

***Neohemibuthus zarudnyi* (Birula, 1903) from Iran, a senior synonym of *N. kinzelbachi* Lourenço, 1996 (Scorpiones, Buthidae)**

by Victor FET*

History of the synonymy

Summary

Neohemibuthus zarudnyi (Birula, 1903), described as *Hemibuthus zarudnyi* from Iran, is demonstrated to be a senior synonym of *N. kinzelbachi* Lourenço, 1996 (Scorpiones, Buthidae). The type series of BIRULA's species was analyzed, along with additional material from Iran. This species is widely distributed in southern Iran, from Ahvaz to Baluchistan.

Résumé

Neohemibuthus zarudnyi (Birula, 1903), décrit comme *Hemibuthus zarudnyi* de l'Iran, est reconnu comme synonyme plus ancien de *N. kinzelbachi* Lourenço, 1996 (Scorpiones, Buthidae). La série typique de l'espèce de BIRULA a été examinée, de même que des matériaux additionnels d'Iran. L'espèce est largement distribuée au sud de l'Iran, de Ahvaz au Baluchistan.

A small species of Buthidae from southeastern Iran was described by the prominent Russian scorpologist A.A. BIRULA (1903, p. 75) as *Hemibuthus zarudnyi* based on a female from Iranian Baluchistan, and a male from Mekran. These specimens were collected by the famous Russian zoologist Nicholas A. Zarudny.

At the moment of its description, the species was placed in the genus *Hemibuthus* Pocock, 1900, whose type species, *H. crassimanus* (Pocock, 1897), is found in India (Gujarat). In the original description, BIRULA (1903, p. 77) wrote that (translation from German): "the described species does not entirely well match the diagnosis of the genus *Hemibuthus* Pocock in the fact that its carapace bears distinct carinae. However, all other characters of the genus match *H. crassimanus* (Pocock); therefore, in my opinion, the diagnosis of the genus *Hemibuthus* should be extended".

Two years later, BIRULA (1905a, p. 450) had to introduce a new replacement name, *Buthus zarudnianus* for this species. Based on new material from south-

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western Iran, he found two distinct teeth on the ventral aspect of cheliceral unmovable finger. This diagnostic character is not present in *Hemibuthus*. BIRULA transferred *H. zarudnyi* in the genus *Buthus* which, at this time, was an assembly of several related but different genera (now recognized as *Buthus*, *Mesobuthus*, *Compsobuthus*, *Hottentotta* etc.). However, after this transfer the species became a homonym of *Buthus zarudnyi* Birula, 1900 [now *Mesobuthus zarudnyi* (Birula, 1900)]; this is why BIRULA introduced a *nomen novum* for it. BIRULA (1905b, pp. 144-145) published information about a new sample of 15 specimens from southwestern Iran, found by N. ZARUDNY around Dezful and along the Karun River valley.

In the following years, the species *Buthus zarudnianus* Birula, 1905, was practically forgotten and was never revised. When the most prominent scorpion taxonomist of our century, Max VACHON, in the 1950s, divided the former genus *Buthus* into a number of new genera, BIRULA's species was not listed under any of those, and thus it formally remained within *Buthus* Leach, 1815. M. VACHON examined BIRULA's type specimen during his visit to St Petersburg (then Leningrad) in the late 1960s and suggested that it is a new genus. This follows from the label written by VACHON which accompanies the syntype female ZISP No. 1346 and says "examiné par M. Vachon, VA 632, appartient peut-être à un genre nouveau". However, VACHON never published any information related to this species.

FARZANPAY (1988, p. 40) in his "Catalogue of the scorpions from Iran", suggested a new generic name for *Hemibuthus zarudnyi* Birula, 1903, and noted that such a genus (tentatively named "*Razianus*") was "to be described by VACHON and FARZANPAY". However, such description was never published, and the name "*Razianus*" remained a *nomen nudum*. Also FARZANPAY (1988, p. 40) listed *Buthus zarudnyi sarghadensis* Birula,

1903, as a synonym of his "*Razianus zarudnyi*", which is incorrect since this form is a subspecies of *Mesobuthus zarudnyi* (Birula, 1900).

