

A Division of the Asian Forest Ratsnakes Genus *Euprepiophis* Boie, 1826 (Serpentes: Colubridae).

Raymond T. Hoser

488 Park Road, Park Orchards, Victoria, 3134, Australia.

Phone: +61 3 9812 3322 Fax: 9812 3355 E-mail: viper007@live.com.au

Received 16 March 2012, Accepted 20 May 2012, Published 30 June 2012.

ABSTRACT

The so-called Forest Ratsnakes have had an unstable history in terms of their taxonomy at genus level.

Until Utiger et. al. (2002) placed the species *conspicillata*, *mandarinus* and *perlacea* in the resurrected genus *Euprepiophis* Boie, 1826 on the basis of molecular studies, these snakes had been shifted between several genera.

A reassessment of this evidence and morphological differences between the three species shows a need to further divide the snakes.

As a result the species *mandarinus* and *perlacea* are placed in a newly erected genus *Sinoelaphe* gen. nov. formally defined according to the Zoological Code.

Keywords: new genus; *Euprepiophis*; *Sinoelaphe*; *conspicillata*; *mandarinus*; *perlacea*; taxonomy; snake; colubrid.

INTRODUCTION

The so-called Forest Ratsnakes have been relatively neglected by herpetologists in Europe and the United States for several reasons, not the least being that for most of the 1900's, China was effectively cut off from the rest of the world.

Due to their morphological similarities to other ratsnakes from elsewhere their taxonomic position was rarely disputed or subject to controversy.

While they were shifted between genera, they were assumed by most herpetologists to be part of *Elaphe sensu lato*.

In the period from 1826 to 2002 the Japanese Woodsnake first described as *Coluber conspicillatus* by Boie in 1826 has been moved between various genera by herpetologists.

An early placement was *Euprepiophis conspicillatus* Fitzinger, 1843, for which he created the genus *Euprepiophis* for this species.

However other herpetologists disagreed and merely placed this taxon within other pre-existing genera, including the following binomials; *Elaphis conspicillatus* by Duméril et. al. in 1854; *Proterodon tessellatus* by Hallowell in 1860 (*Proterodon* being a newly erected genus for the taxon and a junior synonym of *Euprepiophis*); *Coronella conspicillata* by Jan in 1865; *Coronella perspicillata* by Müller in 1878; *Coluber conspicillatus* by Boulenger in 1894; *Elaphe conspicillata* by Stejneger in 1907, where it remained until 2002, when Utiger et. al. published a molecular phylogeny for the ratsnakes.

As a result of their findings they decided that the three species, *conspicillatus*, *mandarinus* and *perlacea* the latter two from

China, should be placed in their own genus apart from the other ratsnakes. As *Euprepiophis* was the first available name, they transferred all three to this genus.

The species *mandarinus* had a similar taxonomic history to *conspicillatus*, with *mandarinus* also being previously placed in the genera *Ablabes* and *Holarchus*. The species *perlacea* remained in *Elaphe* from the time of its first description until removed from that genus by Utiger et. al. in 2002.

The molecular phylogeny produced by Utiger et. al. in 2002 and a similar one produced by Pyron et. al. in 2011 showed that the Japanese taxon was significantly divergent from the Chinese ones. While Utiger et. al. obviously decided they weren't sufficiently divergent to warrant placement in separate genera, a revisitation of the data shows that a split is in fact appropriate.

There are no available genus names for either Chinese species so one is erected and defined for the first time herein according to the Zoological Code (Ride et. al. 1999) below.

Key publications in terms of the relevant three species include, Alexander and Diener (1958), Barbour (1909), Boie (1826), Boulenger (1894), Burbink and Lawson (2007), Cantor (1842), Dowling and Jenner (1988), Duméril et. al. (1854), Fleck (1985), Golder (1974), Gumprecht (2002, 2003, 2004), Hallowell (1861), Jan (1865), Lenk et. al. (2001), Love (2010), Mell (1931), Mori (1982), Müller (1878), Nagata and Mori (2003), Nguyen et. al. (2009), Prater (1919), Purser (2003), Pyron et. al. (2011), Schultz (1996a, 1996b), Stejneger (1907, 1929), Utiger et. al. (2002), Wang et. al. (1999), Whitaker and Captain (2004), Winchell (2003a, 2003b), Zhao (1990), Zhao and Adler (1993).

GENUS SINOELAPHE GEN. NOV.

