable conditions. Since the onset of quiescence may be triggered by environmental factors such as temperature and precipitation, the resumption of activity may be triggered by the same environmental factors.

Resting state: A period of inactivity and not necessarily a period of sleep.

Retraherence: This is a temporary state of retreat from adverse weather (environmental) conditions brought on by either hot or cold conditions. Only one reference was found for this term, including dictionaries, although the author states that it has been used previously.

By definition, and from the literature, there appears to be little doubt that the term brumation (as opposed to hibernation) has received wide acceptance for describing the winter resting state of reptiles and amphibians in colder climates. However, this may not always be applicable in warmer climates,

because temperatures may either not be low enough to induce brumation or any very cold periods may be interjected with relatively warm periods. During these warmer periods most reptiles become active to a certain degree. From the above terms it would appear that the climatic region, prevailing climatic conditions in a particular area and over a given period, and the length of the resting period, will determine the term to be used. In the South African context the term quiescence, or retraherence, would appear to best describe the South African winter resting period.

Applying terms to summer resting periods poses similar problems. Again the selection of terms would seem to be determined by the climatic region, climatic conditions prevailing in a particular area and over a given time, and the length of the resting period. For long-term resting periods during summer the term aestivation would appear to be the most appropriate, while the term quiescence would again best describe shorter period of rest.

Then there is also a third situation, as pointed out by Bates, 1998 (Frogs of arid regions. *Frogs and frog Atlas in Southern Africa*. Avian Demographic Unit, ADU Guide 4, Cape Town, pp. 49-52). In certain instances, African bullfrogs may be said to have both aestivated and hibernated (brumated); no direct action was taken by these frogs after aestivation to escape the cold winter months - they simply remained where they were (Bates, 1998). Observations at Florisbad, north west of Bloemfontein, indicate that this species may remain buried for up to three or four years at a time. This is not only applicable to *Pyxicephalus adspersus*, but also to other semi-arid species such as *Tomopterna*. Although there may be no apparent observed changes that take place between the hot and cold periods, the question must be asked whether there are any physiological changes that take place between the two periods. If physiological changes do take place, then the frogs would effectively aestivate during hot periods and continue to brumate during cold periods. However, if no physiological changes take place, then the implication is that a completely new term would be necessary to describe this long-term period of inactivity, which is not effectively covered by any of the above terms. The situation is further complicated by the fact that certain small mammals may also extend their aestivational period into hibernation without any interruption. As the term dormancy is seen to be a broad term that may include other states, such as aestivation and brumation, perhaps the term dormancy could be safely applied in these situations.

Until definitions on resting states become more specific, it would appear that each resting state should be evaluated on its own merits under the factors mentioned above. In summary, since most South African reptiles

and amphibians do not spend extended periods resting, it would appear that the term quiescent (quiescence, quiescency) best describes both short-term summer and winter resting states. Long-term summer resting states would be covered by aestivation, and long-term winter resting states by brumation. Extended resting states where aestivation merges into brumation would best be described as dormancy. Brumation would be largely confined to long-term over-wintering states in colder climates, while hibernation should be excluded completely from usage in relation to reptiles and amphibians. If found acceptable, the term retraherence, although not widely used, may be a suitable substitute for quiescence.

BREEDING OF WHITE-THROATED MONITORS (*VARANUS ALBIGULARIS*) UNDER SEMI-NATURAL CONDITIONS

By Herbert Jauch

P.O. Box 96179, Windhoek, Namibia

INTRODUCTION

Varanus albigularis occurs throughout the dry savanna areas of Namibia, particularly in the country's central, northern and eastern regions. Field studies by Alberts and Phillips in the early 1990s in the Etosha National Park in Northern Namibia have shown that male *V. albigularis* occupy large home ranges of about 18 km². Adult females occupy a home range of 6 km² (Alberts 1994). *Varanus albigularis* consumes a wide variety of food items in the wild, the main ones being land snails, beetles, grasshoppers and crickets (Phillips 1994). In addition, they are known to consume small tortoises, toads, small mammals and carrion (Branch 1988; own observations). The studies by Alberts and Phillips revealed that *V. albigularis* only feeds in the rainy season for about five months and then undergoes fasting for seven continuous months. During the fasting period, mating and egg laying take place (Phillips 1994). Females usually deposit 26 - 32 eggs that hatch in the wild after 135 - 150 days at temperatures of 27 - 29 °C (Phillips and Packard 1994).

BREEDING GROUP

The author collected eight *V. albigularis* specimens in the Windhoek area between March 1994 and June 1999. Most were caught as juveniles and raised in indoor terraria for 1 - 2 years. Thereafter they were transferred into four outdoor cages, covering floor spaces of 3.5 - 15.0 m². The cages

contained a layer of natural soil 30 - 40 cm deep, into which the monitors were able to dig burrows. A layer of mesh prevented the animals from digging further. The cages were supplied with thick branches, which the lizards used for basking, and large pieces of rock under which the animals could hide. They were exposed to natural temperatures, which ranged from close to freezing point in winter nights to about 40 °C during hot summer days. The diet of the juvenile monitors consisted of grasshoppers, crickets, boiled and soft-boiled eggs, pieces of chicken necks and mice. Adults were fed mainly on chicken necks and boiled eggs. Raw eggs should only be given if they are embryonated because the egg white of non-embryonated eggs contains avidin, which can induce a biotin (vitamin B4) deficiency. Raw eggs also pose a great risk of causing Salmonella infection (Balsai 1997). Occasionally, mice and rats were offered as additional food items. Juveniles received food every 2 - 3 days while adults were fed only once a week between November and May. Fasting periods during the winter and spring season lasted from June until October.

UNSUCCESSFUL BREEDING ATTEMPTS

Sexing *V. albigularis* was very difficult and the only indication of sex obtained from observations was that males occasionally exposed their hemipenes when defecating. However, not all males display such behaviour and, as a result, the sexing of monitors of breeding size became a matter of 'trial and error'. Branch suggested x-raying the tail base, as male varanids have an ossified hemipenis that is well visible in adult specimens (pers. comm. 1999).

The three specimens used for breeding purposes in August / September 1998 turned out to be males. When introduced into the breeding cage (4 x 2 x 1.2 m), they initially threatened each other for about 15 minutes before relaxing. During the following days the largest male displayed mating behaviour and showed interest in one of the other males, flicking his tongue around the other male's cloaca, displaying 'exited' head movements and chasing after the male. After one month the males were separated again as no mating could be observed. One of the males was released back into the wild while the other two remained in the cage.

In June 1999 an adult female with a total length of 120 cm was caught in Windhoek and introduced into the cage with the two males. On 16 August copulation was observed between the largest male (150 cm) and the female, followed by daily copulations between the same female and the smaller male (130 cm) from 17 - 20 August. These copulations lasted several hours, sometimes beyond sunset. Thereafter no mating attempts were observed. Between 19 - 22 September 1999, the largest male tried to copulate

with the smaller one, inflicting slight wounds with its sharp claws. Thereafter all mating behaviour ceased.

Towards the end of September the female started to look very thin at its tail base but had a fat belly, which indicated that she was gravid. She refused to accept any food and was removed to a smaller cage of 2 x 2 x 2 m. During October she started digging holes at various sites in the cage and deposited 27 eggs on 22 October 1999. The following day, another four eggs were found lying on the surface of the cage.

