NUMBER 62 | JUNE 2015

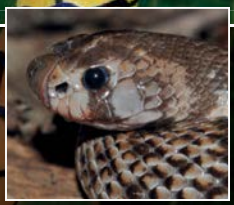
AHN

AFRICAN HERP NEWS

Giant Legless Skinks
Agonistic Behaviour

Serrated Tent Tortoise
Winter Activity

Banded Caecilian
Behaviour



Eastern Shield Cobra
Distribution

HAA | Herpetological Association of Africa

www.africanherpetology.org

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, and short communications – subject to peer review) and *African Herp News*, the Newsletter (which includes short communications, natural history notes, book reviews, bibliographies, husbandry hints, announcements and news items).

NEWSLETTER EDITOR'S NOTE

Articles shall be considered for publication provided that they are original and have not been published elsewhere. Articles will be submitted for peer review at the Editor's discretion. Authors are requested to submit manuscripts by e-mail in MS Word '.doc' or '.docx' format.

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

COVER PHOTOGRAPH: *Dendroaspis jamesoni* from Soyo, Angola. Photograph by: Warren Klein.

AHN EDITORIAL

Welcome to the new-look African Herp News!

I hope you got a nice surprise when you opened your envelope or your email attachment (if you receive the newsletter electronically). The HAA Chairman's Report (this issue) contains some of the detail of the process undertaken in this redesign, so here is a summary. In 2014, the HAA executive committee decided to modernise the look and feel of the newsletter. The process began in earnest in December 2014 following the publication of *African Herp News 61*, which coincided with the end of Warren Schmidt's term as editor for *African Herp News* and the start of mine. Recognising that the redesign would require a professional graphic designer, the committee requested quotes for the design of a new template for *African Herp News*. The HAA committee hired Joleen Coetzee to give *African Herp News* a 'makeover' in January 2015. The product of Joleen's and my efforts, as well as the input of the HAA committee, is what you hold in your hands. Feedback would be welcome. We hope you like it!

While I am very happy with the outcome, I do humbly apologise for the delayed publication of *African Herp News 62*. Not only was I learning the ropes of editing (with much assistance from – and many thanks to – Bryan Maritz, John Measey and Graham Alexander) but I hope you can appreciate the amount of work required to complete the multiple processes that have been undertaken during the redesign. *African Herp News* has been completely overhauled from the size and look to the Instructions to Authors. On behalf of everyone involved in the redesign, I ask you to please pay close attention to the new Instructions to Authors.

It is my hope that we will still be able to publish three newsletters in 2015 – in August/September 2015 and December 2015. This does depend on the submissions we receive so if you are thinking of submitting any novel records, natural history notes, book reviews, or other suitable material that you have in your possession, I encourage you to do so as soon as possible.

I've been asked by the HAA committee to highlight the fact that the *Atlas and Red Data List of the Reptiles of South Africa, Lesotho and Swaziland* has been reprinted. Should you wish to purchase a copy (cost: R400) please contact Johan Marais (**johan@africansnakebiteinstitute.com**). Don't miss out!

Lastly I would like to say a thank you. Warren Schmidt served as editor of *African Herp News*, overseeing the publication of AHN issues 60 and 61. Speaking as a first-time editor, editing a newsletter is a complex job and I would like to thank Warren for his contribution to the HAA and his efforts to improve the editing process for *African Herp News*. Warren set up a Gmail account for *African Herp News* (**africanherpnews@gmail.com**). Please use this email for the submission of articles, notes, reviews or other correspondence to the *African Herp News*. I look forward to hearing from you!

Dr Gavin Masterson

Editor: African Herp News
June 2015

HAA CHAIRMAN'S REPORT 2014

The core business of the HAA should be to contribute to the effective management of the herpetological diversity of Africa, to provide an outlet for the publication of herpetological information, to coordinate opportunities for interaction and networking between herpetologists, and to improve public perceptions of reptiles and amphibians. As for publication outlets, I can say, without fear of contradiction, that the HAA provides two excellent outlets for the publication of not only research results (*African Journal of Herpetology*), but also for a wide range of other relevant information *(African Herp News*). *African Herp News* (*AHN*) plays an extremely important role in that it serves as outlet for anecdotal biological data, survey reports, conservation reports, etc. This is information that would otherwise have been inaccessible to the herpetological community. I would like to urge HAA members, particularly those at conservation agencies, to publish reports and survey results in the *AHN*. Realizing the importance of *AHN* as an outlet, the HAA committee has decided to upgrade publication to something similar to *Froglog* and to make use of a professional designer in the future. Unfortunately, the editor of *AHN* recently resigned due to work pressure. The HAA would like to thank Warren Schmidt for his sterling work during his short term as *AHN* editor. Gavin Masterson has been appointed as interim editor until the next HAA election.

The official journal of the HAA, *African Journal of Herpetology* (*AHN*), is on a continuous upward curve. This trend is thanks to the efforts of our extremely competent editor, John Measey. This year saw the fourth consecutive increase in Impact Factor that the *AJH* has had and it is also over 1.0 for the first time in its ratings history. I want to congratulate John on this wonderful achievement. The *AJH*'s association with Taylor & Francis seems to be a very positive one and our contract with them will be renewed for another term (see the Editor's Report). The HAA would also like to thank Taylor & Francis for sponsoring the Don Broadley prize for the best student paper published in the journal per two year cycle. The prize for the latest cycle was awarded to Daniel Portik of Villanova University for the following paper:

PORTIK, D. M. & BAUER, A. M. 2012. Untangling the complex: molecular patterns in *Trachylepis variegata* and *T. punctulata* (Reptilia: Scincidae). *African Journal of Herpetology* 61: 128-142.

Promoting herpetological research in Africa is a wide-ranging aim that probably includes all the other aims of the HAA. To my mind, however, one of the most important aims should be to continue to play an active role in securing lecturer/research positions for herpetologists at academic institutions. Without herpetologists in positions where they can attract and train new students in herpetology, the future of the HAA and

herpetological research would surely be bleak. The HAA should continuously be on the alert with regard to job opportunities at academic institutions and all its members should work together to ensure that potential candidates are informed of upcoming opportunities. In this regard, the HAA would like to congratulate Bryan Maritz on his recent appointment at the University of the Western Cape. The HAA would also like to thank Graham Alexander for nurturing this fine young man into the system. We also would like to thank Retha Hofmeyr and Alan Channing for their herpetological legacy at UWC, which surely played an important role in the appointment of a herpetologist in one of the openings created by their recent retirement. Retha and Alan trained many students in herpetology and we thank them for that. Fortunately, both will continue with their research after retirement and we wish them all the best with their endeavours.

Financial assistance to students, either in the form of scholarships or for conference attendance, has been discussed in depth at the 2013 HAA General Meeting in Pretoria. We gave all students attending the Gobabeb conference a R500 discount, but hope to increase our assistance to students for the next conference. This year (2014), the HAA was fortunate in receiving additional assistance for student funding. Breck Bartholomew of Zen Scientist.com, who handles the overseas membership payments of the HAA, has established the ZenScientist.com Grant Fund and wants to offer grants to societies for which he acts as a subscription agent. The first grant, for 2014, was earmarked for the HAA. Via a notice on the association's website, all HAA student members (regardless of country of residence) in good standing (currently enrolled in a university degree program), who are working in any area of original research on African herpetology (Africa taken to include the continent of Africa, Madagascar, the Canary Islands, Cape Verde Islands, Gulf of Guinea Islands, Mascarenes and Seychelles) were invited to apply for the grant for US $500 (later raised to US $700). A panel of three HAA members, Bryan Maritz, David Blackburn, and Andrew Turner (chaired by Bryan) reviewed the applications on the basis of scientific merit, appropriateness of budgets, and overall feasibility, and proposed that the scholarship be awarded to Walter Taponjou of the Republic of Cameroon. Mr Taponjou is a fully paid-up student member of the HAA. He is enrolled for a PhD course in Zoology at the University of Yaounde I, Republic of Cameroon. One of his supervisors is Professor Krystal Tolley of the South African National Biodiversity Research Division.

As for involvement in the management of herpetological diversity, the HAA played a central role in the compilation of the Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland, that was published in 2014. We congratulate the editors and all contributors on producing this fine publication.

The HAA continues to fulfill its role as coordinator of network opportunities in organising a conference every second year for herpetologists to interact and network. The selection of the Gobabeb Research & Training Centre, Namibia, as conference venue by the HAA Committee was a bold one, given the remoteness of the venue. However, given the fact that the HAA is an African society, it was

and will be extremely important to think wider than South Africa. The number of delegates that attended the Gobabeb conference is a clear indication that the remoteness of the venue did not negatively affect attendance. I would also like to point out that the venue choice made it possible for four students of Polytechnic of Namibia to attend the conference. I would like to thank Theo Wassenaar and Jill Heaton for facilitating the attendance of these students. The HAA committee decided to award a one-year HAA membership to Novald Iiyambo, Martin Handjaba, Cammy Ndaiwah, and Klaudia Amutenya, provided that they submit a conference report to the HAA committee. Committee members will also act as mentors for the four students for the next few years.

Since my election as HAA Chairman in November 2013, acting as convener for the 12th HAA Conference has occupied most of my effort as Chairman. Back in 1987, I was convener of the 1st HAA conference, and perhaps it is fitting that the last conference I intend attending is the present HAA one and that I had the privilege to be involved in organizing it again. Unlike for previous conferences, no local organizing committee was appointed, and it was up to the HAA committee to do the organizing. I must admit that, at times, it was extremely frustrating and time consuming to have discussions via email, but in the end we got everything done in time. A special word of thanks must go to the following people for having gone that extra mile. Aaron Bauer has been highly efficient as our liaison person with the Gobabeb Station. His experience and overall vision were extremely valuable to me. Graham Alexander did a wonderful job in compiling the conference program and his willingness to act as conference master of ceremonies on my behalf probably saved me from many embarrassing moments. Buyi Makhubo did a sterling job dealing with the general conference administration. If there is one person that did more than anybody else then it is she. Her dedication and enthusiasm made everything just so much easier. She also spearheaded the design of our conference logo. Because John Measey works in the same building as I do at Stellenbosch University, he was always there when I needed advice. His enthusiasm for HAA matters is a great inspiration to me. John, with the help of Andrew, was also responsible for setting up the conference website. Warren Schmidt organized the conference T-shirts. The other committee members also did their part in one way or another and I would like to thank them all. On behalf of the HAA, I would also like to thank Mary Seely for her introductory talk at the conference and the staff of the Gobabeb Research & Training Centre for hosting us. They have gone out of their way to make this a memorable event.

One non-committee member that needs special mention is Bryan Maritz. Bryan applied for NRF-funding in order to bring Harry Greene out to South Africa and also to have him as plenary speaker at the 12th HAA Conference. The presence of Harry contributed significantly to the success of the conference. Bryan also coordinated the photo competition at the conference. He continues to show a keen interest in HAA matters and the future of the HAA certainly looks very positive given his and several other young scientists' enthusiasm.

It was unfortunate that neither the founder of the HAA, Don Broadley, nor Wulf

Haacke, could attend the Gobabeb meeting. We want to thank both of these gentlemen for their continued close links with and support of the HAA and wish them good health for many years to come. Bill Branch always adds tremendous value to any scientific meeting and the Gobabeb meeting was no exception. Both the photo quiz and auction run by Bill were tremendous successes. I must point out again how fortunate the HAA is to have two such formidable ambassadors as Bill Branch and his close friend Aaron Bauer in our midst. These two gentlemen have been serving the HAA with distinction for more than 30 years now and have been an inspiration for other herpetologists on the subcontinent.

At the Gobabeb conference, we were again able to award prizes for the best student presentations and I would like to thank John Measey for securing suitable prizes. The prize for the best MSc presentation was awarded to Ashadee Miller from Wits University and for the best PhD presentation to Chris Broeckhoven from Stellenbosch University. The prize for the best poster went to Stuart Nielsen from the University of Mississipi.

