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AHN

AFRICAN HERP NEWS

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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.

COVER PHOTOGRAPH:
Hyperolius pickersgilli
Photograph by: Nick Evans

AHN CONTENTS

AHN EDITORIAL

It is with mixed emotions that I write this editorial.

Earlier this month saw the passing of one of the HAA's most dedicated members and a true giant of African Herpetology, Prof. William R. Branch. His life's work and impact cannot be overstated; a brief summary is provided in the enclosed obituary. Bill will truly be missed. Let us all honour his work and life by being ambassadors to African herpetology, going out into the field, documenting our findings, and sharing our work with the world.

With that sentiment, it is with great pleasure and much enthusiasm that I present you with AHN 68. In addition to the usual quality content (Articles, Natural History Notes, and Geographical Distributions), there are two ***new*** sections, which I hope will become set features of AHN going forward: "Herps Making Headlines" and "Tomorrow's Herpetologists Today". These sections are presented in a more 'popular' style, with the intention of making you more aware of the quality research and implementation work currently being done on African herps. As the title states, "Herps Making Headlines" focuses on African herpetology in the news (local and abroad); while "Tomorrow's Herpetologists Today" showcases the work and/or research of young, upcoming herpetologists across the African continent. I hope that these new sections will enable the HAA community to become better acquainted and connected with each other. Thank you Jeanne Tarrant and Alexandra Evans for being our guinea pigs and providing the readership with excellent examples of the quality and style expected for these two sections. I encourage all of you to send in your submissions and to contact me if you have any questions or require further details.

Also, please don't forget to check out the 'Announcements'. There are exciting opportunities students should not miss out on, including the Best Student Publication Award and a new initiative aimed at the development of students and early-career researchers in herpetology.

Before I sign off, I would like to make a request to all long-standing members out there. If any of you have a copy of AHN 34 could you please contact me? During the last AGM, members expressed interest in having access to all AHN issues electronically so that the content provided therein is accessible to all. Since taking on the role of editor, I have

been working hard to make this happen and I am happy to say that this is the only issue outstanding. Members will be able to access all issues on the HAA website following its revamp, which is currently underway.

I hope you enjoy the read!

Jessica da Silva

Editor

AHN
CHAIRPERSON'S ADDRESS

It is with great sadness that the Herpetological Association of Africa brings news of the passing of Bill Branch on the 14th of October 2018. Bill was an inspiration and a role model, with an extraordinary and well-deserved reputation. His boundless knowledge of herpetology and his contributions to the field were truly remarkable. He will be sorely missed.

I would like to update members on activities and decisions taken by the HAA committee so far this year. Firstly, we have started a membership drive to attract young herpetologists to our ranks. In addition, for our overseas members we have tested out the process of making overseas transfers to make membership payments and the method is relatively easy. Please contact Jens Reising (Treasurer) for more details. The website has been revamped and will soon be up and running. Using the website, you will be able to download previous articles of the AHN in pdf form, as well as receive updates about activities and conferences.

A new initiative to promote African herpetology is a suite of small awards and grants for our members, to promote herpetological activities and research. These will be announced periodically in the AHN and on the FaceBook site, so please keep an eye out for these opportunities.

Our Constitution is being updated and modernized and will now include a Code of Conduct for members. This new version will be sent to all members to ratify (before the end of 2018) before adopting the new version by 2019.

Some exciting news is that African Journal of Herpetology will have a new Editorial Advisory Board by 2019. We will be asking the new Board members to help promote the journal by encouraging colleagues and students to submit their work to the journal.

CHAIRPERSON'S ADDRESS

Don't miss the 2019 conference. Call for abstracts and early bird registration will be in early 2019. Announcements will be on the website and the Facebook site.

If members have comments or recommendations, please contact us at our committee email address: haa.herps@gmail.com

Krystal Tolley
HAA Chairperson

IN MEMORY OF A GREAT MAN: WILLIAM ROY BRANCH

It is with great sadness that we acknowledge the passing of Prof. William Roy Branch, highly acclaimed Port Elizabeth-based herpetologist. Bill, as he was known to everyone, was diagnosed with motor neuron disease earlier this year and passed away on Sunday, 14 October 2018. He was born in London, England on 12 May 1946. Bill studied at the University of Southampton where he remained until completing his Ph.D. degree ('Studies on a foetal-specific alpha-globulin [AFP] in the rabbit'). From

1972 he worked as a scientist in the Life Sciences Division of the Atomic Energy Board in Pretoria doing research on, *inter alia*, liver cancer, but returned to the University of Southampton in 1976 to take up a post-doctoral research fellowship in the Department of Biology studying the synthesis of chemicals in the liver of foetal rabbits.

Bill started working at Port Elizabeth Museum in 1979 and retired in 2011, when he was appointed as Research Associate and Curator Emeritus. Over a period of almost 40 years he conducted field work in about 20 African countries and played a major role in building up the large reptile and amphibian collections at the Museum.

Bill was also an important figure in the Herpetological Association of Africa. He edited the Association's journal in the 1980s and 1990s, and founded the newsletter (now *African Herp News*).

He authored well over 600 publications (including over 150 major scientific articles in peer-reviewed journals), and described (as primary or co-author) about 50 species and 19 genera of reptiles and amphibians. Bill's publications included several books and book chapters on reptiles and amphibians, and he was co-editor of the *Atlas and Red List of Reptiles of South Africa, Lesotho and Swaziland* (2014). One frog and one lizard species, as well as a genus of lizards, were named after him.

Over the years Bill also served on several conference committees, journal editorial committees, co-supervised a number of post-graduate students, examined several university theses, and refereed nearly 200 manuscripts for about 56 different journals. His charm, influence and considerable knowledge of African reptiles and amphibians will be sorely missed in the herpetological community for many years to come.

Bill's memorial took place at home on Saturday, 20 October.

Text by: Michael F. Bates (National Museum, Bloemfontein)
Photo: Warren Schmidt

AHN

ANNOUNCEMENTS

STUDENT AWARDS

The Herpetological Association of Africa would like to award the best student first-authored manuscript, published or accepted for publication in the African Journal of Herpetology in the four issues immediately prior to the next HAA conference. That is, if your manuscript has been accepted for publication in the AJH for issues 66-69, you stand a chance to receive a cash reward of ZAR 5000! To stand a chance of winning this award, submit your manuscript to AJH now! When submitting online, please check the box that indicates that your manuscript is eligible.

Articles will be evaluated by a committee of HAA members, none of whom have students in the competition, and judged based on technical merit, originality, relevance and potential impact on the field of African herpetology, as well as clarity of writing. Announcement of the award will be made at the, 14th Herpetological Association of Africa Conference in 2019.

Conditional clause: the competition will only be run if there were at least two student publications in the last four journal issues.

HAA Committee 2019

STUDENT AND EARLY-CAREER RESEARCHER DEVELOPMENT

The Herpetological Association of Africa is pleased to announce a new initiative aimed at the development of students and early-career researchers in herpetology. Come rub shoulders with the giants and let the networking begin!

Do you have a super cool research project in mind but don't know where to start, and you have no idea about funding opportunities and available resources? Fret no more and come pick the brains of your fellow herpetologists via our Facebook page. Or, are you having trouble figuring out which analytical method to use, or how to make sense of your data for instance? Post your queries on our Facebook page (https://www.facebook.com/pages/biz/Herpetological-Association-of-Africa-144176885638420), and we will try our best to get you expert advice. We are looking forward to stimulating and exciting discussions.

We also post requests for research assistance, advertisements for internships, graduate projects, job openings, and other opportunities that may not be restricted to the field of herpetology. So, keep an eye out, you do not want to miss out on these cool ventures!

What's more, pupils (below the age of 18 years old) and students (registered at a higher education institution) who join the HAA by end Feb 2019 pay for one year and will receive a membership until December 2021! In addition, you will receive the latest newsletter and journal from 2018. That is pay for one year and receive a three-and-a half year membership.

Hanlie Engelbrecht

HAA Committee: Student Issues

AHN CORRECTIONS

In the previous issue, a Table was omitted from the *Psammophis crucifer* article (pp 12-17), which we are rectifying here. Apologies to Richard Boycott for this oversight.

Table 5: Maximum temperatures for October to January over last three summers at Malolotja Nature Reserve. Average maximum for four-month period is given.

Season	October	November	December	January	Average
2013/2014	32.0°C	31.0°C	28.5°C	25.5°C	29.3°C
2014/2015	30.5°C	30.0°C	28.0°C	27.0°C	28.9°C
2015/2016	30.5°C	31.5°C	36.0°C	36.0°C	33.5°C

A FROG FIRST: THE REINTRODUCTION OF THE ENDANGERED PICKERSGILL'S REED FROG, *HYPEROLIUS PICKERSGILLI*, BACK INTO THE WILD

J. TARRANT

The 17th of September 2018 marked an exciting leap for amphibian conservation in South Africa. Through the collaborative efforts of several organisations, the first reintroduction of a captive-bred threatened South African frog species back into the wild took place. This marked the culmination of a decade of work, and is the first major step in a long-term project to be able to reintroduce Pickersgill's Reed Frog, *Hyperolius pickersgilli* (Raw 1982), classified as Endangered by the IUCN (2016), to new or recreated sites *in situ*.

This tiny frog species occurs only in highly fragmented wetland habitat within a narrow strip of the central coast of KwaZulu-Natal, restricted to 12 locations making up just 12 km^2 in area of occupancy (IUCN 2016). However, this is an increase from the previous assessment in 2010 of 9 km^2 (SA-FRoG 2010), meaning the species was down-listed from Critically Endangered to Endangered. The species is threatened primarily by loss and degradation of its coastal wetland habitat caused by rapid urbanization, mining, agriculture and industrialization as well as pollution, and the drying of its habitats caused by invasive plants (Tarrant & Armstrong 2013).

Given its precarious state in the wild at a workshop held in 2008 by the Amphibian Ark, *H. pickersgilli* was prioritised as being suitable for a rescue *ex situ* role. At the time, the species was known only from eight sites. Currently this has increased to 25 sites, but only two of these are protected (at iSimangaliso and Umlalazi Nature Reserve). The Johannesburg Zoo wanted to get involved with amphibian conservation and were approached by Ezemvelo KZN Wildlife to breed *H. pickersgilli* in captivity so that an assurance population could be established, in the event that this species might go extinct in the wild. The assurance population would also be able to provide frogs for reintroduction to the wild to secure and well-managed sites. The first 20 adults were collected in Durban in 2012 and brought into the zoo to begin the breeding programme. Little breeding success was had at this time, however the Zoo continued to care for the frogs and maintain them in good health for about five years. In 2017 a memorandum of agreement was signed between Ezemvelo KZN Wildlife and the Johannesburg Zoo to formalise the process of establishing assurance populations of *H. pickersgilli* and of other endangered herpetological species that are found only in KwaZulu-

Endangered Wildlife Trust's Threatened Amphibian Programme team: (from left to right) Jiba Magwaza, Njabulo Gxabashe, Nonkululeko Nzama, Jeanne Tarrant

Natal. A further 30 adults were collected in September 2017, and very quickly the staff found themselves looking after hundreds of tadpoles, and subsequently juveniles. Much about the species' breeding biology and behavior has been learnt through this project, including development, diet and husbandry – a manual on which has been documenting the process throughout.