All eggs were removed and placed into containers with vermiculite. Several eggs turned brown and mouldy within ten days and had to be discarded. By the end of November, several more eggs had to be discarded for the same reason. None of them contained any sign of an embryo and only nine eggs were left by December 1999. By mid-January, six more eggs turned brown but were left in the container. The incubation temperature ranged from 24 - 33 °C, as it was not controlled by a thermostat. A heating pad served as a permanent heat source but temperatures changed depending on changes in room temperature. At the end of February 2000 all eggs had turned brown and were opened. None of them contained any sign of embryonic development.

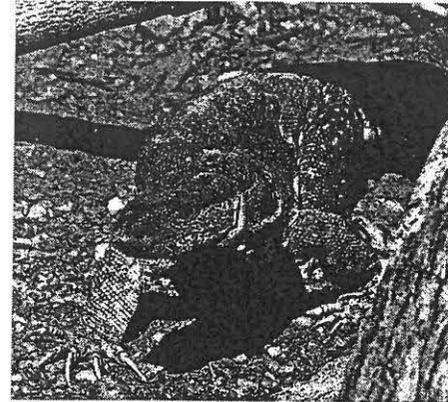
SUCCESSFUL BREEDING

Breeding success was finally achieved in the 2000 / 2001 breeding season. In line with recommendations emanating from the Alberts / Phillips study, adult lizards (more than 100 cm total length) were separated according to sex (as far as the author could establish). As in previous years, the monitors were fed from November until May and then entered the fasting period at the onset of winter (late May 2000). On 26 August 2000 the female that had laid the eggs in 1999, together with a smaller female of 110 cm, was introduced into the males' cage (5 x 3 x 1.3 m). Mating occurred immediately as the males tongue-flicked around the cloaca and hind legs of the females. A male would move his body on top of the female, push his tail under the tail base of the female and insert his penis. Both males were highly agitated and stayed outside their burrows until late at night (after 22h00), which had never been observed before. After five days the mating behaviour subsided. The females avoided the males and just emerged briefly in the morning to bask, but disappeared into their burrows as soon as a male approached.

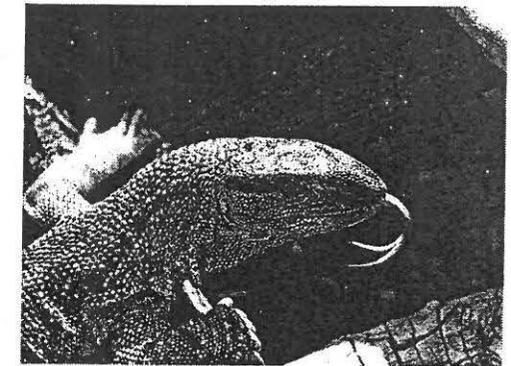
On 23 September 2000 (four weeks after mating) the smaller female was moved to a smaller cage (3 x 2 x 1.2 m) where she deposited her eggs on 29 September. At the same time the larger female deposited her eggs in the cage of the larger male. She had dug several 'test holes' before actual egg deposition took place. The eggs were difficult to locate and were therefore

left to incubate at the site where the females had deposited them. The cages were still inhabited by the adults (separated according to sex).

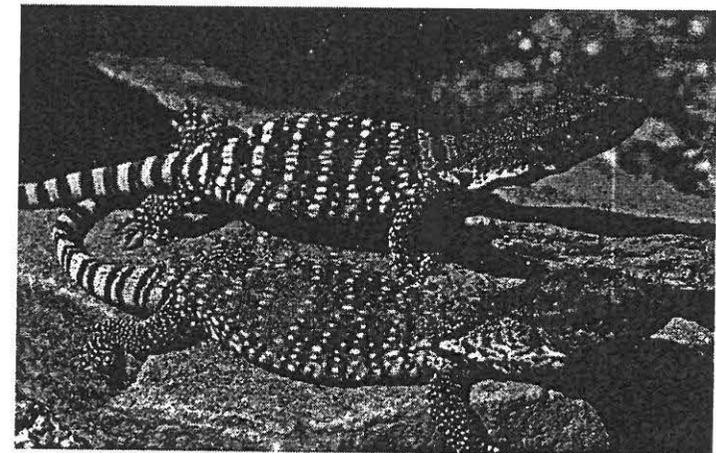
On 28 February 2001 (after an incubation period of 153 days) and following several days of heavy rains, 17 hatchlings emerged in the cage where the smaller female had deposited her eggs. The hatchlings had a snout-ventral length (SVL) of 10.5 - 12.5 cm, a total length of 9.5 - 12.0 cm and mass 18.15 - 30.45 g. The average hatchling had a total length of 23.3 cm and a mass of



Adult male *V. albigularis*



V. albigularis subadult



V. albigularis hatchlings with "bands" (back) and "dots" (front).

28.5 grams. The relatively large discrepancy in body mass may be accounted for by a varying amount of egg yolk the hatchlings had absorbed before hatching.

Between 10 - 13 March 2001 (after an incubation period of 163 - 166 days) another 28 hatchlings emerged in the cage where the larger female had deposited her eggs. They had a SVL of 12 - 13 cm with a total length of 24 - 26 cm. Although their size should have made them an attractive food source for the adult monitors, no adults attempted to catch and eat the hatchlings. The hatchlings were collected and housed for a few days in an indoor terrarium. They were very agile and readily started feeding on grasshoppers. Some even accepted a mince-egg mix offered in a small dish.

Although the incubation temperature was not monitored, Phillips and Packard (1994) had measured soil temperatures in the Etosha National Park during natural egg incubations of *V. albigularis*. They found natural nests at soil depths of 102, 95 and 88 cm. Soil temperature at a depth of 120 cm were almost constant at 27.7 °C while temperatures of 25.8 - 33.1 °C were recorded at 60 cm soil depth. At a soil depth of 20 cm, temperatures varied between 22.3 - 41.0 °C. Natural nests thus produced fairly constant incubation temperatures of 27 - 28 °C. In my cages the monitors could only deposit their eggs at a depth of 30 - 40 cm, which probably resulted in incubation periods of 24 - 36 °C. However, air temperatures in Windhoek tend to be a few degrees lower than those in the Etosha National Park and the incubation temperature can only be estimated.

Forty-one of the 45 hatchlings were released into the wild within two weeks, while four have been retained in captivity. Interestingly, the two batches of hatchlings had distinct patterns of coloration. The first batch showed clear patterns of yellow bands while the second batch displayed yellow dots (see photos).

CONCLUSION

Juvenile *V. albigularis* can be kept in small groups in captivity but care needs to be taken that the dominant animals do not prevent the weaker ones from obtaining sufficient food items. Separate feeding might be necessary, which also prevents the dominant animals from becoming obese. *Varanus albigularis* readily feeds on a variety of food sources. Insects and snails should be offered whenever possible but chicken necks are an easily obtainable and nutritious food source. The occasional sprinkling (2 - 4 times per month) of food items with a calcium-multivitamin powder is recommended. Adult *V. albigularis* should be separated according to sex throughout the year and only be placed together for the breeding season in August / September. Keeping

groups of same-sex animals together does not seem to have a negative effect on the animals, as long as the dominant monitors do not prevent the weaker ones from obtaining sufficient food items.

Monitor lizards should be exposed to direct sunlight as often as possible. Alternatively, the use of UV Lamps (such as the Osram Ultra Vitalux, 300 W, for 30 minutes daily from a distance of 80 - 100 cm) is highly recommended. A cool period preceding the mating season seems essential for breeding success with *V. albigularis*. In the wild, August / September represent the first warm weeks after a winter period of 2 - 3 months. Visser (1981) noted at the Rotterdam Zoo that copulation of *V. albigularis* occurred after a central heating failure resulted in temperatures of 15 - 18 °C for a period of eight days.