Before the Gobabeb meeting, we have already received two tentative proposals for a venue for the next meeting, namely the Natural History Museum of Zimbabwe in Bulawayo, and North West University, Potchefstroom. During the conference a third proposal was added to the list, namely somewhere in Kwazulu Natal. At the HAA General Meeting this last proposal received overwhelming support and James Harvey tentatively agreed to act as coordinator for the 13th HAA Conference to be held early in 2017.

I want to end my report by saying thank you to my committee members for their dedication and support throughout the year. Not only the two editors, but also Buyi Makhubo (secretary) and Johan Marais (treasurer) had particularly rough times and a special word of thanks goes to them. I wish all HAA members a joyful festive season and a happy 2015.

P. le Fras N. Mouton

Chairman: Herpetological Association of Africa
Gobabeb, 22 November 2014

AFRICAN JOURNAL OF HERPETOLOGY EDITOR'S REPORT

This report covers my third period as editor for *African Journal of Herpetology* (January 2013 to December 2014). In this period, *AJH* has shown steady growth in terms of sales, downloads, citations and impact. The upward trend for all of these metrics is a very positive sign, and we hope that they serve to reflect an increasing interest from our readership in the material published. As always, we'd be interested in hearing your comments either to me (as editor), or to the Chair of the Editorial Board (Prof. Graham Alexander).

TAYLOR & FRANCIS PUBLISHING AJH

We are nearing the end of the first five year agreement with Taylor & Francis (T&F), and the HAA committee have renegotiated a second five year term for this contract. The benefits to members from this relationship include free access that members continue to receive to all *AJH* articles right back to Volume 1 in 1965 via the T&F website (**http://www.tandfonline.com/toc/ther20/current**; see below).

HOW TO ACCESS YOUR FREE CONTENT

- Go to Taylor & Francis Online (www.tandfonline.com) and register your email address. The 'Register' option is at the top of the page in blue text.
- To create your account, enter your name, organization, country and email address. Then enter and confirm a password, tick the box to confirm your acceptance of terms and conditions and enter the information for the Captcha security question. Once complete, click the 'Register' button at the bottom of the page.
- Next, you will receive an automated confirmation email with a link and explanation of how to verify your account. Please follow these email instructions. Note that adding the address support@tandfonline.com to your Safe Senders list in your email software will ensure that emails regarding the set-up are not caught in spam filters or junk folders.
- Next, you will receive an automated confirmation email with a link and explanation of how to verify your account. Please follow these email instructions.
- Then you will see a welcome screen. Click your name at the top of the screen. Click on 'Access Entitlements' on the menu option on the left-hand side of the next screen. You should now see *African Journal of Herpetology* listed as your subscription on the next page.

- Click on the Journal's name to browse all volumes and issues of the Journal. You should see that all articles are adjacent to green icons and text saying 'Full access', enabling you to read and download as part of your HAA membership.

Enjoy reading *African Journal of Herpetology* at Taylor & Francis Online. If you experience any difficulties, or have any queries about accessing the Journal online, please do not hesitate to contact **support@tandfonline.com** for assistance.

Our partnership with T&F and their online platform helps increase visibility of *AJH* throughout the academic world. In the last 2 years, 7 568 copies of 636 different *AJH* articles were downloaded by a total of 628 institutions around the world; number one in this period was the Universidad de Chile with 306 downloads. We can also see which articles were downloaded. Congratulations to Alan Channing and Kirsty Wahlberg (2011) for their article "Distribution and conservation status of the desert rain frog *Breviceps macrops*" for having the top downloaded paper, with 293 downloads. Other highly downloaded articles were Poynton (2013) and Measey (2011), which both exceeded 200 downloads during the past 2 years.

For submissions, we continue to use an online system (ScholarOne: mc.manuscriptcentral.com/ther) which really helps ease the complexities of editorial work. The ScholarOne system produces its own metrics which were carried in the last report, and continue below. The following metrics (Tables 1 & 2) relate to the 2013 and 2014 activity for *AJH* on ScholarOne:

Table 1. Types and number of submission to the *African Journal of Herpetology*.

SUBMISSIONS:	MINI-REVIEWS	REVIEWS	ORIGINAL ARTICLES	SHORT COMMUNICATIONS
	0	2	32	10

Table 2. Processing time of manuscripts submitted to the *African Journal of Herpetology*.

SCHOLARONE METRICS	DAYS
Average Time to First Decision	20
Average Referee Turnaround Time	23.3
Average Time to Final Decision:	25.6
Proportion Accepted	33.8%

ASSOCIATE EDITORS

Work on the journal has been achieved through a concerted effort from a committed editorial team. I'd like to take this opportunity to thank all the Associate Editors (AEs): Jörn Khöler (Hessisches Landesmuseum Darmstadt), Bryan Maritz (now at University of the Western Cape), and Eli Greenbaum (University of Texas at El Paso). AEs take on an important and vital role, investing a lot of time in reading and assessing manuscripts, reading reviewer's reports and making recommendations. It is important to note that the work of AEs consistently increases the quality of manuscripts submitted. Here I welcome Ed Stanley (Californian Academy of Sciences) who is taking on a new position as Associate Editor, and say a special thank you to Dave Blackburn (Californian Academy of Sciences) who finished his 5 year term as Associate Editor at the end of 2014.

THE DON BROADLEY PRIZE FOR EXCELLENCE IN AFRICAN HERPETOLOGY

Candidates for the prize come from students who publish in *African Journal of Herpetology* in the two years prior to the judging. Judges are drawn from the editorial board of *AJH* under the leadership of the Chair of the Editorial Board, Graham Alexander. The winner is Dan Portik for his article: "Untangling the complex: molecular patterns in *Trachylepis variegata* and *T. punctulata* (Reptilia: Scincidae)." Dan wins $500 and his article will be freely access for the next 6 months. You can read it *here*. (Ed - The six months of free access has now lapsed.)

SPECIAL EDITION

A special edition of *African Journal of Herpetology* (Volume 64; Issue 2) will appear in 2015 to celebrate 50 years of the journal. If you wish to contribute or organise a special edition of the journal, please contact the editor.

IMPACT FACTOR

African Journal of Herpetology continues to rise through the ranks of impact factors. Our Impact Factor (IF) reached 1.077 for 2013 (from 0.714 in 2011). This is the first time that the journal has achieved an IF greater than 1, and means that on average each publication is cited once every two years. *AJH* is now in the top half of all zoological journals indexed.

The metrics are considered to be a measure of quality of a journal, and the editorial team would like to thank all of our authors for their high quality contributions. It is also noteworthy that every submission to *AJH* is improved by peer review, and we are greatly indebted to all the reviewers who have given their valuable time to improve the quality of our submissions.

John Measey

Editor: African Journal of Herpetology

HAA TREASURER'S REPORT 2014

The HAA finances are healthy with a bank balance of R242,096.03 in one ABSA account and an amount of R192,582.07 in another on 30 November 2014. These amounts include income for the Gobabeb conference but exclude the conference payments. Other than that the financials of the HAA are in a terrible state and audited books for the last three of four years are outstanding. I am working on resolving this with the accounting firm that has been trying to get everything up to date.

The accounting firm recommended that we operate from one bank account and close the second one. This was discussed at a HAA committee meeting at Gobabeb and arrangements will be made to close one of the accounts. I aim at getting the financials and audits up to date within a few months.

Johan Marais
HAA Treasurer
HAA Conference at Gobabeb, Namibia

Photo Johan Marais

HAA SECRETARIAL REPORT 2014

MEMBERSHIP STATS

At the end of 2014, HAA membership was as follows:

	2013	2014
AFRICAN MEMBERS	130	147
OVERSEAS MEMBERS	122	116
SUBSCRIPTIONS FOR AFRICAN HERP NEWS ONLY	6	4
TOTAL MEMBERSHIP	258	267

This is an overall increase to 267 paid memberships since February 2013.

New members for 2014 (until 30 October 2014): 19 (13 African, 06 Overseas).

Overseas membership is handled by Breck Bartholomew (ZenScientist/Bibliomania) and this system is working well, with 35 paid renewals of the 116 memberships since February 2014.

Renewal notices were not sent out to African members in 2014. There is a renewal drive planned for January 10, 2015; a second reminder for 31 January 2015, and a final reminder for 30 March 2015. I anticipate a great response, especially from African members. The HAA membership database needs thorough sorting (removal of lapsed members, capturing of correct contact info, sorting of columns to capture the info).

At the last HAA committee meeting the question was raised when lapsed members should be removed from the mailing list? It was agreed that after two years of non-payment, members will be removed from the database.

There are currently 23 student members (all African). Increased visibility of the HAA in social media is needed to attract more students. Another suggestion is for university professionals to promote the HAA among their students as the student rates are discounted. New members can be attracted this way.

SUBSCRIPTION MANAGEMENT

There is a need for central management of back-issues due to the relatively high turn-over of committee members, the matter of storage of back-issues and the cost of posting, as well as daily input required for subscription management. The National Museum, Bloemfontein received back-issues of *AHN* and these will be stored there. An account with the museum is needed, and will be set up as of 2015 to cover the costs of posting back issues to members. Johan Marais saw no problem in transferring funds to this account for postage costs. I will liaise with Johan and the museum CFO to get this account set-up.

NISC in Grahamstown handles the distribution of *AJH* in South Africa. I hardly ever receive responses to emails I send to NISC regarding posting back issues of the journal to members. So, it is difficult to know whether they actually received the requests or not. Andrew Turner has some back issues. Graham Alexander will send through pdfs. Several *AJH* copies of previous issues from Wits were deposited at the National Museum for storage and distribution. Post Office strike may have affected the delivery of back issues.

AHN 61 is ready for distribution (pdf). The prolonged Post Office strike is most likely to affect the distribution of the hard copies of *AHN* 61.

POSSIBLE NEW MEMBERSHIP DUES STRUCTURE

Membership fees will remain the same for the year 2015.

AFRICAN MEMBERSHIP	1 YEAR	R200	3 YEARS (10% DISCOUNT)	R540
STUDENT MEMBERSHIP	1 YEAR	R150	3 YEARS (10% DISCOUNT)	R400
SENIOR CITIZENS	1 YEAR	R100	3 YEARS (10% DISCOUNT)	R270
OVERSEAS MEMBERSHIP	1 YEAR	$60	3 YEARS (10% DISCOUNT)	$160

Buyi Makhubo

Secretary: Herpetological Association of Africa
November 2014

Photo Johan Marais

DEVELOPING A GLOBAL COMMUNICATION NETWORK FOR HERPETOLOGISTS

The World Congress of Herpetology (WCH) is an international organisation whose primary goal is: "**to promote international interest, collaboration and co-operation in herpetology**". To date this has been achieved by successfully hosting seven world congresses in locations around the world (Fig. 1). The 8th WCH will be hosted in Hangzhou, China and will complete the location of these meetings in all zoogeographic regions of the world.

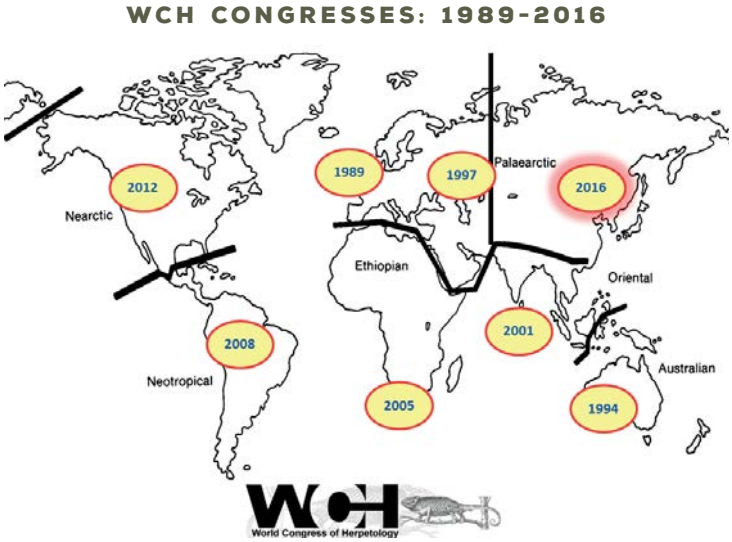


Figure 1. Years and regional locations of the WCH congresses hosted between 1989 and 2012. The 8th WCH congress will be held in Hangzhou, China between the 16-21 August in 2016.

