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A new subspecies of Rinkhals *Hemachatus haemachatus* (Bonnaterre, 1790) from Southern Africa. (Serpentes: Elapidae).

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ABSTRACT

The dangerously venomous Rinkhals *Hemachatus haemachatus* (Bonnaterre, 1790) of South Africa and upland areas of the Zimbabwe and Mozambique border area are well-known to herpetologists and are commonly kept captive in herpetoculture. For many years regional variants have been known, the most obvious differences between areas being colouration. However until now, no one has quantified consistent differences between the forms.

The two main population groups are the dominantly dark and greyish forms from the south and upland areas of South Africa, including the inland plateau, and the generally reddish and/or heavily banded forms from the coastal north east of South Africa including nearby hills and those from the Zimbabwe/Mozambique border area.

Using consistent head-scale characteristics the two groups are divided. The generally reddish and usually well banded form is herein formally named as a new subspecies according to the Zoological Code (Ride *et al.* 1999).

Keywords: Taxonomy; Rinkhals; *Hemachatus*; *haemachatus*; new subspecies; *macconchiei.*

INTRODUCTION

The dangerously venomous Rinkhals *Hemachatus haemachatus* (Bonnaterre, 1790) are an icon elapid of the cooler, wetter and non-arid parts of South Africa and upland areas of the Zimbabwe and Mozambique border area.

Endemic to the region, they are common in the east and north-east of South Africa (their stronghold) and get rarer as one moves west in their range to Cape Town, where they are now regarded as uncommon, having allegedly declined in number there in the latter part of the 1900's (Smith 2011).

These snakes are common in built up areas of cities such as Johannesburg where they shelter in rubbish piles and the like (Smith 2011).

They are well-known to herpetologists and are commonly kept captive. For many years regional variants have been known, the most obvious differences between areas being colouration. However due the degree of colour variation even within a small area, and at times even within a single litter of snakes, people have until now been unable to quantify consistent differences between the forms.

The two main population groups are the dominantly dark and greyish forms from the south and upland areas of South Africa, including the inland plateau, and the generally reddish and banded forms from the coastal north east of South Africa including nearby hills and those from the Zimbabwe/ Mozambique border area.

Using consistent head-scale characteristics the two groups are divided with the generally reddish and banded forms herein formally named as a new subspecies according to the Zoological Code (Ride *et al.* 1999).

The decision to inspect specimens of the species from across their range was made in 2009, when I was doing fieldwork in South Africa. At that time I found and/or was shown typical south-west specimens of the generally greyish and dull morph as well as the brighter banded forms from the north-east of South Africa.

It soon became apparent that these different forms were found in well-defined regions and so I set about examining specimens to ascertain differences between colouration as well as looking for specimens that may be deemed "intermediate" in form or colour.

Specimens intermediate in form were found, but invariably they had been born as a result of captive matings.

I did not however find any wild snakes that appeared to be intermediate in form, although a number of local snake collectors assured me that because distribution between the two forms was continuous, intermediates must in fact exist.

Due to fading of museum specimens and general deterioration, they did not make good subjects for examination in terms of determining colour differences.

Notwithstanding this difficulty, what did emerge upon examination of large numbers of live animals, dead animals and photos with good accurate locality data was consistent trends in the differences in head scalation between regional variants.

In summary, I did not agree with the widely put proposition that the north-eastern form was a different species at that level.

However there was no doubt that it did in fact deserve formal taxonomic recognition which is what is done herein at the subspecies level according to the Zoological Code (Ride *et al.* 1999). The taxon is defined according to the criteria given below.

The need for taxonomic recognition of this variant of the Rinkhl is heighted by the fact that captive breeding of these snakes by hobbyists will only aid conservation efforts if gene pools are kept intact and divergent genetic lineages are kept that way.

Besides inspection of numerous specimens, I also drew upon advice from herpetologists in South Africa and Zimbabwe as well as reviewing important literature on this species.

Important references in terms of the species *Hemachatus haemachatus* (Bonnaterre, 1790) and the taxonomy of it include Alexander *et al.* (2012), Bonnaterre (1789, 1790), Boulenger (1887), Boycott (1992), Branch (1993), Broadley (1962), Ditmars (1911), Dobiey and Vogel (2007), Duméril *et al.* (1854), Gadow (1909), Golay *et al.* (1993), Haagner (1991), Hallermann (2006), ICZN (2005), Lacepède (1789), Marias (2004), McDiarmid *et al.* (1999), Merrem (1820), Schmidt (2012), Smith (1826), Smith (2011), Spawls and Branch (1995), Sternfeld (1910), Winchell (2011), and sources cited therein.

HEMACHATUS HAEMACHATUS MACCONCHEI SUBSP. NOV.

Holotype: A specimen at the California Academy of Science (CAS) specimen number: CAS HERP 156718, from Rosetta, KwaZulu-Natal, South Africa. The California Academy of Science is a government-owned facility that allows access to specimens by scientists.

Diagnosis: *Hemachatus haemachatus macconchei subsp. nov.* is separated from the nominate subspecies *Hemachatus h. haemachatus* by colouration in that with the exclusion of up to three ventral crossbands on the forebelly, the lighter crossbars on the back do not extend onto the belly as usually seen in the nominate subspecies.

Generally in *Hemachatus h. macconchei subsp. nov.* the colouration is yellow to reddish-brown with chocolate-brown crossbands, or occasionally simply light reddish-brown with indistinct darker crossbands, this being an amelanistic form that is common in some locations.