Periods of abundant feeding and fasting should be observed similar to the cycles that *V. albigularis* individuals experience in the wild. Juveniles should undergo fasting periods of at least 2 - 3 months at reduced temperatures while adults can be exposed to fasting periods of 5 - 6 months. Such fasting periods also serve to prevent obesity among captive monitors who cannot undertake their natural walks through the savannah.

Under artificial conditions eggs can be incubated at 27 - 31 °C, but hatchlings incubated at the lower end of this range tend to be larger than those incubated at higher temperatures. Phillips and Packard (1994) also noted that wetter substrates tend to produce larger hatchlings than dryer conditions.

Regarding the conservation of *V. albigularis*, it seems fairly easy to breed these monitors under semi-natural conditions within their home range. Hatchlings can be released in suitable areas where they are safe from human predation. Given the large home range of these lizards, they should always be released at least 20 km away from human settlements. It might be useful to raise hatchlings for about one year in captivity before releasing them into the wild. This has been done with great success with farm-bred leguans (*Iguana iguana* and *Ctenosaura bakeri*) in Central America (Koehler 1998, 2000). Larger animals are far less exposed to predation by mammals (e.g., mongooses) and birds. Provided that the young of *V. albigularis* are offered live food on a regular basis (especially insects), they should be able to adapt to natural conditions upon their release. A field study to examine this assumption should be undertaken as it might be of great importance for the conservation of one of Southern Africa's most interesting reptiles.

Acknowledgements

I wish to thank the Ministry of Environment and Tourism for issuing the permits for the breeding project. A special word of thanks goes to the

Ministry's specialist biologist Mike Griffin who rendered ongoing support and advice. I am also indebted to John Phillips, Gerard Visser and Bill Branch for providing me with information and articles on *V. albigularis*.

References

- Alberts, A. 1994. Off to see the lizard: lessons from the wild. *The Vivarium* 5(5): 26-28.
- Balsai, M. 1997. *General care and maintenance of popular monitors and tegus*. The Herpetocultural Library, Santee, USA.
- Branch, B. 1988. *Field guide to the snakes and other reptiles of Southern Africa*. Struik, Cape Town.
- Koehler, G. 1998. Vom Aussterben bedroht - der Leguan von Utila. *Reptilia* 14: 51-56.
- Koehler, G. 2000. Leguan-Farming. *Draco* 4: 73-76.
- Phillips, J.A. 1994. *Recommendations for captive breeding of medium to large-sized monitor lizards*. Conservation assessment and management plan for iguanidae and varanidae. Apple Valley, USA: IUCN/SSC Conservation Breeding Specialist Group.
- Phillips, J.A. & Packard, G.C. 1994. Influence of temperature and moisture on eggs and embryos of the white-throated savannah monitor *Varanus albigularis*: implications for conservation. *Biological Conservation* 69: 131-136.
- Visser, G.J. 1981. Breeding the white-throated monitor *Varanus exanthematicus albigularis* at Rotterdam Zoo. *International Zoo Yearbook* 21: 87-91.

THE HERPETOFAUNA OF SUN CITY, NORTH WEST PROVINCE, SOUTH AFRICA

By Warren R. Schmidt

Postnet Suite 101, Private Bag X01, East Rand, 1462

INTRODUCTION

Sun City is a popular and long established vacation and entertainment complex nestled in the valleys of the long extinct volcanic mountains of the Pilanesberg, now a beautiful National Park. Construction of the resort has created a multitude of artificial habitats for numerous species of amphibians and reptiles. Where once was a bushveld valley now stands huge rock outcrops and water features, artificial forests and a range of new microhabitats that were previously non-existent. While the alteration of the

environment by man is often destructive and leads to annihilation of species, the opposite seems to hold true for Sun City.

During the period from 1 March 1997 to 31 March 1999 I worked as a farm manager for the Kwena Gardens Crocodile Sanctuary, situated within the Sun City resort. Over these two years I had the opportunity to observe and record many species of amphibians and reptiles during daily working procedures. The following is a brief summary of species recorded during this time, both in the Sun City resort and from the immediate surroundings within 25 km from Sun City.

AMPHIBIA

Bufonidae

Bufo poweri (Hewitt, 1935) - Western Olive Toad

This is a common toad during the summer rainy season. It is active on the roads in evenings and is commonly seen at Kwena Gardens both during the day and night. Hundreds were observed calling and in amplexus from a shallow pan across the road at the front of Sun City after the first heavy rainfalls of the season.

Schismaderma carens (Smith, 1848) - Red Toad

It is a very common toad throughout the region. Specimens are seen during the day on many of the walkways and in gardens and are common on roads in the evening when many are killed by traffic.

Pipidae

Xenopus laevis laevis (Daudin, 1802) - Common Platanna

This species is common in all the waterways and ponds in Sun City. Several of these frogs made their home in the water bowl of the Burmese Python enclosure and, despite constant evictions, would find their way back again.

Microhylidae

Phrynomantis bifasciatus (Smith, 1847) - Banded Rubber Frog

These frogs are heard calling from marshy wetlands after heavy rains. One was collected on the road on 05/03/97.

Ranidae

Cacosternum boettgeri (Boulenger, 1882) - Common Caco

This is a common species, usually encountered after heavy rains have flooded pans and marshes. Thousands can be heard calling from waterlogged vegetation during the summer months.

***Ptychadena sp.* - Grass Frog**

Paul Olsen and myself collected three Grass Frogs from a waterlogged grassy area alongside the Lindleyspoort Road on 05/03/97. Unfortunately the frogs were not accurately identified but may have been either *P. mossambica* or *P. porosissima*.

***Pyxicephalus adspersus* (Tschudi, 1838) - Giant Bull Frog**

Only two specimens were recorded from the Lindleyspoort Road on 05/03/97 after heavy rains. One was a sub-adult and the second frog was a juvenile.

***Afrana angolensis* (Bocage, 1866) - Common River Frog**

This is a common species in Sun City and found along all the streams and waterways. Frogs are often seen in the crocodile pens at Kwena Gardens. This species is active throughout the year and have been heard calling in mid-winter (July). Many were seen dead on roads after heavy rains when they seem to become more mobile and active.

***Tomopterna cryptotis* (Boulenger, 1907) - Tremolo Sand Frog**

This species is also commonly seen in the area, particularly on roads during rainy conditions. Several individuals were recorded on the Lindleyspoort Road on 05/03/97. Several were also seen at Kwena Gardens and a large, beautifully marked frog was unearthed on 10/04/97 from old coal deposits alongside the game fence separating Kwena Gardens and Letsatsing Game Reserve.

***Tomopterna natalensis* (Smith, 1849) - Natal Sand Frog**

This species is not seen as often as *T. cryptotis*, but is present in Kwena Gardens. One frog was seen in the evening of 04/03/97 sitting on the head of a 4 meter crocodile.

Rhacophoridae

***Chiromantis xerampelina* (Peters, 1854) - Foam-nest Frog**

Only one frog was discovered at Kwena Gardens on 29/06/97. This individual was found on the ground alongside the public walkway by the GM Brandon Borgelt. Despite numerous searches for further specimens or nests, no further frogs were found.

Hyperoliidae

***Kassina senegalensis* - Bubbling Kassina**

Specimens are often heard calling from marshy areas over the rainy season. Several sub-adults were collected from the road on 05/03/97.

REPTILIA

Testudinidae

***Geochelone pardalis* (Bell, 1828) - Leopard Tortoise**

One sub-adult female was taken from a person from nearby Ledig village on 04/10/97. The remains of an old carapace and plastron of a sub-adult were found alongside the game fence separating Kwena Gardens and Letsatsing Game Reserve. Visitors and rangers often report this chelonian from Pilanesberg National Park.

