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# Pseudoscorpions from Middle Asia, Part 2 (Arachnida: Pseudoscorpiones) 

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With 39 figures and 1 table

## Summary

This second contribution to the pseudoscorpion fauna of Middle Asia treats the families Olpiidae and Garypidae ( 7 species). New morphological, taxonomic and faunistic data are given.

## Zusammenfassung

Dieser zweite Beitrag zur Pseudoskorpion-Fauna Mittelasiens behandelt die Familien Olpiidae und Garypidae (7 Arten). Neue morphologische, taxonomische und faunistische Daten werden mitgeteilt.

## $P$ е 3 ю m e

Это очередная работа по ложноскорпионам Средней Азии ограничена лишь представителями семейств Olpiidae и Garypidae (7 видов). Приводятся новые морфологические, таксономические и фаунистические данные.

## 1. Introduction

The present paper is a second contribution to a revision of the Middle Asian pseudoscorpion fauna, this time restricted to the families Olpiidae and Garypidae (first contribution: Dashdamirov \& Schawaller 1992). The fauna, particularly of the genera Minniza, Calocheiridius, Olpium and Serianus, shows great affinities to the fauna of Iran and Afghanistan. The genus Serianus Chamberlin 1930 is recorded for the first time from Middle Asia.

Some identifications are unsecure, revisions of some genera concerned are necessary in the future. Figures and morphological remarks on the type specimens of Olpium afghanicum Beier 1952 and Calocheiridius centralis (Beier 1952) are added. Besides, material previously determined by Redikorzev (1949) as Olpium pallipes Lucas 1845 has been restudied, both samples containing in reality three species: Minniza
babylonica Beier 1929, Calocheiridius centralis Beier 1952 and Olpium (?)pusillulum Beier 1959. As regards Olpium pallipes, its presence in the region involved is doubtful.

## Material

The material serving as base of the present paper was collected in various parts of Middle Asia (see map fig. 39) in 1984-1990 by Aliev, Barkalov, Dashdamirov, Kalabin, Ovtchinnikov and Tarabaev. The samples have been shared, as indicated below, between the collections of the Institute of Zoology, Baku ( $I Z B$ ), and Staatliches Museum für Naturkunde, Stuttgart (SMNS). Besides, the Redikorzev collection of 1909-1937 housed at the Zoological Institute, St. Petersburg (ZIL), coming from Middle Asia, has been revised. In addition, part of the type and non-type materials from the collections of the Zoologisk Museum, København (ZMUC), and Naturhistorisches Museum, Wien (NHMW) have been restudied. In the text, each locality is followed by the respective number put in square brackets and referring to the numbers in the map (fig. 39).

## Acknowledgements

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## 2. The species

### 2.1. Minniza babylonica babylonica Beier 1929 (figs. 1-4)

Material: Turkmenia, Krasnovodsk [1], steppe under stones, 17.-28. V. 1937 leg. Veltischev, $1 \mathrm{O}^{7}$ (ZIL 1381a). - Sultan-Bentdam [2], in cracks of wall, 30. X. 1929 leg. Pereleshina, 29 ex. (ZIL 987). - Ashkhabad [5], in anthill, 31. V. 1929 leg. Vlasov, 1 \& 1 T (ZIL 923). - Ashkhabad [5], in the garden, 30. VI. 1929 leg. Vlasov, 1 O' $^{\text {(ZIL }}$ 924). - Ashkhabad [5], 28. V. 1931 leg. Vlasov, 1 O (ZIL 1054). - Ashkhabad [5], in anthill of Myrmococystos seripes, 4. VI. 1931 leg. Vlasov, 1 T (ZIL 1055). - Ashkhabad [5], hedgehog hole, 23. VII. 1931 leg. Vlasov, 1 O" (ZIL 1056). - Old Ashkhabad [5], 14. IV. 1933 leg. Petrischeva, $10^{2 \prime}$ (ZIL 1207). - Ashkhabad [5], under stones, 30. IX. 1934 leg. Vlasov, 1 O' $^{\text {(ZIL 1279). - Bairam-Ali [7], 8.-10. IX. } 1907}$ leg. Demokidov, $10^{\text {Ot }}$ (ZIL 68, slide). - Iolotan [8], 1927 leg. Kizeritsky, 1 Y (ZIL 765). - Iolotan [8], under stones, 1927 leg. Kizeritsky, 1 O' 2 O 9 (ZIL 835). - Takh-ta-Bazar [9], hedgehog hole, 19. VIII. 1933 leg. Petrischeva, 1 O' (ZIL 1210). - Takh-ta-Bazar [9], turtle hole, 21. VIII. 1933 leg. Petrischeva, 1 O (ZIL 1208). - Uzbekistan, Old Bukhara [11], under wall, 21. IV. 1925 leg. Soкоlov, 1 \& (ZIL 496). - Near Bukhara [11], under stones, 25. IV. 1925 leg. Dogel, 8 ex. (ZIL 491). - Kazakhstan, Poltoratsky [15], 14. IV. 1926 leg. Kizeritsky, 1 O" (ZIL 836).
All this material was determined by Redikorzev (1949) as Olpium pallipes Lucas 1845. A restudy has revealed it to represent Minniza babylonica. The presence of a granulation on the pedipalps, the chelal palm together with the pedicel being shorter than the fingers, the distal position of it to est are clear enough indications for this species.

