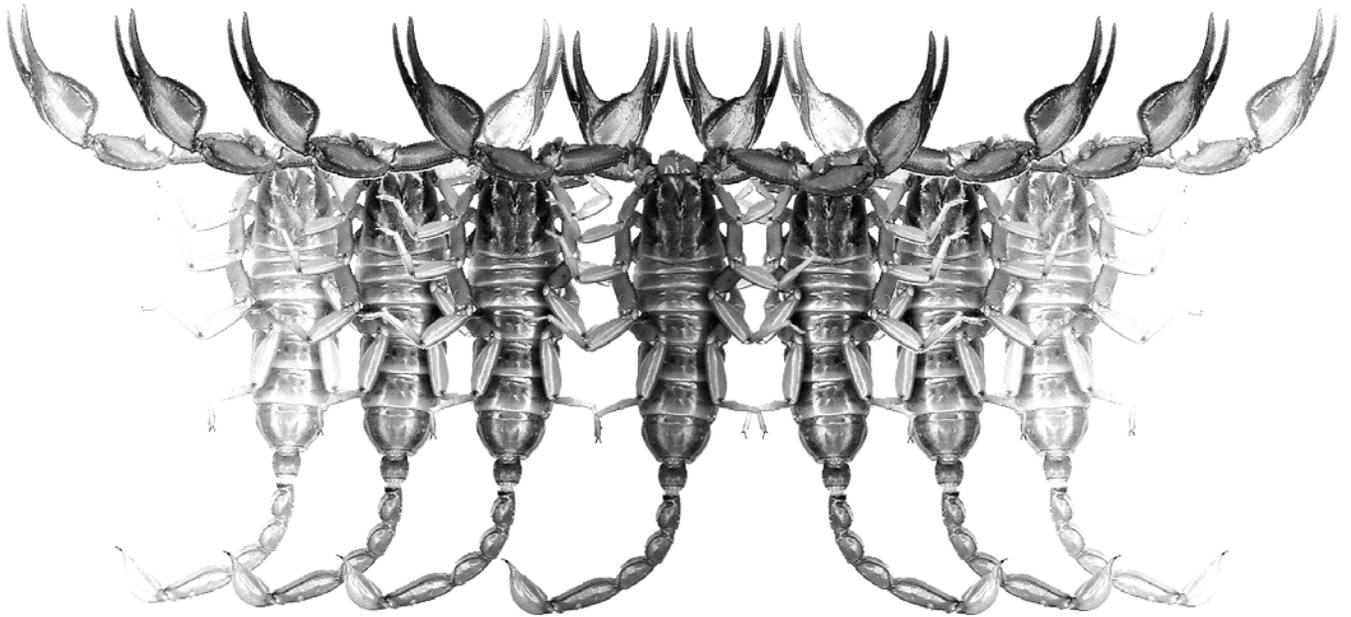


Euscorpilus

Occasional Publications in Scorpiology



**Taxonomic Position of the Genus *Sassanidotus*
Farzanpay, 1987 (Scorpiones: Buthidae)**

František Kovařík & Victor Fet

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- **ZISP**, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia
- **WAM**, Western Australian Museum, Perth, Australia
- **NTNU**, Norwegian University of Science and Technology, Trondheim, Norway

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Taxonomic position of the genus *Sassanidotus* Farzanpay, 1987 (Scorpiones: Buthidae)

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Summary

Sassanidotus Farzanpay, 1987 is a valid genus closely related to *Compsobuthus* Vachon, 1949, with which it shares most characters including the shape of carinae on the carapace and mesosoma. The main difference is that *Sassanidotus* has only three granules located proximally to the terminal granule on the movable finger of pedipalp, whereas *Compsobuthus* and also *Mesobuthus* Vachon, 1950 have four such granules. *Sassanidotus* Farzanpay, 1987 includes two species, *Sassanidotus zarudnyi* (Birula, 1900) (type species) from Iran and *Sassanidotus gracilis* (Birula, 1900) **stat. n.** (= *Buthus zarudnyi sarghadensis* Birula, 1903, **syn. n.**) from Afghanistan, Iran, and Pakistan. The neotype is designated for *S. zarudnyi*.

Abbreviations

FKCP, František Kovařík Collection, Praha, Czech Republic; MNHN, Muséum national d'Histoire naturelle, Paris, France; ZISP, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.

