NUMBER 70 | MAY 2019

AHN

AFRICAN HERP NEWS

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.

COVER PHOTOGRAPH:
Psammobates tentorius tentorius
Photograph by: Gary Kyle Nicolau

AHN CONTENTS

AHN CONTENTS

AHN EDITORIAL

Access to information is key to everyone, and I am pleased to say that information on African herpetology can now be acquired through various formats thanks to much of the efforts of the HAA committee last year.

For those who may not be aware, the HAA website has a new look and feel so please do check it out at www.africanherpetology.org. It will be frequently updated with news, events, funding opportunities and more relating to African herpetology.

The part I'm most excited about is that the HAA website is now home to all past issues of the newsletter, free to download. I thank Mike Bates, Graham Alexander, and Jens Reissig for lending out their hardcopy issues, and Jody Taft for assisting me in digitising them. I hope all of you will make use of this invaluable resource, and may it inspire you to start or continue to submit articles to the newsletter. There is a one year embargo on accessing the issues from the website, which should not be of great concern to members as you receive all current issues via email. For non-members, current issues can be sourced through EBSCO publishing – a provider of research databases, e-journals, e-books and magazines. Any institution with a subscription to EBSCO can access the newsletters starting from AHN 67.

Lastly, with the 14th HAA conference set to happen in September of this year, the committee felt it imperative that a conference website be created…..and so it has (https://sites.google.com/view/haa14thconference/home). In essence, it is your one-stop-shop to all things related to the conference. You will be able to register, submit an abstract, find information on how to pay, obtain details on the venue and accommodation, learn about funding opportunities to attend the conference, get details on available workshops, and get to know a little more about the plenary speakers. There is also information available to anyone interested in hosting the next HAA conference. Please take the time to visit the site. It will be updated regularly, and include the conference program when available.

Please note that *early registration* and *abstract submission* opened **1 APRIL 2019**. Abstract submission has been extended until 15 July.

Jessica da Silva

Editor

AHN
ANNOUNCEMENTS

WINNER OF HAA STUDENT RESEARCH GRANT 2019

AND THE WINNER IS….

Congratulations to **Mr Jean Ruhan Verster** who has successfully secured the HAA Student Research Grant 2019! We are excited to provide financial support for an EcoHealth perspective on ectothermic vertebrates in the Toasmania region of Madagascar.

We wish you well with your research.

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!

Hanlie Engelbrecht

HAA Committee: Student Issues

STUDENT AWARDS

Dear HAA students,

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

HAA CONFERENCE STUDENT GRANT 2019

The Herpetological Association of Africa proudly announces that applications for the Conference Student Grant, to attend the 14th Herpetological Association of Africa Conference, are now open. The conference will be held 9-13 September 2019 at the Cape St Francis Resort, Eastern Cape, South Africa. All HAA student* members (undergraduate or postgraduate registered at a university or Technicon, regardless of country of residence) who are in good standing with the Association and who will submit an abstract for an oral presentation in any field of original research in African herpetology may apply for this grant (Africa taken to include the continent of Africa, Madagascar, the Canary Islands, Cape Verde Islands, Gulf of Guinea islands, Mascarenes and Seychelles).

*Postdoctoral fellows are not considered students

Applications must include a curriculum vitae and a maximum three-page (single-spaced) statement detailing the research to be presented**, including the following:

- A statement of the degree program and institution as well as the academic mentor/advisor's name and contact details.
- A 3–5 page description of the research, including a title, objectives/goals/hypotheses, methods that were used, a summary of the results and an interpretation of the findings. Also include key references, and important tables and/or figures.

**Presentations that relate to project proposals will not be considered for this grant.

The award will cover HAA conference registration fees and shared accommodation at the conference venue. Please note that a maximum of three students will be awarded this grant. The submission deadline is 30 June 2019. The applications will be evaluated by a committee of HAA members, none of whom will have students in the competition. Applications will be judged based on technical merit, originality, relevance and potential impact on the field of African herpetology. Announcement of the award will be made via email correspondence and posted on the HAA Facebook page by 30 July 2019.

Applications should be sent to the HAA Secretary, Buyisile Makhubo (secretaryhaa@gmail.com).

Buyisile Makhubo, Hanlie Engelbrecht, Jens Reissig & Mike Bates
HAA Awards Sub-Committee 2019

Enter the prestigious 14th HAA Photography Competition!

Cash prizes are up for grabs, as well as the winning photo being featured on the cover of the African Herp News newsletter

Rules

1. Photos must be of a wild African* reptile or amphibian
2. Photos must be printed on A4 photo paper and submitted in person at registration on the first day of the conference
3. A maximum of three photos per contestant may be entered
4. Photos must be submitted anonymously (no watermarks or names on photos)
5. Photos may not have placed or won in any previous photography competition
6. Photos must be accompanied by a written or typed caption of location, common and scientific names of the animal photographed
7. The competition is open to any attendant of the HAA conference
8. Photos may be collected by the entrant after voting, or donated to the HAA auction

14th HAA Photography Competition judging panel

*Africa taken to include the continent of Africa, Madagascar, the Canary Islands, Cape Verde Islands, Gulf of Guinea islands, Mascarenes and Seychelles

14TH HAA AUCTION

We would like to request donations for the traditional *Herpetophilia* Auction, to be held during the 14th HAA Conference in Cape St. Francis, 9-13 September 2019.

Auction items should include herpetological desirables and paraphernalia (e.g. books, reprints,paintings, sculptures, anything else obscure but relevant), and can be donated by anyone, including non-members. Proceeds will benefit the society.

If you have items to donate to the auction, or need any further information, contact Aaron Bauer, aaron.bauer@villanova.edu as soon as possible.

AHN CORRECTIONS

In AHN 68, an omission was made to the Acknowledgements section of two Geographical Distributions: *Ptenopus garrulus* (pages 50-52) and *Scelotes caffer* (pages 53-56). Both articles acknowledge the following:

This work is based on the research carried out during the Karoo BioGaps Project, supported by the National Research Foundation of South Africa (Grant Number: 98864), awarded through the Foundational Biodiversity Information Programme (FBIP), a joint initiative of the Department of Science of Technology (DST), the National Research Foundation (NRF) and the South African National Biodiversity Institute (SANBI).

In AHN 69, an error was made to Figure 2 of the Geographical Distribution for *Panaspis wahlbergi* (page 29), which we are rectifying here. The correct figure is provide here:

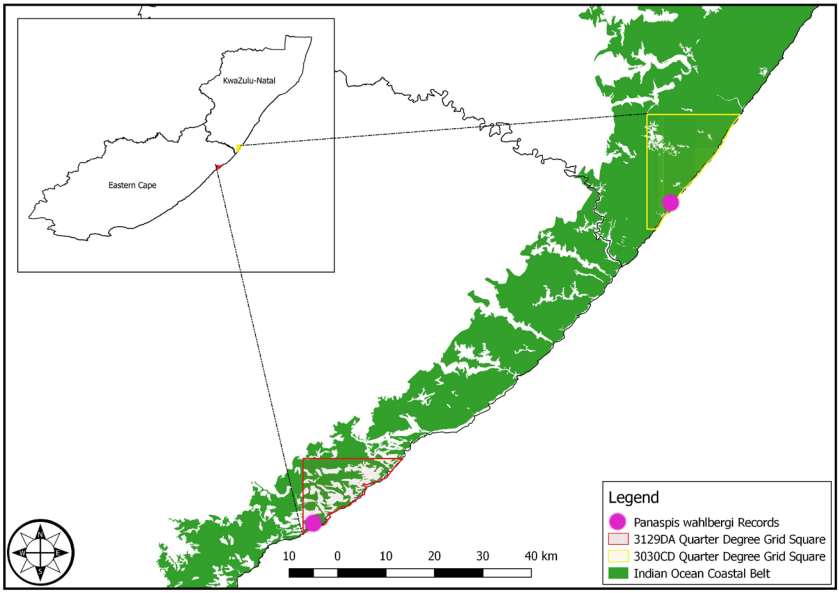

Figure 2. Previous southern-most record shown south of Margate in KwaZulu-Natal Province (Reptile Map 159460 ~3030CD), uploaded by J. Hey-mans. New southern-most record (Reptile Map 159540 ~3129DA) south of Port St Johns, both records fall within the Indian Ocean Costal Belt (Mucina and Rutherford 2006).

FRANCOIS BECKER

EXTREME CLIMATE-INDUCED LIFE-HISTORY PLASTICITY IN ROSE'S MOUNTAIN TOADLET

Age-specific survival and reproduction rates are usually fixed within a species or population, due to their close links to fitness. As a result, species usually lie somewhere on the slow-fast continuum of life-history traits. On the one end there are short-lived, semelparous species that invest most of their resources into a single reproductive event. On the other, long-lived, iteroparous species invest in survival and multiple, less costly reproductive events. However, in an environment where the conditions for reproduction are highly variable, a variable life-history strategy may be more advantageous than any fixed strategy. This has not been observed to any considerable degree among vertebrate taxa – until recently.