However, it is necessary to mention the variability of some morphological structures. The granulation differs strongly between both different populations and within the same population, ranging from slender, hardly visible ( $q$, near Ashkhabad, ZIL 1054) to clear and turning into tubercles on the outside of the trochanter


Figs. 1-4. Minniza babylonica. - 1. Palp, dorsal view, $O^{7}$, from Krasnovodsk (ZIL 1381a); - 2. Palp, dorsal view, $0^{7}$, from Takhta-Bazar (ZIL 1210); 3. Genital area, $0^{\prime \prime}$, from Bairam-Ali (ZIL 68); - 4. Palp, dorsal view, 9 , from Bukhara (ZIL 496).
Fig. 5. Calocheiridius antushi; palp, dorsal view, 9 , from Firyuza (IZB 183). - Scale line: $0.5 \mathrm{~mm}(1-2,4-5) ; 0.15 \mathrm{~mm}(3)$.
( $\mathcal{Y}$, Bukhara, ZIL 496). The size and proportions of the pedipalp joints also varies significantly: femur (length/width in mm ) $O^{2 \prime} O^{7}$ from $0.53 / 0.16$ to $0.65 / 0.20$, 90 from $0.60 / 0.18$ to $0.75 / 0.23$; proportions of the pedipalp femur in $O^{7} O^{7} 3.05-3.53 x$, in 9 여 $3.15-3.58 \mathrm{x}$ respectively; length of fingers in $O^{\top} O^{x} 0.41-0.49$, in $ㅇ ㅕ$ $0.44-0.59$; length of the chelal palm together with the pedicel in $O^{\prime} O^{\top} 0.47-0.59$ and in $O$ ㅇ $0.52-0.68$.

All these data display quite a variation range of the above characters. Probably a lot of synonyms of Minniza babylonica Beier 1929 exist, the type material of the following taxa should be restudied in this respect: M. babylonica lindbergi Beier 1957, M. babylonica afghanica Beier 1959, M. syriaca Beier 1951, M. persica persica Beier 1951 and M. persica deminuta Beier 1951. Eventually, the structure of the $O^{2}$ genitalia is a good character for separating biospecies within the genus Minniza (fig. 3 for babylonica). As regards the material at hand we regard it all as the nominate form babylonica.

This species of a Middle East distribution pattern is new to the Middle Asian fauna, known to occur in very dry habitats.

### 2.2. Calocheiridius antushi Krumpal 1984 (fig. 5)

Material: Turkmenia, west Kopetdagh Mts., Firyuza [4], under stones, 27. IV. 1987 leg. Kalabin, 1 \& (IZB 183).
The single $O$ coming from the type locality Firyuza corresponds sufficiently well to the original description. C. antushi is distinguished by the slender palps, absence of granulation on the palpal chela, and somewhat distally situated st on the movable chelal finger.

However, some characters do not correspond to the genus diagnosis of Calocheiridius Beier 1952. For example, the posterior margin of the carapace and the first abdominal tergite bear 4 setae, while antushi has only 2 setae. The same concerns the presence of a transverse furrow on the carapace, in antushi it is absent. Furthermore, the position of st is different. All this broadens the generic diagnosis of Calocheiridius.

Material of C. libanoticus Beier 1955 examined from Turkey (NHMW) and Israel (SMNS) shows close affinities to the above species: the length of the femur of the palps in libanoticus ranges from 0.36 to 0.50 mm , in antushi 0.505 mm ; the proportion of the femur in libanoticus varies from 3.10 to 3.76 x , in antushi 4.04 x . These features in the Firyuza 9 are 0.42 mm and 3.5 x , respectively. As regards the size of the chela it is necessary to mention that the type of antushi seems to be mounted on a slide, which is distorting the measurements. In other words, the measurements of the chela were made subdorsally (Krumpal 1983: fig. 1). This requires re-examination

