

The dissolution of the genus *Rhadinophis* Vogt, 1922 (Serpentes:Colubrinae).

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ABSTRACT

The genus *Rhadinophis* Vogt, 1922 as currently recognized consists of two species, namely *R. frenatus* Gray, 1853 and *R. prasinus* Blyth, 1854.

As a result of recent molecular studies showing that the two species are not closely related, the genus is split two ways. The new genus for the species *prasinus* is the monotypic genus *Katrinahoserea* gen. nov. named and diagnosed according to the Zoological Code. The species *frenatus* is moved into the existing genus *Rhynchophis* Mocquard, 1897 for reasons explained within this paper.

Keywords: Taxonomic revision; new genus; *Rhadinophis*; genus; species; *Rhynchophis*; *Katrinahoserea*; snake; colubrid.

INTRODUCTION

The green colored snakes of the genus *Rhadinophis* Vogt, 1922 as currently recognized consists of two south-east Asian species, namely *R. frenatus* Gray, 1853 and *R. prasinus* Blyth, 1854.

Due to their bright color they are of interest to herpetologists. However their extremely thin build and delicate nature and apparent need for a humid cage environment has led to few being bred in captivity.

Added to this is the underlying fact that they occur in regions largely inaccessible to Westerners until recent years, so not many of them have filtered into the pet trade.

Morphologically, both species of *Rhadinophis* as defined to date are similar in size, shape and color and so it made sense that they were classified into the same genus.

The two species within *Rhadinophis* had been placed in other genera previously, but as phylogenetic studies have been done, these genera have been fragmented, leading to the current situation and the placement of the pair in Vogt's genus *Rhadinophis*.

A third species of similar color and build, but with a unicorn-like horn on the snout, *Rhynchophis boulengeri* Mocquard, 1897 was placed in its own monotypic genus when described, no doubt on account of its unique proboscis.

The undeniable physical similarities between this species and the species *Rhadinophis frenatus* was obviously overlooked at the time and until recently.

As part of a global study into the molecular phylogeny of the advanced snakes, Pyron et. al. (2011) compared mtDNA from most known genera of snake, including the three taxa relevant to

this paper, which also happened to constitute the total species count for the two genera.

The results clearly showed all three species clustering as a broadly monophyletic group.

However the results showed *Rhadinophis frenatum* and *Rhynchophis boulengeri* together as a related pair, while *Rhadinophis prasinus* was sufficiently divergent to warrant being placed in a separate monotypic genus.

A revisiting of the morphology of the three snakes confirms the molecular position, most easily seen by comparing the heads and head scalation of the three.

The type species for the genus *Rhadinophis* was *Rhadinophis melli* Vogt, 1922, the species being the same taxon as *Herpetrodryas frenatus* Gray, 1853, giving the currently recognized position for the taxon.

Because the molecular studies by Pyron et. al. (2011) have confirmed that this species should be placed in the same genus as *Rhynchophis boulengeri* Mocquard, 1897, the genus name *Rhynchophis* having date priority over *Rhadinophis*, this means that *Rhadinophis* is subsumed into this genus as a junior synonym.

As a result, *R. prasinus* is in a new and separate monotypic genus for which there is no available name.

Therefore in this paper I formally name and define the new genus for this taxon according to the Zoological Code. The species *prasinus* is herein placed within the monotypic genus *Katrinahoserea* gen. nov..

The species *Rhynchophis boulengeri* Mocquard, 1897 is relatively unknown in terms of published studies and the like, but

some important publications on the taxon include, Brachtel (1998), Orlov et. al. (1999), Mocquard (1897) and Schultz and Schultz (2011) as well as several good accounts in major regional field guide books published.

Important publications on the two species formerly placed in the genus *Rhadinophis* include Boulenger (1894), Blyth (1855), Gray (1853), Grossmann (2002), Mao et. al. (2003), Pauwels et. al. (2006), Schulz (1996), Schulz and Grossman (2000), Schulz et. al. (2011) and Utiger, et. al. (2005).