Introduction

In a book on Iranian scorpions written in Farsi, Farzanpay (1987) described four new genera, of which three have already been revised. *Olivierus* Farzanpay, 1987 is a synonym of *Mesobuthus* Vachon, 1950 (syn. by Gantenbein et al., 2003: 4); *Simonoides* Vachon et Farzanpay in Farzanpay, 1987 is a synonym of *Orthochirus* Karsch, 1892 (syn. by Kovařík & Fet, 2006: 1). *Razianus* Farzanpay, 1987 (= *Neohemibuthus* Lourenço, 1996, syn. by Fet & Lowe, 2000: 216), however, is a valid genus. Examination of types (see below) shows the fourth genus, *Sassanidotus* Farzanpay, 1987 also to be valid.

Systematics

Sassanidotus Farzanpay, 1987
(Figs. 1–9, Table 1)

Sassanidotus Farzanpay, 1987: 161, 221.

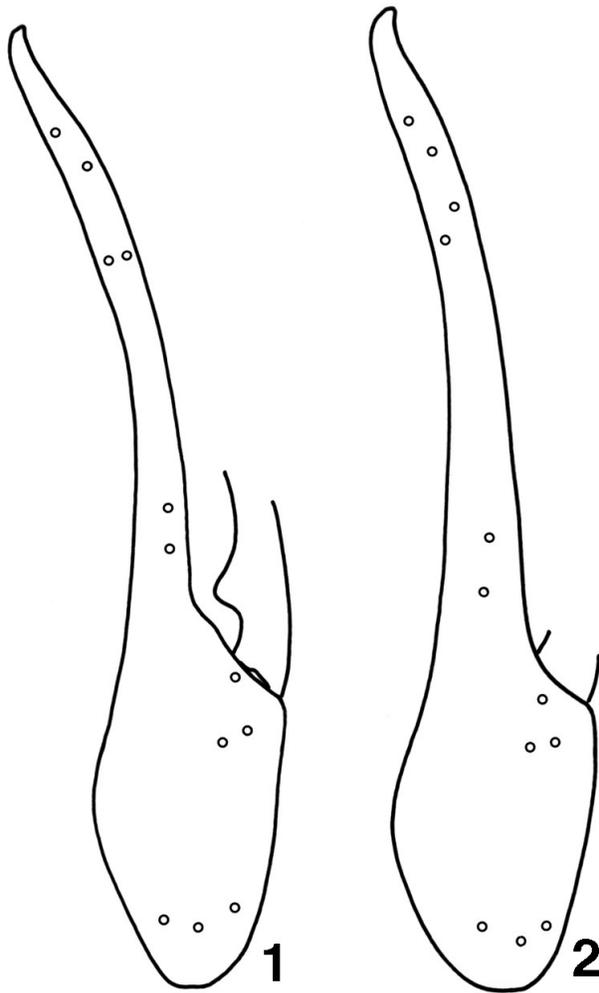
Sassanidothus (incorrect subsequent spelling):
Farzanpay, 1988: 41; Kovařík, 1993: 203; Fet & Lowe, 2000: 222.

Type species: *Buthus zarudnyi* Birula, 1900.

Diagnosis: Dorsal trichobothria of femur arranged in *beta* configuration. Trichobothrium *d*₃ on patella is located dorsally from *DM*_c carina. Tibial spurs present on legs III and IV. Cheliceral fixed finger with two ventral denticles. Carapace with distinct carinae (Fig. 6), in lateral view with entire dorsal surface horizontal or almost horizontal. Central median and posterior median carinae of carapace fused into one linear carina. Movable finger of pedipalp with three granules located proximally to the terminal granule. Trichobothrium *db* on chela of pedipalp closer to *esb* or as far as *est* (Figs. 1 and 2). Tergites I–VI tricarinate. Carinae of tergites projecting beyond posterior margin as distinct spiniform processes.

Comments: The description of the genus *Sassanidotus* was published in a book by Farzanpay (1987: 161) in Farsi, and the Latin name was transliterated in the Farsi text as well. The Index in this book, however, included Latin names (p. 221, *Sassanidotus*; the original spelling with “t”, not “th”), which technically makes this name available under Farzanpay’s authorship (Fet & Lowe, 2000).

