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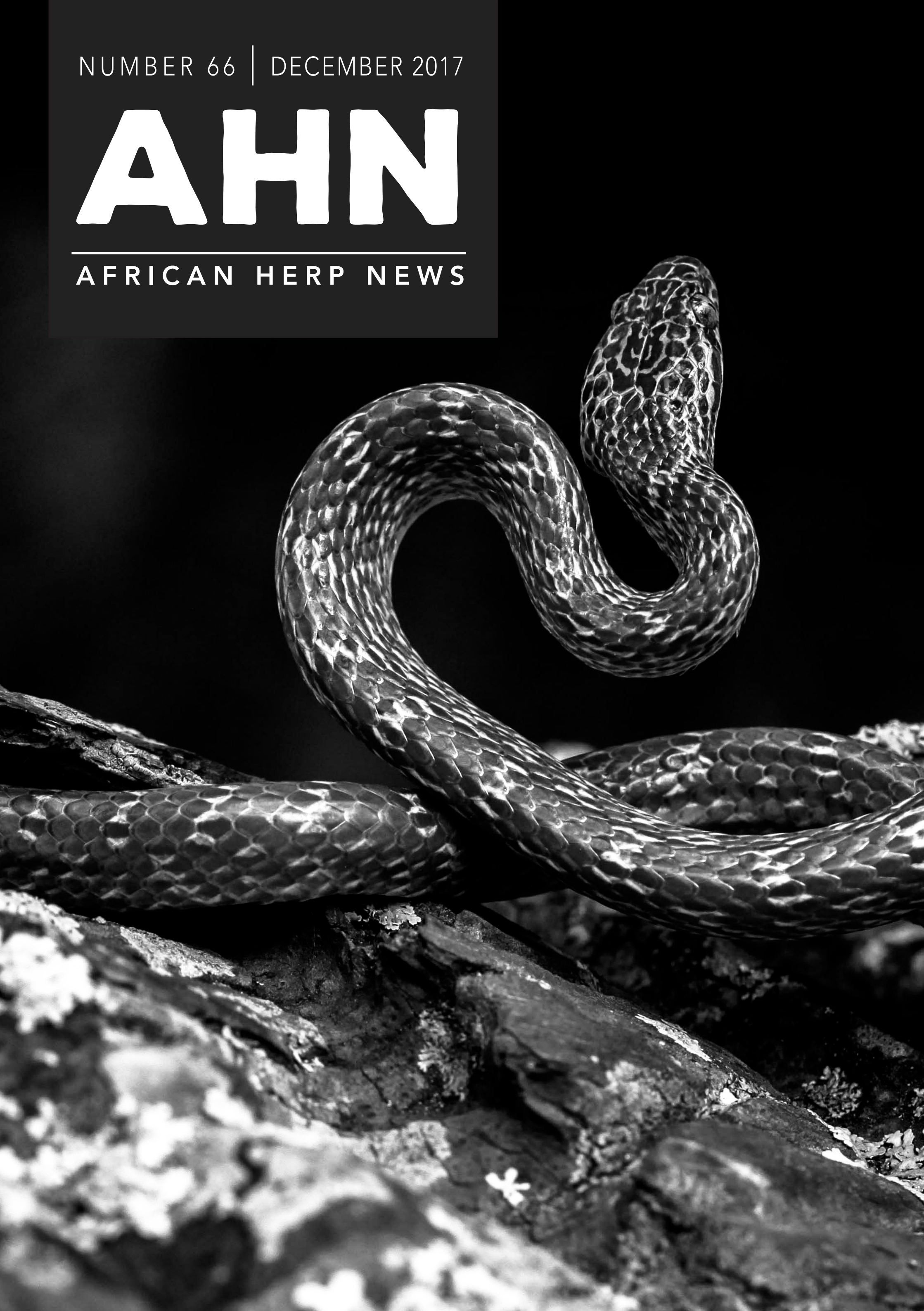

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The HAA is dedicated to the study and conservation of African reptiles and amphibians. Membership is open to anyone with an interest in the African herpetofauna. Members receive the Association's journal, African Journal of Herpetology (which publishes review papers, research articles, and short communications – subject to peer review) and African Herp News, the Newsletter (which includes short communications, natural history notes, book reviews, bibliographies, husbandry hints, announcements and news items).