By contrast, *Hemachatus h. haemachatus* is generally olive, greyish, greyish-brown to nearly black, with darker dorsal crossbands, which are often indistinct, or less often with somewhat indistinct white crossbands.

One variant of *Hemachatus h. haemachatus* is a whitish-grey form, common in the Johannesburg area.

Hemachatus h. macconchei subsp. nov. is also separated from the nominate subspecies by head scalation. In *Hemachatus h. haemachatus* the second supralabial is triangular at the top. This is not the case for *Hemachatus h. macconchei subsp. nov.* where the apex is noticeably chopped with a smallish bite-mark (not quite a "C'" shape at the top) in terms of the shaping of the upper part of the scale. In *Hemachatus h. macconchei subsp. nov.* the third supralabial widens considerably at the top. In *Hemachatus h. haemachatus* the widening is only slight.

In *Hemachatus h. macconchei subsp. nov.* the top anterior temporal is noticeably oval to rectangular in shape, versus a squareish shape in *Hemachatus h. haemachatus* .

In *Hemachatus h. macconchei subsp. nov.* the anterior prefrontals are markedly larger than the posterior pair. By contrast, in *Hemachatus h. haemachatus* the difference is only slight.

Both *Hemachatus h. macconchei subsp. nov.* and *Hemachatus h. haemachatus* are defined by the following suite of characters: Adults average a metre, but specimens more than 1.5 metres occur.

The dorsal scales are keeled with 17-19 dorsal mid-body rows, 116-150 ventrals, single anal and 30-47 divided subcaudals. There are 7 supralabials with numbers 3 and 4 entering the eye and 7-9 lower labials; 1 (rarely 2) preoculars, 3 postoculars, the middle being the largest. Temporals are 2+3, 2+2 or 2+4.

Colour is variable, but is usually olive to dark brown or dull black above in *Hemachatus h. haemachatus* usually with indistinct or occasionally whitish irregular cross-bands.

In *Hemachatus h. macconchei subsp. nov.* the colour is variable, but usually with distinct irregular cross-bands of yellow, orange, pink or red, and upper bands do not extend on the belly beyond the distinct bands across the fore body, or occasionally simply light reddish-brown with indistinct darker cross-bands, this being an amelanistic form that is common in some locations.

Distribution: *Hemachatus h. macconchei subsp. nov.* is found in KwaZulu-Natal and the Eastern Cape of South Africa and also the cool hilly zone on the Zimbabwe/Mozambique border.

The nominate form is found in most other parts of South Africa, except the arid north-west.

Etymology: The subspecies is named in honour of Donvale, Victoria, Australia lawyer, Lachlan McConchie for his public interest legal work, often going beyond the call of duty or financial gain to assist in public benefit court cases. This includes cases where corruption whistleblowers were being attacked by the corrupt government departments exposed by the whistleblowers via frivolous and vexatious legal proceedings designed to bankrupt and discredit the whistleblowers.

In 2012-2013 he defended a group of activists who were improperly facing criminal charges after publicly exposing Victorian wildlife officers employed by the Department of Sustainability and Environment (DSE) for illegally killing endangered ducks by recklessly shooting them on farmland near the Murray River of Northern NSW.

The activists had rescued the ducks that had been shot and left to die in agony by drunken Department of Sustainability and Environment (DSE) employees who were being paid to stop poaching of native wildlife.

Instead these individuals went on a drunken rampage shooting killing the wildlife they were supposed to be protecting and at the same time putting the lives of local farm workers at risk from death by being hit by stray bullets.

After filming the incident, the activists were charged with a series of bogus wildlife offences themselves in a case which saw McConchie defending them.

Also in early 2013, on 14 February, two other DSE employees, Katie Peters and Steven Kadar killed themselves when hooning about in taxpayer funded DSE motor vehicle while supposedly on firefighting duty, at Harrietville also in northern Victoria.

Of course the failure of DSE management to protect the safety of their own staff is a culpable criminal offence, but no one from the government would ever charge their own for "industrial manslaughter" or "workplace manslaughter" as the charge is known, as would have been the case had such an incident occurred in a non-government workplace.

In March 2012 the same DSE bureaucrats responsible for the deaths detailed above, did in conjunction with a corrupt VCAT Judge Pamela Jenkins, close down the reptile education business, Snakebusters.

These people falsely alleged Raymond Hoser and the company were unsafe.

In June 2012, two Supreme Court judges overturned the illegal DSE action, noting at the time the perfect safety record of Snakebusters and further that Snakebusters were alone in the venomous snake education business able to guarantee safety of all, as only Hoser and the company had the expertise to have devenomized (venomoid) snakes (Nettle and Buchanan, 2012).

On 7 February 2009, DSE and the associated government entity, called the Country Fire Authority, or "CFA", were directly culpable for most of the 172 deaths arising from the man-made bushfire disaster known as "Black Saturday".

No one from either government department was charged or

punished in any way over their role in the massacre and the series of events causing it.

In 2013, and in order to "re-badge" a government department which in Victoria had a reputation worse than that of Hitler's Nazi's, the minister in charge, Ryan Smith presided over a name-change to "Department of Environment and Primary Industries" or DEPI, so that he could allege that the corrupt and badly managed DSE had been shut down.

Of course the staff and running of the new department were unchanged from the former. All they did was change the signage!

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CONFLICT OF INTEREST

The author has no conflicts of interest in terms of this paper or conclusions within.

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