The single species of *Sassanidotus* Farzanpay, 1987 listed by Fet & Lowe (2000) was formerly placed in the genera *Buthus* Leach, 1815 and *Mesobuthus* Vachon, 1950. In our opinion, *Sassanidotus* is a valid genus closely related to *Compsobuthus* Vachon, 1949, with which it shares most of the characters noted in the diagnosis above including the shape of carinae on the carapace. The main diagnostic difference is that *Sassanidotus* has only three granules located proximally



Figures 1–2: Chela of pedipalp showing external trichobothria. **1.** *Sassanidotus zarudnyi* (Birula, 1900), male neotype. **2.** *Sassanidotus gracilis* (Birula, 1900), female holotype.

to the terminal granule on the movable finger of pedipalp (fig. 26 in Vachon, 1958: 143), whereas species of *Compsobuthus* and also *Mesobuthus* always have four such granules (fig. 27 in Vachon, 1958: 143). This diagnostic character, first observed by Vachon (1958), was repeated by Farzanpay (1987: 161) in his brief Farsi description and key. Vachon (1958: 143–145, figs. 26–27) first suggested that the species originally known as *Buthus zarudnyi* Birula, 1900 does not belong to the genus *Mesobuthus* where it was previously placed (Vachon, 1950: 153; 1952: 325).

Vachon, however, never published a new generic name for *Buthus zarudnyi*. Farzanpay (1988: 39, 40) listed the name (spelled with “th” as *Sassanidothus*, which constitutes an incorrect subsequent spelling) along with two other new scorpion genera, where he planned to be one of the authors: “*Olivierus* (n. gen. to be described by Farzanpay & Vachon),” “*Razianus* (n. gen. to be described by Vachon & Farzanpay),” and “*Sassanidothus* (n. gen. to be described by Farzanpay & Vachon)”. In the introduction, he wrote (Farzanpay, 1988: 34): “The new creations are based on the co-operation and suggestion of Professor Max Vachon of

the Muséum national d’Histoire naturelle in Paris as agreed by personal communication. ... (letter August 30, 1984)”.

Unfortunately, no further descriptions of these genera by Vachon ever appeared until Vachon’s death in 1992; there is also no evidence that Vachon was aware that descriptions of three new genera and one new species were published by Farzanpay (1987). About 20 specimens from Iran labeled “*Sassanidothus*” by Vachon exist in MNHN (pers. comm. from Wilson Lourenço to V.F., 1996).

The genus *Sassanidotus* was never revised, and therefore was considered valid by Fet & Lowe (2000: 222), as well as other genera published in Farzanpay (1987), namely, *Olivierus*, *Razianus*, and *Simonoides*. The authorship of *Olivierus*, *Razianus*, and *Sassanidotus*, however, was assigned only to Farzanpay (1987) by Fet & Lowe (2000: 189, 216, 222) since they did not think that Vachon was responsible for the descriptions (quite incomplete and inadequate) as published by Farzanpay (1987). On complicated authorship of *Simonoides* (now confirmed as a junior synonym of *Orthochirus*), see Kovařík & Fet (2006).



Figure 3: *Sassanidotus zarudnyi* (Birula, 1900), male neotype, dorsal aspect.



Figure 4: *Sassanidotus zarudnyi* (Birula, 1900), male neotype, ventral aspect.

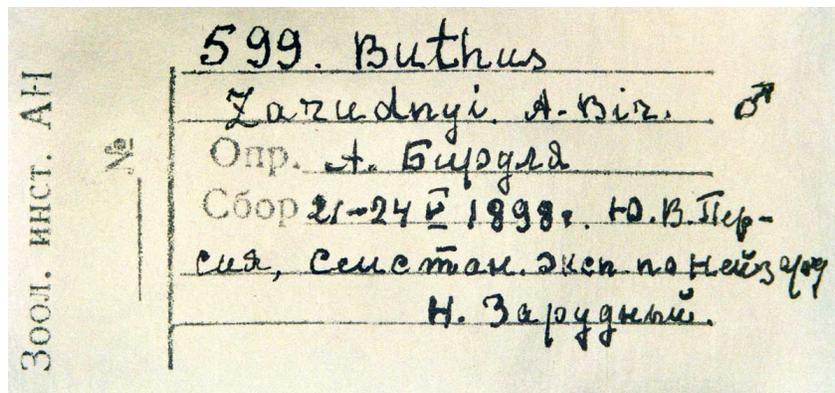


Figure 5: *Sassanidotus zarudnyi* (Birula, 1900), male neotype, label.