The first batch of offspring (F1 generation), comprising 200 individuals bred in captivity made its way back from Johannesburg to the coast on 17 September for release back to Mount Moreland's 'Froggy Pond', an 18 hectare reedbed wetland from which the breeding stock was originally collected. Work done by the Endangered Wildlife Trust and the Mount Moreland Conservancy through support from the Airports Company of South Africa (ACSA) to remove alien vegetation has ensured that the site is well managed and in an improved condition to what it was a few years ago.

The frogs to be released were allowed to acclimatize for a few hours on site (while the humans had a press conference), after which a 'ceremonial release' was held to allow VIPs including several Department of Environmental Affairs representatives who enjoyed wading in to the wetland

and personally releasing a few of these minuscule young frogs!

This project contributes to the Biodiversity Management Plan (BMP-S) for *H. pickersgilli*, which was gazetted by the Department of Environmental Affairs in June 2017. This plan, spearheaded by the Endangered Wildlife Trust, together with Ezemvelo KZN Wildlife, brings together many different organisations, both government and non-governmental, and civil society to effect the recovery of the species , with the ultimate aim that the species will one day be listed as Least Concern by the IUCN. The reward of this collaborative approach between various organisations to this end is also evident today. In addition to the captive breeding programme, the National Zoological Gardens in Pretoria carried out genetic research which has shown that *H. pickersgilli* may be released to the wild throughout its native distribution range (Kotze et al, submitted), and also provided the testing to confirm that the frogs to be released today were free of the lethal chytrid fungus. The Endangered Wildlife Trust is working towards formally protecting sites for the species, and have been rehabilitating wetlands for this frog species through funding provided by the Working for Water Natural Resources Management Programme through the Department of Environmental Affairs, in the process creating 75 jobs for local people across six sites in the Durban area.

It is indeed exciting to be part of a positive conservation story, especially that involving one of our smallest herps on the KZN coast, and the story certainly appealed to the media and was featured extensively both nationally and internationally.

The story will be shown on Episode 22 of 50/50 in October 2018.

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ALEXANDRA EVANS

HABITAT SELECTION OF MADAGASCAR'S DRY FOREST REPTILE SPECIES

Madagascar is home to a plethora of fascinating organisms that are found nowhere else on earth. The reptiles are particularly unique, with a staggering 92% being endemic to the island. Isolation and speciation have resulted in elaborate adaptations, such as occurs in the uncannily leaf-like leaf-tailed geckos, and fine-scale species distributions, with some species occurring only in a particular patch of forest.

The restricted ranges of these endemics, as well as considerable deforestation through logging and agriculture, put many of Madagascar's rarer species at risk of extinction. Terrestrial reptiles are of particular concern, as there has not been sufficient research into their distribution patterns and habitat-use to know which areas to prioritise in conservation. This prompted Alexandra Evans, a Master's student at Wits University, to investigate the occurrence and habitat selection of 37 squamate species (lizards, including snakes, and amphisbaenids) at the Operation Wallacea research station in north-western Madagascar.

Terrestrial reptiles choose their habitats based on opportunities for predator-avoidance, thermoregulation, feeding and social interaction, and prioritisation of these resources differs among species. Vegetation offers shelter and hunting habitat, while open areas can offer basking sites. Proximity of human development such as roads and

Head of a Malagasy leaf-nosed snake (*Langaha madagascariensis*; left) and full profile of a Malagasy leaf-nosed snake (*Langaha pseudoalluaudi;* right.). *L. madagascariensis* photo: Sean Laughlin. *L. pseudoalluaudi* photo: Alexandra Evans

Henkel's leaf-tailed gecko (left) and Malagasy ground boa (right) are highly cryptic reptiles found in north-western Madagascar. Photos: Alexandra Evans

settlements also affects reptile occurrence, with some species preferring sites further from the threat that human development poses, while others take advantage of the hunting and thermoregulation opportunities that transformed habitats provide.

Habitat selection can be modelled in a number of ways, and getting a realistic distribution model for elusive species, such as the highly cryptic Henkel's leaf-tailed gecko or Malagasy ground boa, can be a challenge. Even common species may easily be missed while surveying a transect route through a forest. Hierarchical occupancy modelling addresses this issue by incorporating the incomplete observation process into the ecological occurrence process using data from repeated surveys. Include satellite-derived habitat covariates in the model, and one can remotely assess how likely each species is to occur at sites with different vegetation structure and proximity to human development.

The investigation into the reptiles' habitat selection is still underway, but preliminary analyses indicate that high greenness (density of green vegetation) and low brightness (soil reflectance) are particularly important habitat components for the reptiles, as is distance to settlements. Additionally, the distance of a reptile's location to the edge of the forest patch is critical to some species.

Alexandra is also investigating how occurrence patterns compare among reptile families and Red List Threat status categories. Species that are more sensitive to habitat change have often been more isolated, spatially or otherwise, in their evolutionary histories, and so are highly reliant on specific resources – these species tend to be classified as Threatened by the IUCN, as they are most at risk of extinction from habitat transformation. If a combination of habitat characteristics tends to coincide with a high number of Threatened species, focussing on areas with these characteristic could go a long way in helping us to conserve reptile species at the greatest risk.

AHN ARTICLES

THE KALAHARI PURPLE-GLOSSED SNAKE (*AMBLYODIPSAS VENTRIMACULATA*; ROUX, 1907), A POORLY KNOWN AND OVERLOOKED SPECIES IN SOUTH AFRICA

L. VERBURGT, G. K. NICOLAU & M. VILJOEN

The Kalahari Purple-glossed Snake (*Amblyodipsas ventrimaculata*) is a fossorial species that was thought to favour loose soil in the moist regions of the Kalahari outside of South African borders. Observation records of this species exist from Angola, Botswana, Namibia, Zambia and Zimbabwe (Branch 1998; Broadley & Blaylock 2013; Conradie *et al.* 2017; Uetz *et al.* 2018). However, it has also been observed in South Africa near Vaalwater, Limpopo Province by Egan (2006). This record was overlooked during the compilation of the South African Reptile Atlas (Bates *et al.* 2014) and the species was therefore inadvertently excluded from this publication. Since Egan's (2006) report, an additional five observations of this species have been made in South Africa. In addition, the original observation by Egan (2006) actually involved two individuals, although only one was collected and reported on (Egan, pers. comm.), resulting in a total of seven known observations for South Africa.

It is essential to document the presence of all known species in a country when compiling a national atlas as any omission has potential implications such as exclusion from national conservation assessments (e.g. IUCN) and/or national biodiversity conservation plans. This note therefore collates all known observations of this species in South Africa for future inclusion in a national reptile atlas update, and more immediate evaluation of its local conservation status following the International Union for the Conservation of Nature (IUCN) Red List Categories and Criteria V3.1 (IUCN 2012).

Details of all seven known observations of *A. ventrimaculata* in South Africa are provided in Table 1. Photographs of all individuals (except that of Egan, 2006) are provided in Fig. 1. The extent of occurrence (EOO) in South Africa, as calculated from the minimum convex hull of all know observation locations (IUCN 2012), is 840 km^2 (Fig. 2). The geographic distribution of a fossorial species is likely to be strongly influenced by the geographic distribution and connectivity of suitable soil types, and therefore all observation locations of *A. ventrimaculata* in South Africa were mapped (Fig. 2) in relation to dominant soil types (Dijkshoorn *et al.* 2008). Habitat photographs of two localities are provided in Fig. 3. Five of the seven observations occurred on arenosols (sandy soils featuring very weak or no soil development; FAO

Figure 1. Kalahari Purple-glossed Snakes (*Amblyodipsas ventrimaculata*) observed in South Africa, with Virtual Museum (VM) record numbers. The venter of specimen VM 161824 is also shown.

2009) and two observations were made on lixisols (soils with subsurface accumulation of low activity clays and high base saturation; FAO 2009). The low resolution soil map used and the definition of lixisols (FAO 2009) does not adequately describe the nature of the extensive patches of loose, sandy red soils that exist in the vicinity of the locality at which VM 160171 and VM 162581 were observed (Fig. 3).

It is clear from Fig. 2 and Fig. 3 that *A. ventrimaculata* favours loose sandy soils (as predicted for a fossorial species) and it is almost certainly the intrusion of these soils into the Waterberg range near Vaalwater that allows this species to occur in this area that is otherwise surrounded by unsuitable rocky habitat. The four

observations near Vaalwater were made in the Central Sandy Bushveld vegetation type (SVcb12), while the three observations near Lephalale were made in the Limpopo Sweet Bushveld vegetation type (SVcb19; Mucina & Rutherford 2006). It remains to be determined whether this species occurs further north of Lephalale near Groblersbrug and north of Swartwater where other suitable arenosols occur within the Central Sandy Bushveld vegetation type. Similarly, it is unknown whether the lixisols north of Thabazimbi provide suitable habitat for *A. ventrimaculata*, but it is suggested that these soils may be too hard and compacted due to the high clay content to provide suitable habitat (L. Verburgt pers. obs).

Consequently, the predicted geographic distribution for this species in South Africa consists of the main arenosol body extending from Vaalwater westwards, and includes the Lephalale lixisol body, representing a total area of 6,461 km^2 (Fig. 2), approximately 0.75 % of its global distribution of 858,772 km^2 (Broadley & Egan 2010). The predicted geographic distribution intersects with Marakele National Park (109 km^2), Mokolo Nature Reserve (a provincial

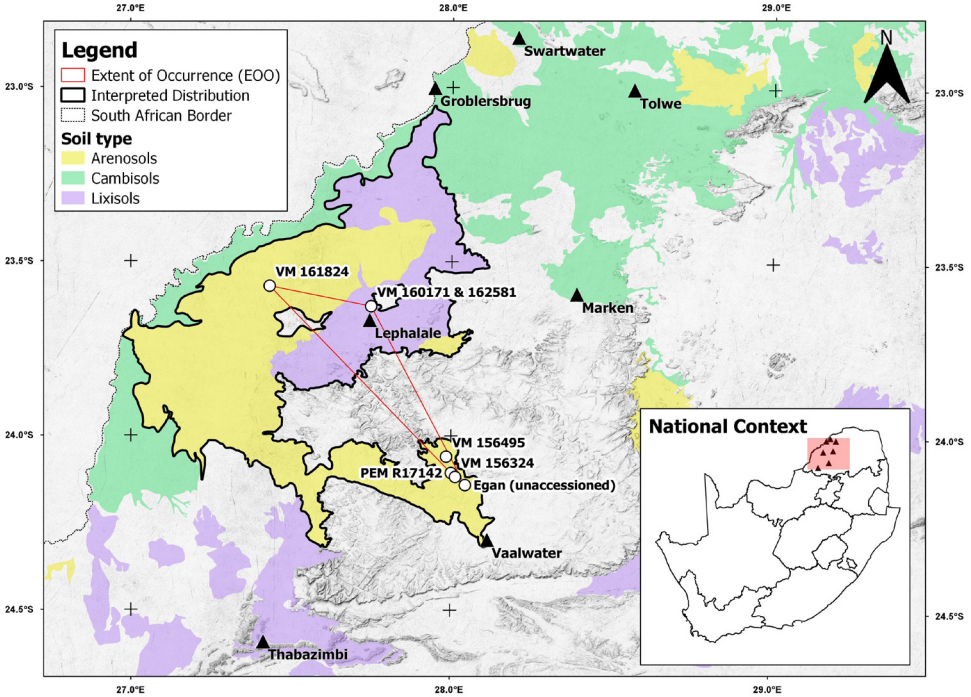

Figure 2. Kalahari Purple-glossed Snake (*Amblyodipsas ventrimaculata*) observation locations (white dots) in South Africa within the context of major soil types and landscape elevation. The virtual museum (VM) record numbers and/or museum accession numbers (PEM) are provided for each observation location where possible. Inset map shows the major towns (black triangles) of the mapped area (red highlight) in the national context.