In addition to providing this important role, we are now inviting herpetologists around the world to join an exciting new WCH initiative to develop a global communication network for herpetologists. The objective is to provide a global framework linking individual herpetologists, with local, national, and regional herpetological societies around the world, using an integrated email, www sites, and social media network.

The WCH Global Communication Network for Herpetologists has been initiated to provide a rapid form of communication among herpetologists around the world, linking students, professors, and professional herpetological organisations through the World Congress of Herpetology (Fig. 2).

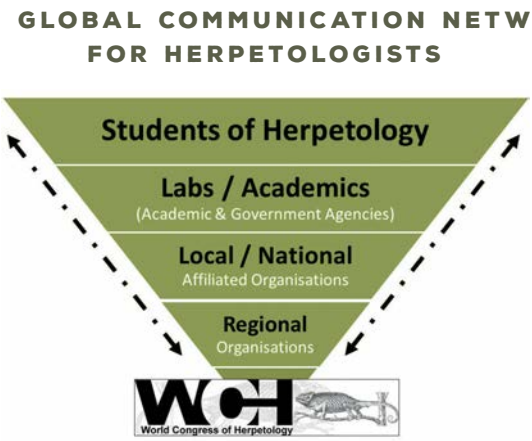


Figure 2. A conceptual model for developing the WCH Global Communication Network for herpetologists. Individuals can link directly via Facebook and other social media, and organisations can share web pages and email list servers.

Affiliated organisations form an important role within the WCH constitution (Fig. 3) and can facilitate opportunities to connect individual herpetologists around the globe. To promote regional participation in WCH activities, affiliated organisations are encouraged to nominate a member to represent their organization and region on the WCH International Herpetological Committee.

WCH CONSTITUTION: ARTICLE 7. AFFILIATED ORGANISATIONS

The Executive Committee, at its discretion, may confer upon particular international, transnational, national, and regional societies or associations of herpetologists in any country the status of an Affiliated Organisation. The governing body of each such organisation is thereby eligible to submit to the Executive Committee, at least three months prior to a congress, one nomination for membership of the International Herpetological Committee. Affiliated Herpetological Organisations will be listed on the WCH website with links to their website where appropriate. No other rights are conferred upon an Affiliated Organisation. The Executive Committee, at its discretion, may withdraw the status of an Affiliated Organisation.

Figure 3. An extract from the WCH constitution outlining the role of "Affiliated Organizations".

The global WCH communication network will disseminate information about:

- Local and national herpetology labs, and organizations, located within each region;
- Local, national, regional, and WCH conferences and workshops in herpetology;
- Studentships, scholarships, and volunteer opportunities for students in herpetology;
- Career opportunities such as postgraduate scholarships, postdoctoral positions, jobs for herpetologists;
- Research activities that have an international perspective and global participation.

The WCH communication network will engage with affiliated individuals and organizations using all opportunities available. Current media include:

1. Active links between websites, including both organizations and individual labs organized within regions, via an interactive global map on the WCH website (WCH URL: http://www.worldcongressofherpetology.org/);
2. Reciprocal sharing of logos on our respective websites;
3. Linking Facebook pages via the WCH Facebook page (https://www.facebook.com/pages/World-Congress-of-Herpetology/141951465828807);
4. Actively disseminate information using social media networks (e.g., WCH Twitter hashtag: # WCHerpetol);
5. Provide email notifications to individual herpetologists around the world, distributing through individual, local and regional email list-servers.

In my role as WCH Secretary General, I would like to personally invite individuals and organizations to join this network, and where possible, encourage your local organisation to become “Affiliated” with the World Congress of Herpetology.

If your organisation joins this exciting new initiative, I would also invite your organization to appoint a “WCH Representative” to provide an active link between WCH and your organisation. The primary role of the nominated WCH representative would be to share and pass on information from your society membership to the WCH and vice-versa (through a regional hub). The Representative will be a direct link for communication and will mediate the flow of information to the broader community, and ensure that only relevant professional information is transmitted in either direction.

The WCH Representative would organise and nominate regional candidates for other WCH initiatives such as the "WCH awards in Herpetology, and the WCH Hall of Fame". The WCH representative would also be encouraged to nominate for positions on the WCH committees and attend WCH meetings (Fig.4).

Figure 4. First advertisement for the 8th World Congress of Herpetology to be held in Hangzhou, China between 15th and 22nd of August 2016.

Please consider this invitation as an inclusive opportunity to internationalize and strengthen herpetology. I look forward to engaging with individuals and organization representatives to develop a WCH communication network linking herpetologists around the world.

Professor Jean-Marc Hero
Secretary General for the World Congress of Herpetology
Environmental Futures Research Institute,
School of Environment
Griffith University, Australia
Email: m.hero@griffith.edu.au

TYPHLOPIDAE

Afrotyphlops schlegelii Bianconi, 1847

SCHLEGEL'S BEAKED BLIND SNAKE

TERMITE MOUND ACCESS BEHAVIOUR

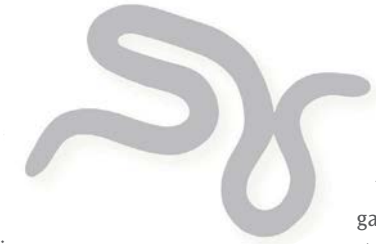


Photo for image reference provided by Johan Marais

Blind snakes (Typhlopidae) are snakes with a Gondwanan origin, are basal to other extant snakes (Vidal *et al.* 2010) and feed on small social insects and their larvae, such as termites (Branch 1998; Cundall & Greene 2000). Although they are frequently found within active termitaria where they gorge themselves (Branch 1998; Webb *et al.* 2001), it has not been described how individuals may gain entrance to termitaria with no obvious large external openings above ground. Termites build mounds using subsoil particles (incorporating clay) that they masticate with their buccal appendices and mandibles. During this process, termite workers cement soil particles with variable quantities of salivary secretions and faeces (Pereira 2008), which results in a three times greater resistance to penetration than that of the surrounding soil (Ackerman *et al.* 2007).

At 07:00 on 22 October 2012 while visiting the Kruger National Park (KNP) near Punda Maria (along the northern leg of the Mahonie Loop, near Witsand; approximately 22° 39' 52" S, 31° 00' 01" E), BB filmed a Schlegel's Beaked Blind Snake excavating a hole in the side of an active termitarium after which it gained access and entered the termitarium completely. Based on the size and architecture of the termitarium, the termite species belonged to the genus *Macrotermes* (Uys 2002), which accounts for 62.4 % of all active termitaria in northern KNP (Meyer *et al.* 1999).

The snake (approx. 60 cm in length) was observed in a near-vertical position on the side of a dry termitarium using its head to vigorously bore into the wall of the mound (Fig. 1). Wet and jelly-like slurry was observed flowing from where the snake was actively burrowing to approximately 10 cm below this (Figs 1-3). Occasionally, an exhaled air bubble from the snake appeared close to its head, which immediately collapsed indicating that the water percentage in that part of the slurry was high and/or the viscosity low. As the snake moved while boring into the mound, it occasionally pushed a coil over the lower slurry which easily deformed, indicating that it was soft (Fig 2). Ants (Hymenoptera: Formicidae) originating from outside of the mound, did not get stuck when walking over the slurry and no ants attempted to

walk over the snake itself or the jelly-like slurry near the snakes' head. Approximately 19 minutes after the start of the observation, the snake started to wriggle itself into the mound with considerable effort and disappeared into it (Fig. 3).

While the burrowing force of the blind snakes is well known to anyone who has handled a live specimen, the observed behaviour of a Typhlopid snake vigorously boring into a termite mound to gain entrance via the ground surface is the first of its kind to be documented, as far as the authors are aware. Presumably, access to termite mounds can be more easily gained below ground where such observations are not possible.

Two main questions are raised by this observation:

1. What factors (time, mound entrance location, motivation) are likely to influence the observed behaviour?
2. What is the origin of the wet slurry flowing from the area where the snake was excavating?

Figure 1.
Afrotyphlops schlegelii on the side of a termite mound while trying to open the mound.

Figure 2.
Afrotyphlops schlegelii digging into the mound, showing its forked tongue (arrow) and the extent of the muddy mixture (yellow line).

Figure 3.
Afrotyphlops schlegelii entering the mound at the end of the observation period.

FACTORS INFLUENCING BEHAVIOUR

Blind snakes are fossorial and usually only move above ground during warm moist nights (after rain) in search of prey and mates (Branch 1998; Spawls *et al.* 2004). As they have reduced eyes and therefore poor eyesight (Hutchins *et al.* 2003), their location of prey and mates

is most probably based on their sense of smell. After studying *Leptotyphlops*, *Typhlops* and *Ramphotyphlops*, Webb & Shine (1992) suggested that the evolutionary reduction in eye size increased the fossorial snakes' reliance on chemoreception, which is of considerable importance in foraging biology e.g., for prey location by scent-trail-following. These authors also reported that *Ramphotyphlops nigrescens* may locate ant nests by detecting chemical deposits left by workers in the area surrounding the nest, and following this chemical gradient 'trail' back to the nest. Such use of chemoreception has been described in various reptiles such as the blind fossorial worm lizard *Blanus cinereus* (López & Martín 1992) and may well be the method Schlegel's Beaked Blind Snake used to locate the termite mound in KNP. It can be expected that termite scent rising from within the relatively warm (~30 °C) central chamber of the mound (Darlington 1991; Field 2012; Field & Duncan 2013) was detected more easily in the cool night/early morning near the air channels of an active termite nest. This may explain the activity of this mostly nocturnal species during daylight as this species is known to feed on termites, although the majority of their diet (>88%) consists of ant larvae and pupae (Webb *et al.* 2001).

ORIGIN OF WET SLURRY

Given the lack of recent rain before this observation, the observed dry field conditions and the highly improbable possibility of a moist "pocket" inside the termite mound, it appears that the moisture originated from outside of the mound in a very localized area. Although soil on termitaria is well known to contain higher soil moisture than the surrounding matrix soils (Konaté *et al.* 1999, Jouquet *et al.* 2011), we know of no study documenting mounds containing water in a liquid form. Furthermore, the existence of such pockets is highly unlikely because of the architecture of *Macrotermes* mounds, which consist of several passageways and subterranean storage chambers (Uys 2002). Such architecture is conducive to water flowing downwards, under gravity, rather than being located in the above-ground area of the mound. Moreover, if water were to be stored above-ground, the termite colony would run the risk of either the royal chamber (where the queen lives) or the fungus comb (the source of the colony's food) being flooded and killed, leading to the death of the entire colony. Indeed, *Macrotermes* in KNP have been observed to build mounds above seeplines, presumably to avoid inundation from flooding (Levick *et al.* 2010, Davies *et al.* 2014) and where water accumulation on mounds has been recorded, it has been at the base of the pediment rather than part way up the mound carapace (Dangerfield *et al.* 1998). Instead of storing water in their mounds, fungus-growing termites (Macrotermitinae) retrieve it from below ground, going down as deep as the water table (Holt & Lepage 2000). The possibility that faeces or urine from another animal could have been the source of the moisture is ruled out because this moisture was contained within a very localized area around where the snake was digging and it appeared to "flow" outward from where the snake was excavating (Fig. 2). We therefore suggest that the snake itself was responsible for generating this moisture and develop several testable hypotheses below that

attempt to explain how this could be possible.