Sassanidotus zarudnyi (Birula, 1900)
(Figs. 1, 3–5, Table 1)

Buthus (*Buthus*) *zarudnyi* Birula, 1900a: 11; Birula, 1917: 214.

Buthus zarudnyi: Birula, 1903: 70.

Buthus (*Buthus*) *zarudnyi zarudnyi*: Birula, 1917: 240.

Mesobuthus zarudnyi: Vachon, 1950: 153 (1952: 325); Vachon, 1958: 141; Habibi, 1971: 44; Pérez, 1974: 25; Fet, 1980: 168; Farzanpay, 1988: 39; Kovařík, 1998: 115.

Mesobuthus zarudnyi zarudnyi: Vachon, 1966: 213; Kovařík, 1997: 49.

Sassanidothus zarudnyi: Farzanpay, 1987: 161; Farzanpay, 1988: 41; Kovařík, 1993: 203; Fet & Lowe, 2000: 222.

Sassanidothus zarudnyi zarudnyi: Fet & Lowe, 2000: 223.

Type locality and type repository. Neizar, Seistan, Iran, ZISP.

Holotype. Iran, Teheran, Persia, 1♂ (holotype), coll. N. A. Zarudny, lost (see below).

Material examined. (Figs. 3–5). Iran, 1♂, 21–24.V.1898, Seistan, Neizar, coll. N. A. Zarudny, ZISP No. 599, designated here as *neotype* (see below).

Diagnosis: Total length of the examined male 34.4 mm. Fingers of pedipalps flexed proximally. Movable finger of pedipalp bears 11 rows of granules, all without external and with internal granules. Trichobothria *db* and *est* situated next to each other, approximately equidistant from *esb* and *eb* (Fig. 1). Intermediate carinae of metasomal segment II may reach three-quarters of segment length; metasomal segment III bears in place of intermediate carinae only about 10 posteriorly situated irregular granules; metasomal segment IV with lateral surface sparsely covered by granules that do not form rows or carinae. Tarsomere I of legs I to III with bristlecombs. Pectinal teeth number 22. Telson bulbous.

Distribution. Iran (Birula, 1900a: 11).

Comments: The holotype from Teheran, published by Birula (1900a), is absent from the collection of the Zoological Museum of Moscow State University (K. M. Mikhailov, pers. comm., April 2006), and therefore we consider it to be lost. The record and brief description of the male specimen from Seistan, which we examined, was published by the same author later (Birula, 1903: 70). Birula (1903) noted that there were no diagnostic differences (even at the level of subspecies) between the Teheran and Seistan males. Following Article 75 of the Code (ICZN, 1999), we designate here the Seistan male (ZISP 599) as a *neotype*. At the same time, Birula described *Buthus zarudnyi gracilis* (Birula, 1900) and *B. z. sarghadensis* Birula, 1903 as two separate subspecies.

Sassanidotus gracilis (Birula, 1900), *stat. n.*
(Figs. 2, 6–9, Table 1)

Buthus zarudnyi gracilis Birula, 1900b: 368.

= *Buthus zarudnyi sarghadensis* Birula, 1903: 70–71, *syn. n.*

Buthus (*Buthus*) *zarudnyi sarghadensis*: Birula, 1917: 240.

Mesobuthus zarudnyi gracilis: Vachon, 1958: 141; Vachon, 1966: 213; Habibi, 1971: 44; Pérez, 1974: 25; Farzanpay, 1988: 39; Kovařík, 1997: 49; Kovařík, 1998: 115.

Mesobuthus zarudnyi sarghadensis: Vachon, 1958: 141; Vachon, 1966: 213; Habibi, 1971: 44; Pérez, 1974: 26; Farzanpay, 1988: 39; Kovařík, 1997: 49; Kovařík, 1998: 115.

Sassanidothus zarudnyi gracilis: Fet & Lowe, 2000: 223.

Sassanidothus zarudnyi sarghadensis: Fet & Lowe, 2000: 223.

Type locality and type repository. Nasirabad, Seistan, eastern Persia, now Iran; ZISP.