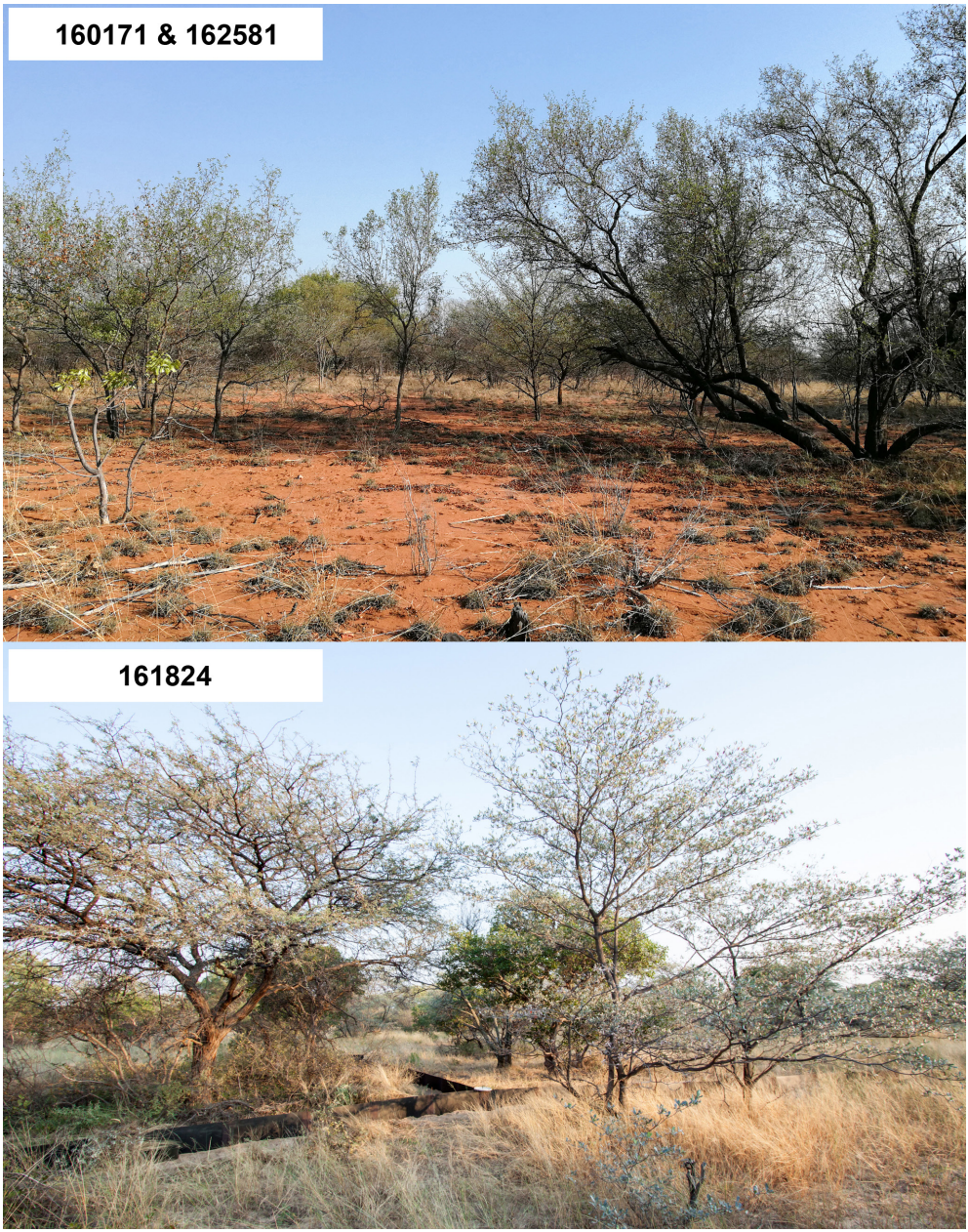

Figure 3. Habitat photographs taken for two of the Kalahari Purple-glossed Snake (*Amblyodipsas ventrimaculata*) localities. The relevant Virtual Museum (VM) record numbers are provided for each photograph.

Table 1. Details for all known observations of the Kalahari Purple-glossed Snake (*Amblyodipsas ventrimaculata*) in South Africa.

Date	Collector/ Observer	Locus	Latitude	Longitude	Specimen or Virtual Museum* (VM) number	Observation notes
2004/11/24	V. T. Egan	2428AA	-24.106111°	28.000833°	PEM R17142	Crossing road at night
2004/11/24	V. T. Egan	2428AA	-24.140700°	28.044900°	-	Crossing road at night
2014/11/14	G. K. Nicolau	2428AA	-24.117480°	28.013935°	VM 156324	Crossing road at night
2015/01/21	G. K. Nicolau	2427BB	-24.059520°	27.985471°	VM 156495	Crossing road at night
2015/02/06	M. Viljoen	2327DA	-23.628932°	27.748948°	VM 162581	Observed inside house during the day
2016/11/22	M. Viljoen	2327DA	-23.628932°	27.748948°	VM 160171	Observed on garden lawn at night, after rains
2017/04/22	L. Verburgt	2327CB	-23.571379°	27.432470°	VM 161824	Trapped in pitfall bucket, during EIA study (15 MSR, 183 Ventrals, 28 subcaudals [excluding terminal spine], 7 subcaudals single, 21 subcaudals paired)

* Animal Demography Unit (ADU) Virtual Museum (VM) (http://vmus.adu.org.za)

reserve; 3 km^2) and 21 other private nature reserves (532 km^2), suggesting a relatively good level of protection in South Africa (~10 %), albeit largely through informally proclaimed protected areas. Tissue of VM 156497 was compared with other samples of this species from Angola and showed no distinct clustering (F. Portillo, unpub. data). Uncorrected p-distance between the two samples of *A. ventrimaculata* was low in the mitochondrial gene 16S (0.3%) (F. Portillo, unpub. data) and therefore it is considered unlikely that the South African specimens represent a distinct lineage.

The most recent observation of *A. ventrimaculata* further highlights the lack of sampling in the Lephalale region of South Africa, from which several noteworthy herpetofauna observations have recently been made, including observations of *Gerrhosaurus auritus* (Bates *et al.* 2014; Verburgt *et al.* 2015), *Pyxicephalus adspersus* (Yetman *et al.* 2015) and *Xenopus muelleri* (Verburgt & Coetzer 2015).

ACKNOWLEDGEMENTS

Vincent Egan is thanked for helpful discussions on his observations of this species; Frank Portillo kindly provided preliminary results of the genetic analysis of this species; Werner Conradie provided helpful comments on an early draft of the manuscript. We thank Tyrone James Ping, Aloise van der Merwe and Delport Botma for permission to use their photographs of

specimens VM 156324, VM 162581 and VM 156495 respectively.

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ELAPIDAE

ELAPSOIDEA SUNDEVALLII LONGICAUDA (SMITH, 1848)

LONG-TAILED GARTER SNAKE

L. VERBURGT, T. BODBIJL & J. MARAIS

Very few articles have been published on envenomation from snakes in the genus *Elapsoidea*. Ashe (1965) reported on a bite from *Elapsoidea sundevallii guntheri* where the victim experienced an immediate tingling sensation and slight pain at the site of the bite on a finger. Within two hours the venom had affected the lymph glands in the armpit and fourteen hours later the upper arm was painful when touched and the lymph gland in the armpit very swollen. A day and a half after the bite the finger was a little tender and stiff. Newberry (1980) was bitten on the little finger by *Elapsoidea sundevallii fitzsimonsi*, and within five minutes the finger became red and swollen and was difficult to move. Minor pain was reported. In the next 90 minutes the finger became very swollen with the joints in the wrist and elbow experiencing slight pain. Within two days the swelling had subsided, the pain was gone and only slight stiffness in the finger remained. Bennefield (1982) reported on a bite from large *Elapsoidea semiannulata boulengeri* (subsequently elevated to E. *boulengeri*, Broadley 1998) on a thumb. The victim, a snake handler, experienced a sharp, stinging pain and some bluish discoloration within 10 minutes. He briefly experienced nasal congestion which disappeared within 75 minutes. After 90 minutes the hand began to swell and the index finger was extremely painful when touched. Six hours after the bite the hand and wrist was swollen and the thumb could not be bent. The swelling had extended into the lymph glands in the arm pit and was very painful. Although the swelling and pain disappeared within three days, some swelling reappeared three days later with minor blistering.

The long-tailed garter snake (*Elapsoidea sundevallii longicauda*) has a fairly expansive geographic distribution, occurring in southern Mozambique, through the northern and eastern parts of the Limpopo province in South Africa and into southeast Zimbabwe (Branch 1998; Marais 2004; Broadley & Blaylock 2013). Despite this widespread occurrence, relatively little information exists on the effects of the venomous bite of this sub-species, probably because they are nocturnal, fossorial and are generally reluctant to bite. The venom of this species is purportedly mildly cytotoxic and neurotoxic and symptoms from the bite have been recorded to include painful swelling, minimal bite site necrosis, regional

lymphadenopathy, nausea, vomiting, squint, impaired balance, blurred vision and loss of consciousness (Branch 1998; Broadley & Blaylock 2013). This note collates the accounts from two separate envenomation incidents by long-tailed garter snakes.

On 25 October 1980, while removing a live, uneaten mouse from cage by hand, TB (25 yr. old, white female, existing low blood pressure, reasonably good medical background) was bitten on the right index finger (single fang puncture) by a captive long-tailed garter snake (SVL ≈ 75 cm) originating from near Lephalale, Limpopo Province. No medicinal drugs other than those reported were taken and no alcohol was consumed during the observation period. This account was originally published in Nyoka News shortly after the incident but unfortunately, no record of this publication or its original reference could be obtained.