Francois Becker is a PhD student at the University of the Witwatersrand. One of his main research interests is how fitness-related animal behaviours affect population dynamics, and ultimately the long-term evolution of species. For his PhD at the University of the Witwatersrand, he is studying how mate selection and substrate preference is driving speciation in barking geckos. During his Honours and Masters degrees, Francois was studying the population dynamics of the Critically Endangered Rose's Mountain Toadlet (*Capensibufo rosei*) using mark-recapture techniques. While estimating their survival and recruitment rates, he made an unexpected discovery: these toadlets change their life-history strategy based on the weather.

Together with Krystal Tolley, Res Altwegg and John Measey, Francois published an article in the American Naturalist highlighting the findings of this mark-recapture study. Over 7 years, annual survival rate varied a great deal: between 4% and 92% of the adult population surviving annually. While 94% of this variation was explained by variation in breeding-season rainfall, the trend was completely counter-intuitive: as breeding season rainfall increased, survival drastically decreased, and vice versa. By contrast, the recruitment rates which also varied considerably, had a positive relationship with breeding season rainfall which explained ~68% of this variability. Upon closer investigation of the metadata, Francois and his colleagues showed that *C. rosei* changed their investment strategy

Full profile of Rose's Mountain Toadlet (*Capensibufo rosei*).

based on the prevailing conditions, which resulted in the drastic fluctuations in demographic rates observed. In wet years, the toads invested greatly in reproduction at the expense of adult survival, whereas in dry years, the toads invested in adult survival at the expense of reproductive output.

The evolution of this variable life-history strategy appeared to be linked to the unique conditions these toads breed in. *Capensibufo rosei* only occurs in a handful of mountain seeps on the Cape Peninsula, South Africa. They breed in shallow puddles, barely a few millimetres deep, which fill during winter rain and dry up within weeks, depending on the frequency and amount of rainfall. The male toads form some of the densest amphibian breeding aggregations in the world: often more than 200 individuals in less than a square metre. The males await females here, and tens of males will wrestle to amplex a single female when she enters a puddle, often resulting in drowning fatalities. As the males spend most of their time in the breeding puddles to competing with other males, they have little to no time to forage. Their body condition may therefore drop drastically towards the end of the breeding season, making breeding highly costly – but not every year. In wet years, when conditions for breeding were favourable, the toads spent much longer at the breeding pools than in dry years, achieving a large reproductive output (potentially more than doubling the

Multiple male *Capensibufo rosei* attempting amplexus with two females (left); female *Capensibufo rosei* among egg string (right).

population size) at the cost of adult survival. But in dry years, the toads only remain in the breeding pools for a short time before the breeding aggregation disseminates. This is because, with less rainfall, the shallow puddles often dry up before tadpoles can reach metamorphosis, resulting in mass tadpole mortality. Such extremes in the outcome of a breeding event, combined with the predictability of this outcome based on the amount of rainfall, has likely led to the variable life-history strategy we observed here. This level of environmentally induced plasticity may reflect a diversity of life-history strategies not previously appreciated among vertebrates.

Visibile Implant Elastomer (VIE) marks in *Capensibufo rosei* hind legs.

FOSSORIAL REPTILE DENSITY IN SAND FOREST, TSHININI GAME RESERVE

P.R. JORDAAN & C.C. HANEKOM

Survey methods such as pitfall trapping which rely on the surface mobility of animals for detection are generally deemed unsuitable for the adequate representation of fossorial faunal abundance and diversity (Measey 2006; Smith et al. 2012) as most soil adapted species infrequently move over the soil surface making their presence potentially undetectable (Smith et al. 2012) and such movement can significantly be biased by life history, disturbance, or environmental factors (e.g. Haacke & Bruton 1978; Driscoll et al. 2012). To quantitatively survey fossorial reptile diversity, specialised techniques involving the excavation and exposure of animals from substrate in a specified area or quadrat is required (Measey 2006; Maritz & Alexander 2008). The high level of labour involved in such surveys and the cryptic nature of fossorial vertebrates make quantitative assessments difficult and scarce (Measey 2006; Maritz and Alexander 2008; Measey et al. 2009) which may allow population declines driven by surface activities to go unnoticed (e.g. Martin et al. 2015; Martin et al. 2017). Within the South African context, burrowing reptile taxa are disproportionally threatened when considering the most recent assessment in Bates et al. (2014). Of all assessed South African species, one out of two extinct, one out of four critically endangered, three out of ten endangered, two out of 14 vulnerable, and nine out of 30 Near Threatened South African reptile species have fossorial traits (Bates et al. 2014). This bias is illustrated by the regionally diverse Scincidae group where all taxa (excluding prereferral species) of conservation concern are fossorial (Tolley et al. 2019).

Historically northern KwaZulu-Natal has been sparsely surveyed for fossorial reptiles. This includes Ndumo Game Reserve (NGR) where Measey et al. (2009) resurveyed sand forest and woodland sites during 2004 originally assessed by Pooley et al. (1973). A significant decline for the two most abundant lizard species were observed, possibly due to the increase of the Nyala (*Tragelaphus angasii* Angas 1849) and Impala (*Aepyceros melampus* Lichtenstein 1812) populations on the reserve, decreasing leaf litter through herbivory, thereby affecting the macroinvertebrate prey and habitat of those species (Measey et al. 2009). Soil moisture and soil temperature regimes may also be influenced by the decrease of detrital cover (Fekete et al. 2012). As game breeding, specifically *T. angasii*, was suggested as a community development opportunity in Tshinini Game Reserve (TGR), a baseline for

fossorial reptile abundance was established using the methods of Measey et al. (2009) to monitor the potential impact of game reintroductions and ranching. Here we report on the detected densities of fossorial reptiles from initial surveys during 2016 and 2017. The status of TGR is currently uncertain, and game ranching has not commenced to date.

TGR is situated on the Mozambique coastal plain in northern KwaZulu-Natal Province, South Africa (-27.11753 32.40092) spanning 2420 ha of Manqakulane community land, 43.2% of which is covered in sand forest. Only small game species, Red Duiker (*Cephalophus natalensis* Smith 1834) and Suni (*Neotragus moschatus* Von Dueben 1846) have survived local harvesting practices (Gaugris et al. 2004) and community livestock are grazed in the reserve.

The same five sand forest areas were surveyed during the austral winter (8-10 June 2016) and summer (18-19 January 2017), with three 4 m^2 quadrats (2 m x 2 m) excavated for each area during the two separate survey periods. Survey effort totalled 30 quadrats covering 120 m^2. Quadrat positions at each site was subjectively selected on the bases of accessibility facilitating optimal survey efficacy. The method involves two field workers at opposite sides of the quadrat systematically tilling the soil using hoes, starting with the peripheral border, and moving inwards, turning over all substrate and thereby exposing reptiles (Measey et al. 2009). The maximum effective survey depth was considered as 0.25 m, the length of hoe blades. As the impact of mesoherbivores on leaf litter was deemed the origin of fossorial reptile population declines in NGR (Measey et al. 2009), a separate representative 1 m^2 (1 m x 1 m) quadrat of forest floor litter was collected next to each 4 m^2 quadrat, using the dry leaf litter weight (kg) as a measure of surface detritus. All leaf litter samples were sifted to remove the influence of sand from the measurement.

Winter surveys produced two reptile specimens from two species, Maputaland Legless Skink (*Acontias aurantiacus parietalis* Broadley 1990) and, the Zululand Dwarf Burrowing Skink (*Scelotes arenicolus* Peters 1854), translating into an overall density of 333.33 reptiles. ha^{-1} (0.033 reptiles.m^{-2}). Summer surveys produced three reptile specimens from two species, Speckled Quill-snouted Snake (*Xenocalamus transvaalensis* Methuen 1919) one specimen, and Van Dam's Dwarf Worm Lizard (*Zygaspis vandami arenicola* FitzSimons 1930) (Fig. 1) two specimens, with a density of 500 reptiles.ha^{-1} (0.05 reptiles.m^{-2}). The combined numbers from both surveys translate to a mean density of 416.67 reptiles.ha^{-1} (0.0416 reptiles. m^{-2}). Due to the small sample size, these densities are likely under estimates. Differences in maximum, minimum, and mean leaf litter weight between seasons was negligible. Reptiles were associated with leaflitter weights ranging between 0.633 kg to 1.753 kg. The leaf litter weight of 16 other quadrats falling into this range did not produce any reptile specimens.