Figure 6: *Sassanidotus gracilis* (Birula, 1900), female holotype, dorsal aspect.



Figure 7: *Sassanidotus gracilis* (Birula, 1900), female holotype, ventral aspect.

		<i>S. zarudnyi</i> male HT	<i>S. gracilis</i> female HT	<i>S. gracilis</i> female HT of <i>Buthus zarudnyi sarghadensis</i>
Total	length	34.4	51.6	46.1
Carapace	length	3.9	3.5	5.5
	width	3.9	3.7	5.9
Metasoma				
and telson	length	21.5	29.2	28.1
segment I	length	2.7	3.7	3.5
	width	2.2	3.2	3.2
segment II	length	3.2	4.5	4.2
	width	2.0	2.8	2.9
segment III	length	3.4	4.6	4.1
	width	1.9	2.7	2.8
segment IV	length	3.9	5.2	4.8
	width	1.8	2.6	2.7
segment V	length	4.5	6.2	6.0
	width	1.7	2.4	2.5
telson	length	3.8	4.9	5.5
Pedipalp				
femur	length	4.6	3.5	4.2
	width	1.3	0.9	1.4
patella	length	5.9	4.3	5.5
	width	2.1	1.6	2.2
tibia	length	8.9	7.2	9.1
	width	2.2	1.2	1.6
finger mov.	length	6.2	5.1	6.5
Pectinal teeth		22: -	16:17	16:16

Table 1: Measurements of *Sassanidotus* species (mm.).

Type material examined. **Iran**, Nasirabad, Seistan, eastern Persia, 1♀ (holotype) (Figs. 6 and 7), coll. N. A. Zarudny, ZISP No. 598; between Djuan-kan and Mirkala (Kala-i-mir), Mashkil and Djalak, Baluchistan, eastern Persia, 26–29 January 1901, 1♀1juv. (lectotype and paralectotype of *Buthus zarudnyi sarghadensis*) (Figs. 8 and 9), coll. N. A. Zarudny, ZISP No. 1356; between Mirkuh and Rik-i-malik, Sargad, Baluchistan, eastern Persia, 14–19 January 1901, 2♀4juvs. (paralectotypes of *Buthus zarudnyi sarghadensis*), coll. N. A. Zarudny, ZISP No. 1355.

Other material examined. **Pakistan**, southern Baluchistan, 1♂, April 1993, coll. S. Bečvář, FKCP.

Diagnosis: Total length 32–52 mm. Male with manus of pedipalp much wider and fingers slightly flexed proximally. Movable fingers bear 11 rows of granules, of which first eight rows lack external granules and last three rows may have external granules. Internal granules present. Trichobothrium *db* situated between trichobothria *est* and *esb* (Fig. 2). Metasomal segments II to IV with eight carinae. Intermediate carinae of metasomal segment II are replaced by granules which may form incomplete carinae; metasomal segment III

bears less posteriorly situated granules, which may reach mid-length of segment; metasomal segment IV bears only one posteriorly situated granule. Tarsomere I of legs I to III with bristlecombs. Pectinal teeth number 15–17 in females and 18–19 in males. Telson of adults bulbous.

Distribution. Afghanistan (south; Vachon, 1958: 144), Iran (Birula, 1900b: 368), Pakistan (first record).

Comments: Our investigation demonstrated no diagnostic differences between the holotype of *Buthus gracilis* Birula, 1900 and type series of *Buthus zarudnyi sarghadensis* Birula, 1903. The holotype specimen of *Buthus zarudnyi sarghadensis* Birula, 1903 was not designated in the original publication, or in any subsequent literature, although Fet & Lowe (2000: 223) quoted ZISP 1356 female as a holotype. The confusion was caused by the label designations of Birula, where ZISP 1356 female is labeled “tip” in Russian (“type”) but this designation has not been originally published. Following Articles 69 and 74 of the Code (ICZN, 1999), we designate ZISP 1356 female as a *lectotype*, and all other type specimens become *paralectotypes*.



Figure 8: *Sassanidotus gracilis* (Birula, 1900), female lectotype of *Buthus zarudnyi sarghadensis* Birula, 1903, dorsal aspect.