GENUS *RHYNCHOPHIS* MOCQUARD, 1897

Type species: *Rhynchophis boulengeri* Mocquard, 1897

Diagnosis: The Rhinoceros Ratsnake (*Rhynchophis boulengeri*) formerly monotypic for the genus *Rhynchophis*, is also known as the Rhinoceros Snake, Rhino Rat Snake, Vietnamese Longnose Snake and Green Unicorn.

It is found from Northern Vietnam to Southern China, has a prominent, distinctive, scaled protrusion on the front of its snout which has led to its common naming after mythical unicorns and some species of rhinoceros which feature a single horn on the front of their snouts. This species of ratsnake is named for Belgian-British biologist George Boulenger.

Rhinoceros Ratsnakes inhabit subtropical rainforests at elevations between 300 and 1100 m, particularly valleys with streams. They are generally arboreal and mostly move at night, hunting small rodents, birds and other vertebrates.

Oviparous, the mating season is from April to May.

5 to 10 eggs in a clutch are recorded. Hatchlings usually measure 30-35 cm total length.

Their color is brownish grey with dark edges on several dorsal scales. As they mature Rhinoceros Ratsnakes change color to steel grey at about 12-14 months, then to a bluish green or green adult hue at about 24 months. However, some individuals maintain their steel grey subadult color and do not pass into the ordinary mature color phase.

The snout alone on the species *Rhynchophis boulengeri* was sufficient to define the previously monotypic genus until now.

However, the taxon *frenatum* has been shown to be closely related via molecular studies and so it is added to the diagnosis herein for the genus. As for *R. boulengeri* this taxon is extremely thin in build and has a head of similar shape, save for the horn-like protrusion on the snout which it lacks.

Separating this taxon (and *R. boulengeri*) from its former cogener *prasinus*, now placed in the genus *Katrinahoserea* gen. nov. is the coloration of the head and neck.

Both *boulengeri* and *frenatum* are characterized by a black line that starts just past the nostril, is thin as it runs into the eye, runs through the eye itself fairly thick and then behind the eye runs as a thick black line from half to a third of the width of the temporal scales as it runs along them and into the first two or three scales past the temporal scales before the line ends.

Beneath this line the color of the labials is far lighter than the color above the line and on top of the head.

By contrast in *Katrinahoserea* gen. nov. there are no black temporal stripes or other separation of the top part of the head from the bottom.

While the labials are lighter than the top of the head in *Katrinahoserea* gen. nov., there is no line separation and the contrast is nowhere near as great as in *Rhynchophis*.

The body of both species of *Rhynchophis* is characterized by prominent black flecks either on the scales or interstitial skin, a condition not seen or as prominent in *Katrinahoserea* gen. nov..

GENUS *KATRINAHOSEREA* GEN. NOV.

Type species: *Coluber prasinus* Blyth 1854

Diagnosis: This monotypic genus would normally be identified as similar to snakes within the former genus *Rhadinophis* or currently recognized genus *Rhynchophis*, either as diagnosed herein or earlier.

The genus *Katrinahoserea* gen. nov. is separated from the other closely related genera by a lack of a horn on the snout, and/or the lack of a dark stripe running down each side of the head from just past the nostril to the back of the head and onto the

neck, including through the eye.

The genus *Katrinahoserea* gen. nov. is further separated from the genus *Rhynchophis* by the considerably shorter and more blunt snout region, easily seen by comparing the scalation between the nostrils and the eye.

In *Rhynchophis* these scales are huge and the scale between the nasal and the pre-ocular (the prefrontal) is massive and considerably wider (from the side) than the preocular and much bigger than it. By contrast in *Katrinahoserea* gen. nov. the same scale is the same width as the preocular, but considerably smaller than it.

Katrinahoserea lacks the dark pigment or interstitial skin seen in *Rhynchophis* on most or all of its body or if present, it is nowhere near as intense or prominent as in the genus *Rhynchophis*.

Distribution: From eastern India and Bangladesh, eastward to southern China and countries between these points.

Common names: Green Trinket Snake, Green Bush Rat Snake and Green Ratsnake.

Etymology: Named in honor of my mother, Katrina Hoser, for services to herpetology over 50 years.

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