The snake could generate the required moisture by simple regurgitation of fluid or through the production of a glandular secretion. Blind snakes can ingest large quantities of water in a single bout of drinking (e.g., Kley 2001; Kley 2013, pers. communication) and triggered by some cephalic phase, inducing intestinal action, ingested fluid could possibly be regurgitated. Voluntary regurgitation to aid in digging has never been reported for any reptile and this would be a very costly strategy since ingested food would be lost through this process. Glandular secretion is a more likely explanation for the origin of the fluid as all reptiles possess salivary glands that lubricate food and begin the process of digestion (Hutchins *et al.* 2003) and Scolecophidia (Infraorder to which Typhlopidae belong) have discrete glands of unknown function in the head (Greene 1997; Spawls *et al.* 2004).

While attempting to open the mound, the snakes' head was digging into what looked like thin mud or slurry. If a glandular secretion from the snake is supposedly the origin of the fluid used to make the mud or slurry, then it is important to discuss 1) the likely physiological mechanisms for production, 2) the volume of fluid in the slurry and 3) its chemical composition. Since this observation was made inside a national park, it was unfortunately not possible to alight from the vehicle and take samples of the slurry.

PRODUCTION OF THE FLUID

Glandular secretions are usually activated by an external stimulus. In this case, it is proposed that the scent of termites causes the production of glandular secretions, similar to during a feeding event. However, due to the absence of termites in the mouth, a swallowing reflex fails to appear and the snake begins to drool. It may be argued that blind snakes will not salivate during the digging process as the mouth must be kept shut in order to prevent ingestion of soil. However, the regular appearance of its tongue out of the mud (arrow in Fig. 2) suggests that glandular secretions may leak out of the mouth without necessitating the opening thereof. As mentioned previously, Scolecophidia have discrete glands in the head with unknown function and chemical composition of the various glandular fluids (Smith and Bellairs 1947; Taub 1966; Greene 1997; Spawls *et al.* 2004). Since all reptiles possess salivary glands as an important part of their digestion system, (Hutchins *et al.* 2003) it can be assumed that one or more of the blind snake's glands produce fluid like the saliva found in other species and we therefore refer to this fluid as saliva.
A relatively large volume of slurry (3-5 ml) was observed, which would require a relatively large volume of glandular secretions by the snake, if this is indeed the origin of the fluid. This secretion production could most likely only be achieved by such a small animal over a relatively long time span such as a few hours. This may explain the unusual observed activity of this nocturnal species during the day as it probably initiated the digging process several hours earlier and continued into the daylight hours. Although saliva production and composition has been studied in many species, there exists no literature in this regard for blind snakes and consequently scientific research of the physiology of the glands

in the head of blind snakes and the chemical compositions of their secretions is required.

CHEMICAL COMPOSITION

Female tortoises excavating holes to lay eggs often urinate in the hole while digging, presumably to soften the ground and increase digging efficiency (Branch 1998) since the addition of some fluid will facilitate the digging process. However, due to the very hard exterior of termite mounds and the long evolutionary relationship between termites and blind snakes, we hypothesize that blind snake glandular secretions may contain enzymes capable of facilitating the disintegration of the termite mound. Firstly, the evolution of venomous snake glandular secretions led to prey-specific venom activity (e.g., Vonk 2012), indicating that apart from phylogeny and ontogeny, biogeography and diet are important factors in the evolution of snake glands and the composition of their secretions. Blind snakes have a Gondwanan origin (Vidal *et al.* 2010) and termite fossils appear about 130 million years ago in early Cretaceous deposits (Lo *et al.* 2003), allowing for a much longer time for predator-prey evolutionary adaptations to occur than for the highly specific venoms of venomous snakes and their prey. Secondly, the hard exterior of termitaria is achieved by worker termites cementing soil particles, particularly clay, together using salivary secretions (enzymes, hydrocarbons and non-digested lignocellulose) and fecal excretions (rich in organic matter), thereby gaining higher bulk density and reduced porosity of the soil (e.g., Pereira 2008, Jouquet *et al.* 2004, Field 2012). Since termites form a noteworthy component of blind snake diet (Webb *et al*. 2001), and they are certainly capable of digesting termites, it is reasonable to speculate that blind snake glandular secretions could contain enzymatic compounds capable of digesting the termite saliva and faeces found within the mound soil and therefore soften it beyond mere wetting.

CONCLUDING REMARKS

Apart from the obvious physiological research required to determine the function of the discrete glands in the head of blind snakes as well as the composition of their secretions, initial experiments to test our hypotheses should compare the degradation of *Macrotermes* termitaria material when mixed with either water or a small volume of blind snake saliva and should determine whether *A. schlegelii* specimens start drooling when exposed to airflow containing concentrated termite scent. Our observation of a blind snake accessing a termite mound will hopefully trigger further scientific research of these interesting and understudied animals.

ACKNOWLEDGEMENTS

The authors wish to thank Dr Donald G. Broadley for his initial input and Dr N.J. Kley for sharing the information of *A. schlegelii*'s behaviour in the laboratory and for his references on glands in blind snakes.

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COLUBRIDAE

Philothamnus natalensis occidentalis Broadley, 1966

WESTERN NATAL GREEN SNAKE

Photo for image reference provided by Johan Marais

REPRODUCTION

The Western Natal Green Snake (*Philothamnus natalensis occidentalis*) was first recorded from Swaziland about two decades ago (Boycott 1992a). Broadley (1983) records an intergrade between *P. n. occidentalis* and *P. n. natalensis* from Tshaneni in the Swaziland lowveld. *P. n. occidentalis* is currently known from eleven localities in western Swaziland. Marais (2014) plots two *P. n. natalensis* localities in western Swaziland that are probably attributable to *P. n. occidentalis*, given the range of *P. n. occidentalis* as depicted by Jacobsen (1989) and Boycott (1992b).

In April 2011 a large specimen was collected in the vicinity of a guest cottage at Brackenhill Estate, Mbabane, Swaziland (2631AC; 26° 17' 45" S, 31° 09' 32" E; 1280 m a.s.l). Towards the end of March it had been observed copulating in the lower branches of a tree outside the cottage. On examination the specimen was identified and confirmed as a female. With 176 ventral scales and 115 subcaudal scales this specimen falls within the range given for females by Broadley (op. cit.). The snake's total length measured 835 + 360 = 1195 mm, representing the largest specimen so far recorded from Swaziland. The body colour was lime green to dark green and over the anterior part of the body indistinct black chevrons were present. When the skin was distended, blue-white flecks at the edges of many scales were revealed as was the black interstitial skin. When agitated the snake partly inflated its body to reveal the flecks and this also made the keels on the ventral surface more prominent.

Two additional female specimens have been recorded from Swaziland. A gravid female (TM78903) was collected next to the Malolotja River, in the Mahulungwane Gorge, Malolotja Nature Reserve on 6 October 1992 (2631AA; 26° 04' 05" S, 31° 06' 07" E; 780 m a.s.l.). It has a total length of 730 + 187 = 917 mm and the tail is truncated. The second female (Durban Museum DM1713), also gravid, was collected from the Ngwempisana River, near Mankayane on 18 October 2002 (2631CA; 26° 43' 01" S, 31° 00' 01" E; 900 m a.s.l.). It has a total length of 695 + 312 = 1007 mm. With scale counts of 168 ventrals and 116 subcaudals this specimen also falls within the range for females given by Broadley (1983).

The oviducts of the Ngwempisana specimen (DM1713) contain 12 eggs with the largest (closest to the exit of the oviducts) measuring 37.4 X 11.7 mm. Three other eggs measured 30.9 X 14.0 mm, 30.0 X 15.5 mm, and 34.5 X 12.7 mm and these were respectively the 4th and 5th closest to, and the furthest from, the

cloaca. Broadley (1983), Branch (1998) and Marais (2004) provide no specific breeding data for *P. n. occidentalis*. Jacobsen (1989) records a female from Mariepskop that laid 9 eggs in October measuring 27.5 to 32.0 mm X 11.4 to 12.3 mm. Another clutch of 15 eggs laid over a twelve day period in October, was recorded from a second Mariepskop specimen by Greiff (1999). These eggs measured 25.7 to 33.3 mm X 13.5 to 15.6 mm. By comparing the egg sizes from the various clutches (Table 1), the eggs contained within the Ngwempisana specimen must have been close to being laid. The date of collection would also support oviposition in October, as has been recorded for the others (Table 2).

Excluding the phenomenon of sperm storage by females over more than a year, Broadley (1983) states that eggs are usually laid from 4 to 8 weeks after copulation. With reference to the observations presented above, it can be extrapolated that in this snake, a considerable period of time may pass before oviposition occurs. In conclusion, with copulation being observed in March and oviposition in October, the gestation period for *P. n. occidentalis* could be as long as six or seven months. In this subspecies the recorded clutch size ranges from 9 to 15 eggs.

Photo Timothy Boycott

Figure 1. *Philothamnus natalensis occidentalis* from Brackenhill Estate, Mbabane, Swaziland.

Table 1. Egg sizes for three specimens of *P. n. occidentalis*.

LOCALITY	EGG LENGTH (mm)	AVERAGE (mm)	EGG WIDTH (mm)	AVERAGE (mm)
Mariepskop 1	27.5 – 32.0	29.8	11.4 – 12.3	11.9
Mariepskop 2	27.5 – 33.3	29.5	13.5 – 15.6	14.6
Ngwempisana	30.0 – 37.4	33.7	11.7 – 15.5	13.5

Table 2. Oviposition in *P. n. occidentalis*.

SOURCE	LOCALITY	OVIPOSITION/ COLLECTION DATE	CLUTCH SIZE
Jacobsen 1989	Mariepskop 1	October	9
Greiff 1999	Mariepskop 2	October	15
TM78903	Malolotja N. R.	6 October	-
DM1713	Ngwempisana	18 October	12

ACKNOWLEDGEMENTS

Thanks are due to Francis Takis and Sarah Nann for securing the Brackenhill Estate specimen, which after processing was returned to its locality. Jabu Linden collected the Malolotja specimen. Thanks are also due to Johannes Msibi and Martin Fakudze for assisting with the capture of the Ngwempisana specimen. The photograph was taken by Timothy Boycott.

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VARANIDAE

Varanus albigularis Daudin, 1802

ROCK MONITOR

Photo for image reference provided by Johan Marais

DIET

On 24 November 2014 at 11h15 a large male Rock Monitor, *Varanus albigularis* (Daudin, 1802) was found dead on the Trans-Kalahari highway, approximately 6.7 km east of Karakubis, Ghanzi District, Botswana (22° 06' 14.2" S, 20° 40" 56.7" E, 1218 m a.s.l). The specimen measured approximately 450 mm snout-vent length with a (truncated) tail length of 380 mm. The specimen had an ocellated dorsal patterning and slightly-enlarged dorsal scales on the nape (Fig. 1), which differs from South African specimens.

When opened, the stomach contained a crushed, but only partially digested, subadult Kalahari tent tortoise, *Psammobates oculifer* (Kuhl 1820); three pieces of a large millipede (Chilopoda), probably all from the same specimen; an undigested juvenile Giant Bullfrog (*Pyxicephalus adspersus* Tschudi, 1838) that appeared to have been swallowed whole; and other unidentified matter (Fig. 2). The hindgut was not inspected and, in the absence of collecting permits, only photographic records of the specimen and its gut contents were taken.

Tortoises appear to form a significant component of the diet of the Rock Monitor in South Africa (Branch 2006, Conradie 2012, Dalhauijsen *et al.* 2014), but have only rarely been recorded in the species' diet elsewhere (Branch 1991). Dalhauijsen *et al.* (2014) noted four species of tortoise (*Homopus femoralis*, *H. boulengeri*, *Chersina angulata* and *Stigmochelys pardalis*) in the diet of *V. albigularis*. They also noted a high proportion (40%) of *V. albigularis* stomachs contained millipedes, and they estimated that they made up approximately 23% by mass of the monitor's diet (Dalhauijsen *et al.* 2014). There are few records of amphibians in the Rock Monitor's diet (Branch 1991, Dalhauijsen *et al.* 2014), and this is the first report of predation by the Rock Monitor on either the Kalahari Tent Tortoise (*Psammobates oculiferus*) or Giant Bullfrog (*Pyxicephalus adspersus*).