Figs. 6-10. Calocheiridius centralis. - 6. Chela, lateral view, 9 , from Iolotan (ZIL 1206); - 7. Chela, lateral view, $0^{\prime}$, from Kalininsky State Reserve (IZB 176); 8. Tarsus of leg-IV, lateral view, f , from Takhta-Bazar (ZIL 1209); - 9. Palp, dorsal view, O , from Takhta-Bazar (ZIL 1209); - 10. Palp, dorsal view, $\mathrm{O}^{\prime}$, from Kalininsky State Reserve (IZB 176).
Figs. 11-15. Olpium (?)pusillulum, from Krasnovodsk (ZIL 1282). - 11. Basitarsus of leg-IV, lateral view, $O^{\prime} ;-12$. Palp, dorsal view, $\mathrm{O} ;-13$. Palp, dorsal view, $O^{\prime} ;-14$. Chelicera, dorsal view, $O^{\prime} ;-15$. Chela, lateral view, $O^{\top}$. - Scale line: $0.5 \mathrm{~mm}(6-7,9-10,12-13,15) ; 0.2 \mathrm{~mm}(8,11,14)$.

of the antushi type. Taking into consideration the repeated discoveries of libanoticus in Turkey and the Caucasus, we may suppose a synonymy of these two species concerned. Further material of antushi in Middle Asia is listed by Schawaller (1989).

### 2.3. Calocheiridius centralis (Beier 1952) (figs. 6-10)

Material: Turkmenia, Ashkhabad [5], in hole of Rhombomys opimus, 26. IV. 1929 leg. Vlasov, 1 O (ZIL 920). - Takhta-Bazar [9], hedgehog hole, 20. VIII. 1933 leg. Petrischeva, 1 ¢ (ZIL 1209). - Iolotan [8], turtle hole, 30. IV. 1933 leg. Petrischeva, 1 q (ZIL 1206). - Kalinin State Reserve [6], meadow, 23. V. 1988 leg. Barkalov, 1 O' (IZB 176).

This species has been described from Afghanistan, afterwards found in Iran (Beier 1971). Characterized by the presence of granulation on the chela, the fingers being longer than the chelal palm without pedicel, as well as by size and the proportions of the palp.

The present material has been compared with samples of that species from Iran and Afghanistan (NHMW) as well as with the type specimen $q$ (ZMUC). This has revealed that the Middle Asian discoveries are closer to Afghanian rather than Iranian materials, in particular to those from Maymenei. However, the Iranian sample possesses plumper palps (fingers shorter than chelal palm without pedicel), lesser number of teeth on the fingers of the chela, and a proximal position of ist. As in the

Tab. 1. Comparison of "Olpium" species from Middle Asia with the genera Olpium and Calocheiridius.

| Character | Middle Asian <br> specimes | Calocheiridius | Olpium |
| :--- | :---: | :---: | :---: |
| Chaetotaxy of the <br> posterior margin <br> of the carapace | 2 | 4 | 2 |
| Transverse furrow <br> on the carapace <br> Chaetotaxy of the <br> first tergite | absent | present | absent |
| Correlation between <br> telotarsus and <br> basitarsus IV | telotarsus $>$ <br> basitarsus | telotarsus $>$ <br> basitarsus | basitarsus $\geq$ <br> telotarsus |
| Trichobothria on <br> the femur of the <br> palps <br> Position of $i b$ | present | present | present |
| Position of $i t$ in <br> relation to est <br> Position of $s t$ <br> on the movable finger | subbasal | basal | distal |
| Position of the <br> nodus ramosus in <br> relation to $e t$ | mostly proximal |  |  |

preceding species antushi, both the posterior margin of the carapace and of the first tergite have only two setae, which differs from other members of the genus.

### 2.4. Olpium (?)pusillulum Beier 1959 (figs. 11-15)

Material: Turkmenia, Krasnovodsk [1], steppe under stones, 17.-28. V. 1937 leg. VeL-
 23.-31. V. 1937 leg. Veltischev, 12 O' $^{3} \mathrm{O}^{7}, 8$ 9 (ZIL 1380). - Krasnovodsk [1], 7. VI. 1937 leg. Veltischev, 5 O'O $^{\prime}, 1$ O (ZIL 1382). - Uzbekistan, Bukhara Distr., Zafarabad [10], under stones, 10.-12. IV. 1990 leg. Dashdamirov, 2 O'O $^{\text {O }}$ (IZB 226), $10^{\pi}$ (SMNS 3046).
Four species have hitherto been described from Afghanistan in Olpium L. Koch 1873: afghanicum Beier 1952, intermedium Beier 1959, lindbergi Beier 1959 and pusillulum Beier 1959.