Pelomedusidae

***Pelomedusa subrufa* (Lacepede, 1788) - Marsh Terrapin**

Several adults were seen from time to time at the refuse dumping site, a few kilometers from Sun City. They were observed basking and swimming in a rain filled depression.

Typhlopidae

***Rhinotyphlops lalandei* Schlegel, 1844 - Delalande's Beaked Blind Snake**

Two blind snakes were recorded. On 18/02/98 a snake was found in some leaf and garden debris next to the car park. A second snake was found in the evening on the driveway at Kwena Gardens during a slight drizzle.

Boidae

***Python natalensis* (A. Smith, 1840) - Southern African Python**

No pythons were found by myself, but several were caught and seen from Sun City and a few of these were shown to me at Kwena Gardens, including a large adult of over 3 meters. Most of these snakes were found alongside the dam on the Gary Player Golf Course and some have been removed whilst raiding the bird aviary and children's animal farm.

Colubridae

***Lamprophis fuliginosus* (Boie, 1827) - Brown House Snake**

Seven snakes were recorded: 31/03/97 DOR 20 km from Sun City on R556, large adult female; 18/01/98 sub-adult crossing sand road at Lost City Golf Course at 22h00; 19/01/98 hatchling caught in a brick wall at a flat at Kwena Gardens at 18h30; 03/02/98 a hatchling came into my house at Kwena; 23/02/98 on road back to Sun City at 22h42; 15/09/98 male on road in Ledig village at 22h00; 16/09/98 another male found on road near Ledig village in the late evening.

***Mebelya capensis capensis* (A. Smith, 1847) - Cape File Snake**

Two snakes were recorded, both road kills. 23/02/98 Adult DOR 8 km from Boshhoek; 02/05/98 DOR adult near Boshhoek.

***Psammophylax tritaeniatus* (Gunther, 1868) - Striped Grass Snake**

Two snakes were recorded: 05/03/97 near Boshhoek, dead on the road; 22/05/97 near Kareepoort.

***Psammophis subtaeniatus subtaeniatus* (Peters, 1854) - Western Stripe-bellied Sand Snake**

This is a common species at Sun City. Ten snakes were recorded from Kwena Gardens: 27/02/97 adult basking in tree one meter above ground at 10h30; 11/04/97 adult basking in shrubbery next to walkway at 10h30; 12/05/97 adult basking near walkway; 19/06/97 adult caught in garden next to public walkway; 14/08/97 adult next to logs at walkway; 12/08/98 adult basking on embankment next to boulders at 10h00; 27/08/98 small juvenile caught under my car at carport; 11/01/99 snake seen; 21/01/99 snake seen. These snakes are rather common and fond of basking, often in bushes off the ground where they remain motionless. One adult was disturbed whilst ingesting an adult *Afrana angolensis*.

***Psammophis brevirostris brevirostris* - Short-snouted Grass Snake**

Three snakes were recorded. Two were road kills found near Boshhoek on 24/04/97 and 02/05/98. The third was a juvenile from the Lion Park nearby to Sun City, collected on 13/06/97.

***Philothamnus semivariatus* (A. Smith, 1840) - Spotted Bush Snake**

This is another common species from Sun City. Sixteen snakes were recorded: one from the Cascades Hotel, one from the Lost City Hotel and fourteen from Kwena Gardens. Sometimes two snakes were seen on the same day. On 06/09/97 two snakes were seen in trees displaying courtship behaviour. On 25/09/98 an adult female snake was collected from a crevice in the wall at the Lost City. She was gravid and deposited 8 elongate eggs on 03/11/98. All eggs hatched but date of hatching was not recorded.

***Dasypeltis scabra* (Linnaeus, 1758) - Rhombic Egg-eater**

One snake was recorded on 04/01/99 from the Lost City. It was a sub-adult collected from a swimming pool in the evening.

***Crotaphopeltis hotamboeia* (Laurenti, 1768) - Red-lipped Snake**

Four snakes were recorded: 07/10/97 sub-adult found in valve box at 15h30 on farm at Kwena; 05/10/98 juvenile caught near Sun City Staff Entrance at

23h00 in rainy weather; 26/10/98 snake on road just outside Sun City; 08/01/99 juvenile observed at farm trying to engulf an adult *Schismaderma careens*.

***Telescopus semiannulatus semiannulatus* (A. Smith, 1849) - Eastern Tiger Snake**

One snake was recorded. It was found on a palm tree at Sun City Hotel on 01/04/98. The snake was a female measuring SVL 41 cm + tail length 7 cm = 48cm.

***Dispholidus typus typus* (A. Smith, 1829) - Boomslang**

Two snakes were recorded. On 10/04/97 a large female snake was collected from the kitchen of the resident vet at the nearby ostrich farm. The snake was about 160 cm total length and she was fully gravid. The colouration was rather similar to that of a Black Mamba and the snake was extremely aggressive towards me. The colour was gun-metal grey dorsally and light grey ventrally. On 05/05/98 I caught a sub-adult female from the thatch roof in one of the storerooms next to the Curio Shop at Kwena Gardens.

Elapidae***Naja annulifera annulifera* Peters, 1854 - Snouted/Bushveld Cobra**

Four snakes were recorded. On 06/12/97 I caught a very large cobra from the Sun City Staff Village at mid-day. The snake was 1.6-1.8 meters total length and was found under a wheelbarrow. The snake was extremely aggressive and it took a while to get it restrained, during which it bit everything it could. On 01/02/98 I caught another snake from beneath a boulder on a open grassy patch in the Staff Village. The snake was a male of 120 cm and was in the process of ingesting a *Schismaderma careens* individual. 26/02/98 dead on road snake seen on the R566 near Sun City; 18/03/99 female of 44 cm collected from Sun City, snake injured.

***Naja mossambica* Peters, 1854 - Mozambique Spitting Cobra**

A very common species from Sun City. Twenty-two snakes were recorded: one was a road kill from near Boshhoek and 20 were recorded from Kwena Gardens and one from the Golf Course. These snakes were active during the day and were often found in very close proximity to man, often in houses and buildings. One defiant adult was discovered in some vines at the amphitheatre spitting at the passing tourists who were oblivious to the snake's presence. A gravid female was dug up and removed from under some boulders on an embankment on 04/11/98 at 10h50.

***Dendroaspis polylepis* Gunther, 1864 - Black Mamba**

Three snakes were recorded. In 1999 a DOR adult was collected off the Lindleyspoort road. Two snakes were shot and killed from Sun City near the dam wall in the gardens. They were killed a few weeks apart and from the same area and were apparently a male and female.

Viperidae

***Bitis arietans arietans* (Merrem, 1820) - Puff Adder**

Thirteen snakes were recorded. Seven were recorded in one night off the Lindleyspoort road, all road kills except for two on 11/03/97. Three were found DOR on the R556 near Sun City on different occasions and another road kill was reported from Lindeyspoort on 23/02/98. Two were recorded from Sun City: 20/03/98 male of 70 cm removed from the Vacation Club timeshare grounds at 21h00; 03/99 adult snake collected from front door of my house in the evening.

Scincidae

***Mabuya capensis* (Gray, 1830) - Cape Skink**

This skink seems to be rare in Sun City as only a few were seen on 01/10/98 at the Lost City Golf Course.

***Mabuya punctatissima* (Smith, 1849) - Striped Skink**

This species is extremely common in Sun City. At Kwena Gardens these skinks actively forage and bask on the rock walls and buildings and can be found everywhere.

***Mabuya varia* (Peters, 1867) - Variable Skink**

It is not as common as *M. punctatissima* but seen around Kwena Gardens on many occasions.