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Figure 1. Rock Monitor (*Varanus albigularis*)

Figure 2. Juvenile *Pyxicephalus adspersus*, millipede and *Psammobates oculifer* in stomach of *Varanus albigularis*.

TESTUDINIDAE

Psammobates oculifer Kuhl, 1820

SERRATED TENT TORTOISE

Photo for image reference provided by Johan Marais

WINTER ACTIVITY

Psammobates oculifer has been reported as typically dormant or semi-dormant over extended periods during the colder winter months in southern Africa i.e., at least 4-5 months (Boycott & Bourquin 2000); while Branch (2008) reports dormancy from March-September with individuals often half buried in red sand. Cunningham (2014) notes that a single, adult animal maintained in an urban garden (indigenous plants) in Windhoek, Namibia during 2013 settled into sustained winter dormancy for a period of more than four months between May and September at the base of a *Aloe arborescens*, although "…it regularly shifted body position".

As part of a larger study we have been following wild telemetered *P. oculifer* in typical thorn bush savannah 45 km SE of Windhoek since December 2013 (Hohewarte Guest Farm, Windhoek, Namibia; 22º 38' 39" S, 17º 24' 12" E). Six tortoises (5 male, 1 female) were tracked and GPS positions recorded between 7 and 12 times (total = 57) for each tortoise during the winter period 01 May-02 August 2014. To account for GPS accuracy (± 5m) we considered any individual tortoise's consecutive moves of <10 m to be non-moves. An automated weather station was installed at our study site, recording air temperature at 20 cm above the ground.

Home range minimum convex polygons for this period ranged from 0.3-4.4 ha. Of the 57 tortoise GPS observations, 52 (91%) comprised tortoises that had moved from their previous location. Allowing for at least one week between observations the minimum distance moved was 13 m over 6 days and the maximum was 224 m over 8 days. Our results are consistent with Keswick (2012), who found *P. oculifer* (n = 25) at Benfontein farm, near Kimberley, South Africa, to be active in the winter under favourable daytime temperatures (afternoons 18-20 °C), in spite of typically cold nights (2-5 °C). At our study site from May to August the average daytime high was 27.3 °C and the average nighttime low was -0.5 °C.

We caution the broad use of the term dormant or semi-dormant to describe *P. oculifer* winter behaviour, as results clearly indicate that they are active in the dry, cold winter months, because even following cold nights daytime temperatures are frequently warm enough to initiate activity.

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Neonate Serrated Tent tortoise (*Psammobates oculifer*) found in early 2015 at Hohewarte Guest Farm, Windhoek, Namibia.

SCINCIDAE

Acontias plumbeus Bianconi, 1849

GIANT LEGLESS SKINKS

Photo for image reference provided by Marius Burger

AGONISTIC BEHAVIOUR

On December 24, 2011 at approximately 10:20 two Giant Legless Skinks (*Acontias plumbeus*) were photographed, apparently in combat (Fig. 1) along the S21 Nwatimhiri Road, in the southern Kruger National Park, Mpumalanga, South Africa (approximately S 25° 06' 25"; E 31° 42' 48"; 270 m a.s.l.). This is the first published report of combat in this species. At the time of observation the weather was overcast and humid, and the ground was visibly wet from overnight rainfall. The length of each animal was estimated to be about 300 mm. The apparent lack of obvious sexual size dimorphism (SSD) in *A. plumbeus* prohibited the designation of the animals to specific sexes. The most plausible explanation for such behaviour is male combat. Male combat is widespread among squamate reptiles with sexual selection for larger bodies producing male-biased SSD in many species (Shine 1989, 1994). However, the assertion that this observation represents male combat is at odds with the apparent lack of SSD in *A. plumbeus*. While SSD is variable (with respect to direction and magnitude) and phylogenetically labile within scincids (Cox *et al.* 2007), it appears generally absent in acontine skinks (Heideman *et al*. 2008). This finding, along with others (e.g., Gans 1978), suggests that SSD may be constrained in fossorial lizards because of the mechanics required to move through substrate, potentially decoupling the link between large body size in males and male combat in certain lineages. Indeed, Cox *et al.* (2003) found that sexual selection for large male body size explained only a small fraction of SSD variation across 497 species of lizard, confirming that body size is likely under multiple non-exclusive selective pressures in this clade.

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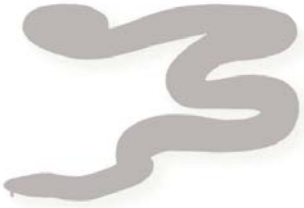
Photos Louis Breytenbach

Figure 1. Two Giant Legless Skinks (*Acontias plumbeus*) from the Kruger National Park, Mpumalanga, South Africa, in apparent combat.

SCOLECOMORPHIDAE

Scolecomorphus vittatus Boulenger, 1895

BANDED CAECILIAN



BEHAVIOUR

Caecilians of the family Scolecomorphidae have vestigial eyes which "are attached to, and move with, the tentacles and may be exposed when the tentacles are extruded" (Nussbaum 1985: 3). This remarkable behaviour was first documented by O'Reilly *et al.* (1996) who showed that the caecilian *Scolecomorphus kirkii* could extrude and retract the entire eye beyond the skull: the only vertebrate with protrusible eyes. Nussbaum's (1985) description of the family and species descriptions (e.g., Nussbaum 1981), clearly indicate that all members of this family should have the ability to move their eyes along the tentacular groove and possibly extrude them from the skull. In scolecomorphids, like some other caecilian families, the orbit is closed (*cf* Sherratt *et al.* 2014), but the bone is translucent so that the eye can be seen moving along the tentacular groove, in an unpigmented area of the skull. Presumably, this allows the animal to sense light whether the tentacle is retracted or extruded. Despite the knowledge that the eye can probably be extruded by all members of the family Scolecomorphidae, there have been no subsequent reports of this behaviour.

On 18 April 2008, I was given access to photograph two *Scolecomorphus vittatus* specimens which were reported to be collected from the West Usamabaras and the base of the Nguru mountains in Tanzania, respectively. During the photographic session, where the specimens were allowed to roam on leaf litter (Fig. 1), I noted that one specimen repeatedly moved its tentacles in and out of the skull, but during the 30 minute session, the eye was seen extruded from the skull only twice (Fig. 2). During most of the observational period, the maximum that the tentacles were protruded from the skull left the eye still protected just inside the skull (Fig. 3). All observations occurred in daylight between 09h30 and 10h00.

The functional explanation of why eyes have become motile, and can even be extruded from the skull is still unknown for scolecomorphids. *Scolecomorphus vittatus* belongs to a group of caecilians which have been described as surface active, indicating that they have been found moving over the ground (Gower *et al.* 2004; Wollenberg & Measey 2009). These caecilians appear to be principally active at night (Mohun *et al.* 2010), although individuals have been found moving over ground during the day (pers. obs.). It is not clear under what conditions it would be advantageous for an individual to extrude the eye out of the skull, although it appears from my observations

that this does not happen frequently above ground, during the day. It is possible that this behaviour may be more frequent when animals are emerging from burrows, perhaps trying to determine whether light levels are low enough to move above ground. It remains to be seen whether members of the genus *Crotaphatrema*, the sister genus to *Scolecomorphus* and the only other genus in the family Scolecomorphidae, can also extrude their eyes from their skulls.

Figure 1. *Scolecomorphus vittatus* moving freely over leaf-litter. The tentacles can be seen to be extended and in touch with the leaf litter substrate.

Figure 2. Detail of the head of a *Scolecomorphus vittatus* showing the eye completely extruded from the skull, one of only two observations in 30 minutes.

Figure 3. Detail of the head of Scolecomorphus vittatus showing the progress of the extrusion of the tentacle and the concurrent movement of the eye along the tentacular groove. In the last image, the eye can be seen partially out of the skull.

ACKNOWLEDGEMENTS

I would like to thank Joe Beraducci for giving me the opportunity to photograph his specimens and to Krystal Tolley for the use of her camera.

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GEKKONIDAE

Pachydactylus barnardi FitzSimons, 1941

BARNARD'S ROUGH GECKO

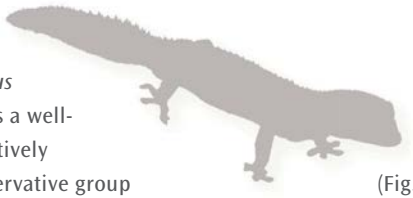

Photo for image reference provided by Johan Marais

The *Pachydactylus rugosus* group is a well-supported, relatively morphologically conservative group of geckos occupying the western portions of southern Africa. McLachlan (1979) considered the three constituent taxa as members of a polytypic *P. rugosus*, but Lamb and Bauer (2000) elevated *P. formosus* and *P. barnardi* to full specific status based on molecular and morphological data. Although its distribution is spotty throughout much of its range, and it may be encountered sporadically even at known localities, *P. rugosus* occupies a large area from the vicinity of Williston in the Northern Cape (3120BC) northward, through southwestern Botswana and southern and western Namibia, to southern Angola (Lamb and Bauer 2000; W.R. Branch, pers. comm.). Examination of specimens assigned to *P. rugosus* at the National Museum of Namibia, Windhoek (NMN, formerly SMWN) revealed three specimens from Farm Namuskluft in the Lüderitz District of the Karas Region (2716DD). Two of these (NMN 2683, NMN 2698) were typical in possessing the morphological features characteristic of *P. rugosus*. One individual, however, an adult female, 62.50 mm SVL (NMN 1546, Fig. 1A, collected 12 October 1970 by H. Mittendorf), lacked the mucronate dorsal tubercles (Fig. 1B–C) and spiny subcaudal scales of this species, but instead possessed the distinctive white head markings and narrower width dorsal markings, linked by a narrow vertebral stripe typical of *P. barnardi*. Although molecular data are unavailable to confirm the species assignment of NMN 1546, the scalation differences between this specimen and typical Namuskluft *P. rugosus* definitely exceed the degree of intraspecific variation observed in members of this species complex.

Pachydactylus barnardi has been regarded as a Little Namaqualand endemic, occurring terrestrially in rocky areas with succulent plant cover in areas from the Knersvlakte northward to the Orange River (Bauer 2014). Branch (1998) mapped its occurrence as ranging from approximately Groenriviermond north to the southern Richtersveld. The species has subsequently been found in the northern Richtersveld (Lamb and Bauer 2000; Bauer and Branch 2001[2003]), but has not been documented north of the Orange in Great Namaqualand. This new record extends the species range approximately 57 km to the north-northwest and constitutes the first

Namibian record for *P. barnardi*. *Pachydactylus barnardi* and *P. rugosus* have not previously been found in sympatry, although they have been found within 25 km of one another in the Richtersveld. The precise localities of the Namuskluft specimens are unknown, but the occurrence of both species on a single farm suggests that they occur in sympatry or near-sympatry. Namuskluft is also at or near the northern limit of distribution of several other geckos, including *Goggia gemmula* (Bauer *et al.* 1996) and *Pachydactylus carinatus* (Bauer *et al.* 2006). Additional records of southern taxa may be expected to occur in the region, which constitutes the northernmost extension of the Succulent Karoo.

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Figure 1. A. Specimens of ***Pachydactylus rugosus*** group geckos from Farm Namuskluft, Karas Region, southern Namibia (2716DD): left and center, ***P. rugosus***; right, ***P. barnardi***. Scale bar in mm. Magnification of dorsal scalation pattern of (B) ***P. barnardi*** (NMN 1546) and (C) ***P. rugosus*** (NMN 2683) showing the difference between the flattened scales of the former and the enlarged, highly mucronate scales of the latter.