Figure 1. *Zygaspis vandami arenicolus* (FitzSimons 1930) from Tshinini Game Reserve. Photo Credit: Nick Evans

Total density results are lower than the sand forest estimates of Measey et al. (2009) for NGR, even in the absence of all mesoherbivores on TGR. Pooley et al. (1973) reported the highest total density of 14952.153 reptiles.ha^{-1} (1.25 reptiles per square yard or 1.495 reptiles.m^{-2}) for sand forest when all species are considered. *Zygaspis vandami arenicola* had the highest density for both NGR sand forest surveys (0.9 individuals.m^{-2} in Pooley et al. 1976 and 0.08 individuals.m^{-2} Measey et al. 2009) as well as the current study (0.017 individuals.m^{-2}) when the total density is considered. Maritz and Alexander (2008) reported on fossorial herpetofaunal densities in secondary forest vegetation (amongst others) using a hand dug quadrat surveying method as well as a method requiring earth moving machinery. The hand dug quadrat method produced a density of 357.14 reptiles. ha^{-1} for a single species, Mozambique Dwarf Burrowing Skink (*Scelotes mossambicus* Peters 1882), in northern coastal forest vegetation. The method relying on earth moving machinery for excavation produced a similar density for the same species at 370.37 reptiles.ha^{-1} in forest vegetation. Comparisons between norther KwaZulu-Natal forest fossorial reptile survey results and parameters can be seen in Table 1.

Quantitative density estimates are sparse for southern African fossorial reptiles outside of northern KwaZulu-Natal with only one other study found estimating the density for *Acontias littoralis* (Broadley & Greer 1969) at a maximum of 33 and an average of 21.9 individuals.ha^{-1} in succulent

Karoo vegetation underlain by aeolian sands (Mashinini et al. 2011). North American estimates for fossorial reptile densities range between 28 (*Anniella pulchra* Gray 1852 in Muller 1944) and 228 fossorial reptiles.ha^{-1} (also *A. pulchra* in Khunz et al. 2004). By comparison it would seem as though sand forest harbours a high abundance of fossorial reptiles but more extensive repeated surveys are required to confirm this. Quantitative studies on anthropogenically induced habitat modification and its impact on common fossorial reptiles may illustrate overall impacts of above ground actions and management on soil living ecosystems. Whilst sand forest has been surveyed in part at least, only the estimates of Maritz and Alexander (2008) exist for grassland fossorial herpetofaunal densities in southern Africa and data for savanna assemblages are absent. Herbivore stocking, altered fire regimes, alien invasive vegetation and associated allelopathy, as well as cultivation, cause modifications to fossorial invertebrate assemblages and abundance (e.g. Abenspreg-Traun 1992; Ratirarson et al. 2002; Sileshi & Mafongoya 2006; Pryke & Samways 2012) and it is likely that these and other anthropogenic activities will affect soil living reptile population density and health as well (Maritz & Alexander 2008; Martin et al. 2015; Martin et al. 2017) but without quantitative studies tracking population responses to changes in land management this remains speculative but probable.

ACKNOWLEDGEMENTS

The authors would like to thank Y. Spierenburg, V. Naude, R. Flemming, and N. Evans for assisting with field work as well as E. Tembe for allowing us access to Tshinini Game Reserve. We also thank N. Evans for the figure image. We would like to thank J. Measey and one other reviewer for reviewing and commenting on the manuscript.

REFERENCES

Abensperg-Traun M. 1992. The effects of sheep-grazing on the subterranean termite

Table 1. Fossorial reptile species richness and density derived from northern KwaZulu-Natal forests.

Publication	Vegetation type (Mucina & Rutherford 2006)	Replicates	Quadat size (m^2)	Fossorial reptile density (individuals. m^{-1})	Species
Pooley et al. 1973	Sand forest	10	1.67	1.5	*Scelotes bidiggitattus; Zygaspis vandami arenicola*
Maritz & Alexander 2008	Northern coastal forest	45	1	0.02	*Scelotes mossambicus*
Measey et al. 2009	Sand forest	15	4	0.08	*Scelotes bidiggitattus; Zygaspis vandami arenicola*
Current study winter	Sand forest	15	4	0.03	*Acontias aurantiacus parietalis; Scelotes arenicolus*
Current study summer	Sand forest	15	4	0.05	*Xenocalamus transvaalensis; Zygaspis vandami arenicola*

fauna (Isoptera) of the Western Australian wheatbelt. Austr. J. Ecol. 17: 425-432.

Bates MF, Branch WR, Bauer AM, Burger M, Marais J, Alexander GJ, De Villers MS. 2014. Atlas and red list of the reptiles of South Africa, Lesotho, and Swaziland. Suricata1. Pretoria: South African National Biodiversity Institute.

Fekete I, Kotroczo Z, Vagra C, Hargitai R, Townsend K, Csanyi G, Varbiro G. 2012. Variability of organic matter inputs affect soil moisture and soil biological parameters in a European detritus manipulation experiment. Ecosystems 15: 792-803.

Gaugris JY, Matthews WS, Van Rooyen MW, Bothma J Du P. 2004. The vegetation of Tshinini Game Reserve and a comparison with equivalent units in the Tembe Elephant Park in Maputaland, South Africa. Koedoe. 47: 9-29.

Haacke WD, Bruton MN. 1978. On two little known snakes from the tropical subtraction zone of south-eastern Africa. Ann. Transvaal Mus. 31: 43-50.

Pryke JS, Samways MJ. 2012. Importance of using many taxa and having adequate controls for monitoring impacts of fire for arthropod conservation. J. Insect. Conserv. 16: 177-185.

Maritz B, Alexander GJ. 2008. Breaking ground: Quantitative fossorial herpetofaunal ecology in South Africa. Afr. J. Herpetol. 5: 1-14.

Martin J, Lopez P, Gutierrez E, Gracia LV. 2015. Natural and anthropogenic alterations of the soil affect body condition of the fossorial amphisbaenian Togonophis wigmanni in North Africa. J. Arid Environ. 122: 30-36.

Martin J, Gutierrez E, Garcia LV. 2017. Alteration effects of ornamental whitewashing of rocks on the soil properties and body condition of fossorial amphisbaenians that live under them. Herpetol. Conserv. Biol. 12: 367-372.

Measey GJ, Armstrong AJ, Hanekom C. 2009. Subterranean herpetofauna show a decline after 34 years in Ndumu Game Reserve, South Africa. Oryx. 43: 284-287.

Mucina L, Rutherford MC. 2006. The vegetation of South Africa, Lesotho, and Swaziland. Strelitzia 19. Pretoria: South African National Biodiversity Institute.

Pooley AC, Pooley E, Hadley WF, Gans C. 1973. Ecological aspects of the distribution of subsoil herpetofauna in Ndumu Game Reserve. Ann. Carnegie Mus. 44: 103-115.

Ratsirarson H, Robertson HG, Picker MD, Van Noort S. 2002. Indigenous forest versus exotic eucalypt and pine plantations: A comparison of leaf-litter invertebrate communities. Afr. Entomol. 10: 93-99.

Sileshi G, Mafongoya PL. 2006. Long-term effects of improved legume fallows on soil invertebrate macrofaunal and maize yield in eastern Zambia. Agri. Ecosyst. Environ. 115: 69-78.

Smith A, Meulders B, Bull CM, Driscoll D. 2012. Wildfire-induced mortality of Australian reptiles. Herpetol. Notes. 5: 233-235.

Tolley KA, Weeber J, Maritz B, Verburgt L, Bates MF, Conradie W, Hofmeyer MD, Turner AA, da Silva JM, Alexander JA. 2019. No safe haven: Protection levels show imperilled South African reptiles not sufficiently safe-guarded despite low average extinction risk. Biol. Conserv. 233: 61-72.

SUBMITTED BY:

PHILIPPUS R. JORDAAN. Tshwane University of Technology.
Email: jordaanpr@gmail.com

CATHARINÉ C. HANEKOM. Ezemvelo KZN Wildlife.
Email:Catharine.Hanekom@kznwildlife.com

AHN
NATURAL HISTORY
notes

Cordylus vittifer
Common Girdled Lizard
(Reichenow, 1887)

FIRE ASSOCIATED INJURY

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

Observations on fire associated faunal injury are seldom reported on (Dickenson et al., 2010; Engstrom, 2010) but such observations may serve to illustrate sensitivities and adaptations of animals living in fire-prone habitats.

Old agriculture lands incorporated into Ithala Game Reserve (27°28'56.53"S 31°17'39.37"E) were subjected to active searches focussed on reptiles on the 24th of June 2017. Three adult Common girdled lizards *Cordylus vittifer* (Reichenow, 1887) were collected from horizontal cracks formed between flat bottomed rock slabs resting on top of each other in outcrops adjoining the search site. All three individuals exhibited apparent external thermal injuries to the tail (Fig. 1) with one individual also bearing scarring on both hind limbs (Table 1). Affected scales had modified structure, texture and colouration indicating damage to the stratum germinativum. Injuries appeared darkened and lumpy with modelling being asymmetrical, the surface of which being more reflective than normal unaffected scales. The degree of modification ranged from slight, tail spikes bearing dark slightly drooping tips, to severe modelling where scales seemed moulded together and could not be visually defined from each other. The character of deformation in the scales suggests fire related damage rather than injuries from unsuccessful predation. Scarring only affected the locomotion of Specimen 3 due to the damaged to the posterior limbs, possibly affecting body condition, as it weighed less that Specimen 1 despite being larger (Table 1).