NEWSLETTER EDITOR'S NOTE

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

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

COVER PHOTOGRAPH: *Dipsadoboa aulica*
Photograph by: Nicholas Telford

AHN CONTENTS

THE USE OF PHYLOGENETIC DIVERSITY FOR INFERRING BIOGEOGRAPHIC PATTERNS – THE CASE OF SOUTH AFRICAN REPTILES

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South Africa (SA) is a global reptile hotspot. With over 400 reptile species it is the most species-rich African country. Given the number of studies and the momentum of herpetological research in SA it is also the best surveyed country on the continent. The increasing amount of data available on species distributions, in combination with new DNA sequences becoming available for more species, allowed us to analyse large-scale spatial patterns of evolutionary diversity of SA reptiles in the spatio-temporal framework of phylogenetic diversity (PD). PD is a measure of biodiversity that combines the information on species distributions with their phylogenetic relationships. It represents an objective proxy for ecosystem function and can be used for inferring biogeographic patterns, identification of refugia ('museums') and generators ('cradles') of biodiversity, as well as to make informed conservation decisions that capture diversity at the genetic level. To reconstruct the phylogeny of SA reptiles, we combined available GenBank sequences for SA reptiles and generated new sequences for 61 species or subspecies that have not been sequenced to date. Based on a data set containing 389 of 427 (91%) of terrestrial reptiles in an alignment of 18 genes (20,000 bp), we inferred phylogenetic relationships by maximum likelihood estimation. For the spatial component, we collated over 140,000 distribution records from the South African Reptile Conservation Assessment. Although the distribution of most species is relatively well documented in SA, the sampling is obviously biased by sampling effort around populated areas. To account for this, we modelled the potential distribution of all taxa for the current climate using bioclimatic variables. As an example, we use two species-rich families distributed across SA, the skinks and lacertids, to identify regions that contribute to 1) preserving ancient diversity and 2) generation of diversity. In both families PD is highly correlated with species richness, which could indicate that PD is not a better predictor of evolutionary diversity than species richness itself. However, when corrected for the number of taxa, both families show correspondence in that ancient diversity ('museums') is centred in north-eastern SA. In contrast, recent diversity ('cradles') has arisen in different regions, with the skinks recently diversifying in the arid west and northwest, whereas lacertids have recently diversified in the Great Karoo. The northeast is also expected to act as a 'museum' across other reptile families, but the 'cradles' may differ based on drivers of evolution for each family.

GENETIC STRUCTURING OF THE ANGULATE TORTOISE *CHERSINA ANGULATA*

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The angulate tortoise (*Chersina angulata*) is endemic to the southwestern parts of South Africa and adjacent Namibia. Previous studies using three mitochondrial genes revealed two genetically distinct lineages. One of these two lineages is subdivided in two subclades, one from the northwestern Cape and one from southwestern Cape, whilst haplotypes from the southern Cape correspond to the second distinct lineage. Using one mitochondrial marker and 18 microsatellite loci, we examined the genetic structuring of *C. angulata* in the entire range. Our microsatellite results confirm largely the same genetic structuring as previously revealed by mitochondrial DNA with three distinct clusters. In spite of significant mitochondrial differentiation, our microsatellite data indicate gene flow across contact zones, suggesting that all genetic groups are conspecific.

THE IMPORTANCE OF BODY POSTURE AND ORIENTATION IN THE THERMOREGULATION OF *SMAUG GIGANTEUS*, THE SUNGAZER

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Body temperature (T_b) is the most influential factor affecting physiological processes in ectothermic animals. Reptiles use behavioural adjustments, i.e., shuttling behaviour and postural and orientation adjustments, such that a target T_b (T_{target}) can be achieved. T_{target} is expected to be close to many of the physiological and behavioural thermal optima for the species. The sungazer, *Smaug giganteus*, is unique amongst the Cordylidae in that individuals inhabit self-excavated burrows in open grasslands, where conductive heating is restricted. Therefore, their T_bs are more likely influenced by postural and orientation adjustments than by conductive mechanisms. The purpose