COLUBRIDAE

Philothamnus natalensis occidentalis Broadley, 1966

WESTERN NATAL GREEN SNAKE

Photo for image reference provided by Johan Marais

ON 18 October 2003 an adult female *Philothamnus natalensis occidentalis* (DM 1713) was collected during a fish survey of the Ngwempisana River near Mankayane (2631CA; 26° 43' 01" S, 31° 00' 01" E; 900 m a.s.l.) in western Swaziland. It is possible that the use of an electro-fisher in the river may have disturbed the snake. This record extends the distribution of the subspecies southwards in Swaziland from Malolotja Nature Reserve (2631AA) and Mbabane (2631AC) (Boycott 1992) to close the gap between the Swaziland and northern KwaZulu-Natal inland populations (2729DC, 2729DD and 2730DC) shown by Bourquin (2004) and Marais (2014).

Philothamnus n. occidentalis is a diurnal snake that is fairly common around rivers and streams in western Swaziland, particularly along well-wooded or forested watercourses. It has also been recorded from man-made dams fringed by restio reeds in open grassland (Table 1). Unlike the nominate form which, according to Alexander (1990), is apparently dependant on natural forest habitat and is absent from cleared areas, *P. n. occidentalis* appears to be quite adaptable, occurring in residential gardens in Mbabane. The subspecies has been recorded from eleven localities in the Highveld region of western Swaziland, most of which are in Malolotja Nature Reserve (Table 1). The Highveld region in Swaziland equates roughly with Mucina & Rutherford's (2004) Barberton and Kangwane Montane Grasslands in which patches of Afromontane forest are to be found along medium to high-altitude rivers and streams. In Swaziland this subspecies has been recorded from partially-wooded river courses surrounded by grassland, indigenous forest habitat in gorges and kloofs, around man-made dams fringed by restio reedbeds in open grassland, and residential gardens. Recorded altitude range for the subspecies in Swaziland is between 780 m and 1400 m which falls within the altitude range for the subspecies given by Jacobsen (1989) and Bourquin (2004).

ACKNOWLEDGEMENTS

Thanks are due to the following individuals for securing specimens and for sharing their observations: Philip Bishop, Martin Fakudze, Colin Foster, Jabu Linden, Johannes Msibi, Sarah Nann and Francis Takis.

Table 1. Localities for *Philothamnus natalensis occidentalis* in Swaziland.
(DM = Durban Museum, TM = Transvaal Museum, JC = J. Culverwell, PB = P. Bishop, RB = R. Boycott).

LOCALITY	GRID CELL	CO-ORDINATES	ALTITUDE (m)	HABITAT	SOURCE
Black Mbuluzi Falls	2631AC	26° 16' 05" S, 31° 07' 54" E	1220 m	Wooded grassland	TM47468
Brackenhill Estate	2631AC	26° 17' 45" S, 31° 09' 32" E	1280 m	Residential garden	Boycott 2015
Dalriach, Mbabane	2631AC	26° 18' 14" S, 31° 08' 56" E	1240 m	Residential garden	RB (sight record)
Forbes Reef Dam, MNR	2631AA	26° 08' 54" S, 31° 06' 16" E	1400 m	Restio-fringed dam	JC (sight record)
Hawane Dam	2631AA	26° 12' 57" S, 31° 05' 03" E	1355 m	Restio-fringed dam	RB (sight record)
Imbovane Camp, MNR	2631AA	26° 07' 25" S, 31° 05' 56" E	1240 m	Restio-fringed dam	RB (sight record)
Mahulung-wane Gorge, MNR	2631AA	26° 04' 05" S, 31° 06' 07" E	780 m	Indigenous forest	TM78903
Majolomba Camp, MNR	2631AA	26° 06' 38" S, 31° 06' 04" E	900 m	Indigenous forest	PB (sight record)
Malolotja Falls, MNR	2631AA	26° 07' 05" S, 31° 06' 07" E	1120 m	Wooded grassland	JC (sight record)
Ngwempisana River	2631CA	26° 43' 01" S, 31° 00' 01" E	900 m	Wooded grassland	DM1713
Yingayingeni Gorge, MNR	2631CA	26° 04' 13" S, 31° 05' 50" E	810 m	Indigenous forest	RB (sight record)

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Photo by Johan Marais

Western Natal Green Snake (*Philothamnus natalensis occidentalis*) Greytown, KwaZulu-Natal, South Africa.

SCINCIDAE

Trachylepis ivensii Bocage, 1879

MEADOW SKINK

Photo for image reference provided by Johan Marais

ON January 3 2015 a specimen of *Trachylepis ivensii* was found by FW in a mid-altitude (1460 m a.s.l.) bog grassland on rock substrate on Lavushi Mountain in the Lavushi Manda National Park (12° 25' 04.1" S 30° 52' 17.0" E). The skink attempted to escape by hiding in a small puddle of water. After FW caught and photographed the skink, the released skink immediately went back into the puddle and burrowed into the peaty substrate beneath the water. No published photographs of live specimens in their natural habitat are known to us.

This represents an eastern range extension of ca. 650 km and could represent a relict population. The Lavushi mountain range is an isolated, quartzite formation ranging up to 1811 m a.s.l. to the west of the Muchinga Escarpment. The range's immediate surroundings typically fall below 1400 m a.s.l. and mainly consist of sand and clay soils.

Trachylepis ivensii is an extremely rare species and was only known from central Angola until Branch & Haagner (1993) recorded 20 specimens from Sakeji in northern Mwinilunga District in the North-Western Province of Zambia and one from Sanolumba village in the adjacent DRC (Katanga). Two of the Sakeji specimens were donated to the Natural History Museum of Zimbabwe. Wagner *et al.* (2012) recorded another six specimens of *T. ivensii* from the Sakeji and Zambezi Rivers in northern Mwinilunga District.

Blackburn & Flemming (2012) showed that reproducing females of *T. ivensii* ovulate tiny eggs and supply the nutrients for development by placental means. The recognised pattern of development in this species is unique among vertebrates and represents a new extreme in placental specialisation of reptiles.

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Photos Frank Willems

Figure 1. Meadow Skink "*Trachylepis ivensii"* in Lavushi Manda NP, Zambia, 3 January 2015: a) portrait, b) same animal basking on edge of puddle in bog grassland, c) in water puddle which the animal entered after release, d) where it tried to escape by hiding in peaty soil under water.

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ELAPIDAE
Aspidelaps scutatus fulafula Bianconi, 1849
EASTERN SHIELD COBRA

Photo for image reference provided by Johan Marais

ON 21 February 2015, an adult male Eastern Shield Cobra (*Aspidelaps scutatus fulafula*) was found dead on the road, at Sihangwane, KwaZulu Natal, South Africa (27° 02' 45" S, 32° 20' 50" E; 2732AB, 43 m a.s.l). The specimen was collected and has been deposited at the Natural History Museum of Zimbabwe in Bulawayo, Zimbabwe (accession number: NMZB 18043).

The identity of the specimen was confirmed by Don Broadley. Description of the specimen: Total length 462 (388+74) mm; preocular 1; postoculars 3; temporals 2+5; upper labials 6, the 4th entering the orbit; lower labials 7, the first 4 in contact with the anterior chin shields. Dorsal scales in 23 rows at midbody, 25 rows at the neck, 17 rows at the tail; 119 ventrals; anal entire; 33 subcaudals which are paired. The description of this specimen also fits the description of *A. s. fulafula* by Broadley (1990).

This specimen represents the first confirmed record of *A. s. fulafula* for the KwaZulu Natal Province of South Africa and for South Africa (Bates *et al*, 2014). There is a historical record of *Aspidelaps scutatus* from Pongola (FitzSimons, 1962), however exact data for this specimen is unavailable. Broadley & Baldwin (2006) suggested that this record may have had erroneous locality data, which may however now not be the case. In 2014, another *A. scutatus* specimen was recorded from the same locality, however the exact identity of the specimen was never confirmed and it was assumed to have been an Intermediate Shield Cobra (*A. s. intermedius*). The confirmation of *A. s. fulafula* at this locality means that the identity of the SARCA VM record (SARCA No.: 150698) is possibly mistaken and that all records of *A. scutatus* from the area should be carefully validated in future.

Andrew Smith described *Cyrtophis scutatus* from "Kaffirland and the county towards Natal", but Broadley (1968) pointed out that the type specimen (BMNH 1946.1.17.83), a young female with 21 midbody scale rows, 121 ventrals and 24 subcaudals, agreed with the western race, now known as the Common Shield Cobra (*Aspidelaps scutatus scutatus*), to which Mertens (1954) had applied the name *Aspidelaps scutatus bachrani*. Broadley (1968) corrected the type locality for the typical form to the Marico-Crocodile confluence, a locality visited by Smith between 27 August and 10 September 1835.

ACKNOWLEDGEMENTS

I would like to thank Dr Donald Broadley for his assistance with determining the subspecies true identity, as well as scrutinizing the manuscript.

Photo Jens Reissig

Figure 1. A portrait of the first specimen confirmed in South Africa.

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ELAPIDAE
Dendroaspis jamesoni Thrail, 1843
JAMESON'S MAMBA

Photo for image reference provided by Johan Marais

ON 28 April 2010 the senior author found and photographed (Fig. 1) a large green mamba dead on the road (DOR) on the main road from Luanda to Huambo at Munenga, approximately 12 km south of the turning to Calulo, Kwanza-Sul Province, Angola (10º 07' 15" S, 14º 39' 54" E). The snake was photographed, but not collected or preserved despite being in good condition. Based on its coloration and head shape (Fig. 1) the snake can be confidently assigned to *Dendroaspis jamesoni*. Although the general coloration of the snake is similar to that of the Eastern Green Mamba (*D. angusticeps*), i.e., light leaf green, the diagnostic feature for *D. jamesoni* of the presence of dark posterior edges to the lower labials (never present in *D. angusticeps*) confirms the identity. An additional DOR specimen was also photographed on 5 April 2015 (pers. comm. Kelse Alexandre) on a track between Kwanza bridge "Filomena da Câmara" and Farm Cabuta (approximately 09º 47' 07" S, 14º 48' 50" E). A photograph of this specimen also displayed the diagnostic coloration.

The status and distribution of mambas in Angola is poorly known. Bocage (1895) recognized three species of mamba, with *D. jamesoni* (Thraill, 1843) occurring in West Africa, extending to San Tomé and Zaire. He considered two species to occur in Angola, *Dendroaspis angusticeps* (Smith, 1849) and *D. neglectus* (Bocage, 1903). The latter is now considered a junior synonym of *D. jamesoni*. At the time the former included what is now known as the Black Mamba (*D. polylepis* Gunther, 1864) as well as the Eastern Green Mamba (*D. angusticeps*). The latter was validated as a separate species by FitzSimons (1946), and is now restricted to East and Southern Africa.