Gerrhosauridae

***Gerrhosaurus flavigularis* Wiegmann, 1828 - Yellow-throated Plated Lizard**

It is a fairly common gerrhosaurid around Kwena Gardens and lizards are often seen basking on rocky walls. A juvenile was found buried in old coal alongside the game fence on 09/04/97 and adults were recorded basking on rocks on 04/04/97.

Varanidae

***Varanus albigularis albigularis* (Daudin, 1802) - Rock Monitor**

Several monitors were recorded from Sun City and the species seems to be rather common. A hatchling was collected from the toilets at Kwena Gardens on 08/10/97 at 14h00; a very large adult was caught in long grass next to the game fence on 30/01/98; a small monitor was found climbing the door at the GMs house on 17/03/98 and a sub-adult was rescued from the sky-train station whilst getting stoned by a local on 08/04/98. The local Tswana people know this lizard as the *gopane* and are very superstitious of it.

***Varanus niloticus* (Linnaeus, 1762) - Nile/Water Monitor**

It is a common species along the rivers and waterways at Sun City. Several were often seen basking and living alongside the crocodiles at Kwena Gardens.

Agamidae

***Acanthocercus atricollis* (Smith, 1849) - Southern Tree Agama**

Only one adult male was seen at the Gary Player Golf Course on 30/09/98. These lizards are thought to be more common in the area.

Chamaeleonidae

***Chamaeleo dilepis* Leach, 1819 - Flap-necked Chameleon**

Only one individual was found at Kwena Gardens on 06/02/98. It is also thought to be more common in the region and is often reported crossing roads in the Pilanesberg National Park.

Gekkonidae

***Hemidactylus mabouia* (Moreau de Jonnes, 1818) - Tropical House Gecko**

Only one gecko was recorded on 04/10/98 from the Staff Flats next to the Entertainment Complex. They are seen on the walls in the evening and are probably more common than assumed.

***Lygodactylus capensis capensis* (Smith, 1849) - Cape Dwarf Gecko**

This is a very common gecko that actively forages on stone walls, trees and buildings. They are plentiful around Kwena Gardens.

***Pachydactylus affinis* - Transvaal Thick-toed Gecko**

Often found under rubber mats and rubble and on the fibreglass roofs of the snake cages.

Pachydactylus capensis - Cape Thick-toed Gecko

Found in similar situations as the above gecko and some were seen under the plastic lining of the reservoir.

Pachydactylus turneri - Turner's Thick-toed Gecko

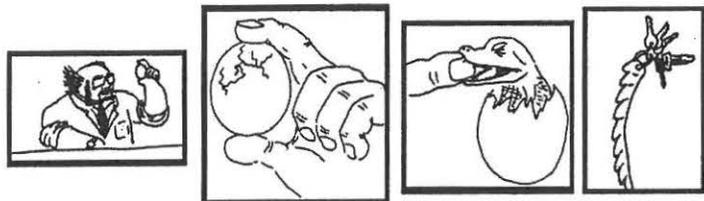
Only two were found down at the farm stores. 09/03/97 adult seen in the roof. 03/11/98 caught adult behind polystyrene boxes at 11h00.

CONCLUSION

I was surprised by the diversity and abundance of several species. A total of 12 amphibian and 31 reptilian species were recorded in this region. Many species such as the *Mabuya* spp., *Lygodactylus capensis*, *Philothamnus semivariegatus* and *Naja mossambica* seem to have adapted well to the transformation of the previous habitat.

The common occurrence of Mozambique Spitting Cobras around human dwellings was noteworthy, particularly around Kwena Gardens. The creation of the crocodile farm has created perfect micro-habitats for these cobras in the form of rocky walls, embankments and artificial cover. Numerous water features attracting its amphibian diet has also allowed this snake to proliferate and around the office and curio shop, where many adult cobras were found; rodents were also very common. Despite its prevalence, encounters with man are often not a problem as this snake usually avoids conflict. Venomous snakes are common at Sun City, with five dangerous species recorded. In the two years at Sun City no bites were recorded from venomous snakes, despite many outdoor activities.

I am currently compiling a detailed account of the herpetofauna from Sun City and the Pilanesberg. It will consist of a diarized listing of species encountered, as well as a species by species account, detailing measurements, sexes, dates and times and more detailed information of the species. This will conclude with a revised and updated checklist of the herpetofauna of the Pilanesberg National Park. Anyone who would like to receive a copy on completion can contact me at the above postal address.



NATURAL 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 Snakes and other Reptiles of Southern Africa*, third edn. 1998, for reptiles; and Passmore & Carruthers' *South African frogs*, 1995, for amphibians as far as possible); **KEYWORD** (this should be one or two words best describing the topic of the note, eg. Reproduction, Avian predation, etc.); the **Text** (in concise English with only essential references quoted and in abbreviated form); **Locality** (country, province or state, location, quarter-degree unit, and latitude and longitude if available; elevation above sea level; use metric units); **Date** (day, month, year); **Collector(s)**; **Place of deposition and museum accession number** (required if specimens are preserved).

Submitted by: **NAME**, Address (in parentheses).

REPTILIA:
SAURIA

Adolfus jacksoni Boulenger, 1899
Jackson's lizard

MORPHOLOGY

Kenya, Rift Valley Province, Nandi District, Chemundu Location, 2 km from Kombe Market Center (0° 16' 01" N; 35° 02' 05" E).

David Chumba collected a specimen at a wood pile a few meters from his house. The specimen had the following scale morphology: 8 supralabials; 9 oculars; 6 columns and 28 rows of ventrals; 32-34 midrow scales; 6 supraciliaris; 2 nasals; sub-digital lamellae 4th toe: 14 (fore), 16 (hind); 16 femoral pores. The dorsal scales have a single keel and the keels on the tail are very prominent, giving the lizard a rough look. Its back is army green in colour with black, irregular, medial dots. The flanks are pigmented with thick black lateral stripes that are dotted with a luminescent, cyan colour. According to Donald Broadley (pers. comm.), the lizard was

originally described from the Ravine Station on the Mau Escarpment and he personally observed a specimen in the outskirts of Kakamega Forest.

Submitted by

Armand G.H. Poblete (University of Eastern Africa, Baraton, Department of Biological Sciences, P. O. Box 2500, Eldoret, Kenya).

E-mail: agpoblete@africaonline.co.ke.

GEKKONIDAE

Ptenopus garrulus maculatus

Common Barking Gecko

BEHAVIOUR

Lizards of the genus *Ptenopus* are ground-burrowing geckos. They live in the dry areas of Southern Africa (Namibia, Republic of South Africa, Botswana and Zimbabwe). Three species are currently recognized (Branch, 1998). These geckos are commonly known as barking geckos. Males call (bark) at the entrances of their burrows to signal to females their ability to mate, and may call from sunset to early morning (Branch, 1998; Haacke, 1976).

Calls have previously been recorded and analyzed (Haacke, 1976). Result showed a difference in call characteristics between local populations, regarding both the number of "clicks" per call and the call rhythm. Could those differences have an effect on the female mating answer behaviour? I kept two groups (group A and group B) of *Ptenopus garrulus maculatus* from two different localities at home, in the same room. The following behaviour was observed.

When male A began to call, females in group A (including a sexually receptive female), walked nervously along the glass wall of the terrarium, pausing at intervals to listen to the calls, and sometimes responded with a vocal answer (Girard, 1997). When male B began to call, there was no reaction from the females in group A (not even from the sexually receptive one).