Rupicolous refugia has been reported to shelter reptiles from the effects of vegetation combustion (Wright 1988) with higher rock cover positively correlated with population stability in rock living reptiles post fire (Baard unpublished, as referenced by Costandius, 2005). Fire related injury of animals sheltering in rock based refugia have however been recorded. Berg Adders, *Bitis atropos* (Linnaeus, 1758) sheltering under "flat stones" (Turner, 2014 as reported by Jacobsen) have been known to succumb to fire whilst burn damaged tails and feet have been observed in *Agama atra* (Daudin, 1802) (Baard unpublished, as referenced by Costandius, 2005). The nature of both fire and rocky refugia may influence the effectiveness of rock cover to shield

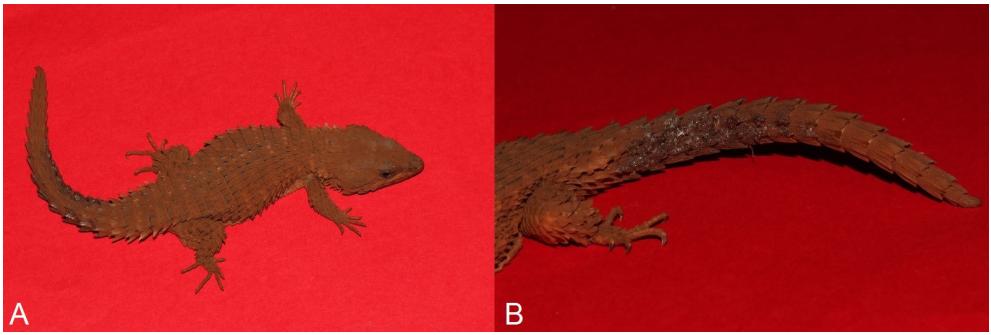

Figure 1. Transvaal Girdled Lizard, *Cordylus vittifer*, Specimen 1 (A) and the burn damage to its tail (B).

animals from negative fire effects, resulting in a variety of responses ranging from fire associated mortality to unaffected survival. *C. vittifer* like other rupicolous cordylids (e.g. Cooper *et al*. 2001) is known to retreat into rock crevices when threatened or disturbed, curling the tail in front of the softer sides of the body towards the opening of the crevice as protection (Jacobsen, 1972). Subcutaneous osteoderm are present to varying degrees throughout the genus *Cordylus*, arranged along the dorsum, flanks, and tail. These structures have been suggested to have thermoregulatory functions preventing evaporative water loss through the skin in addition to acting as protection from predators (Broeckhoven et al. 2018). It is plausible that the armoured tails of these lizards used in this defensive posture are used not only as a deterrent to predators but also to shield the rest of the body from thermal damage during fires resulting in caudal scarring.

ACKNOWLEDGEMENTS

The authors would like to thank Rickert van der Westhuizen from EKZNW for logistical support as well as Michael Bates and one other anonymous reviewer for commenting on a previous draft of this observation. Jessica da Silva is thanked for assisting with the formatting of this draft.

REFERENCES

Broeckhoven C, Diedericks G, Mouton PLeFN. 2015. What doen't kill you might make you stronger: functional analysis for variation in body armour. J. Anim. Ecol. 84: 1213-1221.

Cooper WE, Van Wyk JH, Mouton PLeFN. 2001. incompletely protective refuges: selection and associated defences by a lizard, *Cordylus cordylus* (Squamata: Cordylidae). Ethology 105: 687-700.

Costandius E. 2005. The Landdroskop area in the Hottentots Holland Mountains as a refugium for melanistic lizard: an analysis for conservation. Stellenbosch: University of Stellenbosch.

Dickinson MB, Norris JC, Bova AS, Kremens RL, Young V, Lacki MJ. 2010. Effects of wildland fire smoke on a tree-roosting bat: Integrating a plume model, field measurements, and mammalian dose-response relation-

Table 1. The physical parameters and extent of burn damage to three *Cordylus vittifer*, specimen from Ithala Game Reserve, KwaZulu-Natal, South Africa

Specimen	TL (mm)	Weight (g)	Sex	Burn Damage		
				Left side of tail	Right Side of tail	Hind feet
1	152	18.2	Male	Seven scale rows, mid tail, slight to severe damage.	Five scale rows right side, slight damage.	No damage.
2	133	13.7	Female	Four scale rows at the base of tail, slight scale damage.	No damage.	No damage.
3	168	18.7	Male	Eight scale rows left side mid tail, slight to intermediate damage.	Eight scale rows right side, base and mid tail, slight damage.	Right hind foot intermediate damage. Significant damage to four of the toes on the left hind foot.

ships. Can. J. For. Res. 40: 2187-2203.

Engstrom RT. 2010. First-order fire effects on animals: review and recommendations. Fire Ecol. 6: 115-131.

Jacobsen NHG. 1972. Some notes on the biology and behaviour of the Transvaal Girdled Lizard (*Cordylus vittifer*) in captivity. J. Herpetol. Ass. Afr. 9: 35-37.

Reichenow A.1887. Neue Wirbelthiere des Zoologischen Museums in Berlin. Zool. Anz. 10: 369-372.

Turner AA. 2014. *Bitis atropos* (Linnaeus, 1758). In: Bates MF, Branch WR, Bauer AM, Burger M, Marais J, Alexander GJ, de Villiers MS. Editors. Atlas and Red List of the Reptiles of South Africa, Lesotho, and Swaziland. Suricata 1. Pretoria: South African Biodiversity Institute.

Wright MG. 1988. A note on the reaction of angulate tortoises to fire in fynbos. S. Afr. J. Wildl. Res. 18: 131-133.

SUBMITTED BY:

PHILIPPUS RUDOLPH JORDAAN. PO Box 60453, Pierre van Ryneveld, 0045. Institutional affiliation: Tshwane University of Technology.
jordaanpr@gmail.com

ALEXANDER BLAZEBY WOOLCOCK. Elfordtown Farm, Yelverton, PL20 6HY. Institutional affiliation: University of West England.
Awoolcock49@gmail.com

PHILIP U ELS. PLOT 43 Ceres Road, Valtaki A.H. Bronkhorstspruit, 1020. Institutional affiliation: Tshwane University of Technology.
philip.els85@gmail.com

COLUBRIDAE

Dispholidus typus viridis
A. Smith, 1828
Boomslang

FORAGING

P.L. CUNNINGHAM & C. THOMAS

ANDONI PLAINS, ETOSHA NATIONAL PARK, NAMIBIA (18°33'31.5"S, 16°48'29.2"E, 1090 M A.S.L.)

Boomslang is known to raid bird nests and their diet includes birds and their eggs (e.g. Buys and Buys 1983; Marais 1992; Branch 1998; Clauss and Clauss 2002; Spawls et al. 2006; Alexander and Marais 2007) although there is a paucity of published sightings regarding specific bird species as prey.

On 2 December 2018 we observed an adult Boomslang *Dispholidus typus viridis* individual (see Figs 1 and 2) exiting a white-browed sparrow-weaver *Plocepasser mahali* nest. The nest was part of an 11 nest colony in a purple-pod terminalia *Terminalia prunioides* tree at 08h50 at the Andoni picnic site in the Etosha National Park (18°33'31.5"S & 16°48'29.2"E; 1090m). The Boomslang was vocally harassed and mobbed by the white-browed sparrow-weavers whilst exiting one of the nests. It settled on branches approximately 3 m from the closest nest, and a similar distance above ground level, where it struck at the offending birds a few times after which it was left alone. As the snake did not show typical signs of self-defence (e.g. inflated neck), it was assumed that it struck at the birds out of annoyance or even to capture one.

Buys and Buys (1983) mention that Boomslang are often found in association with community bird nests and Clauss and Clauss (2002) mention weaver nests as a source of prey for Boomslang in Botswana while Cape weavers (*Ploceus capensis*) have been documented as prey from the Mosselbay area in South Africa (Adam 2011).

According to Lewis (1982) white-browed sparrow-weavers are known to fall prey to several species of arboreal snakes (although not mentioning species involved) while Bradford (1966) indicates that the predation by snakes of the eggs and nestlings of white-browed sparrow-weaver are probably significant. However, Shine (1983) indicates that birds are not necessarily included in the diet of arboreal snakes just because they are arboreal – e.g. the lack of birds in the diet of a typical arboreal snake – African twig snake (*Thelortornis capensis*) as indicated by Shine et al. (1996). However, Buruwate (2017) presents photographic evidence of a bird being predated on by *T. capensis* in the Niassa Reserve, Mozambique.