Although the presence of Jameson's Mamba in Angola is shown in summaries of African venomous snakes (e.g., Spawls & Branch 1995), there remain very few detailed locality records for the country. Laurent (1952, 1954, 1964) records specimens from Dundo in the extreme northeast of the country (07º 22' S, 20º 50' E), whilst Schmidt (1923) considered the species' range in the west to extend only as far south as the mouth of the Congo River, from which the species is well known (Warren Klein & Tim Baynham pers. comm. See Fig. 2). Hellmich (1957) subsequently recorded four specimens further south from Piri-Dembos (08º 34' S, 14º 30' E; 750 m a.s.l.) with an additional, somewhat surprising, record from Bela-Vista, Sanguenge (12º 22' S, 16º 12' E; 1800 m a.s.l.) that extends the species' range into central western Angola. The habitat of the latter is described (Hellmich 1957) as comprising a Eucalyptus plantation on the Planalto (highlands) at the watershed of the Cuanza , Cunene and Cabango rivers, in a region heavily deforested and with the original vegetation

Photo Pedro Vaz Pinto

Figure 1. ***Dendroaspis jamesoni*** from Munenga, Angola

Photo Warren Klein, October 2013

Figure 2. ***Dendroaspis jamesoni*** from Soyo, north west Angola

replaced with dry bush and farm plots. Many other species recorded from Bela Vista by Hellmich (1957) usually inhabit open habitats, e.g., *Ichnotropis* (*capensis*) *bivittata*, *Agama hispida aculeata* (= *A. aculeata*), *Chamaesaura macrolepis* (= *C. miopropus*), *Riopa* (= *Eumecia*) *anchietae*, *Riopa modesta modesta* (= *Mochlus sundevalli*), *Bitis arietans* and *Bitis heraldica*. Other species, however, indicate the presence of some woodland and possibly riparian habitats, e.g., *Limnophis bicolor*, *Philothamnus ornatus*, *Dispholidus typus punctatus*, and *Atractaspis congica*. Hellmich (1957) also recorded *Miodon* (= *Polemon*) *gabonensis*, which like the mamba record, lies considerably further south than other records.

The new records of *D. jamesoni* lie about 160-175 km south of Piri-Dembos and about 300 km northwest of Bela Vista, thus filling the substantial gap between Hellmich's (1957) records. Like Hellmich's (1957) Bela Vista locality, the Calulo region is now heavily transformed by human activity, with little forest habitat remaining. The specimens were collected, respectively, in a small stripe of riparian forest along a southern tributary of the Kwanza River, and on a track passing through a small patch of forest. These may form refugia for the species following extensive regional anthropogenic deforestation.

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GERRHOSAURIDAE

Gerrhosaurus auritus Boettger, 1887

KALAHARI PLATED LIZARD

ON 8 February 2014, during a vertebrate survey on Farm Zonderwater, approximately 13 km north-west of Lephalale, Limpopo Province, South Africa (2327 DA; 23° 35' 54.2" S, 27° 39' 17.5" E; 850 m a.s.l.), an adult (approximately 140 mm SVL) Kalahari Plated Lizard (*Gerrhosaurus auritus*) was captured in a Sherman small mammal trap by the first author. It was photographed in the field and then released (no collecting permit). The observation was made in natural sandveld habitat dominated by *Combretum apiculatum*, *Tarchonanthus camphoratus* and *Terminalia sericea*; the soil type was deep sandy loam with some clay (Clovelly 95%; W. de Frey pers. comm.). A combination of the following morphological features identify the specimen as *G. auritus*: indistinct dorsolateral stripes, four supraciliaries, scales on soles of feet keeled, broad and crescentic tympanic shield, smooth lateral scales, eight rows of ventral plates, rostral and frontonasal separated by nasals, 17 femoral pores on each thigh (Fig. 1). This observation was accessioned with the Animal Demography Unit (ADU) Virtual Museum (VM) (**http://vmus.adu.org.za**) with accession number "SARCA 153568".

A recent molecular analysis by Bates *et al*. (2013) confirmed that *G. auritus* is a valid species, distinct from other taxa in the *G. nigrolineatus* species complex. This species has a widespread distribution, occurring in bushveld and Kalahari sandveld across Angola, Zambia, Namibia, Botswana and Zimbabwe (Branch 1998; Bates *et al*. 2013; Bates 2014). Currently only a single record of the species exists for South Africa, namely a specimen from Farm Groenfontein, 44 km WNW of Lephalale (2327CB), also in Limpopo Province, photographed and submitted to the SARCA virtual museum (Bates 2014). The new Zonderwater locality for *G. auritus* is situated 33 km east of the above-mentioned Groenfontein locality and represents only the second record (and second specimen) of this species for South Africa, and south of the Limpopo River. We recommend additional collecting be conducted in the Lephalale area in order to evaluate the geographic extent of this species in South Africa. A specimen of *G. flavigularis* (brown with distinct pale, black-edged dorsolateral stripes; five supraciliaries on either side of head) was also collected – in a funnel trap – on Zonderwater farm (23° 33' 43.4" S, 27° 39' 43.1" E), indicating sympatry between these two species at this locality.

ACKNOWLEDGEMENTS

We thank Donald G. Broadley for examining a photograph and confirming our identification of the specimen. Exxaro Resources funded the study and provided permission to publish the data. Willem de Frey (EkoInfo CC) is thanked for the habitat description (botany and soil).

Figure 1. The observed Kalahari Plated Lizard (*Gerrhosaurus auritus*) from Farm Zonderwater, approximately 13 km north-west of Lephalale, Limpopo Province, immediately after capture.

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PYXICEPHALIDAE
Pyxicephalus adspersus Tschudi, 1838
GIANT BULLFROG

Photo for image reference provided by Johan Marais

Observations that extend a species' known geographic range can provide improved insight into the species' ecology (e.g., climatic tolerance, habitat associations, and phenology) and conservation status (e.g., extent of occurrence, habitat availability, and protection). This is especially true when new locality records can be used to verify or update a predictive model of the distribution of a species that is rare or otherwise difficult to detect (e.g., Jackson & Robertson 2011; Tarrant & Armstrong 2013).

On 4 January 2014 a large *Pyxicephalus* bullfrog was found dead (Fig. 1) near a small pan (23° 34' 11.1" S, 27° 20' 57.6" E) on the farm Japie in the quarter degree grid cell (QDGC) 2327CB near Lephalale in Limpopo Province, South Africa. The specimen's snout-vent length (SVL) was estimated to be approximately 180 mm; its cause of death was uncertain (V. Kleynhans, pers. comm.). The Japie farm observation was submitted to the Animal Demography Unit (ADU) Virtual Museum (VM) (**http://vmus.adu.org.za**) with accession number "SAFAP 3746". In the same area on 4 February 2014, another large *Pyxicephalus* bullfrog was observed in a small pan (23° 34' 21.4" S, 27° 40' 2.4" E) on the Zonderwater farm in QDGC 2327DA. The specimen was captured, photographed (Fig. 2 and Fig. 3), and its SVL was estimated to be approximately 165 mm. Thereafter it was released back into the pan. The Zonderwater farm observation was submitted to the ADU VM with accession number "SAFAP 3739".

Both the observed specimens were identified as adult male Giant Bullfrogs (*P. adspersus*), as opposed to African Bullfrogs (*P. edulis*), based on the following morphological characteristics:

- SVL > 150 mm (Yetman *et al*. 2012; Fig. 1 and Fig. 2);
- Mandible skin barring absent or indistinct (Du Preez & Carruthers 2009; Yetman *et al*. 2012; Scott *et al*. 2013; Fig. 3A);
- Light spot on the tympana absent or indistinct (Du Preez & Carruthers 2009; Yetman *et al*. 2012; Fig. 2 and Fig. 3B);
- Pale inter-orbital bar absent or indistinct (Du Preez & Carruthers 2009; Scott *et al*. 2013; Fig. 1 and Fig. 3B);
- Distance between the eye and tympanum greater than the tympanum width (Scott *et al*. 2013; Fig. 3B);
- Vertebral stripe absent or indistinct (Yetman *et al*. 2012; Scott *et al*. 2013; Fig. 1 and Fig. 2).

Photo V. Kleynhans

Figure 1. Dorsal view of dead Giant Bullfrog (*Pyxicephalus adspersus*) on the farm Japie in QDGC 2327CB.

Figure 2. Live Giant Bullfrog caught on the farm Zonderwater in QDGC 2327DA.

Of 348 *P. adspersus* locality records from southern Africa with voucher material verified by Yetman *et al*. (2012), the nearest record to either of the above observation co-ordinates is approximately 163 km east, from northern Polokwane. Records shown in Minter *et al*. (2004) of "*P. adspersus*" from north-west Limpopo Province include sightings without evidence from QDGC 2229AC, 2327DA and 2427AA, and preserved specimens TMP 74402 from QDGC 2426DB and TMP 74398 from QDGC 2427AA, which represent African Bullfrogs (*P. edulis*) with the following diagnostic features:

- Distinct mandible skin barring (Du Preez & Carruthers 2009; Yetman *et al*. 2012; Scott *et al*. 2013);
- Distinct light spot on the tympana (Du Preez & Carruthers 2009; Yetman *et al*. 2012);
- Distance between the eye and tympanum less than the tympanum width (Scott *et al*. 2013);
- Distinct vertebral stripe (Yetman *et al*. 2012).

The above-mentioned observations of *P. adspersus* represent the only verifiable records of this species in Mucina & Rutherford's (2006) "Limpopo Sweet Bushveld" vegetation type, which occurs over a 12020 km^2 area in north-west South Africa and extends further into Botswana. Scattered throughout the Limpopo Sweet Bushveld are small depressions and pans, which are likely to provide suitable breeding habitat for *P. adspersus*, but possibly only during exceptionally wet summers such as the past 2013/2014 season (SAWS 2014). This may

explain why this is the first verifiable record of *P. adspersus* from this region, even though this species may be widespread and protected in the many private game farms that exist here.

As with the recent discovery of *P. adspersus* near Newcastle in KwaZulu-Natal (Verburgt & Yetman 2012), the observations reported herein provide further support for the *P. adspersus* distribution model by Yetman *et al*. (2012). According to this model, *P. adspersus* may have a smaller geographic range than what is shown, for example, in Channing 2001, Minter *et al*. 2004 and Du Preez & Carruthers 2009. This is because, as explained by Scott *et al*. 2013 for the recent re-validation of *P. angusticeps*, *P. edulis* has frequently been misidentified as *P. adspersus*, especially in Mozambique, where *P. adspersus* is predicted to be absent (Yetman *et al*. 2012). By using new, verifiable locality records of *P. adspersus* to develop and improve distribution models for this species, long-standing confusion and contention regarding the distribution and conservation status of *P. adspersus* may be resolved.

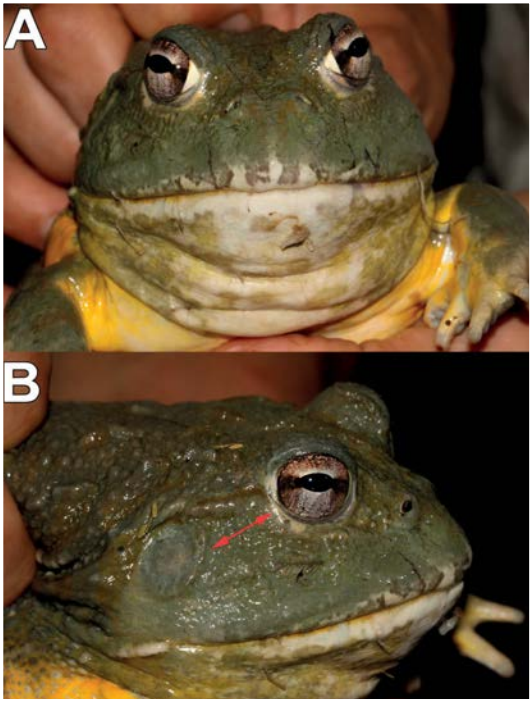

Figure 3. Facial features used to identify the specimen as *Pyxicephalus adspersus* and not *P. edulis*.

ACKNOWLEDGEMENTS

Veroeschka and Nicolette Kleynhans who found the specimen on the farm Japie, and Bertie Botha are thanked for reporting their observation. Exxaro Resources funded the study on Farm Zonderwater and provided permission to publish the data.