When male A began to call, female B remained hidden in its burrow or had no reaction. When male B called, female B showed her head at the burrow entrance and moved its head from right to left at intervals. I believe, however, that female B was too young and probably not sexually receptive. These observations have been noticed on several occasions, but it is necessary to obtain more information to verify the "answer behaviour".

References

- Branch W. R. 1998. *Field guide to snakes and other reptiles of Southern Africa*. Struik Publishers, Cape Town.
- Girard F. 1997. *African Herp News* 26:32
- Haacke, W. D. 1976. The burrowing geckos of Southern Africa. *Annals of the Transvaal Museum* 30:14-28.

Submitted by

F. Girard (167, bd Vincent Auriol, 75013, Paris, France)

CORDYLIDAE

Cordylus tropidosternum jonesi Boulenger, 1891

Tropical girdled lizard.

LONGEVITY

I bought two specimens (adult males) of *Cordylus tropidosternum jonesi* in 1975 at a pet shop (at that stage South Africa still exported large quantities of girdled lizards). The first specimen died in 1986 and the second one died recently in November 2001, after 26 years of captivity. I do not know of a similar longevity record for this species.

Submitted by

F. Girard (167, bd Vincent Auriol, 75013, Paris, France)

CORDYLIDAE

Cordylus tropidosternum tropidosternum Cope 1869.

Tropical girdled lizard.

REPRODUCTION

A studbook breeding programme for *Cordylus tropidosternum tropidosternum* and *Cordylus tropidosternum jonesi* was started in the Netherlands in 1994. The aim of this studbook is to create genetically healthy and reproductively active captive populations. The studbook currently contains 57 animals in total, of which the majority are *C. t. tropidosternum* individuals. Since 1998, an increasing number of studbook participants have had breeding successes with *C. t. tropidosternum*. One trigger that appears to stimulate captive breeding is seasonal variation in climatic conditions. A cool and dry resting period is desirable for several weeks, followed by a warm and humid spring. However, this trigger is not essential as some breeding

successes were obtained without simulating seasonal changes. In the years 2000 and 2001 four studbook participants had breeding successes with *C. t. tropidosternum*. The breeding pairs were for the two years, possibly indicating that pairs are likely to breed for subsequent years, once settled.

Besides these captive breeding records, many captive births have been annotated for *C. t. tropidosternum*. Females collected from the wild are very often gravid, due to the long gestation period of these viviparous lizards. Removal of gravid females unfortunately implies that the natural population suffers even a greater loss. Such exports may have an important impact on natural populations, since the species not only has a long gestation period but also produces relatively few offspring.

The number of young born per litter usually varies between two to five individuals. Branch (1990; *Field Guide to the Snakes and Other Reptiles of Southern Africa*. Struik Publishers, Cape Town) reports that the litter normally consists of two (sometimes up to four) young. This is lower than the average litter size observed within the studbook programme, in which case the average captive-bred litter size is four young. If we furthermore combine the captive-born litter sizes (i.e., the litters of gravid females imported from the wild) the average drops to a little over three, which is still significantly higher than reported in Branch. The largest litters within the studbook usually consisted of five *C. t. tropidosternum* young, and recently a litter containing six young was produced, apparently a litter size record for the species. Large litters may be the result of the maintenance of more favourable conditions in captivity in comparison with those in the natural habitat. Food availability might be the limiting factor in the latter scenario.

In one of the aforementioned large litters, four out of five young died. The low survival percentage (20%) could have been caused by the fact that the maternal animal was a gravid female imported from the wild. Such females are exposed to stressful conditions during both capture and transport procedures, which might have had a negative influence on the health of her young. This has often been mentioned as a probable cause for low survival rates in litters of *Cordylus* species. Loehr and Zwartepoorte (1995; De Karoo-gordelstaarthagedis (*Cordylus polyzonus*) (The Karoo girdled lizard (*Cordylus polyzonus*). *Lacerta* 53: 143-147) similarly suggested that the death of their three *C. polyzonus* young might have been caused by stress to the maternal female due to capture, transport and acclimatisation to conditions in the Northern Hemisphere. They also suggested that the young might be more susceptible for diseases because of sub-optimal circumstances. In contrast, specimens from the five-young and six-young litters, produced by a long-term captive couple, are in good health, a justification for the above theory.

A problem currently facing the studbook is to obtain genetically unrelated specimens to pair off with captive-bred stock (the latter normally being related), without supporting the commercial trade in the process. Gradually more light is being shed on the captive reproduction of *C. tropidosternum* ssp. Therefore a good possibility exists that the number of young that is being bred will be sufficient to sustain a large captive population in the long term. However, if we want to keep them in the wild as well, the collection of specimens from the wild should decrease or, preferably, even stop.

Acknowledgements: I would like to thank V. Loehr for criticising this manuscript.

References

- Branch, W. R. 1990. *Field guide to the snakes and other reptiles of Southern Africa*. Struik Publishers, Cape Town.
- Klerks, M. & Struijk, R. (In prep.) Het houden van de tropische gordelstaarthagedis (*Cordylus tropidosternum tropidosternum* Cope, 1869) in gevangenschap. *Elaphe*.
- Loveridge, A. 1944. Revision of the African lizards of the Family Cordylidae. *Bull. Mus. Comp. Zool.* 95
- Loehr, V. & Zwartepoorte, H. 1995. De karoo-gordelstaarthagedis (*Cordylus polyzonus*) (The Karoo girdled lizard (*Cordylus polyzonus*). *Lacerta* 53:143-147.

Submitted by

Richard Struijk (Studbook Co-ordinator *Cordylus tropidosternum* spp., Wijnruitgaarde 19 2803 TG Gouda). E-mail: richard.struijk@wanadoo.nl

SERPENTES: ELAPIDAE

COLUBRIDAE

Dispholidus typus kivuensis
Boomslang

MORPHOLOGY

Kenya, Rift Valley Province, Uasin Gishu District, Kapsaret Estate, about 4 km from the Eldoret International Airport (0° 24' 25" N; 35° 12' 58" E; 1828.2 m).

On 13 July 2000 the author and his team were heading to Lake Bogoria to do herpetological sampling around Lake Bogoria Reserve. On the Kapsabet-Eldoret route, at around 16h00, we came across a mob of men hurling sticks and stones at a snake by the side of the highway. We attempted to save the green and black-speckled boomslang, but unfortunately a stone paralyzed the snake. The specimen was about 1.8 meters long with the following scale morphology - supralabials: 8 (3rd and 4th in contact with the orbital); 19 scales at midbody; postoculars: 3; dorsal scale singly keeled; long tail with 89 subcaudal scales. It had a lime green and black dorsal coloration, with lime green ventrals. Its large, bronze eyes were placed in the anterior of its head and had distinctive black dumbbell or buttonhole shaped pupils. I pried the mouth open to affirm identity of the specimen. There was a long, prominent pair of fangs under the eye and several small succeeding ones. I used the *Dangerous Snake of Africa: Natural History, Species Directory, Venoms, and Snakebite* by Steven Spawls and Bill Branch as my reference source. According to Spawls, S. and Branch, B. (1995), males normally exhibit this colour form. Unfortunately, the snake was pronounced dead once we reach Eldoret Town, which was some 20 km away. Although the specimen seemed not to have any signs of injury externally, it must have died from fatal internal injuries.

Acknowledgements

I would like to thank the Kenya Marine and Fisheries Research Institute (KMFRI), Baringo Station administrative staff for gallantly providing us with formalin and a jar.

Submitted by

Armand G. H. Poblete (Department of Biological Sciences, University of Eastern Africa, Baraton, P. O. Box 2500, Eldoret, Kenya).
E-mail: agpoblete@africaonline.co.ke.