Type species: *Coluber mandarinus* Cantor, 1842

Diagnosis: This genus comprises two species, *mandarinus* and *perlacea*. It is best defined by defining each species individually in order to separate this genus from all similar snakes.

Sinoelaphe mandarinus is a medium-sized snake; total length up to 140 cm. There are 17-25 (21-23 at mid-body) dorsal rows of scales, which are smooth and shiny. The head is oval with a slightly blunt snout; body is medium stout; tail is medium in length. Eye is medium-sized; iris is dark brown to blackish and pupil is round, black, and less distinct from rest of eye. Tongue is flesh-coloured with gray fork tips. Upper head is yellow and the labials are white, except three broad, black cross-bands; the anterior one is located on the snout, ending on the first infralabials, the median one extends from top of head, divides over eye, to the labials, and the posterior one extends postolaterally from top of posterior head to base of jaw. Upper body and tail are purplish-gray or even reddish, with a series of conspicuous, yellow-margined, yellow-centered, black saddles separated from one another by length of 1-2 scales. There may also be a lateral series of small, black spots. Ventral head is white except the black spots on the gulars and some infralabials. Ventral body and tail are white with scattered quadrangular marks of prominent black pigment which are irregularly arranged on sides. The anal scale is divided and subcaudals are paired.

Sinoelaphe perlacea differs from *Sinoelaphe mandarinus* in many ways. *S. mandarinus* has: 1) 23 scale rows on the neck and mid-body, 19 or 21 before the vent; 2) Two anterior temporal scales (occasionally one); 3) A much different dorsal pattern.

Distribution: In a triangle including India, China, Vietnam and countries within this region. Includes Taiwan. The species *Sinoelaphe perlacea* is only known from near Chengdu, China.

Etymology: Named in reflection of the Chinese centred distribution of the taxa.

Content of *Sinoelaphe* gen. nov.

Sinoelaphe mandarinus (Cantor, 1842) (Type species).

Sinoelaphe perlacea (Stejneger, 1929).