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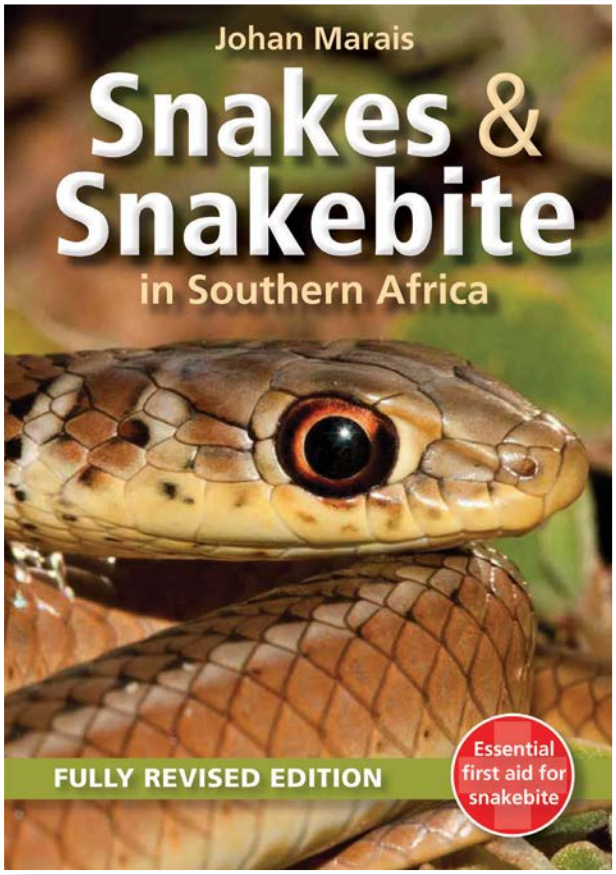
Photo by Johan Marais

Giant Bullfrog (***Pyxicephalus adspersus***) Koanaka, Western Botswana.

SNAKES AND SNAKEBITE IN SOUTHERN AFRICA

By Johan Marais

Struik, Cape Town. 120 pages, soft cover. ISBN: 978 1 77584 023 7.
[Afrikaans version – Slange & Slangbyt in Suider-Afrika. ISBN 978 1 77584 024 4]



This is a revised and greatly expanded edition of the original book, which was published in 1999. After a brief introduction, the first section covers 'Snakes as predators', subdivided into Vision, Hearing and smell, Growth and shedding, Reproduction, Body temperature and hibernation, Snakes in gardens, and Handling snakes.

The next section deals with Snakebite: How to avoid snakebite, Snakebite symptoms, Dangerously venomous snakes, Types of venom, Antivenom and First aid. South African Vaccine Producers in Johannesburg have replaced the SAIMR as producers of antivenoms for southern Africa. The author stresses that antivenom should not be injected under the skin or intramuscularly as a first aid measure, as it is only effective if injected intravenously and in sufficiently large quantities. Under first aid measures the author rejects the application of a tourniquet because snake venom is absorbed by the lymphatic system, not the blood vessels. He does recommend the application of a crepe bandage along the length of a limb as a first aid measure, but not for adder or spitting cobra bites. The use of a bag valve mask (BVM) is recommended to assist breathing while a victim is being transported to hospital.

Each of the 41 species in the systematic section is covered by 1-3 pages of text, with many excellent colour photos, a distribution map, and icons to show average size, activity (nocturnal/diurnal) and habitat, with first aid measures in a small box. Basic habitats (vegetation types) are shown in a colour map. The snakes are grouped as Adders, Elapids, Back-fanged snakes, and Fangless or non-venomous snakes.

For *Bitis gabonica*, the preferred habitat in Zimbabwe is give as montane forest, but this species is usually found in coastal forest or tea plantations at the foot of the eastern escarpment, and only occasional specimens venture up to higher levels. The first specimen deposited in the Bulawayo Museum was killed in grass bordering a pine plantation at 1500 metres.

Surprisingly, the Snouted Night Adder (*Causus defilippii*) was omitted, despite its extensive distribution in north-eastern South Africa, Zimbabwe and Mozambique.

The species account for the previously poorly illustrated Short-snouted Grass Snake (*Psammophis brevirostris*) is excellent, a portrait also appears on the cover. The mapped range of the Western Yellow-bellied Sand Snake includes that of the Eastern Yellow-bellied Sand Snake (*P. orientalis*) in eastern Mozambique and adjacent Zimbabwe.

The book ends with a short Glossary, Further Reading and Index.

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FINDING FROGS IN FOCUS

By Gavin Masterson

Frogs are an undeniably enticing component of the world's fauna. Frogs are active in conditions that we humans typically are not e.g., heavy rain, they produce intriguing, melodic, and/or cacophonous soundtracks during their breeding seasons, and are impressively cryptic at other times of the year - sometimes seeking refuge a long distance from water (even climbing rock outcrops of impressive size!). Here are a few of my favourite frog photographs - each with story of their own. Whether I was wading thigh-deep in a wetland only to realise that I was sharing the wetland with hundreds of palm-sized Fishing Spiders who were also looking for frogs, trying to catch a calling male Guttural Toad (*Amietophrynus gutturalis*) by surprise (which is not as easy as you might think!), walking coastal roads or rain-soaked forests, I thoroughly enjoyed each and every one of these glimpses into the lives and habits of frogs.

Photos Gavin Masterson

From top left (in a clockwise direction): (a) *Leptopelis natalensis*, from Mtunzini, South Africa, climbing dexterously; (b) A male *Amietophrynus gutturalis* calling at the side of a wetland near Johannesburg, South Africa; (c) A Fishing Spider (Nilus sp.) predating a *Hyperolius tuberilinguis* individual, near Scottburgh, South Africa; (d) A *Breviceps fuscus* individual encountered on a rainy day near Knysna, South Africa.

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African Herp News publishes longer contributions of general interest that would not be presented as either Natural History Notes or Geographical Distributions. A standard format is to be used, as follows: **TITLE** (capitals, bold, centred); **AUTHOR(S)** (bold, centred); Author's address(es) (italicised; use superscript Arabic numerals with author's names and addresses if more than one author); **HEADINGS** (bold, aligned left) and **Subheadings** (bold, aligned left) as required; **REFERENCES** (bold), following the standardised formats described below.

Herpetological Surveys

African Herp News publishes succinctly annotated species lists resulting from local surveys of amphibians and reptiles on the African continent and adjacent regions, including the Arabian Peninsula, Madagascar, and other islands in the Indian Ocean. The area surveyed may be of any size but should be defined geographic unit of special relevance to the herpetological community. For example, surveys should address declared or proposed conservation reserves, poorly explored areas, biogeographically important localities or administrative zones. The relevance of survey results should be judged by the extent that these records fill distributional gaps or synthesise current knowledge. As far as possible survey records should be based on accessible and verifiable evidence (specimens deposited in public collections, photos submitted illustrating diagnostic features, call recordings and sonograms, or DNA sequences accessioned into international databases). Survey results should be presented in the same format as used for Articles (described above), and must additionally include a section titled **SYSTEMATIC ACCOUNT** (bold) comprising Scientific name (including author citation), location and habitat, evidence (including registration numbers and location of vouchers), and comments (where required). **REFERENCES** should follow the standardised formats described below.

Natural History Notes

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: **FAMILY: *Scientific name* (including author citation)**; English common name (using Bill Branch's *Field Guide to Snakes and Other Reptiles of Southern Africa*, third edition, 1998, for reptiles; and Du Preez & Carruthers' *A Complete Guide to the Frogs of Southern Africa*, 2009, for amphibians as far as possible); **KEYWORD** (this should be one or two words best describing the topic of the note, e.g., Reproduction, Avian predation, etc.); the Text (in concise English with only essential references quoted). The body of the note should include information describing the locality (Country; Province; quarter-degree locus; location; latitude and longitude in D° M' S" format; elevation above sea level), providing the date (day, month, year), naming the collector(s), and stating the place of deposition and museum accession number or describing the fate of the animal. **REFERENCES** should follow the standardised formats described below. **SUBMITTED BY**: **NAME**, Address, E-mail.

Geographical Distributions

Brief notes of new geographical distributions of amphibians and reptiles on the African continent and adjacent regions, including the Arabian Peninsula, Madagascar, and other islands in the Indian Ocean. Records submitted should be based on specimens deposited in a recognised collection. A standard format is to be used, as follows: **FAMILY; *Scientific name* (including author citation)**; English common name (using Bill Branch's *Field Guide to Snakes and Other Reptiles of Southern Africa*, third edition, 1998, for reptiles; and Du Preez & Carruthers' *A Complete Guide to the Frogs of Southern Africa*, 2009, for amphibians as far as possible). The body of the note should include information describing the locality (Country; Province; quarter-degree locus; location; latitude and longitude in D° M' S" format; elevation above sea level), providing the date (day, month, year), naming the collector(s), and stating the place of deposition and museum accession number, or fate of the animal. The body should also include information on the size, colour and taxonomic characters (e.g., scalation, webbing) used to identify the specimen, as well as the distance to the nearest published locality. **REFERENCES** should follow the standardised formats described below. **SUBMITTED BY**: **NAME**, Address, E-mail.

Tables, Figures, and Photographs

Tables should be submitted as separate MS Excel files. Tables should be small enough to fit onto an A5 page, and should NOT contain any vertical lines. Photographs and figures should be submitted as separate JPEG files, and not embedded in the text. They should preferably be over 1MB in size, and not more than 5MB. The name of the photographer should be given, if not taken by the author of the submission. Each table, figure, or photograph, needs to be associated with an appropriate caption that should follow the reference list in the submission.

References

Reference formatting is similar to African Journal of Herpetology.
References should be listed in the following format:
ALEXANDER, G.J. 2007. Thermal biology of the Southern African Python (*Python natalensis*): does temperature limit its distribution? Pp. 50-75. In HENDERSON, R.W., & POWELL, R. (Eds.). *Biology of the Boas and Pythons*. Eagle Mountain Publishing, Utah.
BRANCH, W.R. 1998. *Field guide to the snakes and other reptiles of southern Africa*. Third edition. Struik Publishers. Cape Town.
COTTONE, A.M. 2007. Ecological investigations of the Psammophiidae (Squamata: Serpentes). Unpubl. MSc thesis. Villanova University, Pennsylvania.
FROST, D.R. 2010. Amphibian Species of the World: an Online Reference. Version 5.4 (8 April, 2010). http://research.amnh.org/vz/herpetology/amphibia/ (accessed 27 April 2010).
LAMB, T., BISWAS, S. & BAUER, A. 2010. A phylogenetic reassessment of African fossorial skinks in the subfamily Acontinae (Squamata: Scincidae): evidence for parallelism and polyphyly. *Zootaxa* 2657: 33-46.
Note that author names are set as ALL CAPS, and that Journal Titles are not abbreviated.
Formatting should be achieved using paragraph settings and NOT tabs or spaces.
Citations should occur in chronological order: (Branch 1998, Alexander 2007, Cottone 2007, Frost 2010, Lamb *et al.* 2010). For papers with more than two authors, only the first author should be named in the text (e.g., Masterson *et al.* 2010) – italicising "*et al.*". Cite unpublished data as in press, e.g., (in press), which then appears in the list of references, or as J. J. Marais (pers. comm.), in which case Johan J. Marais's name and institutional affiliation should appear under Acknowledgements. Unpublished reports should be cited as personal communications.

Photo Gavin Masterson

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MEMBERSHIP FEES

2015

FEE STRUCTURE 2015 FOR AFRICAN RESIDENT MEMBERS

(POSTING TO ADDRESSES IN AFRICA)

	1 YEAR	3 YEARS
ORDINARY MEMBERS	ZAR 200	ZAR 600
SHOLARS (ATTENDING HIGH SCHOOL)	ZAR 100	

FEE STRUCTURE 2015 FOR NON-AFRICAN RESIDENT MEMBERS

(POSTING TO ADDRESSES OUTSIDE AFRICA)

	1 YEAR	3 YEARS
MEMBERSHIP	US$ 60	US$ 180

BANKING DETAILS

ACCOUNT NAME:	HERPETOLOGICAL ASSOCIATION OF AFRICA
ACCOUNT NUMBER:	1793 6077 100
BANK:	ABSA
BRANCH:	EASTGATE
SWIFT CODE:	ABSAZAJJ
CLEARING CODE:	6356050

[IMPORTANT TO REMEMBER]

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Photo Gavin Masterson

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