CHRONOLOGICAL SYMPTOMATIC ACCOUNT

25 October 1980

- **21:15** – Mild, localised pain, far less painful than a wasp- or bee-sting, soon disappeared, leaving slight stiffness of joint below bite.
- **21:25** – Onset of euphoria alerted victim to possible progression of neurotoxic symptoms. Victim took 2 Allergex (5 mg) tablets (antihistamine) and prepared for possible intra-muscular injection of antihistamine (Phenergan 10mg/ml) and cortisone (Cortisol 500 mg/ml), based on progression of symptoms. No swelling developed at site of bite.
- 21:30 – Victim reported taking a bath & becoming more euphoric.
- 21:35 – Mild dizziness accompanying euphoria, but victim alert enough to record the progression of symptoms & time.
- 21:45 – Rapid onset of nausea & sudden, uncontrollable vomiting. Took second dose of 2 Allergex tablets, but by now had developed visual- (double vision) and balance disturbances. Victim felt faint, which was attributed to sudden drop in blood pressure caused by shock. Victim lay down in recovery position, with mouth over edge of bed in the event of further vomiting, before losing consciousness for 15 minutes.
- 22:00 – Woke up, needed to vomit again, but unable to walk due to moderate visual- and severe balance disturbances. Crawled to bathroom & vomited.
- 22:10 – Victim prepared for intra-muscular injection of 1 vial of Phenergan & 1 vial of Cortisol. Neurological symptoms caused difficulty in handling the vials, filling the syringes and seeing upper leg surface clearly – the site chosen for injection. With one eye closed, victim pinched leg muscle with one hand and stabbed needle in. Unable to feel or see if needle penetrated, victim reported swiveling syringe before injecting contents. Successful administration accomplished, victim waited for further symptoms to

develop, but reported there were none.

- 22:40 – Apart from persistent, severe balance and visual disturbances, including mild ptosis, victim felt well enough to crawl and cleaned up vomitus on bedroom floor before retiring.

26 October 1980

- 06:30 – Abating balance disturbance, with persistent visual disturbance and mild ptosis. Victim took 2 Allergex tablets, ate breakfast and followed a regime of 2 Allergex, taken 4-hourly, while remaining in bed.
- 15:00 – Visual disturbance had abated sufficiently to drive to general practitioner who pronounced condition satisfactory and advised continuation of existing Allergex treatment regime until symptoms disappeared. Oral antibiotics were prescribed to prevent infection at site of bite.
- Victim reported uneventful recovery & returned to work the next day.

On 7 February 2014, while removing a long-tailed garter snake (SVL: 60 cm; 167 ventrals; 28 paired subcaudals; Fig 1) from a funnel trap near Lephalale, Limpopo (23° 35' 54.2" S, 27° 39' 17.5" E), it thrashed in the typical side-to-side fashion of this species and immediately inflicted a bite upon making contact with the unprotected left hand of LV (37 yr. old, white male, healthy and fit). Judging by the puncture wounds and the swelling around each, it appears that the snake first punctured the skin with a fang between the knuckles of the pinkie and ring finger and then slipped/released

Figure 1. Long-tailed garter snake (*Elapsoidea sundevallii longicauda*) responsible for the bite to L.V.

and bit down on top of the hand with a single fang where greater envenomation took place. The symptoms of the bite were chronologically documented with accompanying photographs (Fig. 2). No medicinal drugs were taken and no alcohol was consumed during the observation period.

CHRONOLOGICAL SYMPTOMATIC ACCOUNT

7 February 2014

- 07:54 – Bite to upper left hand occurred. Slight localized pain at site of bite, mostly from fang puncture wounds.
- 08:20 – Slight swelling and some discolouration (Fig. 2A). Onset of mild neurological symptoms in the form of light-headedness. No increase in

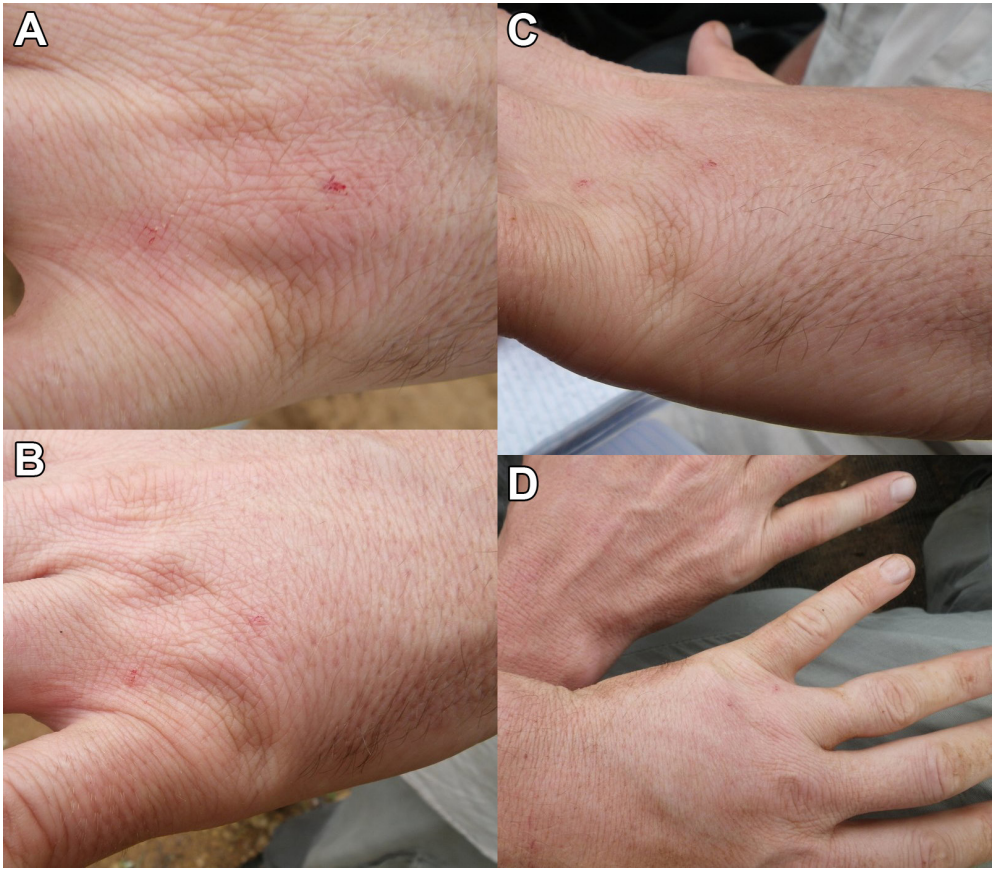

Figure 2. Photographs showing the local symptoms experienced by LV from envenomation by a long-tailed garter snake.

localized pain.

- 09:10 – Slight increase in swelling, no local pain (Fig. 2B). Several spells of dizziness (similar to that of orthostatic hypotension) with mild nausea occurring at irregular intervals. Skin on face feels "tight" and tingling slightly.
- 11:10 – Local swelling persists (Fig. 2C), onset of slight localized pain, especially if the swollen area was touched/bumped. Dizziness and mild disorientation persisting with slight sense of euphoria, onset of craving for sweet food satiated by a chocolate and soft drink.
- 13:32 – After continued active searching for reptiles for an hour, the swelling became more prominent and pain increased slightly (Fig. 2D). Pain and discomfort was experienced in the knuckles when hand was flexed. No symptoms of dizziness.

8 February 2014

- 08:00 – Slight swelling still persists. No pain in knuckles but prominent pain in tendons when hand was flexed.

9 February 2014

- 08:00 – Swelling completely subsided and no pain or other symptoms remaining.

The symptomatic accounts presented above confirms the mildly cytotoxic and neurotoxic venom effects previously documented for this species (Broadley & Blaylock 2013). It is interesting to note that neither victim reported regional lymphadenopathy as described in bites reported above.

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FURTHER OBSERVATIONS ON THE NATAL PURPLE-GLOSSED SNAKE *AMBLYODIPSAS CONCOLOR* (SERPENTES: LAMPROPHIIDAE) IN eSWATINI WITH AN ASSESSMENT OF ITS REGIONAL STATUS

R. C. BOYCOTT

The first specimen of *Amblyodipsas concolor* from eSwatini (formerly Swaziland) was collected from a predating *Naja mossambica* in October 1977. The locality, Blue Jay Ranch, Ndzindza Nature Reserve now incorporated into the Mlawula Nature Reserve, is situated on the Lubombo Plateau in north-eastern eSwatini (*ca*. 26°13'S; 32°03'E). No further specimens were encountered until December 1991 when a second specimen was collected from a soil pit on Muti Muti Private Nature Reserve on the western rim of the Lubombo Plateau (*ca*. 26°30'02"S; 31°58'04"E). Both localities were recorded by Boycott (1992) who suggested that the species was confined to the Lubombo Plateau in eSwatini. Four years later two more specimens were recorded from western eSwatini suggesting that the species was more widespread than previously believed (Boycott 1995). The first of these specimens came from Mbabane (*ca*. 26°18'05"S; 31°08'06"E) and the second from the slopes of Bulembu Mountain (*ca*. 25°54'54"S; 31°09'15"E) in north-western eSwatini. All these records appear on the distribution map for *A. concolor* in the Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland (Burger 2014). The Atlas includes an additional locality record for the species from the Lubombo Plateau in eSwatini or Mozambique from the grid cell 2632AC. With no mention of the record in the text, and in the absence of specific locality details, the record requires confirmation.

Since 1995 additional observations of the species in eSwatini have been made. Two more specimens were recorded from Mbabane, one of which from Dalriach (*ca*. 26°17'08"S; 31°08'01"E), represents the largest specimen on record (Boycott 2009). Subsequently, the species has been recorded from Waterford School (*ca*. 26°18'19"S; 31°06'27"E), in November 2014 (pers. obs.), and more recently from Malolotja Nature Reserve (*ca*. 26°08'39"S; 31°08'22"E) in November 2016 (Fig 1), both localities being situated in temperate montane grassland. The Malolotja Nature Reserve record from the grid cell 2631AA represents a new distribution record for the species in Southern Africa.

Initially the habitat of *A. concolor* was described as moist, well-wooded or forested regions (Broadley 1983; Branch 1988). This was also found to be the case with regard to the first few records of the species from eSwatini originating from thick bush and forest on the Lubombo Plateau. The species was first recorded from montane grassland

Figure 1. *Amblyodipsas concolor* juvenile specimen from Malolotja Nature Reserve. Photo: Richard Boycott.

by Jacobsen (1989). With the acquisition of additional records from western eSwatini, namely Mbabane and Bulembu Mountain, Boycott (1995) also records the species from moist montane grassland. Subsequently this was supported by Marais (2004) in his notes on the preferred habitat of the species, as well as further observations from the Wolkberg in northern South Africa (Burger 2014), and from Malolotja Nature Reserve as reported in the present account. In eSwatini the species occurs between 650 m and 1 510 m a.s.l. which falls within the range of 14 m to 1 650 m recorded by Burger (2014). Habitat details for eSwatini specimens of *A. concolor* are listed in Table 1.