White-browed sparrow-weavers are co-operative breeders with only one active breeding nest in a colony at one time (Tarboton 2001; Hockey et al. 2005; Peacock 2015) and although egg laying occurs throughout the year, breeding mainly takes place between September to December and/or opportunistically in response to rainfall (Tarboton 2001). Although we could not confirm if breeding actually was underway (the area had received rainfall during November 2018) and/or if the Boomslang had been successful in locating the active nest or actually predated on the

birds and their eggs, this sighting, albeit expected, confirms white-browed sparrow-weavers being targeted as a source of food. While Boomslang have previously been photographed raiding white-browed sparrow weaver nests in the Central Kalahari Game Reserve, Botswana (Zarco 2014) there are no predation records for Boomslang versus white-browed sparrow weaver, from the scientific literature, as far as we could determine.

ACKNOWLEDGEMENTS

Our appreciation to Dieter Oschadleus for supplying a paper we could not source and two anonymous reviewers for their helpful contributions.

REFERENCES

Adam S. 2011. Cape weaver – PHOWN record. [accessed 15 December 2018] www.weavers.adu.org.za

Alexander G, Marais J. 2007. A guide to the reptiles of southern Africa. Cape Town: Struik Publishers.

Bradford HJ. 1966. On some snakes and birds... Honeyguide 48: 24.

Branch B. 1998. Field guide to snakes and other reptiles of southern Africa. Cape Town: Struik Publishers.

Buruwate TC. 2017. Predation records – reptiles and frogs (Sub-Saharan Africa). [accessed 12 March 2019] https://www.facebook.com/groups/888525291183325/permalink/1249340145101836/

Buys PJ, Buys PJC. 1983. Snakes of Namibia.

Figure 1. Boomslang exiting white-browed sparrow-weaver nest, Etosha National Park, Namibia.

Figure 2. Boomslang coiled in Terminalia prunioides after nest raiding, Etosha National Park, Namibia

Windhoek: Gamsberg Macmillan Publishers (Pty) Ltd.

Clauss B, Clauss R. 2002. Common amphibians and reptiles of Botswana – more than just creepy-crawlies. Windhoek: Gamsberg Macmillan Publishers.

Hockey PAR, Dean WRJ, Ryan PG. 2005. Roberts – Birds of Southern Africa, VIIth ed. Cape Town: The Trustees of the John Voelcker Bird Book Fund.

Lewis DM. 1982. Cooperative breeding in a population of white-browed sparrow-weaver *Plocepasser mahali*. Ibis 124: 518-522.

Marais J. 1992. A complete guide to the snakes of Southern Africa. Halfway House: Southern Book Publishers (Pty) Ltd.

Peacock F. 2015. Chamberlain's LBJ's – the definitive guide to Southern Africa's little brown jobs. Cape Town: Paavo Publishing.

Shine R. 1983. Arboreality in snakes: ecology of the Australian elapid genus *Hoplocephalus*. Copeia 1983: 198-205.

Shine R, Harlow PS, Branch WR, Webb JK. 1996. Life on the lowest branch: sexual dimorphism, diet and reproductive biology of an African twig snake, *Thelotornis capensis* (Serpentes, Colubridae). Copeia 1996: 290-299.

Spawls S, Howell KM, Drewes R. 2006. Pocket guide to the reptiles and amphibians of East Africa. London: A&C Black Publishers.

Tarboton W. 2001. A guide to the nests & eggs of Southern African birds. Cape Town: Struik Publishers (Pty) Ltd.

Zarco, SJ. 2014. Boomslang raids white-browed sparrow-weaver nests, Central Kalahari Game Reserve. [accessed 12 March 2019] https://www.alamy.com/stock-photo-Boomslang-raids-white-browed-sparrow-

weaver-nests-central-kalahari-70274226.html.

SUBMITTED BY:

PETER CUNNINGHAM, Environment and Wildlife Consultancy, Namibia, P. O. Box 417, Karasburg, Namibia.
E-mail: pckkwrc@yahoo.co.uk
CLIVE THOMAS, Aldebaran, Bontgoch, Talybont SY24 5DP.
E-mail: clive.thomas.bontgoch@gmail.com

LAMPROPHIIDAE

Prosymna stuhlmannii
(Pfeffer, 1893)
East African Shovel-Snout

HUNTING STRATEGY

R. VAN HUYSSTEEN & M. PETFORD

On the night of 5 September 2018 at Pullen Farm, Mpumulanga, South Africa (QDG 2531CA; GPS: S-25°34'20.3304", E031°10'51.9690") we observed an East African Shovel-Snout (*Prosymna stuhlmannii*) feeding (Fig. 1). The observation was made at 20:30 with an air temp of 27 ˚C. The snake had an SVL of 210 mm and was found in a tree, roughly 0.90 m high, with approximately 1/5th of its body inside a fissure. Short jerking movements in the neck indicated that the snake was feeding. A moment later an elliptical object appeared in the neck and travelled down body. From the size and shape of the object we deduced that it was likely either a pair of *Lygodactylus* sp. eggs or an egg of a *Hemidactylus mabouia*. We think *Lygodactylus capensis* is the likely candidate as they were commonly seen on the very tree and in the surrounds, whereas during our visit to the locality, only a single *Hemidactylus* was observed on a building despite extensive nocturnal surveys. Half an hour after consuming the eggs, the bulge in the body had gone.

Following our observation, the *P. stuhlmannii* was placed into a container with a choice of paired *Lygodactylus sp.* eggs; one very dark when lit, showing that the geckos inside were well developed and one clutch that looked freshly laid. Later that night the snake was observed actively moving the eggs around and investigating the contents. We watched the snake move from the more developed eggs to the fresher eggs, it appeared that at this point interest heightened. First, using its tongue, the snake rapidly assessed the eggs. Following this, the snake began to move its head and coiled around the eggs. The snake actively turned its head sideways and moved the eggs around, often pushing its snout in between the join of the *Lygodactylus sp.* eggs, it seemed that the "shovel" snout proved very useful for this task. At some point while observing the interaction under red-light, the snake was disturbed and hid away. The following morning, the fresher pair of *Lygodactylus* sp.

eggs were gone whilst the more developed eggs were still in the container, no evidence of any shell were visible, suggesting that the eggs were swallowed whole.

Very little is known about the diet of the *Prosymna* genus and *Prosymna stuhlmannii* in particular. Early literature suggested that the genus consumed a variety of prey including insects, lizards and bird eggs (Broadley 1979). Current knowledge about the diet of these snakes is predominantly based on stomach content analysis of six *Prosymna* species (Broadley 1979). Results found that the diet of the genus is comprised of both hard and soft-shelled reptile eggs (Broadley 1979). An interesting observation of *Prosymna stuhlmannii* by Miller (2009) describes a possible termite predation. Another observation (VM 167259) documented a *Prosymana stuhlmannii* consuming a *Hemidactylus mabouia* egg, in captivity (Andrea Myburg, pers. comm.), but interesting none the less.

The observations described above are interesting for several reasons: 1) The snake appears to swallow hard-shelled gecko eggs whole, this is also concurrent with previous observations. 2) The snake was observed almost a meter high in a tree, particularly interesting as the *Prosymna* genus is primarily fossorial (Branch 1998), although *P. stuhlmannii* is considered less fossorial than some (Marais 2004). Nonetheless, an interesting observation

Figure 1. *Prosymna stuhlmannii* foraging in tree, note elliptical object visible in neck region.

considering this species affinity with terrestrial life and indicates that this species is able to climb into trees in search of food. 3) From this observation, it also appears that fresh eggs were selected over older eggs, although embryonic lizards have been found in the stomach content analysis of this genus before, and it is therefore presumed that these snakes also eat more developed eggs (Broadley 1979; Branch 1998). 4) Whilst the "shovel" nose is likely to be important for the snakes fossorial lifestyle, it also appears to be advantageous when handling reptilian eggs. The snake appeared to be able to easily move the eggs around into better positions with the use of its shovel. Not only this, the snake also appeared to be pushing the snout into the join of the paired *Lygodactylus sp*. eggs, whilst the motivation behind this is unclear, it is speculated that perhaps this was in an attempt to separate the paired eggs to enable easier consumption.

ACKNOWLEDGEMENTS

Thanks to Prof. Graham Alexander for hosting us at Pullen Farm where this observation was made.

REFERENCES

Branch B. 1998. Field guide to snakes and other reptiles of Southern Africa. Cape Town: Struik Publishers.

Broadley DF. 1979. Predation on reptile eggs by African snakes of the genus *Prosymna*. *Herpetologica* 35: 338-341.

Marais J. 2004. A complete guide to the snakes of Southern Africa. Cape Town: Struik Publishers.

Miller A. 2009. *Prosymna stuhlmannii* Pfeffer, 1893 - Diet. Afri. Herp News 49: 11-12.

Myberg A. 2017. Virtual Museum. [accessed 20 September 2018]. http://vmus.adu.org.za/?vm=ReptileMAP-167180.

