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**ON THE TAXONOMIC STATUS OF
HYLA CARINATA ANDERSSON, 1938
(ANURA: HYLIDAE)**

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Among the 32 species of the genus *Hyla* currently reported from Bolivia (De la Riva, 1990; Reynolds & Foster, 1992), several species are poorly known or have uncertain taxonomic status. This may be attributed to: (1) loss of the type specimen (*H. roeschmanni* De Grys, 1938); (2) erroneous type locality: species may come from other countries (*Hyla molitor* Schmidt, 1857); and (3) absence of information on the species since their descriptions (*H. albonigra* Nieden, 1923 [= *H. zebra* Duméril & Bibron, 1841]; *H. carinata* Andersson, 1938; *H. charazani* Vellard, 1970; *H. ocapia*, Andersson, 1938). The status of each of these species is under review. In this note, I deal with the case of *H. carinata*.

Since its description, *H. carinata* has only been mentioned in general catalogues (Duellman, 1977; Harding, 1983; Frost, 1985), but no further information is available on this species. Andersson (1938) described *Hyla carinata* based on three adult males which (according to Andersson) were collected by C. Hammarlund on 2 February, 1934, at San José, Tarraco, ca. 50 km W La Paz (Provincia Ingavi, Departamento La Paz, Bolivia [16°23'68"25']). This locality lies on the Altiplano (a high plateau ranging from S Peru to N Argentina) near Lake Titicaca, on the Andean mountains, at an elevation of 3800 m. Andersson provided a suitable description of the species and, among the characters he emphasized, were the increased ossification of the skull (with strong, broad frontoparietals, their margins forming a prominent ridge over tympanum), and the presence of two external vocal sacs. Based on these characters and Andersson's description alone (without reference to the type specimens), I discounted the possibility that *Hyla carinata* is a synonym of any other Bolivian hylid, although it seemed that it might be a member of the genus *Osteocephalus*. Andersson (1938) noted the similarity of his *H. carinata* to *H. taurina* and *H. planiceps* (= *Osteocephalus taurinus*). The lack of more recent data on *H. carinata* is puzzling because the area surrounding Lake Titicaca has been well collected. The only amphibians reported in the area are *Bufo spinulosus*, *Pleurodema cinereum*, *P. marmoratum*, *Telmatobius albiventris*, *T. culeus*, *T. marmoratus* and *Gastrotheca marsupiata*. *Hyla pulchella* occurs in the nearby valley of La Paz, but does not reach the Altiplano. I suspected that the type locality was erroneous, and *H. carinata* may be a lowland species.

Examination of the three syntypes (NHRM 1874) confirmed that they did not belong to any hylid known from Bolivia or its neighbouring countries. They showed some peculiar features such the presence of a dermal fold in the chest, a single very expandible bilobated vocal sac (not two vocal sacs, as Andersson reported) and a supratympanic bony ridge (not formed by the frontoparietal but by the squamosal). Such a combination of characters is characteristic of some species

of Hylidae of the genus *Smilisca* Cope (Duellman, 1970; Duellman & Trueb, 1966; Starrett, 1960), which occurs mainly in Middle America. Comparison of the syntypes of *H. carinata* with a large sample of *Smilisca phaeota* (Cope, 1862) in the collection at the University of Kansas (see Appendix 1) left little doubt about their identity. *Smilisca phaeota* occurs from Nicaragua to northeastern Colombia and Ecuador. Measurements, colour and pattern of the syntypes of *H. carinata* fall well within the range of variation reported by Duellman (1970) and Duellman & Trueb (1966) for *Smilisca phaeota*, a species showing little geographical variation in pattern. However, Duellman (1970), described differences in size in specimens from different areas. The mean snout-vent length in the three syntypes of *H. carinata* (56.6 mm after Andersson, 55.4 mm after personal observations) is similar to that of specimens of *S. phaeota* from the Chocoan region of Colombia (56.0 mm), which are presumably similar to those from Ecuador.

It seems odd that Andersson (1938) did not provide any data on activity or habitat of *H. carinata*, unlike other species collected by Hammarlund in Bolivia and quoted or described in the same paper. Data on several amphibians from western Colombia and Ecuador obtained by the same collector, are provided in Andersson's paper. I suggest, therefore that the specimens of *S. phaeota* described as *H. carinata* by Andersson (1938) were captured in one of these countries and that a mistake occurred in the cataloguing of the specimens. Thus, *Hyla carinata* Andersson, 1938, is a junior synonym of *Smilisca phaeota* (Cope, 1862) and it does not occur in Bolivia.

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APPENDIX I

Material examined: *Hyla carinata*: SMNH 1874 (3 specimens); *Smilisca phaetota*: Columbia: KU 169614-19; 169621-26; 169628-33. Costa Rica: KU 25723-24; 32212-47; 32262-65; 36808-10; 37133-35; 37168; 64267-69. Ecuador: KU 142646; 146567-75; 146563-66; 164475-76.