Recently, LOURENÇO (1996) described a new scorpion genus *Neohemibuthus* (Buthidae), with a single species, *N. kinzelbachi* Lourenço, 1996 (type locality, Dezful). He also analyzed the type specimen of *Hemibuthus* Pocock, 1900, from the British Museum (Natural History) and concluded that the Iranian scorpions represent a separate genus.

I was able to examine a series of ten existing BIRULA's specimens from the Zoological Institute of Russian Academy of Sciences, St. Petersburg, Russia (ZISP), including both syntypes of *Hemibuthus zarudnyi*. Following the comparison of type material of *Hemibuthus zarudnyi* Birula, 1903, and *Neohemibuthus kinzelbachi* Lourenço, 1996, I conclude that all studied scorpions belong to the same species, with minor intraspecific variations. Therefore, the following new synonymy is established:

Neohemibuthus zarudnyi (Birula, 1903)
= *Buthus zarudnianus* Birula, 1905
= *Neohemibuthus kinzelbachi* Lourenço, 1996, **new synonymy**.

One of the peculiar features found is eye number variation. LOURENÇO (1996, p. 93) noted two pairs of lateral eyes as one of the characteristics of *Neohemibuthus*. Under investigation, it can be seen that some individuals actually possess highly reduced third (lateroposterior) eye in a pair, and in some individuals it is absent. Such variation of eye number, although not often observed in Buthidae, is found in other scorpion families such as Diplocentridae, Chactidae, and Vaejovidae (SISSOM, 1990). There is also variation in granulation and color between samples from southwestern and southeastern Iran, the latter having more granules on anterior edge of the carapace, more pronounced carinae on carapace and tergites, and darker coloration.

Review of the material and geographic range

I analyzed ZARUDNY's travelogues and corresponding maps from the ZISP library, and was able to trace all of the localities of this collection. Below, I list all relevant material, including studied specimens (some specimens published by A. BIRULA could not be discovered in the ZISP collection).

a. A. Birula's type series, deposited in ZISP:

Hemibuthus zarudnyi Birula, 1903, p. 75.

Female syntype (damaged): 1-3 February 1901 (N. Zarudny leg.) "between Kala-Eybi and Mushkutuk in prov. Kugak, Kalagan prov., Baluchistan, Persia" (ZISP No. 1346, examined). Published as "Mushkutuk"; on the label name is written "Mushkutan".

Male syntype: 28 March-1 April 1901 (N. Zarudny leg.), "Prov. Geh, between Kishi and Karahka, Mekran, Persia" (ZISP No. 1345, examined).

These sites are the only ones for *N. zarudnyi* from southeastern Iran, and can be approximately located from ZARUDNY's 1901 route. ZARUDNY moved from Jalq (at the modern Iran-Pakistan border, ca. 270 km S.E. of Zahedan) along the Talab River, to the village of Shastun on the Semish River (? modern Seravan), on January 30-February 5, 1901 (distance ca. 53 km). The female specimen was collected somewhere between these sites, ca. 27°N and 36°E. "Mushkutan" of the label is recorded as "Mushkutak" in the travelogue and is not the modern Mas-kutan which lies more than 200 km to the south-west.

The second site is in the Geh Valley, ca. 26°N and 60°E. ZARUDNY moved between the coast town of Chah Bekhar and Bampur, leaving Geh (modern Nikshahr) on March 27, 1901, passing Kishi (ca. 30 km from Geh) on March 28, and arriving to Karahka on April 1. The dis-

tance between two type localities is more than 200 km.

b. Additional material collected by N. Zarudny in 1903-1904, deposited in ZISP:

"*Buthus zarudnianus*": Birula, 1905a: 450; Birula, 1905b: 144.