SUBMITTED BY:

RYAN VAN HUYSSTEEN, Soutpansberg Centre for Biodiversity and Conservation, Soutpansberg, South Africa.
Email: ryanvanhuyssteen@gmail.com
MELISSA PETFORD, School of Animal Plant and Environmental Sciences, University of the Witwatersrand, Johannesburg, 2050, South Africa.
Email: Melissa.petford@outlook.com

SCINCIDAE

Scelotes sexlineatus
(Harlan, 1824)
Striped Dwarf Burrowing Skink

A. M. BAUER

The scincid genus *Scelotes* Fitzinger, 1826 is a monophyletic group (Whiting et al. 2003; Bauer et al. 2003) comprising 21 species of attenuate surface or sub-surface active lizards endemic to sub-Saharan Africa. Diversity is greatest in South Africa, with 18 species, mostly in the northeast, with only one species, *S. capensis* A. Smith, 1849, recorded from Namibia. In verifying the identity of Namibian squamates in the collection of the South African Museum (SAM) (Iziko Museums), a specimen catalogued as SAM ZR-015918 from Aus (2616CA, no explicit coordinates recorded), Karas Region, Namibia and listed in the SAM database as "*Scelotes bipes*" was examined. The specimen proved to be a representative of the very similar *S. sexlineatus*, otherwise known from many localities in the Western and Northern Cape Provinces of South Africa. The specimen has no external pectoral appendages and the hindlimbs bear two toes each. Among West Coast *Scelotes*, presumably the only ones that could conceivably enter southern Namibia, this condition is shared only by *S. bipes, S. kassneri, S. montispectus* and *S. sexlineatus*. Of these, only *S. bipes*, endemic to the southwestern Cape, and *S. sexlineatus* have 18 scales rows at midbody (versus 22). The specimen is in poor condition, with the body soft, tail broken and colour pattern greatly faded, however, the hindlimbs, though bearing relatively short digits, are themselves proportionally elongate, as is typical for *S. sexlineatus.*

The specimen was collected by Johan Balthazar Knobel (1853–1931), but is without a date of collection. It is part of a series of specimens (SAM ZR-15914–19) from Aus, all of which are typical for the area (*Chondrodactylus bibronii*, *Karusasaurus polyzonus*, *Trachylepis sulcata*, *Ptenopus garrulus*, and *Scelotes capensis*). Knobel also collected the types of *Agama knobeli* from Aus (Boulenger and Power 1921) and it is possible that this series of specimens was collected at the same time. Knobel, who served in the Native Military Hospital on Shark Island, Lüderitzbucht (Namhila 2015), was acknowledged as a collector of vertebrates for the South African Museum in both 1909 and 1920 (Péringuey 1910, 1921), although he may have participated in one or more South African Museum expeditions to Namibia in the mid-1920s as well.

Lawrence (1929) listed *Scelotes bipes* for the fauna of South West Africa, presumably on the basis of this specimen, at a time

when *S. sexlineatus* was considered a junior synonym of *S. bipes*, based on the work of Boulenger (1910). Lawrence's record was not subsequently cited by FitzSimons (1943) who accorded subspecific status to *sexlineatus*, or Mertens (1955, 1971), neither of whom included the species in the Namibian fauna. Griffin (2003) did not even consider *S. sexlineatus* among the species likely to be found in the country, despite northerly published records from Port Nolloth (FitzSimons 1943; Branch 1998) and the Holgat River (TM 22285; 2816DD). However, more recently, the species has been mapped in quarter degree square 2816DA (Marais and Bauer 2014) based on three vouchered specimens from near Grootderm, east of Alexander Bay, immediately adjacent to the border (28°31'48" S, 16°36'36" E). The new record from Aus represents a northward extension of the species of 210 km from this locality. Southern Namibia remains incompletely explored herpetologically and numerous reptile taxa known from the Northern Cape, and especially Little Namaqualand, may be expected to occur across the Orange River, as has recently been demonstrated in the case of *Pachydactylus barnardi* (Bauer et al. 2016).

I thank Jofred Opperman for facilitating my access to material in the South African Museum and Marius Burger for his hospitality in Cape Town. This work was supported by the JRS Biodiversity Foundation and the Gerald M. Lemole, M.D. Endowed Chair funds through Villanova University.

REFERENCES

Bauer AM, Ceríaco LMP, Heinicke MP, Blackburn DC. 2016. Geographical Distributions: *Pachydactylus barnardi* FitzSimons, 1941. Afr. Herp News 62: 35–37.

Bauer AM, Whiting AS, Sadlier RA. 2003. A new species of *Scelotes* from near Cape Town, Western Cape Province, South Africa. Proc. Calif. Acad. Sci. 54: 231–237.

Boulenger GA. 1910. A revised list of the South African reptiles and batrachians, with synoptic tables, special reference to the specimens in the South African Museum, and descriptions of new species. Ann. S. Afr. Mus. 5: 455–538.

Boulenger GA, Power JH. 1921. A revision of the South African agamas allied to *Agama hispida* and *A. atra*. Trans. Roy. Soc. S. Afr. 9: 229–287.

Branch B[WR]. 1998. Field Guide to the Snakes and other Reptiles of Southern Africa, 3rd Edition. Struik.

Fitzsimons VM. 1943. The Lizards of South Africa. Mem. Transvaal Mus. 1: xv + 528 pp., XXIV pls., 1 folding map.

Griffin M. 2003. Annotated Checklist and Provisional National Conservation Status of Namibian Reptiles. Biodiversity Inventory. Namibia Scientific Society.

Lawrence RF. 1929. The reptiles of S.W.A. J. S. W. Afr. Sci. Soc. 2: 13–27.

Marais J, Bauer AM. 2014. *Scelotes sexlineatus* (Harlan, 1824). In: Bates MF, Branch WR, Bauer AM, Burger M, Marais J, Alexander GJ, de Villiers MS. Editors. Atlas and Red List of the Reptiles of South Africa, Lesotho and

Swaziland. Suricata 1. Pretoria: South African National Biodiversity Institute.

Mertens R. 1955. Die Amphibien und Reptilien Südwestafrikas, aus den Ergebnissen einer im Jahre 1952 ausgeführten Reise. Abh. Senckenberg. Naturf. Ges. 490: 1–172.

Mertens R. 1971. Die Herpetofauna Südwest-Afrikas. Abh. Senckenberg. Naturforsch. Ges. 529: 1–110.

Namhila EN. 2015. Recordkeeping and missing "Native Estate" records in Namibia. An investigation of colonial gaps in a post-colonial National Archive. Acta Univ. Tamperensis 2085.

Péringuey L. 1910. Report on the Department of Vertebrates other than Fishes. In: Report of the South African Museum for the Year ended 31st December, 1909. Cape Town: Cape Times Limited, Government Printers.

Péringuey L. 1921. [Report of] Department of Zoology. In: Report of the South African Museum for the Year ended 31st December, 1920. Cape Town: Cape Times Limited, Government Printers.

Whiting AS, Bauer AM, Sites JW, Jr. 2003. Phylogenetic relationships and limb loss in sub-Saharan African scincine lizards (Squamata: Scincidae). Mol. Phylogenet. Evol. 29: 582–598.

SUBMITTED BY:

AARON M. BAUER, Department of Biology, Villanova University, 800 Lancaster Avenue, Villanova, PA 19085, USA.
E-mail: aaron.bauer@villanova.edu.

GEKKONIDAE

Pachydactylus purcelli
Boulenger, 1910
Purcell's Gecko

G.K. NICOLAU & K.M.J. LYNCH

On the 31st March 2018 the authors, accompanied by Alouise Lynch, searched a rocky outcrop next to a non-perennial tributary of the Geelbeksrivier. The outcrop is located 16 km south-east of Nuwerus, Western Cape Province (31°13'25.45"S 18°31'29.63"E, 3118BA), in the Succulent Karoo. A sardine tin jammed in a crack between two boulders was removed revealing an adult Purcell's Gecko (*Pachydactylus purcelli)* nestled in one of the corners of the rusted tin. The specimen was photographed and released, the image was subsequently uploaded to the Animal Demography Unit (ADU) Virtual Museum (http://vmus.adu.org.za) and can be found under Reptile Map No. 159460. Identification was based on the individual having a very flat and blunt head. The position of its nostril separates the individual from the *P. weberi* group (Bauer 2006), while the head and body was covered in granular scales, the largest being located on the snout, which was slightly longer than orbit. The individual lacked enlarged tubercles on the dorsal region of the body, had an oval ear-opening and 9 upper and lower labials. The

gecko was pale brownish above, with darker vermicular spots on the dorsum of the trunk (Fig. 1).