The broadly flattened head, indistinct from the neck, and the very small eyes together with the cylindrical body and short tail are features typical of a burrowing species. Observations on captive animals indicate that the species spends considerable time underground or buried in various substrates such as damp soil, leaves or grass (Douglas 1982; Pietersen & Pietersen 2006; Boycott 2009). It has been suggested that the species surfaces in the rainy season (Jacobsen 1989) or after heavy rain (Boycott 2009) when it becomes more active above ground. In captivity it has been noted that the species will emerge in order to search for food and to shed its skin (Douglas 1982).

From various sources it appears as if *A.*

Table 1. Habitat details for eSwatini *Amblyodipsas concolor*.

Source	Date	Locality and grid cell	Habitat and altitude
TM50784	October 1977	Blue Jay Ranch, Lubombos (2632AA)	Dense dry forest (650m)
TM71837	December 1991	MutiMuti Private NR, Lubombos (2631DB)	Moist forest (715m)
TM78798	February 1994	Veni village, Mbabane (2631AC)	Moist montane grassland (1 200m)
TM79982	July 1995	Bulembu Mt. (2531CC)	Moist montane grassland (1 380m)
DM1746	February 2009	Dalriach, Mbabane (2631AC)	Moist montane grassland (1 340m)
Photos	November 2014	Waterford School, Mbabane (2631AC)	Moist montane grassland (1 300m)
Photos	November 2016	Malolotja Nature Reserve (2631AA)	Moist montane grassland (1 510m)

concolor is primarily active at night. This is substantiated by observations made on captive specimens that were most active between 6:00 p.m. and 5:00 a.m. (Bourquin 1970; Pietersen & Pietersen 2006). It appears, from the few documented cases, as if most of the specimens found in the wild have been dug up or ploughed up, or found sheltering under stones, rocks or rotting logs (Bourquin 1970; Broadley 1983; Jacobsen 1989; Haagner 1994; Boycott 1995). Observations made in eSwatini have revealed that the species may be active during the day and at night. In February 2009 an adult female, the largest specimen on record, was collected on an overcast humid day at around midday (Boycott 2009), indicating that the species may be encountered during the daytime. It was also apparent from the large girth of the snake that it had consumed a large prey item. More recently in November 2014, the Waterford specimen was found crawling into a flowerbed at 7:45 p.m.

It has been suggested by several authors that *A. concolor* is a rare and poorly known species (FitzSimons 1962; Pienaar 1978; Broadley 1983; Branch 1988; Jacobsen 1989; Marais 1992; Haagner 1994). Jacobsen (1989) states that while some species, such as *A. concolor*, are very rare, other species of *Amblyodipsas* are more often encountered. Other authors are of the opinion that it is fairly widespread, and may be common at certain localities, and that its perceived rarity may be due to its secretive fossorial habits (Marais 2004; Burger 2014). The fact remains that over the last three decades, despite a number of thorough regional reptile surveys, relatively few specimens have been collected. To illustrate this it is pertinent to track the progress of the accumulation of distribution records for the species in South Africa and eSwatini (Table 2).

In his treatment of southern African snakes, FitzSimons (1962) did not present a distribution map for the species. The species at the time known by the name of *Choristocalamus concolor*, was recorded from just three localities (Broederstroom, Woodbush, Durban) located in two widely separated grid cells, namely 2329DD and 2931CC. Twenty-one years later Broadley (1983) records three additional localities for the species (Politsi, Phaben, Hluhluwe

Table 2. Progressive accumulation of distribution records for *Amblyodipsas concolor* in South Africa and eSwatini.

Published source	Number of grid cells	Number of new records
FitzSimons 1962	Not mapped	3 localities
Broadley 1983	6	3
Jacobsen 1989	6	3
Boycott 1992	2	2
Haagner 1994	1	1
Boycott 1995	4	2
Bourquin 2004	12	10

Game Reserve) from three more grid cells these being 2330CC, 2531AA and 2832AA respectively. Over the next two decades three detailed regional surveys were conducted in the former Transvaal province (Jacobsen 1989), eSwatini (Boycott 1992) and KwaZulu-Natal (Bourquin 2004). During these respective surveys the species was recorded from two additional grid cells by both Jacobsen (1989) and Boycott (1992), and from ten more grid cells by Bourquin (2004). Following these surveys, over the next decade, the species was recorded from eleven more grid cells, nine in South Africa and two in eSwatini, these being documented in the Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland (Burger 2014). With *A. concolor* being recorded from just over thirty quarter degree grid cells in half a century, its status as a rare snake seems to be justified.

Concern over the conservation status of *A. concolor* has been expressed by some authors (Jacobsen 1989; Pietersen & Pietersen 2006), who believe the species may be threatened by habitat loss through afforestation in the escarpment areas of north-eastern South Africa. Jacobsen (1989) suggests that the species may have occurred more widely prior to the afforestation of a large part of the eastern escarpment region in the former province. The same argument could be applied to the populations in western eSwatini. Boycott (1995) records a specimen collected under a rock in a narrow strip of moist montane grassland serving as a firebreak in the middle of extensive pine plantations on the lower slopes of Bulembu Mountain. Large parts of the temperate montane grassland biome in western eSwatini have been planted to pine and gum. The only remaining extensive area of montane grassland is to be found in the Malolotja Nature Reserve, from which the species has recently been recorded. Other possible causes of habitat loss could be alien plant invasion, by black wattle and blackwood, and urbanization as has occurred in and around Mbabane. Despite this the species is still encountered on the outskirts of the city (Boycott 2009 and pers. obs.).

By contrast the KwaZulu-Natal populations may be more secure than the inland populations of north-eastern South Africa and eSwatini. The species is

recorded from forested habitat in the low-lying and coastal physiographic regions of the province (Bourquin 2004). Large tracts of such habitat are protected in nature reserves and coastal marine reserves, with the species being recorded from sea level to 400 m a.s.l. (Bourquin 2004). This has probably accounted for the species being accorded, in the Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland, its conservation status of Least Concern (Burger 2014). In support of the concern expressed by Jacobsen (1989) and Pietersen & Pietersen (2006) who considered the species to be threatened, it is recommended that the conservation status of *A. concolor* be urgently reassessed. In order to achieve this, more intensive surveys in the northern part of South Africa are required to determine the abundance, habitat and distribution of this endemic species.

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TESTUDINIDAE

Chersobius boulengeri
(Duerden, 1906)
Karoo Padloper

REPRODUCTION

V. J. T. LOEHR

We have little information on reproduction in Karoo Padlopers, *Chersobius boulengeri* (Duerden 1906). Three notes provide some information on oviposition period and female, clutch and egg sizes, and one note speculates about a possible nesting site (Haagner 1990; Boycott & Bourquin 2000; Loehr 2017). The deteriorating conservation status of *C. boulengeri* (i.e., from Near Threatened to proposed Endangered in the IUCN Red List of Threatened Species; A.G.J. Rhodin, pers. comm.) demands a better understanding of reproduction in *C. boulengeri*.

On 21 February 2018, I found a hatchling *C. boulengeri* sitting next to an eggshell under an overhanging rock (Figs 1 and 2) near Williston, Northern Cape Province, South Africa. The hatchling had an egg tooth but its shell was unfolded, indicating that it had hatched several days before, possibly after a rainfall event on 14 February. The shell dimensions of the hatchling were

Figure 1. Hatchling *Chersobius boulengeri* sitting next to its eggshell under an overhanging rock.

Figure 2. Position of the overhanging rock (red circle) in the landscape.

31.25 mm (straight carapace length), 28.71 mm (maximum shell width), 17.30 mm (maximum shell height) and 28.64 mm (straight plastron length), with a body mass of 9 g. The rock overhang had a depth of 180 mm and a height of approximately 30 mm at the (deepest) depth where the tortoise was sitting. The overhang had one opening, which was directed towards the east.

This appears to be the first publication reporting hatchling characteristics in *C. boulengeri*. The record confirms previous speculation that *C. boulengeri* might select oviposition sites under rocks. However, I also found remains of what seemed *C. boulengeri* eggshells under shrubs at the same site. This record indicates that hatchlings may hatch in summer. Given a published oviposition period "December and January" (Boycott & Bourquin 2000), *C. boulengeri* eggs may have a long incubation period, or may be produced in other months too.

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CHAMAELEONIDAE

Chamaeleo dilepis
(Leach, 1819)
Flap-neck chameleon

TORPOR REFUGIA

P. R. JORDAAN, P.U. ELS
& A.B. WOOLCOCK

Due to the cryptic nature of chameleons, observations surrounding their basic ecology and life history are generally lacking (Reaney *et al*. 2012; Measey *et al*. 2014). This is true for even widely distributed species such as the Flap-necked Chameleon *Chamaeleo dilepis* Leach, 1819 (Reaney *et al*. 2012) which occurs throughout southern-, central and eastern Africa (Branch 1998; Tolley and Burger 2007; Tolley 2014), occupying savanna, woodland, thicket and grassland habitats (Tolley & Burger 2007; Tolley 2014).

On the 24th of June 2017, whilst conducting surveys on Ithala Game Reserve, a female *C. dilepis* (SVL 54 mm) was found beneath a rock (diameter of approximately 0.5 m) in an old cultivated land dominated by *Hyperrhenia hirta* (27°32'2.80"S 31°17'22.60"E). The elevation of the site was roughly 890 m. The chameleon was tightly curled up beneath the inner edge of the rock in a shallow depression within the soil (Fig. 1) amongst what appeared to be invertebrate droppings. Its coloration was dark purple-brown (Fig. 2). The observation occurred at 11:35 under cloudy weather conditions. Upon exposure from the rock cover, it slowly became active changing colour to a light green shade.

Alexander and Marais (2007) suggested that *C. dilepis* may enter a stage of torpor in some portions of its range, alluding to reports where members of the species have been unearthed during austral winter excavations. Other reports recount periods of winter inactivation on exposed branches for an individual in Pretoria, whilst active *C. dilepis* were documented on the "Natal coast" during winter (Wagner 1983). Whilst several other chameleon species (e.g. *Bradypodion thamnobates* in the Drakensberg) have been recorded to seek out stable refuge when entering states of aestivation during cold periods (Measey *et al*. 2014) this has not officially been published for *C. dilepis*.

Figure 1. The position of the *Chamaeleo dilepis* in relation to the rock impression.

Figure 2. Observed *Chamaeleo dilepis in situ* after exposure from its refugia under the rock.

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VIPERIDAE

Bitis arietans arietans
(Merrem, 1820)
Puff Adder

FORAGING STRATEGY

M. PETFORD, R. VAN HUYSSTEEN & G. K. NICOLAU

On 9 January, 2018, at 21:50 while driving between Vivo and Lajuma Research Centre on the R522, we encountered an adult female Puff Adder (*Bitis arietans arietans*) with an estimated snout-vent length of around 500mm. The snake was on the road consuming a dead on road rodent (23°03'32"S, 29°19'34"E; Fig. 1). The medium-sized rodent was unidentifiable to species level due to its condition but was in the family Muridae. The rodent's body was flattened and appeared to have been driven over by multiple vehicles. Due to the state of the rodent, the snake struggled to remove it from the surface of the road.