REFERENCES CITED

- Alexander, D. R. and Diener, R. A. 1958. A collection of amphibians and reptiles from Japan. *Copeia* 1958(3):218-219.
- Barbour, T. 1909. Notes on Amphibia and Reptilia from Eastern Asia. *Proc. of the New England Zool. Club* 4:53-78, 2 plates.
- Boie, H. 1826. Merkmale einiger japanischer Lurche. *Isis van Oken, Jena*. 19:203-216.
- Boulenger, G. A. 1894. *Catalogue of the Snakes in the British Museum (Natural History). Volume II., Containing the Conclusion of the Colubridae Aglyphae*. Brit. Mus. (Nat. Hist.), xi, 382 pp.
- Burbrink, F. T. and Lawson, R. 2007. How and when did Old World Ratsnakes disperse into the New World? *Molecular Phylogenetics and Evolution* 43(1):173-189.
- Cantor, T. 1842. General features of Chusan, with remarks on the flora and fauna of that island [part 1]. *Ann. Mag. Nat. Hist.* (1)9:265-278.
- Cantor, T. 1842. General features of Chusan, with remarks on the flora and fauna of that island [part 3]. *Ann. Mag. Nat. Hist.* (1)9:481-493.
- Dowling, H. G., and Jenner, J. V. 1988. Snakes of Burma: checklist of reported species and bibliography. *Smithsonian Herp. Inf. Serv.* (76):19 pp.
- Duméril, A. M. C., Bibron, G. and Duméril, A. H. A. 1854. *Erpétologie générale ou Histoire Naturelle complète des Reptiles*. Vol. 7 (partie 1). Paris, xvi + 780 S.
- Fleck, J. 1985. Bemerkungen zur Haltung von *Elaphe mandarinus* (Cantor, 1842). *Salamandra* 21(2/3):157-160.
- Golder, F. 1974. Zur Kenntnis von *Elaphe mandarina*. *Salamandra* 10(1):22-26.
- Gumprecht, A. 2002. *Elaphe mandarina* (Cantor). *Sauria* (Suppl.) 24(3):565-568.
- Gumprecht, A. 2003. Anmerkungen zu den Chinesischen Kletternattern der Gattung *Elaphe* (sensu lato) Fitzinger, 1833. *Reptilia* (Münster) 8(44):37-41.
- Gumprecht, A. 2004. *Die Mandarinatter Euprepiophis mandarinus* (Elaphe mandarina). Natur und Tier Verlag (Münster):64 pp.
- Hallowell, E. 1861. Report upon the Reptilia of the North Pacific Exploring Expedition, under command of Capt. John Rogers, U. S. N. *Proc. Acad. Nat. Sci. Philadelphia* 12[1860]:480-510.
- Jan, G. 1865. *Iconographie générale des ophiidiens*. 14. Livraison. [*Elapomorphus d'Orbigny*, *Coronella getulus* var. *sayi*] J.B. Baillière et Fils, Paris.
- Lenk, P., Joger, U. and Wink, M. 2001. Phylogenetic relationships among European ratsnakes of the genus *Elaphe* Fitzinger based on mitochondrial DNA sequence comparisons. *Amphibia-Reptilia* 22(3):329-339.
- Love, B. 2010. Die China-Connection. *Reptilia* (Münster) 15(82):14-15.
- Mathew, R. 2005. Record of Mandarin Trinket Snake (*Euprepiophis mandarinus*) (Cantor) and Assam Snail Eater (*Pareas monticola*) (Cantor) (Colubridae: Serpentes) from Nagaland, India. *Cobra* 62:23-24.
- Mell, R. 1931. List of Chinese snakes. *Lingnan Sci. Jour., Canton*, 8[1929]:199-219.
- Mori, M. 1982. *Japans Schlangen*, Vols. 1-3 (80, 102, 123 pp.). Tokyo (Igaku-Shoin Ltd.).
- Müller, F. 1878. Über einige seltene und neue Reptilien aus Guatemala. *Verh. Naturf. Ges. Basel*, 6:390-411.
- Nagata, E. and Mori, A. 2003. A record of *Elaphe conspicillata* from Kinkazan Island, Miyagi Prefecture. *Bulletin of the Herpetological Society of Japan* 2003(2):74-75.
- Nguyen, V. S., Cuc, H. T. and Truong, Q. 2009. *Herpetofauna of Vietnam*. Chimaira, Frankfurt:768 pp.
- Prater, S. H. 1919. Notes on Some Interesting Snakes recently presented to this Society. *J. Bombay Nat. Hist. Soc.* 26:683-685.
- Purser, P. A. 2003. *Elaphe mandarinus*. *Reptilia* (GB) (31):30-33.
- Pyron, R. A., et. al. 2011. The phylogeny of advanced snakes (Colubroidea), with discovery of a new subfamily and comparison of support methods for likelihood trees. *Mol. Phylogenet. Evol.* 58:329-342.
- Ride, W. D. L. (ed.) et. al. (on behalf of the International Commission on Zoological Nomenclature 1999. *International code of Zoological Nomenclature*. The Natural History Museum, Cromwell Road, London SW7 5BD, UK
- Schulz, K. D. 1996a. *Eine Monographie der Schlangengattung Elaphe Fitzinger*. Bushmaster, Berg (CH):460 pp.
- Schulz, K. D. 1996b. *A monograph of the colubrid snakes of the genus Elaphe Fitzinger*. Koeltz Scientific Books, 439 pp.
- Stejneger, L. H. 1907. Herpetology of Japan and adjacent territory. *Bull. US Natl. Mus.* 58:1-577.
- Stejneger, L. H. 1929. A snake from China. *Proc. Biol. Soc. Washington* 42:129-130.
- Utiger, U., Helfenberger, N., Schätti, B., Schmidt, C., Ruf, M. and Ziswiler, V. 2002. Molecular systematics and phylogeny of Old World and New World ratsnakes, *Elaphe* Auct., and related genera (Reptilia, Squamata, Colubridae). *Russ. J. Herpetol.* 9(2):105-124.
- Wang, Y. Q., Zhou, K. Y., Xu, L.S., Yang, G. and Xu, G. J. 1999. The Evolutionary Relationships of Several Colubrid Snakes Suggested by Sequence Analysis of Cyt b Gene Fragment. *Acta Zoologica Sinica* 45:332-338.
- Whitaker, R. and Captain, A. 2004. *Snakes of India*. Draco Books:500 pp.
- Winchell, S. 2003a. Die vielfältige Welt chinesischer Schlangen. *Reptilia* (Münster) 8(44):20-29.
- Winchell, S. 2003b. The wide world of snakes in China. *Reptilia* (GB) (31):12-21.
- Zhao, E. 1990. The validity of *Elaphe perlacea*, a rare endemic snake from Sichuan Province, China. *Asiatic Herpetological Research* 3:101-103.
- Zhao, E. and Adler, K. 1993. *Herpetology of China*. SSAR, Oxford/Ohio:522 pp.