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THE STATUS OF *CRYPTOPHIDION ANNAMENSE*

(Comment on Van Wallach and Gwilym S. Jones, 1992, *Cryptophidion annamense,* a New Genus and Species of Cryptozoic Snake from Vietnam [Reptilia: Serpentes], *Cryptozoology,* Vol. 11: 1–37)

The description of the genus *Cryptophidion* by Wallach and Jones is based on the examination and interpretation of three poorly-focused photographic color slides of a snake: two lateral views of the head, and a ventral view of the whole body.

The photographic slides had been taken during the Vietnam War by members of the U.S. Naval Medical Research Unit No. 2, who had been collecting specimens which they intended to donate to the Smithsonian Institution's National Museum of Natural History. As Wallach and Jones were not able to locate the specimen photographed, the type of the new taxon is presumed "to be lost." As this is undoubtedly a burrowing kind of snake, Wallach and Jones report having compared it with other kinds of burrowing snakes in order to identify the specific characters by which it differs from those other snakes.

We will now demonstrate that a) the specimen does not represent a new species, and b) the approach by Wallach and Jones is not scientific. It is our impression that possible candidate species known to occur in the region were not examined in order to evaluate the resemblance of the photographs to such species. Instead, Wallach and Jones make some rather questionable deductions from the photos in an attempt to describe a new cryptozoological taxon.

We have tackled the problem following the first approach, concluding that *Xenopeltis unicolor* is the (well-known!) species corresponding to the photographic data. In spite of the nice tables produced by Wallach and Jones, they did not even think of suggesting a close relationship with *Xenopeltis.* In order to prove the inaccuracy of the data in these tables, we checked both the literature and specimens in museum collections: we used the complete series of *Xenopeltis unicolor* specimens held at the Royal Institute of Natural Sciences of Belgium, Brussels (6 specimens: IRSNB 29, 29b, 1177, 3144, 12387, and 14570) and 19 specimens from the National Museum of Natural History, Paris (MNHN 626, 6299a & b, 7177a & b, 1884.70, 1894.106, 1896.630, 1920.203, 1962.276, 1970.414–417, 1973.138, 1974.1254, 1974.1443, and 1975.113–114).

When surveying the burrowing snakes living in Indochina, using the literature cited by Wallach and Jones, our attention was immediately drawn to the striking resemblance of the snake photographed with the genus *Xenopeltis* Reinhardt, 1826, which has a distribution spreading from Indochina to the Indo-Australian archipelago, but not including New Guinea and Australia (J. Deuve, 1970, Serpents du Laos. *Mémoires O.R.S.T.O.M.,* Vol. 39: 1–251; K. R. G. Welch, 1988, *Snakes of the Orient: A Checklist.* R. E. Krieger, Malabar, Florida).

We checked the differences presented by Wallach and Jones in their Table 2 (p. 18), which compares the two genera. Among the 26 characters used as the basis for the comparison, they found eight characters different among both genera. Hoping to ring a bell, we will discuss all eight of them.

Character One (ventral proportion): This is the ratio of the width between the ventral scales and the body. This ratio is indicated in Table 2 as being between 0.5 and 1 for *Cryptophidion,* and less than 0.5 for *Xenopeltis.* In the 23 IRSNB and MNHN *Xenopeltis* specimens we examined for this comparison, that ratio, measured at the hundredth ventral, varies between 0.56 and 0.78 for the maximal width of the ventral, and between 0.40 and 0.67 for the minimal width of the ventral.

Character Two (anal scale): This has been described as undivided in *Cryptophidion,* and divided in *Xenopeltis.* In all (25) IRSNB and MNHN *Xenopeltis* specimens examined, the last ventral scale is very big, larger than the preceding ventrals, and it has a triangular form, while the divided anal scale is very small. This feature is well illustrated in Georges Jan and Ferdinand Sordelli (1866, *Iconographie Générale des Ophidiens. Tome Premier [livrais l à 17],* J.B. Baillière, Paris, 1860–66), and B. C. Mahendra (1938, The Lepidosis of *Xenopeltis unicolor* Reinw. *Current Science,* Vol. 6[11]: 559–60.) Apparently, this last ventral scale has been mistaken by Wallach and Jones for an undivided anal. Consequently, the total number of ventrals for the specimen must be 173 rather than 172.