Once the snake had managed to pull it off of the tar, it swallowed it quickly on the road before moving off into the grassy verge. Conditions during time of observation were high humidity, little wind, air temp of 25 °C and road surface temp of 32 °C.

Globally, records of snakes scavenging carrion have been recorded in several groups including colubrids, elapids and viperids (DeVault & Krochmal 2002; Phelps 2006; Ucha & Santos 2017; J. Marais pers. comm. 2017). Only six species of snake have been formally documented consuming roadkill (Ucha & Santos 2017). This observation is significant as it is the first record for *Bitis arietans arietans* scavenging.

B. a. arietans are well known ambush predators, commonly consuming rodents and toads from an ambush site (Marais 2004). Recently, they have been documented to use luring techniques, adaptations for life as ambush predators (Glaudas & Alexander 2017a).Yet Puff Adders are opportunistic predators that feed on all classes of terrestrial vertebrates (Glaudas *et al.* 2017), and a recent study experimentally demonstrated that underfed puff adders travelled longer distances, presumably looking for suitable ambush sites (Glaudas & Alexander 2017b). This note shows that,

Figure 1. *Bitis arietans arietans* (VM 336126) consuming unidentifiable rodent road kill. Photo Gary Kyle Nicolau.

despite being largely ambush hunters *B. a. arietans* will also opportunistically feed and turn to scavenging while they travel. It is clear that more research looking into scavenging of Viperidae in South Africa is needed to identify if this is a common occurrence or whether the recent dry conditions in Limpopo contributed to this event.

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LAMPROPHIIDAE

Psammophis brevirostris
Peters, 1881
Short-snouted Grass Snake

DIET

R. C. BOYCOTT

The Short-snouted Grass Snake, *Psammophis brevirostris* (Fig. 1), is widespread in southern Africa (Bates *et al*. 2014) and occurs at several localities throughout eSwatini (Boycott 1992a; Boycott & Culverwell 1992). It is a common species in the Barberton and Kangwane Montane Grasslands vegetation type (Dobson & Lotter 2004) of western eSwatini. The present paper adds a further unusual item of prey to the diet of *P. brevirostris*, and summarises what is currently known of its diet in southern Africa.

One of the first accounts on diet in *P. brevirostris* was documented by Jacobsen (1989) who provides a list of prey species comprising mostly lizards and a rodent (Table 1). Marais (1993) records a specimen feeding on a juvenile striped fieldmouse (*Rhabdomys pumilio*) and later lists a wide variety of prey items for the species including other snakes, lizards, frogs, rodents and small birds (Marais 2004). Branch & Haagner (1999) provide the first record of a fossorial lizard (genus *Acontias*) in the diet of *P. brevirostris*. Shine *et al*. (2006) suggest that the preferred prey of *P. brevirostris* is lizards, especially scincids of the genus *Trachylepis*. Cottone & Bauer (2007) report on another mammalian prey item when they recorded a climbing mouse (*Dendromus melanotis*)

Figure 1. Short-snouted Grass Snake, *Psammophis brevirostris*, from eSwatini. Photo: Richard Boycott

Table 1. Recorded prey items in the diet of *Psammophis brevirostris* in southern Africa.

Prey Species	Family	Source
Mammals		
Praomys (Mastomys) natalensis	Muridae	Jacobsen 1989
Rhabdomys pumilio	Muridae	Marais 1993
Dendromus melanotis	Muridae	Cottone & Bauer 2007
Reptiles		
Trachylepis punctatissima	Scincidae	Jacobsen 1989
Trachylepis varia	Scincidae	Jacobsen 1989
Trachylepis variegata	Scincidae	Shine *et. al.* 2006
Trachylepis sp.	Scincidae	Shine *et. al.* 2006
Acontias sp.	Scincidae	Branch & Haagner 1999
Ichnotropis capensis	Lacertidae	Jacobsen 1989
Gerrhosaurus flavigularis	Gerrhosauridae	Jacobsen 1989
Chamaesaura sp.	Cordylidae	Boycott this study

in the diet of *P. brevirostris*. Little else on specific dietary items has been documented with only general items being mentioned in most books and field guides.

On dissecting the stomach and part of the intestinal tract of a road kill specimen (TM69381) collected in February 1990 from Malolotja Nature Reserve, the remains of a grass lizard, *Chamaesaura* were found. These lizards have been recorded in the diet of two other southern African psammophines, namely *Psammophis crucifer* and *Psammophis notostictus* (Branch & Bauer 1995; Shine *et al*. 2006; Cottone & Bauer 2010). At the time of collection of the *P. brevirostris*, only *C. anguina* had been recorded from Malolotja so it was assumed that the species inside the snake's gut was *C. anguina*. However, subsequently the other two southern African species of *Chamaesaura*, *C. aenea* (TM70967) in April 1991, and *C. macrolepis* (DM1685) in April 1995, were also found to occur in the nature reserve. Based on a better understanding of the habitat selection of all three species of *Chamaesaura* in Malolotja Nature Reserve (Boycott 2014), the possibility exists that the specific identity of the gut specimen could be either *C. anguina* or *C. macrolepis*. The specific identity could not be confirmed as the *P. brevirostris* specimen could not be traced (Lauretta Mahlangu, pers. comm., Ditsong National Museum of Natural History). The *P. brevirostris* was collected on the Nkomati View Point road at an altitude of 1385 m a.s.l. (co-ordinates: circa 26°07'02"S; 31°07'40"E). *Chamaesaura aenea* can be excluded as a possibility as it does not occur below 1500 m in the reserve,

whereas *C. anguina* and *C. macrolepis* occur sympatrically along the Nkomati View Point road between 1220 m and 1440 m a.s.l. (vide Boycott 2014).

This addition to the diet of *P. brevirostris* is not surprising as both *Chamaesaura anguina* and *Chamaesaura macrolepis* are amongst the most common lizards in Malolotja Nature Reserve, and occur in the same habitat as *P. brevirostris*. This represents an additional lizard family in the diet of *P. brevirostris* which has now been recorded preying on members of the scincid, lacertid, gerrhosaurid and cordylid lizard families (Table 1). Of the prey items listed in the table, all three rodents *Rhabdomys pumilio*, *Praomys* (*Mastomys*) *natalensis* and *Dendromus melanotis* have been recorded from Malolotja Nature Reserve (Monadjem 1998). Some of the lizards, namely *Trachylepis varia*, *Trachylepis punctatissima* and *Gerrhosaurus flavigularis*, have also been recorded from the nature reserve (Boycott 1992b). In this instance the value of collecting road killed specimens of snakes has been highlighted with a new addition to the diet of *P. brevirostris* being discovered.

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ELAPIDAE

Naja mossambica

Peters, 1854
Mozambique Spitting Cobra

MAXIMUM SIZE

N. EVANS

Mozambique Spitting Cobras (*Naja mossambica*) are frequently recorded in the larger eThwekwini Municipality, KwaZulu-Natal Province, South Africa and I am frequently called to remove them. On two occasions I removed exceptionally large individuals. The first specimen was removed on the 24 September 2015 from a garden in Queensburgh. It was a male with total length of 1725 mm (unfortunately the snout-vent-length was not measured). The second individual was collected on 2nd of February 2017, in Northdene. This was a large female that measured 1810 mm (1620 mm SVL + 190 mm tail length). Branch (1998) reported the maximum SVL for *Naja mossambica* to be 1285 mm for males and 1270 mm for females. This is based on the maximum sizes provided by Broadley (1983) for males (NMZ 973 from Essexvale, Zimbabwe: 1543 mm - 1285 mm+258 mm) and for females (UM 16070 from Mompswe, Botswana: 1525 mm - 1270 mm+255 mm). The new maximum lengths for males as 1725 mm and for females as 1810 mm presented here represent an increase of 11.8% and 18.7% of the known maximum size for males and females respectively.

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COLUBRIDAE

Philothamnus
(A. Smith, 1847)

PREDATION

B. MARITZ

On 25 January 2018, Mrs M. Wright-Ingle of Richard's Bay, KwaZulu-Natal, South Africa (2832CA; exact address not disclosed) observed a California kingsnake (*Lampropeltis califoniae*) capture and consume a wild, native Green snake, *Philothamnus* sp. (Fig. 1) in her garden. The Kingsnake was left to complete the meal and presumably escape back into the garden. The observation was posted on social media, where it was brought to the author's attention. This is the first reported evidence of consumption of a native predator by a non-native snake that is likely to have originated from the pet trade in southern Africa.

California Kingsnakes (*Lampropeltis californiae*, formerly *L. getula californiae*) are medium-sized (typically 700-1000 mm total length) constrictors that are native to North America, occurring from northern California, southwards to north-western Mexico (Stebbins 2003). These snakes are generalist predators, consuming a wide range of prey, including small mammals, birds (including eggs), amphibians, and reptiles including other snakes (Stebbins 2003). *Lampropeltis* spp. including *L. californiae* are common in the South African pet trade, with even a cursory web search revealing advertisements for adult and hatchling animals for sale. The total number of individual *L. californiae* in captivity in South Africa is unknown, but estimates from local snake breeders suggest thousands to tens of thousands of individuals (J. Marais, pers comm). The prevalence of these animals in the pet trade and the propensity for captive snakes to escape has resulted in numerous escapee animals being reported on social media, searchable on www.facebook.com/groups/snakesofsouthafrica, and in the formal literature (Bates *et al.* 2014). These records are likely to represent only a small proportion of the total number of escapees suggesting that this observation is unlikely to be an isolated event.

Although seemingly innocuous, this

Figure 1: California Kingsnake (*Lampropeltis californiae*) photographed in Richards Bay, KwaZulu-Natal, South Africa in the process of consuming a green snake of the genus *Philothamnus*. Photo: M Wright-Ingle.

observation is ecologically significant as it provides evidence for an escapee non-native species interacting with indigenous fauna.