Pachydactylus purcelli is rupicolous, occupying rocky habitats along arid river corridors throughout the semi-arid karroid regions of western South Africa and southeastern Namibia, between 400-1 800 m elevation (Bauer et al. 2006). The type locality is Touws River, Little Namaqualand, Western Cape (Boulenger 1910) and the species is common in the surrounding areas. However, there is only a single record of *P. purcelli* from the far west of South Africa and this, from Carolusberg, Northern Cape, 2917DB, more than 180 km from the present record (Bauer et al. 2006), remains unconfirmed. The closest confirmed record is from Calvinia, 3119BD, 120km inland from this observation.

This record of *P. purcelli* represents a westward range extension of 120 km, as well as the lowest known elevational record (310 m) for the species. This record supports the observation that *P. purcelli* utilises arid river systems (Bauer 2014). Surveying such systems in the more remote regions of the Western Cape Province should be undertaken in order to add to the current body of knowledge regarding the distribution and ecology of the species.

Figure 1. Lateral view of *Pachydactylus purcelli* (Reptile Map No. 383121) SE of Nuwerus, Western Cape, South Africa.

ACKNOWLEDGMENTS

Authors would like to thank Aaron Bauer for his much appreciated input and comments on this manuscript.

REFERENCES

Bauer AM. *Pachydactylus Purcelli* Boulenger, 1910. In: Bates MF, Branch WR, Bauer AM, Burger M, Marais J, Alexander GJ, de Villiers MS. editors. 2014. Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland. Suricata 1. Pretoria: South African National Biodiversity Institute.

Bauer AM, Lamb T, Branch WR. 2006. A revision of the *Pachydactylus serval* and *P. weberi* groups (Reptilia: Gekkota: Gekkonidae) of Southern Africa, with the description of eight new species. Proc. Cal. Acad. Sci. 57: 595-709.

Boulenger GA. 1910. A Revised list of the South African reptiles and batrachians, with synoptic tables, special reference to the specimens in the South African Museum, and description of new species. Ann. S. Afr. Mus. 5: 455-543.

Branch WR. 1998. Field Guide to the Snakes and Other Reptiles of Southern Africa. Cape Town: Struik Publishers.

SUBMITTED BY:

GARY KYLE NICOLAU, African Herpetological and Biodiversity Institute, Naboomspruit, Limpopo, South Africa.
Email: nicolauecology@gmail.com

KEIR LYNCH, Bionerds, Napier, Western Cape, South Africa.
Email: keir.lynch@bionerds.co.za

Homopholis wahlbergii
(A. Smith, 1849)
Wahlberg's Velvet Gecko

O. BOURQUIN

Branch (2014) indicated that a record of *Homopholis wahlbergii* from quarter-degree grid cell 2830CA (Bourquin, 2004) needed confirmation as it lay outside the species' expected range, although the record was accepted without comment by Broadley (2014). I confirm that the record was based on two collected specimens, one found in a large eroding pedestal of sandstone rock above the Thukela River at 28°40 '40¨S, 30° 00 '49¨E, elevation 760 m, on the Farm Ganna Hoek 1817 (2830CA), Kliprivier District, KwaZulu-Natal, collected by S. and O. Bourquin on 12 November 1999, which was deposited in the collection of the Transvaal Museum (now Ditsong Museum of Natural History, Pretoria) (TM 83401). The following day another specimen was collected by J. Craigie in a crevice in cliffs just above the Thukela River (28°4 '54¨S, 30°01 '34¨E, elevation 705 m) a little further downstream from the first site, on the farm Ramak 13696, and it was also deposited in the Transvaal Museum (TM 83367). The localities lie about 105 km west of the next nearest record (Nkandla area, 2830 CA; Bourquin 2004;

Branch 2014). The climatic region is Interior Thukela Valley, the physiographic region is Middle Thukela Valley, the veld type is Thukela Valley Bushveld Thornveld, and the geology is Karroo system, Ecca Series (Town and Regional Planning Commission, Natal 1960).

Another, apparently undocumented, record for this area appeared on YouTube (Waldman 2013) in a video showing a green snake (*Philothamnus sp.*) catching and swallowing a large Wahlberg's Velvet Gecko. The video was made during January 2013, on the Zingela Safari and River Company site, next to the Thukela River at 28°44 '27¨S, 30°09 '52¨E (2830 CA), approximately 8km SE of the Ganna Hoek site.

This note provide locality details for the apparently isolated *Homopholis wahlbergii* record at locus 2830 CA (see Branch 2014) and confirms the validity of the record originally published in Bourquin (2004).

ACKNOWLEDGEMENTS

I thank the two reviewers of the note for their helpful comments.

REFERENCES

Bourquin O. 2004. Reptiles (Reptilia) in KwaZulu-Natal: 1 – diversity and distribution. Durb. Mus. Nov. 29: 57-103.

Branch WR. 2014 *Homopholis wahlbergii* (A.Smith, 1849). In: Bates MF, Branch WR, Bauer AM, Burger M, Marais J, Alexander GJ, De Villiers MS, editors. Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland. Suricata 1. Pretoria: South African National Biodiversity Institute.

Broadley DG, Jackman TR, Bauer AM. 2014. A review of the genus *Homopholis* Boulenger (Reptiliia: Squamata: Gekkonidae) in Southern Africa. Afr. J. Herpetol. 63: 109-126.

Town and Regional Planning Commission, Natal. 1960. Towards a plan for the Tukela Basin. Johannesburg: Hortors Ltd.

Waldman J. 2013. Spotted bush snake fights huge gecko [accessed July 2017]. http://www.youtube.com/watch?v=9zcNHF48UYI

SUMITTED BY

ORTWIN BOURQUIN, P.O. Box 1226, Columbus MT 59019, USA.
E-mail: ortybourquin@gmail.com

LAMPROPHIIDAE

Prosymna pitmani
Battersby, 1951
Pitman's Shovel-snout

D.W. PIETERSEN & M. STANTON

Pitman's Shovel-snout (*Prosymna pitmani*) is an infrequently-seen, fossorial species that was originally described from southern Tanzania, and still has its main known distribution in this region (Broadley 1980; Spawls et al. 2018). Andrew Stevens collected a single juvenile specimen at Mpatamanga

Figure 1. (Left) Pitman's Shovel-snout (*Prosymna pitmani*) photographed ~50 km north-east of Tete on the Vale Railway Line, Tete Province, Mozambique. (Right) Close-up of head showing the fused internasals. Photographs: Mark Stanton.

Gorge in southern Malawi (ca. 15° 43' 26" S, 34° 43' 52" E, 1534DA, NMZB-UM 24122; Stevens, 1974), and this remained the only known Malawian specimen (and the only record outside of southern Tanzania) for more than four decades until Gary Brown photographed a second individual at Ngona Lodge on the banks of the Shire River in southern Malawi (15° 54' 51" S, 34° 45' 18" E, 1534DD) on 6 August 2018 (ReptileMAP No. 166837), reaffirming this species' presence in this country.

On 12 August 2013, Mark Stanton photographed an individual ca. 50 km north-east of Tete on the Vale Railway Line, Tete Province, Mozambique (15°57'14.634" S, 34°1'24.535" E, 1534CC), which has been submitted to ReptileMAP as record 168505 (Fig. 1). It was found within 2 km of an East African Shovel-snout (*P. stuhlmannii*, ReptileMAP 168536). This individual was distinguished from the near-sympatric *P. stuhlmannii* by its distinctive colouration (Broadley 1980). It was distinguished from the Lined Shovel-snout (*P. lineata*), which has also been collected in the vicinity of Tete, by having the internasals fused into a single band-like scale (Broadley 1980; Fig. 2).

The Tete individual was unearthed during bush-clearing operations for the construction of a new railway line and was found in open miombo (*Brachystegia-Julbernardia*)-thornveld (*Vachellia*) woodland mosaic with a fairly dense grass understory and undisturbed loamy soil. The vegetation was largely undisturbed, save for evidence of frequent (probably annual) fires.

This is the first record of *P. pitmani* in Mozambique, although this record is only 78 km due east of the nearest record at Ngona Lodge in southern Malawi. The apparently disjunct populations in southern Tanzania and Malawi-Mozambique are likely an artefact of poor sampling in the intervening regions, although the possibility

of the southern population representing an undescribed species should be investigated

REFERENCES

Broadley DG. 1980. A revision of the African snake genus *Prosymna* Gray (Colubridae).

Spawls S, Howell K, Hinkel H, Menegon M. 2018. Field Guide to East African Reptiles. London: Bloomsbury Publishing.

Stevens A. 1974. An annotated check list of the amphibians and reptiles known to occur in south-eastern Malawi. Arnoldia Rhodesia 30: 1–22.

SUBMITTED BY:

Darren W. Pietersen, Department of Zoology and Entomology, University of Pretoria, Private Bag X20, Hatfield, 0028, South Africa.
Email: pietersen.darren@gmail.com
Mark Stanton
Email: trauma.1@mweb.co.za

AHN INSTRUCTIONS TO AUTHORS

AFRICAN HERP NEWS

publishes manuscripts in four categories, namely Articles, Herpetological Surveys, Natural History Notes, and Geographical Distributions.