Character Three (infralabials): Four infralabials supposedly contact the pregenials (sublinguals), whereas only three such infralabials do so in the case of *Xenopeltis.* Due to the poor quality of the photos, it is not easy to evaluate the situation in *Cryptophidion.* We, unlike Wallach and Jones, can only distinguish up to three infralabials in contact with the sublingual in the *Cryptophidion* photo. Moreover, all clearly visible scale outlines on the lower side of the head correspond perfectly with all the *Xenopeltis* specimens we examined. We find no reason to believe that four infralabials are in contact with the first sublingual.

Character Four (temporolabial scale): This scale, according to Wallach and Jones, is absent in *Xenopeltis.* It is, in fact, the anterior lower temporal separated from the parietal by the superior postocular. This is exactly the situation found in all of the 25 *Xenopeltis* specimens we examined. Moreover, it can be found in all illustrations of the head of *Xenopeltis* in the literature (Fig. 85, p. 276 in George A. Boulenger, 1890, *The Fauna of British India, Including Ceylon and Burma. Reptilia and Batrachia.* Taylor & Francis, London; plate V, p. 549, in Clifford H. Pope, 1935, *The Reptiles of China. Natural History of Asia, Vol. X.* The American Museum of Natural History, New York; Fig. 1, p. 559 in Mahendra, 1938. above; plate V in Hubert Saint-Girons, 1972, Les Serpentes du Cambodge. *Mémoires. Muséum National d'Histoire Naturelle, Zoologie,* Ser. 2, Vol. 74: 1–170).

Character Five (rostral profile): This is said to be pointed in *Cryptophidion,* and blunt in *Xenopeltis.* Within all the 25 IRSNB and MNHN *Xenopeltis* specimens examined, we found it very difficult to make a distinction between a pointed and a blunt rostral for the genus; some specimens present a rather blunt shape of the rostral scale, while others can be considered to be pointed, at least at the same level as in *Cryptophidion.*

Character Six (vertical eye proportion): This character has been indicated to be 0.4 in *Cryptophidion,* and somewhere between 0.18 and 0.33 in *Xenopeltis.* The question here is to determine if (and how) the measurements of the snake's head in the photograph were corrected for the easily detectable inclined position of the head. Taking the head depth at eye level (taken over the lower jaw), we found the following values for *Cryptophidion* (both minimal and maximal interpretations are given): 0.31–0.33 (0.25–0.27 in the reconstructed outline) for Fig. 1, and 0.30–0.34 (0.34–0.38 in the reconstructed outline) for Fig. 2. In the case of our series (21 *Xenopeltis* specimens measured), the same ratio between the vertical eye diameter (measured at the left and at the right) and the total height of the head (with closed mouth) at eye level varied between 0.19 and 0.41. When the head depth is taken at eye level (vertically from mouth opening to top of head, i.e., without the lower jaw), we found the following values for *Cryptophidion*: 0.36–0.38 (0.30–0.33 in the reconstructed outline) for Fig. 1, and 0.39–0.41 (0.41–0.45 in the reconstructed outline) for Fig. 2. It is clear that these values all relate to the same animal. The use of this character is quite problematical; normally, to express the size of the eye, the diameter relative to the distance from the eye to the end of the snout is used (e.g., Hymen Marx and George R. Rabb, 1972, Phyletic Analysis of Fifty Characters of Advanced Snakes. *Fieldiana, Zoology,* Vol. 63: 1–321). Additionally, the measurement used as a reference (i.e., height of the head) is, in this case, on a preserved specimen, not easy to take, and not very reliable: in snakes, the upper-jaw is rather mobile, and the head can really be flattened while it broadens. This may be the case in the photographed specimen: the supralabials are inclined and appear less high compared with the comparative series.