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GEKKONIDAE

Ptenopus garrulus maculatus
Gray, 1866
Common Barking Gecko

COMMON BARKING GECKO IN SOUTH AFRICA

A.D. REBELO, P. R. JORDAAN & W. CONRADIE

Active searches during Karoo BioGaps herpetofaunal surveys in the greater Karoo region of the Eastern Cape Provinces of South Africa produced two new localities for *Ptenopus garrulus maculatus.* Individuals were heard calling at the Doringkraal farm, approximately 30 km east-southeast of Jansenville on 31 October 2017 and at the Rooidraai farm, 39.1 km west of Aberdeen on 2 November (Figs 1 & 2). Voucher specimens from each locality were collected and catalogued into the Port Elizabeth Museum and DNA samples deposited in the South African National Biodiversity Reptile Tissue Bank (Table 1). Individuals were observed calling from exposed and partially submerged positions in open scrub plains with either sand or gravel substrate, at Rooidraai and Doringkraal farms, in the Eastern Lower Karoo and Southern Karoo Riviere vegetation types, respectively (Mucina *et al*. 2006). The subspecies was identified as *Ptenopus g. maculatus* by the dorsal patterns, which consisted of large blotches, in addition to the larger dorsal scales relative to *Ptenopus g. garrulus* (Haacke 1975). Subspecies status was further inferred from their eastern position in their distribution range (Bates *et al*. 2014). Although *Ptenopus g. maculatus* occurs extensively in the Western Cape and is known from close to the escarpment near Graaff-Reinet and Aberdeen, these new records fill the gap between the Western Cape (Rietbron) and Aberdeen, and also extend the distribution approximately 80 km south-southeast of Graaff-Reinet (Bates *et al*. 2014). It is likely to have been overlooked due to its fossorial and nocturnal/crepuscular habits. The Eastern Lower Karoo vegetation type is extensive between Beaufort West and Aberdeen in the catchment of the Beervlei river system. Southern Karoo Riviere vegetation type is widespread in the Little Karoo, and found along the Grootrivier to the east of Steytlerville, from Graaff-Reinet to Darlington Dam and even as far

Table 1. The Port Elizabeth herpetological collection catalogue numbers with the collection site details.

Catalogue numbers	Collection site	Elevation (m)	Decimal Latitude	Decimal Longitude
PEM R23118-21	Doringkraal farm	305	-33.047877	24.961099
PEM R23122	Rooidraai farm	860	-32.464519	23.633015

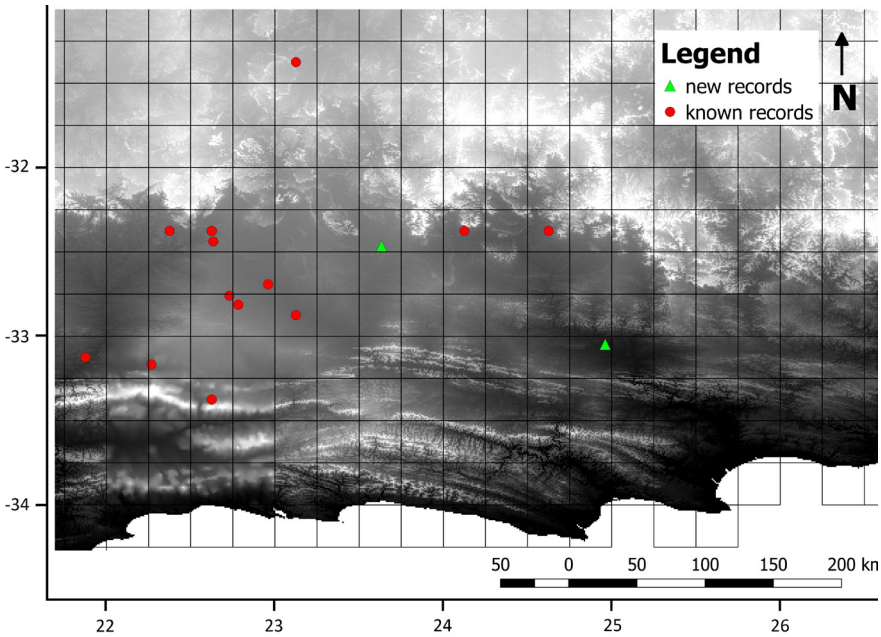

Figure 1. A topographical map showing the known distribution of *Ptenopus garrulus maculatus* (Bates *et al.* 2014) within the Western and Eastern Cape of South Africa, including the new records from the Eastern Cape.

Figure 2. *Ptenopus garrulus maculatus* from Farm Doringkraal, approximately 30 km east-southeast of Jansenville, Eastern Cape Province, South Africa.

east as Great Fish River around Middleton. These areas require targeted night surveys to determine the full extent of this species' range in the Little Karoo.

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SCINCIDAE

Trachylepis homalocephala
(Wiegmann, 1828)
Red-sided Skink

RED-SIDED SKINK IN EASTERN CAPE

M. F. BATES

On 22 October 2010 a subadult Red-sided Skink, *Trachylepis homalocephala* (42.5 mm snout-vent length, 61.1 mm tail length), was found on soil under a small flat rock on the outskirts of Cofimvaba, Cofimvaba district, Eastern Cape Province, South Africa (31°59'51.2"S, 27°35'49.2"E; 3127DC; 1082 m a.s.l.). It was collected by N.A. Phindane & B.G. Makhubo and deposited in the herpetological collection of the National Museum, Bloemfontein (NMB R9331). The specimen is pale brown above with four narrow black stripes from the back of the head or nape to the base of the tail, and the flanks are black with a broad and prominent pale lateral stripe extending from the supralabials to near the groin; scales of

feet non-spinose and bluntly tubercular; subdigital lamellae smooth; dorsal scales moderately tricarinate, supracaudals at base of tail more distinctly keeled (also tricarinate); subocular not narrowed below, but much longer and larger than other supralabials; 32 scale rows around midbody; frontonasal in contact with rostral and frontal, separating nasals and prefrontals; upper head shield arrangement similar to Figure 86 in FitzSimons (1943); three pointed lobules on anterior margin of ear opening, the middle one by far the longest. The map in Bates *et al.* (2014) showing the distribution of this species indicates a large gap in the former Transkei region of the Eastern Cape, but *T. homalocephala* has now been recorded from several nature reserves along the coast in this province (Venter & Conradie 2015). Nevertheless, the new locality fills a gap in the inland part of this region, the nearest specific record being Cathcart (3227AC; PEM R3751, Branch 1990), 55 km to the southwest. The nearest specific record north of Cofimvaba is Tiger Ridge near Dordrecht (3126BD; PEM R2907, Branch 1990), about 102 km to the northwest.

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Scelotes caffer
Peters, 1861
Cape Dwarf Burrowing Skink

CAPE DWARF BURROWING SKINK IN SOUTH AFRICA

A. D. REBELO, Z. ZHAO, A. JORDAAN, P. R. JORDAAN & W. CONRADIE

Active searches during Karoo BioGaps reptile surveys in the greater Karoo region of the Eastern Cape Province of South Africa produced four new localities for *Scelotes caffer*. These included Klipkraal, on the northern slope of Perdekop Plains of Glenn Harry Game Farm on 7 May 2016, Farm Excelsior near Graaff-Reinet on the

8th May 2016, and Plains of Camdeboo Private Nature Reserve near Pearston on 27 October 2017. Voucher specimens from each locality were collected and catalogued into the Port Elizabeth Museum and DNA samples deposited in the South African National Biodiversity Reptile Tissue Bank (Table 1). Identification was based on the presence of two pairs of limbs present—each with three toes, in addition to the blue colouration on the tail (Branch 1998). *Scelotes caffer* is endemic to South Africa, being recorded from the West Coast, Little Namaqualand and western Karoo and Little Karoo (Bates et al., 2014; Branch & Bauer, 1995). These individuals were collected in leaf-litter and under small rocks lying on top of grasses or beneath shrubs on scarp slopes in the Camdeboo Escarpment Thicket and Karoo Escarpment Grassland vegetation types (Hoare et al., 2006; Mucina et al., 2006). These latest collections are the most northern records for this species in the Eastern Cape and extend the range roughly 60 km north of the previous known localities around Grahamstown and Zuurberg (Bates *et al*. 2014).

Recent additional contributions have also extended the known distribution range of this species. *Scelotes caffer* has been found at Trompfontein near Steytlerville on 11 October 2012 (PEM R20158), Blesfontein near Sutherland on 15 November 2013 (iSpot 394074), the De Wetshof Estate near Bonnievale on 4 July 2016 (iSpot 638435), Duivelsgat in the Cedarberg on 1 October 2014 (iSpot 287055) and Pampoenfontein near Porterville on 15 September 2016 (ReptileMAP 159110). These records extend the distribution of this species south-east into the Western Cape and bridge some of the gaps between the supposedly disjunct populations (Bates et al., 2014). The discovery of records on the Great Escarpment at Sutherland, north of Pearston and the Graaff-Reinet region may suggest that *S. caffer* has a continuous distribution along the escarpment eastwards from the historical Niewoudville records, in addition to the Cape Fold Mountains. More surveys along the escarpment and Cape Fold Mountains are needed to confirm the connectivity and extent of this species' range.

Table 1. The Port Elizabeth herpetological collection catalogue numbers with the collection site details.

Catalogue numbers	Collection site	Elevation (m)	Decimal Latitude	Decimal Longitude
PEM R22302	Excelsior	1347	-32.18505	24.78834
PEM R22299-301, 22303-4	Klipkraal, North slope of Perdekop Plains	1429	-32.14792	24.77577
PEM R23129-31	Plains of Camdeboo, Hike up saddle, site 1	1249	-32.53651	25.218714
PEM R23132	Plains of Camdeboo, Hike up saddle , site 2	1212	-32.539004	25.220582

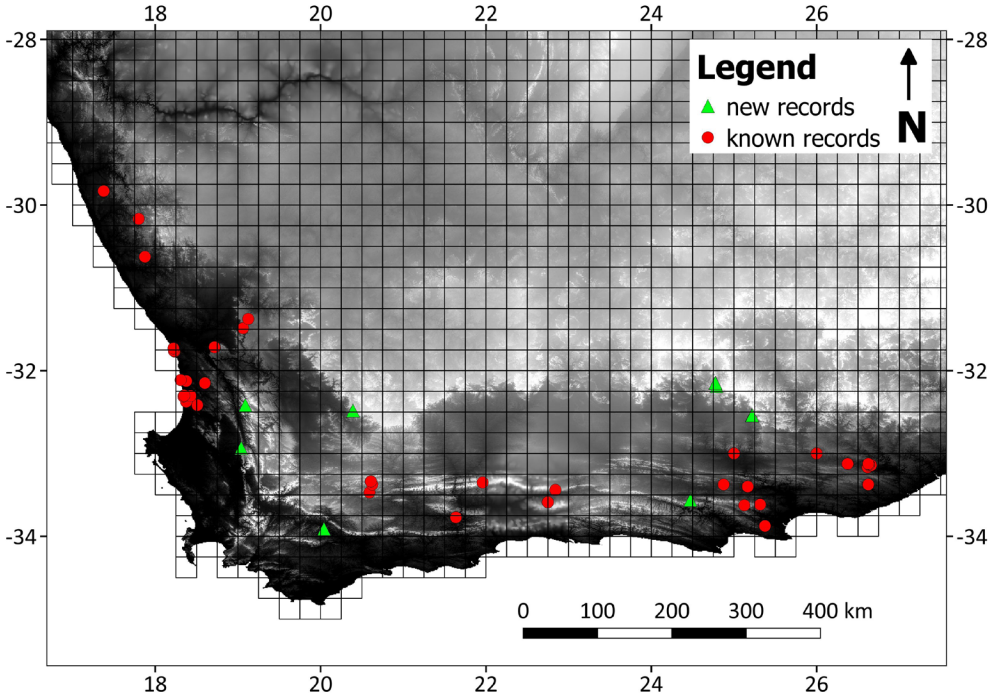

Figure 1. A topographical map showing the known distribution of *Scelotes caffer* (Bates et al. 2014) within the Northern, Western and Eastern Cape of South Africa, including the new records from the Escarpment in the Eastern Cape and additional records from the Western Cape.