BOOK REVIEWS

The Snakes of Iran. Mahmoud Latifi (Translated by Sepideh Sajadian). (1991). 159pp. Society for the Study of Amphibians and Reptiles, Oxford, Ohio, USA. cloth: \$22.00

Dr. Latifi was prevented from final supervision of the original Pharsi edition (1985) due to the Iran/Iraq conflict. The finished product was almost certainly not as the author himself would have wished it and the English translation is not a new edition. The editorial supervisors, Alan E. Leviton and George R. Zug, state that they "have been faithful to the author's original manuscript". The corrections made on p.64 in collaboration with the author do not invalidate this claim and whereas the reader must judge if more could have perhaps been done I feel a fair balance has been struck.

The first of the two chapters deals with generalities about snakes. The zoogeographical discussion though interesting could with advantage have been amplified with statistics on climate and more detail on vegetation and forest types. The large number of snake species found in Iran is due precisely to the wide variety of ecosystems. The figures depicting morphology are explicit and well-drawn. Twenty-five pages are devoted to snake bite and related topics: venom characteristics, symptoms, first aid, after care. Here the author is clearly in his element. Dr. Latifi is a member of the International Society of Toxicology and sits on the consultative panel for Characterisation of Snake and Scorpion Venoms and Antivenoms of the WHO. Far-reaching research has been carried out at the Razi Institute in Tehran where Dr. Latifi is Director. I found this section the most absorbing of the whole book. *The Illustrated Guide to the Snakes of Iran* makes an attractive centrepiece. There are 22 colour plates depicting 65 taxa/morphs and accompanying maps. Distributions are colour coded: venomous land snakes red, rear-fanged orange, non venomous blue and sea snakes purple. The drawings vary in quality but those depicting sand boas, vipers and elapids are acceptably realistic. Colour photographs would have enhanced the presentation.

Chapter Two is prefaced with a b/w plate of the Iranian provinces and the species listed according to province. This gives such a clear picture that it seems wasteful to repeat all this in the text under "Species Distribution". Data on "habitat" is meagre. The author's personal records and observations on some 128,000 snakes over a 24 year period could have contributed much of value. Each species receives

a detailed diagnostic description which is as comprehensive as one could wish, though the figures on "size" are rather ambiguous. Mention is made of diet, reproduction and where relevant, locomotion.

The few complaints that I have are as follows. In the index the text *Eirenis* follows *Elaphe* but otherwise is placed at the end of the Aglypha. Within the Elapidae, Hydrophidae and Viperidae genera and species are listed alphabetically but this practice is not followed elsewhere and there is no logical order at all in the colour illustrations. An alphabetical system eliminates inconsistency and avoids hierarchal assumptions. The use of English names for certain species needs watching. *Coronella austriaca* (smooth snake) is called both wolf snake and leopard snake. *Coluber ravergieri* is also called leopard snake, the name commonly applied to *Elaphe situla*, not found in Iran. *Elaphe quatuorlineata* is called whip snake and all three *Telescopus* spp. vipers. English vernacular in the translation should have been checked against that in general usage. The statement on p.20 that the Zanjhani viper (*Vipera xanthina*) and the Iranian horned snake (*Pseudocerastes persicus*) belong exclusively to Iran is not corroborated on p.85. The condensing of information into lists is a sound notion but there is rather a lot of this. The snakes are "listed" in one form or another no fewer than eight times, four of which are virtual duplications.

Recent research necessitated the need to revise the author's taxonomy in a table of taxonomic equivalents. Sixty species have been increased to 70, partly accounted for by including *Hydrophis gracilis*, *H. lapemoides* and *Lapemis curtis* as possible strays in Iranian waters and allowing the revised nomenclature of certain *Coluber* spp. and snakes within the *V. xanthina* complex. Discussion is wisely avoided due to prevailing controversy and disagreement. Incorrect subspecific designations have been rectified but the inclusion of *Natrix n. natrix* is wrong: the form inhabiting Iran is *N. n. persa*.

The book is thoroughly researched with over 140 sources in the main bibliography and 39 in the editorial supplement and is good value at \$22, whatever the state of the pound. The print is bold, layout spacious with no feeling of visual claustrophobia. It reads so effortlessly that one soon forgets it is indeed a translation. Snakes of Iran, unique in being the only book dealing with Iranian herpetofauna, is indispensable to layman and specialist both as a sound reference source and field guide.

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Encyclopedia of Australian Animals: Frogs. Michael J. Tyler. (1992). 109 pp. Angus & Robertson, Pymble, NSW.

Encyclopedia of Australian Animals: Reptiles. Harald Ehmann. (1992). 495 pp. Angus & Robertson, Pymble, NSW.

Recent years have seen the publication of a number of authoritative and well-illustrated books dealing with the herpetofauna of Australia. These two volumes continue the tradition of combining high quality photographs with a scholarly text. Both books have arisen from the Australian