Character Seven (horizontal eye proportion): This refers to the ratio between the length of the snout and the horizontal diameter of the eye (i.e., the inverted form of the standard relative eye width). This ratio is said to be 2.5 for *Cryptophidion,* and 3.3 to 6.4 for *Xenopeltis.* It varies between 2.95 (smallest specimen) and 5.39 in the 21 *Xenopeltis* specimens we measured. The ratios we find when measuring on the photos (minimal and maximal estimates) of *Cryptophidion* are 2.64–2.98 for Fig. 1, 3.54–3.86 for Fig. 2, and for the reconstructed outlines 2.30–2.55 and 3.40–3.84 respectively. Apparently, the ratio of 2.5 given by Wallach and Jones was based on the drawing in Fig. 2, which does not accurately reflect the information given in the photograph.

Character Eight (ventral coloration): Ventral color is said to be light in *Cryptophidion,* and dark in *Xenopeltis.* However, George A. Boulenger, (1893, Catalogue of the Snakes in the British Museum [Natural History], Vol. I. British Museum [Natural History], London) stated clearly that the coloration of the body in *Xenopeltis unicolor* is "white beneath." Of the 24 specimens of *Xenopeltis unicolor* we examined, some have a completely white ventral side, but all the others have a beige-colored underside, slightly darkening towards the tail, with the tail itself having a brown underside. One specimen (MNHN 1884.70), sloughing, appears completely black.

We must conclude that none of the eight supposed differentiating characters provided by Wallach and Jones survives close analysis: the 26 characters enumerated in their Table 2 are therefore actually 26 characters that are common to both genera.

Moreover, still other similarities are mentioned in the text itself, thus reinforcing the thesis of the synonymy which we will be proposing. Wallach and Jones, for instance, recognize (p. 12) that the pre-ocular scale of *Xenopeltis* is remarkably similar to the "pre-orbital" of *Cryptophidion.* Furthermore, the primitive pattern of the supralabials (3:2:3) in *Xenopeltis* is said (pp. 8, 13) to have exactly the same appearance in *Cryptophidion.* Wallach and Jones assume that the pupil of *Cryptophidion,* while not visible on the photograph, is round, "upon the supposed cryptozoic habits of the snake" (p. 9, 28). One of us (OP) recently collected a *Xenopeltis unicolor* in Chiang Mai, Thailand (IRSNB 14570). When the specimen was still living, the pupil was not visible, and the eye was completely black, like in *Cryptophidion.* The pupil appeared white and contrasted only after several hours in formalin. Wallach and Jones suppose the number of longitudinal scale rows to be about 15; all the specimens of *X. unicolor* we examined had 15 scale rows, in accordance with the literature. Other characters we found in common are the formula of the temporals (1+2+3), and the undivided first subcaudal, while all following subcaudals are divided.

From a zoological point of view, the description of *Cryptophidion annamense* falls within the rules of the Code (International Commission on Zoological Nomenclature, 1985, *International Code of Zoological Nomenclature, Adopted by the XX General Assembly of the International Union of Biological Sciences.* 3rd ed. International Trust for Zoological Nomenclature, London), as the authors correctly explain in their paper. We also have to keep in mind, however, that the type is actually the illustrated specimen, and not the illustration itself, as specified in Article 72(c)(v), of the Code. Furthermore, the notion of iconotypes as defined by Donald L. Frizzell (1933, Terminology of Types. *American Midland Naturalist,* Vol. 14[6]: 637–68), and used by Wallach and Jones to designate their "type slides," is not mentioned in the Code.

Based on the same material examined by Wallach and Jones, although not seeing the type, we conclude that neither the genus *Cryptophidion* nor the species *Cryptophidion annamense* Wallach and Jones, 1992 are valid taxa, and they should be placed in the synonymy of *Xenopeltis unicolor* Reinwardt, 1826.

The description of *Cryptophidion* is a good example of certain weaknesses in the Code. Other examples are *Nessiteras rhombopteryx* Scott and Rines, 1975, *Marsupilami franquini* Quintart, 1989, and *Cadborosaurus willsi* Bousfield and LeBlond, 1995 (see Olivier Pauwels and Frédéric Chérot, in press, Cryptoherpétologie et Nomenclature: Le Problème et sa Solution, *Bulletin de la Sociètè Herpètologique de France*).

If cryptozoology, while handling the delicate situation of incomplete or ill-defined data, does not take its scientific impact seriously, trying to eliminate falsification and purposeful or clumsy misinterpretation, then maybe the Code's nomenclatural rules should be changed.

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