Figure 2: *Scelotes caffer* from Farm Klipkraal, Eastern Cape, South Africa. Photo: Werner Conradie

ACKNOWLEDGEMENTS

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VIPERIDAE

Bitis arietans arietans
(Merrem, 1820)
Puff Adder

FIRST RECORD FOR *BITIS ARIETANS ARIETANS* AT TYGERBERG NATURE RESERVE IN 30 YEARS

D. J. OOSTHUIZEN

On 22 January 2017 at 9:29am I received a call for a snake in a garden adjacent to the Tygerberg Nature reserve. Finding the snake

hidden in a large roll reinforcement mesh I proceeded to unroll the mesh and found a male Puff Adder (*Bitis arietans arietans*) inside (Fig. 1). This measured 83cm SVL and had a mass of 1214 g. The location co-ordinates are 33° 52' 3.36" S, 18° 35' 10.37" E. This is in the quarter degree cell 3318DC. The snake was then released into the Tygerberg Nature Reserve after official permission was obtained. The record has been submitted to the Reptile Atlas of Southern Africa and may be seen under record number SARCA 161362 (duplicated as SARCA 161363). This is an additional ADU record of a Puff Adder for this quarter degree cell. A reserve staff member advised me that no Puff Adders had been known from the reserve over the past 30 years. I have and still search the reserve extensively for herpetofauna (since 1997) and have not found any Puff Adders despite hearing anecdotal reports. FitzSimons (1962) had no records of the species from this quarter degree cell.

Due to the unique location of where the Puff Adder was found, adjacent and surrounded by the reserve, 110.37m North, 63.47m South and 93.82m East from the borders of the Reserve (Fig. 2), and adjacent to natural vegetation, it is highly unlikely that this is a translocated animal. The presence of Puff Adders in the reserve would need to be confirmed by conducting an extensive survey and trapping project (Maritz *et al.* 2007) to determine if Puff Adders are present in the reserve. Although speculative, it is possible that predation by Cape Cobras (*Naja nivea*) may have considerably reduced the numbers of Puff

Figure 1: Puff Adder captured and subsequently released in the Tygerberg Nature Reserve.

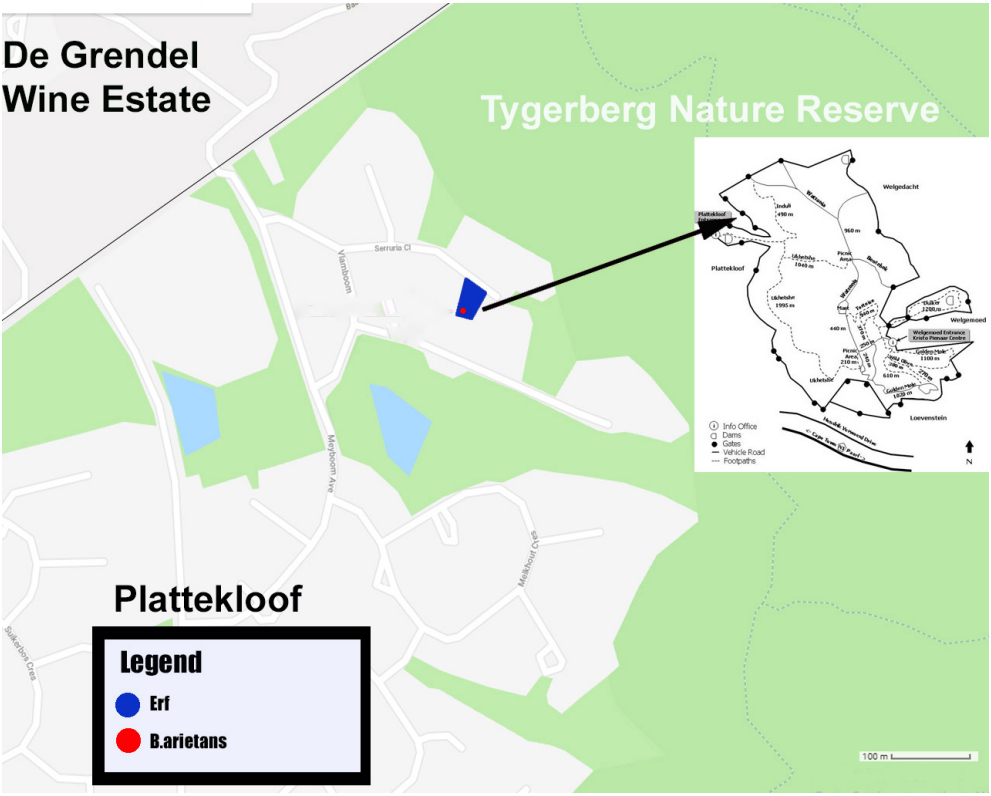

Figure 2: Map depicting the location of the Puff Adder relative to the surrounding Tygerberg Nature Reserve.

Adders in this area. The recent drought and the numerous housing developments to the west of Tygerberg Nature Reserve/De Grendel wine Estate, along with road works on Plattekloof road, could be a possible explanation for the movement of this snake into residential property, possibly in search of water.

ACKNOWLEDGEMENTS

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LAMPROPHIIDAE

Lycodonomorphus laevissimus (Günther, 1862) Dusky-bellied Water Snake

P. S. RABIEGA

Five new specimens of the species *Lycodonomorphus laevissimus* are discussed as a verification of their occurrence on the Vaal River, along the Gauteng/Free State border, South Africa. The first *L. laevissimus* recorded on the Vaal River, along the Gauteng/Free State border, was on the 28th of March 1983 and was collected by N.H.G. Jacobsen (TM 62146) in the vicinity of Three Rivers, Vereeniging (2627DB). Subsequently, a specimen (PEM R8057) was collected near Shangri la, section 12 of Boschbank farm in the Parys District (2627DD), and a live specimen was collected at Grunpunt, Sasolburg District (= Groenpunt, Heilbron District) (2628CC) (Haagner & Branch 1994; Bates 1996). An isolated population exists around Vereeniging (2627DB) on the Gauteng/Free State border (Jacobsen 1989; Bates 1996; Branch 1998). This population probably originated from specimens washed down the Vaal River (Jacobsen 1989; Bates 1996) but the permanency of this population requires confirmation (Maritz 2014 in Bates *et al.* 2014, p. 366). Raw (1973) proposed three subspecies, namely; *Lycodonomorphus laevissimus laevissimus*, *Lycodonomorphus laevissimus fitzsimonsi* and *Lycodonomorphus laevissimus natalensis*, but Haagner & Branch (1994) and Branch (1998) later refuted these subspecies on the basis that midbody scale rows, ventral counts and subcaudal counts provide insufficient evidence for the recognition of subspecies. Although some texts (Marais 2004) suggest 19 scale rows, this is for a restricted definition of *Lycodonomorphus laevissimus* and the rejection of subspecies means that *Lycodonomorphus laevissimus* is really characterised by 19-21 scale rows.

Between 12/12/2014 and 06/10/2017, I have located an additional five specimens detailed below:

Specimen A - Adult male; South Africa; Free State Province; 2627DD; Abraham's Rust (8/329); 26°45'05.25"S 27°49'40.15"E; 1432 masl. Collected 12/12/2014 at 22:19 by P.S. Rabiega. Deposited at the Bloemfontein National Museum, NMB R11620.

Specimen B - Adult female; South Africa; Gauteng; 2627DA; Lochvaal (ERF 475);

Table 1. Taxonomic and morphological data

	Specimen A	Specimen B	Specimen C	Specimen E
Dorsal scale rows: neck	21	21	21	21
Dorsal scale rows: midbody	21	21	21	21
Upper labials (entering orbit)	7 (4 + 5)	8 (4 + 5)	8 (4 + 5)	8 (4 + 5)
Lower labials	7	R9 L8	8	7
Preoculars	1	1	1	1
Postoculars	2	2	2	2
Temporals	1 + 2	1 + 2	1 + 2	1 + 2
Ventrals	175	175	177	170
Subcaudals (paired)	85	69	70	69
Anal shield	Entire	Entire	Entire	Entire
Snout-Vent length	686 mm	929 mm	941 mm	214 mm
Tail length	238 mm	230 mm	245 mm	58 mm
Total length	924 mm	1159 mm	1186 mm	272 mm
Weight	138 g	277 g	338 g	3.1 g

26°44’45.03”S 27°42’44.56”E; 1426 masl. Collected 06/01/2015 at 13:00 by P.S. Rabiega. Deposited at the Bloemfontein National Museum, NMB R11621.

Specimen C - Adult female; South Africa; Gauteng; 2627DA; Ebner on Vaal Agricultural Holdings (holding 35); 26°44’50.39”S 27°41’50.46”E; 1426 masl. Collected 07/02/2015 at 12:57 by P.S. Rabiega. Deposited at the Bloemfontein National Museum, NMB R11622.

Specimen D - Adult male; South Africa; Free State Province; 2627DD; Abraham’s Rust (8/329); 26°45’05.59”S 27°49’40.38”E; 1432 masl. Collected 12/02/2014 at 20:02 by P.S. Rabiega. Specimen rotted and was discarded.

Specimen E - Juvenile, unsexed; South Africa; Free State Province; 2627DD; Abraham’s Rust (8/329); 26°45’05.62”S 27°49’40.13”E; 1432 masl. Collected 06/10/2017 at 19:51 by P.S. Rabiega. Deposited in my private collection.

Morphological data, length and mass was recorded for all specimens examined except specimen D which decomposed to an extent where no morphological data could be collected.

All live specimens readily fed on *Amietia delalandii* (Delalande’s River Frog), *Amietia poyntoni* (Poynton’s River Frog), *Pyxicephalus adspersus* tadpoles (Giant Bullfrog) and *Tilapia sparrmanii* (Banded Tilapia) under water and proceeded to swallow whilst prey was still struggling. All specimens refused to consume rodents and skinks (*Trachylepis* spp.), although Isemonger (1955) noted that the specimens “ate well in captivity, preferring lizards to frogs”. A *Tomopterna*

tandyi (Tandy's Sand Frog) was offered to specimen D. The snake pursued the *T. tandyi* and bit the frog on the head but did not constrict or restrict the prey's movements. The snake then attempted swallowing the prey but immediately released it; this behaviour was noted numerous times until the frog was disregarded. *Lycodonomorphus laevissimus* seems to dehydrate rapidly without the presence of a water source (within 48 hours) and becomes very limp and soft to the touch before perishing. Individuals generally remained in their water bowls for long periods. This species seems to be largely nocturnal both in the wild and captivity and is the most aquatic of the *Lycodonomorphus*.

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