Fet & Lowe (2000: 223) quoted “Mashkim, between Dzhulk-Kan and Mirkala”, which was an erroneous transliteration from the Russian text of the label (Fig. 9). Birula (1903: 70) listed type locality (in German transliteration) as “prov. Maschkil und Djalak auf dem Wege zwischen der Oertlichkeit Djuan-kan und dem Dorfe Mir-kala (=Kala-i-Mir)”. “Mashkil” corresponds to the modern Mashkel, a river in Seistan and Baluchistan Province (Ostan-e Sistan va Baluchestan) of Iran, at the country’s southeastern border with Baluchistan Province of Pakistan. Djalak is modern Djalq or Jalq (27.60° N, 62.70 ° E), 270 km SE of Zahedan, where N. A. Zarudny’s expedition arrived by the end of January, 1901 (Zarudny, 1916; see also Fet, 1997).

Farzanpay (1988: 40) erroneously quoted *Sassanidothus zarudnyi sarghadensis* as a synonym of *Razianus zarudnyi* (Birula, 1903), which belongs to a completely different, valid genus (Fet & Lowe, 2000). The convoluted history of these confused names can be summarized as follows. The confusion started when Birula described two *completely different* species from Iran, both named after N. A. Zarudny who collected the

types: *Buthus zarudnyi* Birula, 1900 (now *Sassanidotus zarudnyi*) and *Hemibuthus zarudnyi* Birula, 1903 (now *Razianus zarudnyi*). Later, Birula (1905) transferred *Hemibuthus zarudnyi* to the genus *Buthus*, and to avoid homonymy had to introduce a substitute name, *Buthus zarudnianus* Birula, 1905. Farzanpay (1988: 40) writes that “Vachon considered for a time *Buthus zarudnianus* Birula, 1905 as a synonym of *Mesobuthus zarudnyi* (personal communication)” but this testimony is doubtful and appears only to propagate the confusion. Birula’s descriptions of two species are very clearly different. Farzanpay (1988: 40) mentioned the new genus *Razianus* “to be described by Vachon & Farzanpay” based on *Hemibuthus zarudnyi* Birula, 1903. Later, new genus *Neohemibuthus* and species, *Neohemibuthus kinzelbachi*, were described by Lourenço (1996). Fet (1997) analyzed the type material and synonymized *Neohemibuthus kinzelbachi* with *Buthus zarudnianus* Birula, 1905, therefore restoring the original specific epithet in combination *Neohemibuthus zarudnyi* (Birula, 1903). Finally, Lowe & Fet (2000) discovered that the name *Razianus*—just like *Sassanidotus* — was available under Farzanpay’s

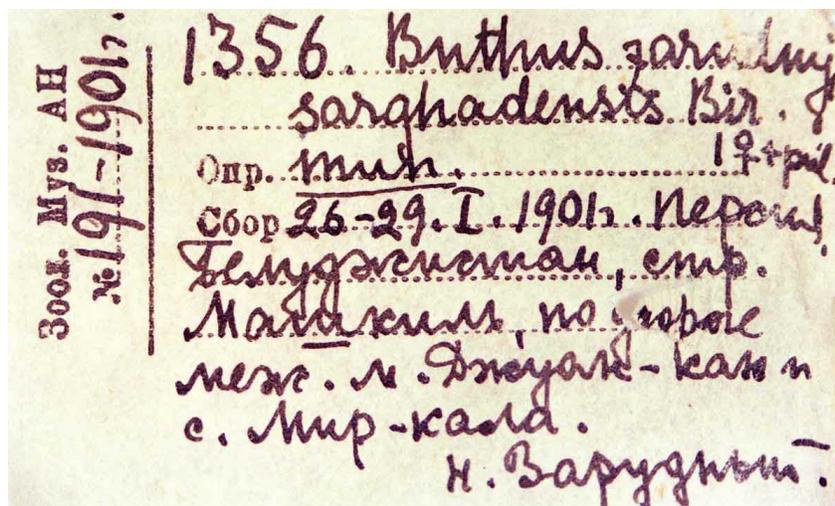


Figure 9: *Sassanidotus gracilis* (Birula, 1900), female lectotype of *Buthus zarudnyi sarghadensis* Birula, 1903, label.

authorship since 1987. Therefore the correct name of the species in question is *Razianus zarudnyi* (Birula, 1903) (= *Buthus zarudnianus* Birula, 1905, = *Neohemibuthus kinzelbachi* Lourenço, 1996) (Lowe & Fet, 2000).

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