COLUBRIDAE

Lamprophis fuliginosus
Brown House-Snake

FORAGING

The brown house snake, or common house snake (*Lamprophis fuliginosus*), has a wide distribution range in Southern Africa and is widespread throughout Namibia. It is nevertheless infrequently seen due to its mainly nocturnal existence. Adults are known to prey mainly on rodents while juveniles

favour small lizard prey. Very little is known about the house snake's hunting strategy, especially with regards to juvenile snakes.

At approximately 20h00, during a warm February evening in 1998, I observed a *L. fuliginosus* juvenile with a total length of approximately 30 cm on my porch in Windhoek. It shammed death in a fashion typical of rinkhals (*Hemachatus haemachatus*), i.e., twisting the head and anterior portion of the body sideways and/or upside down with mouth agape. Approximately 60 cm from the snake was a Cape thick-toed gecko (*Pachydactylus capensis*) on the wall. The snake remained motionless while the gecko moved in closer to investigate, until the latter was disturbed by external sources. Feigning death is possibly used as a technique by *L. fuliginosus* to prey on geckos as observed during this encounter. I was unable to determine from the literature if this specific hunting strategy has previously been documented for this species.

Submitted by

Peter L. Cunningham (Polytechnic of Namibia, School of Natural Resources and Tourism, Department of Nature Conservation, P/Bag 13388, Windhoek, Namibia). E-mail: pcunningham@polytechnic.edu.na>

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 sources, see Natural History Notes); **Locality** (country, province or state, location, quarter-degree unit, and latitude and longitude if available; elevation above sea level; use metric units); **Date** (day, month, year); **Collector(s)**; **Place of deposition and museum accession number** (required if specimens are preserved); **Comments** (including data on the size, colour and taxonomic characters, eg. Scallation, webbing, especially for taxonomically problematic taxa; and nearest published locality record(s) in km; references to be quoted in the text). Submitted by: **NAME**, Address (in parentheses).

Records submitted should be based on specimens deposited in a recognised collection. New South African province names must be used.

Notes submitted in an incorrect format or style will be returned to the authors.

REPTILIA:
SAURIA

SCINCIDAE

Acontias meleagris meleagris Linnaeus, 1758.

Cape Legless Skink

DISTRIBUTION

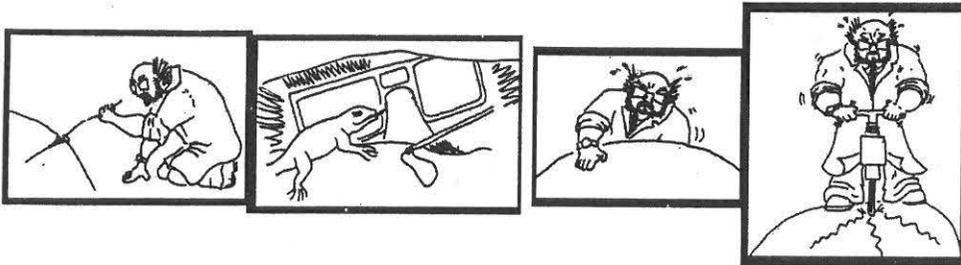
South Africa, Western Cape Province; one locality.

Two specimens (one dead and one alive) were found at dusk (19h50), on the N7, 3 km before Clanwilliam (Citrusdal /Clanwilliam), on 12 November 2001. One live specimen was found at night (20h30) on the R364, 2 km from Clanwilliam, on the same date. Unfortunately, no specimens were measured (no equipment was available, but a slide is being furnished). I have already found these lizards crossing the road at night on several occasions near Veldruff.

This record extends the distribution range northwards by around 100 km. The nearest record is from the farm Draai Hoek in the Piketberg district (3218 AD, 32°28S, 18°20E), with specimens collected by B.A. Wilson, M.G.J. Hendriks, N.J.L. Heideman, M.F. Bates, N. Don and C. Moses (1998, n°27, African Herp News)

Submitted by

F. Girard (167, bd Vincent Auriol, 75013, Paris, France)



NEWS AND ANNOUNCEMENTS

MINUTES OF A GENERAL MEETING OF THE
HERPETOLOGICAL ASSOCIATION OF AFRICA
held at the Zoology Department of the University of Stellenbosch on
12 September 2001

The Chair opened the meeting at 16h00, having invited all symposium delegates to attend. This, she stated, would allow non-members the opportunity to express their views to the benefit of the Association. Forty-three (43) members and non-members were present.

1. The Chair presented a financial report and balance sheet submitted by the Secretary/Treasurer. The rise in office expenses over the past year was queried (postal charges for the journal and newsletter were included).
2. As this was an informal meeting, reports were not submitted by the Chair, Secretary, Editor of the Journal of African Herpetology and Editor of African Herp News.

The meeting then went into open discussion:

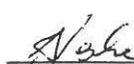
1. Prof. Bauer suggested that an award be introduced at future symposia for the best student lecture presented. He further stated that he was prepared to contribute financially towards such an award. Dr Branch suggested that funds from the sale of the "Belgian Congo Book" be channelled towards such an award.
2. The introduction of a Life Membership category was again raised by the floor. After much discussion it was decided that this was an involved process and that it had considerable implications. It was pointed out that such a category would have to be actuarially evaluated before it could be introduced. It was then brought to the attention of the meeting that a non-contributory Life Membership already existed in the form of Honorary Life Membership which formed a part of the Associations award for *Exceptional Contribution to African Herpetology*.
3. Some of the attending students stated that they had experienced problems of response with their membership applications. It was further stated that prospective overseas members had also been experiencing such problems. It was suggested that perhaps a separate Committee post be established for membership applications and membership. No decision was reached.

4. The floor suggested that different categories for symposia registration be instituted in future. For example, a cheaper category for student registration fee be introduced. It was pointed out that the sponsoring University departments often paid the student registration fees. However, some students added that not all their expenses were covered in this manner. It was also suggested that registration fees and the cost of functions be listed as separate items for future symposia. No decision was taken on the former while the floor rejected the latter.
5. It was further suggested that the Association should generate some profit from symposia in order to bolster funds for other expenses, such as printing. To this end it was suggested that conference fees be raised to realise a profit. Although it was pointed out that HAA symposia fees were very low in comparison to other symposia, the floor was divided on a final decision. Some other suggestions for raising funds at symposia were: auctions and the sale of ties, T-shirts and golf shirts. While auctions were considered a good idea, it was pointed out that the response for T-shirts prior to the current symposium was so poor that none had been made. As had been examined at previous symposia, the quantities, and therefore the costs, that needed to be ordered in order to make the exercise cost-effective, was prohibitive.
6. In response to questions on the progress of the updated *Lizards of Southern Africa* book, Dr Branch stated that several species accounts had been withdrawn by the authors, or the authors were now no longer prepared to prepare the relevant species accounts. He pointed out that, because of the numbers of new species, the name FitzSimons was no longer appropriate in the title and that effectively a completely new book would have to be written.
7. The Association's financial contribution (R10 000.00) towards the publication of the "Belgian Congo Book" was discussed. It was noted that very few of the copies ordered by the Association had been sold. Dr Branch felt that the Association had received good publicity by having its name associated with both the book and the Society for the Study of Amphibians and Reptiles. However, some members felt that this was an expensive advertising and public relations exercise which the Association could ill afford without being able to recoup the expense in due course.
8. Dr Branch offered to host the 7th HAA Symposium on African Herpetology at the Port Elizabeth Museum in the year 2003.