CONTRIBUTIONS SUBMITTED IN AN INCORRECT STYLE (SEE GUIDELINES BELOW) WILL BE RETURNED TO THE AUTHORS

The type of submission (e.g., Article, Natural History Note, Geographical Distribution) should be clearly indicated in the file name. As a general note, always use the latest available issue of AHN for instructions.

All submissions should be typewritten in English (UK spelling), set in 10 pt Calibri. Words should not be divided at the right-hand margin. Use the active voice in the first person where possible (except for submissions for *Tomorrow's Herpetologists Today*). Formatting should be achieved with paragraph settings rather than tabs or spaces. Authors should consult the *Council of Biology Editors Style Manual,* 5th edition (1994) for style and abbreviations. Sentences should be separated by a single space (character). Genus and species names must be italicised. Centre major headings in small caps. Subheadings are in bold and left justified (*also in title case*). Footnotes are not accepted. The International System of Units (Systeme Internationale; SI) should be followed. Use decimal points rather than commas. Measures should be in mm, m or km rather than cm or dm. Integers less than 10 should be spelled, while those greater than 10 (including 10) should be given numerically. Group integers of thousands together with a space and do not use a comma (e.g. 10 500 and 1 230). All statistical symbols should be italicised. Follow the Fourth Edition (1999) of the International Code of Zoological Nomenclature. Every word in English common names should start with a capital letter (e.g., Namaqua Dwarf Adder). Appendices, Material Examined, Tables, legends to Figures, and Figures must follow the References.

ARTICLES

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 (bold, centred, upper case);

AUTHOR(S) (initials and surname, bold, centred)

HEADINGS (bold, centred, upper case)

Subheading 1 (bold, aligned left, lower case except first letter of first word) as required

Subheading 2 (bold, italics, aligned left, lower case except first letter of first word) as required

ACKNOWLEDGEMENTS (bold, centred)

REFERENCES (bold, centred), following the standardised formats described below.

SUBMITTED BY: (bold, aligned left), following the standardised format 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 as a 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:

SYSTEMATIC ACCOUNT (bold, aligned left): comprises Scientific name (including author citation), location and habitat, evidence (including registration numbers and location of vouchers), and comments (where required).

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 (bold, centred, uppercase)

Scientific name (bold, italicised, centred)

Author citation (centred)

English Common Name (centred, all words starting with a capital letter)

KEYWORD (bold, centred)

AUTHOR(S) (initials and surname, bold, centred)

[Original text] (left aligned)

ACKNOWLEDGEMENTS (bold, centred), if applicable

REFERENCES (bold, centred), following the standardised formats described below

SUBMITTED BY: (bold, aligned left), following the standardised format described below

The Keyword should be one or two words best describing the topic of the note (e.g., Reproduction, Avian predation, etc.).

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.

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 (bold, centred, uppercase)

Scientific name (bold, italicised, centred)

Author citation (centred)

English Common Name (centred, all words starting with a capital letter)

AUTHOR(S) (initials and surname, bold, centred)

Original text (left aligned)

ACKNOWLEDGEMENTS (bold, centred), if applicable

REFERENCES (bold, centred), following the standardised formats described below

SUBMITTED BY: (bold, aligned left), following the standardised format described below

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.

HERPS MAKING HEADLINES

This section features the latest research and news relating to African herpetology, with the intent of making the AHN readership more aware of some of the cutting-edge research, discoveries and on-the-ground work being done both locally and abroad on African herps.

A standard format is to be used, as follows:

TITLE (bold, centred, upper case)

AUTHOR(S) (initials and surname, bold, centred)

Original text [left aligned]

Study citation (italics), if applicable

TOMORROW'S HERPETOLOGISTS TODAY

This is a popular style article showcasing the work and/or research of young, upcoming herpetologists across the African continent. Unlike any of the other submissions, this style should be written in the third person. It could feature work already published or ongoing work. Photographs to accompany the article are highly encouraged. These may include

study specimens, study area, and/or researchers.

A general format should be followed:

Author name ([in full], centred, upper case)

TITLE (bold, centred, upper case)

Original text (aligned left)

ACKNOWLEDGMENTS

Acknowledgements should be brief and should not list titles and institutions, but should include the first name and surname in full. Institutions should only be listed where individuals are cited as pers. comm. in the text. Authors must acknowledge collecting permits and animal care protocols together with which author they were granted. Any mention of authors should refer to them by initials only (e.g. GJA for Graham J. Alexander). It is recommended that authors acknowledge reviewers by name if they waive anonymity. This is not a requirement, but would be greatly appreciated.

REFERENCES

Reference formatting is similar to African Journal of Herpetology. As of 2019, extensive changes have been made to simplify its appearance. However, as always, references should be listed in alphabetical order and should refer only to publications cited in the text. Abbreviate journal names in the References in the standard way. Standard abbreviations can be found at various web sites such as: www.bioscience.org/atlases/jourabbr/list.htm or home.ncifcrf.gov/research/bja/

References should be in the following format:

Article: Branch WR. 2007. A new species of tortoise of the genus *Homopus* (Chelonia: Testudinidae) from southern Namibia. Afr. J. Herpetol. 56:1–21.

Book: Spawls S, Howell K, Drewes R, Ashe J. 2002. A field guide to the reptiles of East Africa. London: Academic Press.

Chapter in a collection: Bruford MW, Hanotte O, Brookweld JFY, Burke T. 1992. Singlelocus and multilocus DNA Fingerprinting. In: Hoezel AR, editor. The South American Herpetofauna: Its Origin, Evolution, and Dispersal. Molecular Genetic Analysis in Conservation. Oxford: IRL Press.

Thesis: Russell AP. 1972. The foot of gekkonid lizards: a study in comparative and functional anatomy. [PhD thesis]. London: University of London.

Website: Wilgenbusch JC, Warren DL, Swofford DL. 2004. AWTY: a system for graphical exploration of MCMC convergence in Bayesian phylogenetic inference.

[accessed 15 April 2011]. http://ceb.csit.fsu.edu/awty.

In text citations should be in chronological order: (Jacobs 1952, 1966; Edwards and Holmes 1965; Rosen et al. 1990). When a paper with more than two authors is cited, only the first appears in the text (Taylor et al. 1993). If a paper has more than ten authors, only the first five should appear in the references followed by et al. Cite unpublished data as e.g. Alexander (in press), which then appears in the list of references, or as G. J. Alexander (pers. comm.), in which case Graham J. Alexander's name and institutional affiliation should appear under Acknowledgements. Unpublished reports are cited as personal communications.

AUTHOR AFFILIATIONS

Authors' full names and affiliations should be provided at the end of the submission, as follows:

SUBMITTED BY: [for each author] **AUTHOR'S NAME** (bold, upper case), address or affiliation.

E-mail: example@gmail.com (hard return)

TABLES

Tables should be in Arabic numerals, double spaced and on separate pages with a legend at the top. Lines should only be used to separate headings. Table formatting is most convenient when 'table commands' are used to separate columns. Do not use vertical lines. All tables must be mentioned in the text and numbered consecutively (Arabic numerals).

FIGURES AND PHOTOGRAPHS

Figures must be restricted to the minimum needed to clarify the text. The same data should not be presented in both graph and table form. Photographs and figures should be provided at high resolution (minimum of 600 dpi for colour images). Lower resolutions are not acceptable. Files should be saved and submitted as one of the following file formats: TIFF (Tagged Image File Format; preferred), PostScript or EPS (Encapsulated PostScript). Please submit line art as a scalable vector diagram (EPS). Labelling in figures should be in lower case, except for the first letter of the first word. All figures must be mentioned in the text and numbered consecutively (Arabic numerals).

HAA MEMBERSHIP FEES

2019

African Membership	1 Year	R200	3 Years (10% discount)	R540
Senior Citizens	1 Year	R100	3 Years (10% discount)	R270
Students & Scholars	1 Year	R150	3 Years (33% discount)	R400
International Membership	3 Years		$60 or €50 or R775	

BANKING DETAILS

ACCOUNT NAME	Herpetological Association of Africa
ACCOUNT NUMBER	62614292910
BANK	First National Bank
BRANCH	Woodlands Boulevard (230732)
SWIFT CODE	FIRNZAJJ

HAA | Herpetological Association of Africa
www.africanherpetology.org

IMPORTANT TO REMEMBER

NOTICE REGARDING ELECTRONIC PAYMENTS

It is essential that your membership reference number (or initials and surname, if you are a new member) be used as a reference for electronic payments, and that you let the HAA Treasurer, Jens Reissig (jens@ultimatecreatures.com), know when you authorise the payment, so that it can be traced.

BANK FEES

Please note that all bank fees for electronic payments to the HAA must be borne by you, the payee. Thus, please ensure that you add an extra 5% to cover bank charges, or that these come directly off your account when electronically transferring money, and NOT off the amount received by the HAA.