5 females, 1 male, 30 December 1903, village Alhorshir (not found in ZISP); 2 females, 1 male, 31 December 1903-1 January 1904, spring Cheshme-Rogan (ZISP No. 1347, examined; only 1 female and 1 male); 1 female, 1 male, 2-3 January 1904, village Dzhoru, point Salmi (ZISP No. 1348, examined); 1 male, 18 February 1904, Arabistan, at river Karun, between Nasrié and Ahvaz (ZISP No. 1349, examined); 2 females, 1 juvenile, 11, 12, 16 March 1904, "Arabistan, Dizful" (ZISP No. 1350, examined; only 1 female and 1 juvenile); 1 female, 12 April 1904, "Arabistan, Nagun" (ZISP No. 1351, examined; this locality was not published in BIRULA, 1905b).

This list includes easily recognizable modern towns of Ahvaz and Dezful in Khuzestan province of southwestern Iran. On December 30, 1903- January 4, 1904, N.A. ZARUDNY traveled along the Karun River valley, from Dehdez to Veys (ca. 30 km N.E. of Ahvaz). This route (in the modern Khuzestan Province) includes the following localities: village Alhorshir; spring Cheshme-Rogan; village Dzor; and a locality Salmi. An additional specimen was collected (but not published by BIRULA) in the village Nagun, ca. 60 km from Serkhun (modern Chahar Mahal and Bakhtiari Province) on the way to Esfahan.

c. The type series of *N. kinzelbachi* Lourenço, 1996

The large series (36 females and 15 males) was collected in 1973-1974 by R. FARZANPAY from two sites in southwest-

ern Iran, Dezful and Masdjed-e Soleyman (both in Khuzestan Province). Most of these specimens are deposited in the Muséum national d'Histoire naturelle (Paris) (MNHN) under accession numbers RS-8555 to RS-8557 (LOURENÇO, 1996). I analyzed two paratypes, kindly sent by Dr. Wilson R. LOURENÇO (MNHN).

d. Additional material from USNM

Additional specimens of *N. zarudnyi* from Iran were discovered in the collection of the United States National Museum of Natural History (USNM), Smithsonian Institution, Washington, D.C., U.S.A. This series (9 females) was collected by J. NEAL on February 9, 1964, in 35 km E from Gachsaran (modern Fars Province).

Conclusion

All known localities of *N. zarudnyi* are in the southern part of Iran, between ca. 26°N-33°N, spanning more than 1,300 km from West to East (48°E-63°E). Such distribution makes this genus and species one of the widespread southern Iranian endemics. It probably will be found in future in the adjacent areas of Iraq, Afghanistan, and Pakistan. The biology and ecology of this species remains unknown; its small size, unusual among arid forms of the Old World Buthidae, could be an adaptive feature to a secretive way of life, which would explain the rarity of this species in collections.

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Literature cited

- BIRULA, A.A., 1903. — Beiträge zur Kenntniss der Skorpionenfauna Ost-Persiens. (2. Beitrag). — *Bulletin de l'Académie Impériale des Sciences de St.-Petersbourg*, (5) **19** (2) : 67-80.
- BIRULA, A.A., 1905 a. — Skorpiologische Beiträge, 1-3. *Microbuthus littoralis* (Pav.), *Anomalobuthus rickmersi* Krpl. und *Buthus zarudnianus* n. nom. — *Zoologischer Anzeiger*, **29** (14) : 445-450.
- BIRULA, A.A., 1905 b. — Beiträge zur Kenntniss der Skorpionenfauna Persiens. (3. Beitrag). — *Bulletin de l'Académie Impériale des Sciences de St.-Petersbourg*, (5) **23** (1-2) : 119-148.
- FARZANPAY, R., 1988. — A catalogue of the scorpions occurring in Iran, up to January 1986. — *Revue Arachnologique*, **8** (2) : 33-44.
- LOURENÇO, W.R., 1996. — A new genus and a new species of scorpion (Buthidae) from Iran. — *Zoology of the Middle East*, **12** : 93-98.
- SISSON, W.D., 1990. — Systematics, biogeography and paleontology. Chapter 3, pp. 64-160. In: POLIS, G.A. (ed.) *Biology of Scorpions*. Stanford University Press, Stanford, California.