The meeting was closed at 17h15

**FINANCIAL STATEMENTS OF THE HERPETOLOGICAL
ASSOCIATION OF AFRICA for the year ended 28 February 2001**

The financial statements were approved and are hereby signed to that effect:


Chairman


Treasurer

**Report of the independent auditor to the members of the
Herpetological Association of Africa**

We have audited the annual financial statements. These financial statements are the responsibility of the members. Our responsibility is to report on the financial statements based on our audit.

Scope

We conducted our audit in accordance with statements of South African auditing standards. These standards require that we plan and perform the audit to obtain reasonable assurance that the financial statements are free of material misstatement. An audit includes:

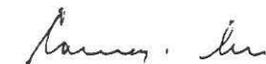
- an evaluation of the appropriateness of the accounting policies,
- an examination, on a test basis, of evidence supporting the amounts and disclosures included in the annual financial statements,
- an assessment of the reasonableness of significant estimates and
- a consideration of the appropriateness of the overall financial statement presentation.

We consider that our audit procedures were appropriate in the circumstances to express our opinion presented below.

Opinion

In our opinion these financial statements fairly present, in all material respects, the financial position of the company at 28 February 2001, and the results of its operations and cash flow information for the year then ended in conformity with generally accepted accounting practice and in the manner required by the Companies Act.

CASSIDY AND ASSOCIATES
Chartered Accountants (S.A.)



INCOME STATEMENT (year ended 28 February 2001)

	2001	2000
Income		
Interest	3,335	8,162
Donations	0	7,030
Sale of journals	6,276	2,507
Subscriptions	28,816	27,102
	<u>38,427</u>	<u>44,801</u>
Expenses		
Audit fees	900	800
Proceedings	400	0
Congo Book	2,000	8,784
Journals	35,091	13,550
Newsletters	1,441	5,878
Bank charges	68	904
Office expenses	6,946	1,091
	<u>46,846</u>	<u>31,007</u>
Net (deficit)/surplus for the year	(8,420)	13,793

BALANCE SHEET (year ended February 2001)

	2001	2000
Funds Employed		
Accumulated funds:		
Balance beginning of year	73,435	59,640
Net (deficit)/surplus for year	(8,420)	13,794
	<u>65,015</u>	<u>73,434</u>
Employment of funds		
Current assets:		
UBS - Durban	49,041	53,037
Standard Bank - Bloemfontein	17,896	16,607
Volkscas - Durban	0	5,403
	<u>66,937</u>	<u>75,047</u>
Current liabilities:		
Accounts payable	1,921	1,611
	<u>1,921</u>	<u>1,921</u>
Net current assets:	65,016	73,435

PRESS RELEASES**A major breakthrough for environmental law enforcement**

Numerous attempts by two Czech poachers, Viteslav Tomasek and Walter Grosser, to foil Cape Nature Conservation's law enforcement team have backfired. Tomasek and Grosser have instead been dealt the heftiest fine in the history of the Cape Nature Conservation ordinance.

During a police blockade in Bulwer, Kwazulu Natal on 26 January 2001, the Czechs were caught with various indigenous fauna and flora without the necessary permits and documentation. The two accused had recorded detailed video footage and 140 photographs of their poaching activities in the Western Cape. They were charged under the Natal conservation legislation and found guilty of the illegal possession and importation of tortoises and fined R4000.

During this time, however, Cape Nature Conservation's (CNC's) law enforcement team was informed by the Kwazulu Natal conservation officials of the Czechs' poaching trip to the Cape. CNC opened a case against the two Czechs at the Worcester police station. During the investigation the accuseds were found in possession of 306 insects, 23 geometric tortoises, 15 common padloper tortoises, 16 angulate tortoises, 16 frogs, 11 scorpions and even various succulents, without the necessary documentation and/or permits.

The Czechs were charged on seven accounts according to the Cape Nature Conservation Ordinance 19/1974 and a further two under the South African National Parks Board Act. Notwithstanding the overwhelming evidence, the case took an unexpected turn. Although both parties pleaded guilty on April 3, Tomasek pleaded ignorance of the law while giving evidence during mitigation of his sentence, and the court changed their plea to not guilty. As a result, a new court case was scheduled and the case was tried all over again. Although both parties admitted to their crimes, they entered a plea of not guilty basing their plea on their claim that they were ignorant of the law and were not aware that their actions were wrongful. However, during the proceedings, the court found otherwise. This time they were charged and found guilty on all counts of illegal possession and hunting of the abovementioned fauna and flora. According to the Cape's nature conservation Ordinance and the South African National Parks Act, Tomasek and Grosser were fined R84 500 each. This amounts to R169 000, the biggest fine in the history of the Cape Nature Conservation Ordinance. Tomasek has already paid his fine while Grosser is currently appealing against the sentence and was freed on R5000 bail.

Mr Fanie Bekker, Director of Operational Services at CNC, said: "Environmental crime is one of the biggest threats to South Africa's unique natural heritage. Conventional threats like alien vegetation are being managed fairly successfully by conservation agencies. Environmental crime is a quiet killer of biodiversity and also makes substantial inroads into its potential to contribute towards economic growth and job creation, which depend heavily on sustainability of the natural resources as its main ingredient. In light of the above, CNC has established a dedicated Environmental Crime Prevention component that will, in partnership with other role-players, fight this cancer. The impact made in this case, is the start of a few envisaged projects to ensure that a dramatic impact will be made on environmental crime in the Western Cape and beyond."

Issued by
Western Cape Nature Conservation Board, 31 August 2001

Wildlife smugglers fined R168 000 each

Cape Town - Two Slovakian wildlife smugglers, found guilty in the Atlantis regional court last week of illegally collecting suitcases full of tortoises on the Cape's West Coast, received fines totalling R168 000 each yesterday. The two men, Martin Kyskyn and Martin Juricek, both 27, were found guilty on Wednesday last week on three charges of hunting, possessing and transporting the distinctively marked angulate tortoises without permits.

Supplied by
Frank Farquharson (*Mercury*: 13 December 2001)

Unique terrapins hatch at the Pretoria Zoo

Two unique Gabon hinged terrapins have been hatched at the Reptile Park of the National Zoological Gardens of South Africa, in Pretoria. These terrapins, reaching a length of up to 30 cm, are found throughout Central Africa and feed primarily on fish, invertebrates and carrion. The reason for their name is well illustrated by the hinge at the bottom front of the shell. This can close over the head and vital organs to protect the terrapin from any possible danger. Gabon hinged terrapins can remain under water for lengthy periods of time and in the dry season, they dig into the soil where they remain dormant until the first rains arrive.

Issued by
Angiliné Cloete, 4 September 2001

HERPETOLOGICAL ASSOCIATION OF AFRICA MEMBERSHIP FEES AS AT 1 JANUARY 2002

AFRICAN MEMBERSHIP

ORDINARY MEMBERSHIP

1 year membership R100.00. Submit in Rand.

3 year membership R270.00. Submit in Rand.

SCHOLAR:

1 year membership R70.00. Submit in Rand.

OVERSEAS MEMBERSHIP

DOLLAR PAYMENTS

1 year membership \$30.00. Submit in US Dollars by personal cheque or money order.

3 year membership \$80.00. Submit in US Dollars by personal cheque or money order.

Note: Please, no U.S. "postal" money orders, US Dollar "Eurocheques" or Rand Eurocheques.

Members in Europe can now pay the US Dollar equivalent in EUROS by personal cheque or money order.

RAND PAYMENTS FROM OVERSEAS

1 and 3 year memberships - Rand equivalent of US Dollar rate payable by banker's draft or money order (NOT postal order).

Owing to numerous banking problems, members are kindly requested not to submit payments directly to any Building Society or Bank Account. All payments should be made out to the Herpetological Association of Africa and be submitted directly to:

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