The studied material from ZIL and our three $O^{7} O^{7}$ from Zafarabad have revealed particularly close affinities with pusillulum, which could be easily distinguished from other congeners by the presence of only two setae on the posterior margin of the carapace and first tergite, by the slender femur and chela (femur 4.1 x , chela with pedicel 3.7-3.9 x as long as broad), small size and proximal position of st on the movable finger of the chela. At the same time, these findings show that the generic allocation is doubtful. The type material of afghanicum ( $10^{\prime}, 1$ ¢ ZMUC) appears in reality to represent a genus different from Olpium. For example, in afghanicum, the nodus ramosus is distal of $e t$, the telotarsus is longer than the basitarsus, the first tergite and posterior margin of the carapace has 4 setae, whereas in Olpium these characters are as follows: the nodus ramosus is proximal of $e t$, the basitarsus is longer than the telotarsus, the first tergite and posterior margin of the carapace carry only 2 setae. Apparently, by a number of the features, these samples are closer to Calocheiridius, though differ from this genus by the distal position of $i t$ and by the absence of a transverse furrow on the carapace.

As mentioned above, upon a re-examination of quite a number of species of Calocheiridius (type and non-type material from NHMW, SMNS, ZMUC), the diagnosis of this genus is rather typological, almost all specific characters being more or less variable. Almost all our discoveries from Central Asia (with Afghanistan and Iran) fall somewhat between Olpium and Calocheiridius, this being obvious from tab. 1.
As regards the chaetotaxy of the basitarsus IV as given by Heurtault (1979, 1980) for differentiating the genera of Olpiidae we do not regard this as a reliable character. To sum up, it is apparently necessary to degrade Calocheiridius to a subgenus of Olpium. Otherwise, a new genus situated between Olpium and Calocheiridius might be created, which we refrain from doing in view of its very problematic diagnosis.

### 2.5. Olpiidae spec.

Material: Uzbekistan, Fergansky Valley, Shahrikhan [21] (formerly Stalino), 40 km E Tashkent, non-cultivated field, 29. VI. 1926 leg. Kiкyanova, 1 T (ZIL 830).
By this single tritonymph, it is impossible to make a closer identification.

### 2.6. Calocheirus asiaticus Dashdamirov 1991 (figs. 22-28)

Material: Tadjikistan, Gandjina [14], 800 m , under stones, 19. IV. 1990 leg. DashDamirov, 1 O', 1 q (IZB 228), $10^{\text {( }}$ (SMNS 3047). - Dangara Distr., Sibeston [22],


Figs. 16-19. Olpium (?)afghanicum, types from Kajkai (ZMUC). - 16. Chela, lateral view, ㅇ; - 17. Flagellum,,$~ ;-18$. Tarsus of leg-IV, O', lateral view; - 19. Genital area, $O^{7}$.
Figs. 20-21. Calocheiridius centralis; holotype, $q$, from Paghman (ZMUC); - 20. Chela, lateral view; - 21. Flagellum.
Figs. 22-28. Calocheirus asiaticus. - 22. Palp, dorsal view, $O^{\prime}$, form Gandjina (SMNS 3047); - 23. Palp, dorsal view, , from Sibeston (IZB 250); - 24. Flagellum, $0^{7}$, from Sibeston (IZB 250); - 25. Flagellum,, , from Gandjina (IZB 228); 26. Tip of fixed finger of the chela, $\mathcal{O}^{7}$, from Gandjina (SMNS 3047); 27. Chela, lateral view, $0^{7}$, from Gandjina (SMNS 3047); - 28. Genital area, $0^{\prime}$, from Sibeston (IZB 250). - Scale line: $0.5 \mathrm{~mm}(16,20,22-23,27$ ); $0.09 \mathrm{~mm}(17,21,24-26) ; 0.18 \mathrm{~mm}(18-19,28)$.

Kolkot, near Nurek water reserve, 1450 m , under stones, 2. V. 1990 leg. Dashdamirov, 1 O', $^{2} 1$ (IZB 250), 1 ㅇ (SMNS 3048).
This new material is in complete accordance with the original description ( $q$ from Kazakhstan). In our collection, the first $\mathrm{O}^{\prime \prime} \mathrm{O}^{\pi}$ are put on record, therefore a short description of one $O^{\pi}$ from Gandjina is given.
Description $O^{2}$ : Carapace yellowish-brown, 1.32 x as long as broad. Cucullus well-developed and having a median depression, surface of carapace smooth, both pairs of eyes well-developed. Tergal chaetotaxy: 2-4-4-4-4-4-4-4-6(4+2 tactile setae) $-8(4+4)-6(2+4)$. Sternal chaetotaxy: $\mathrm{x}-2-4-5-4-4-4-4-6-6(4+2)-4(2+2)$. Pedipalp trochanter 1.8 x as long as broad. Pedipalp femur in basal part with granulation, on dorsal side with one tactile seta ( $\mathrm{TS}=0.54$ ) and on internal side with two rows of long setae, 4.6 x as long as broad. Pedipalp tibia 3.2 x , chela with pedicel 3.79 x and chelal palm with pedicel 1.53 x as long as broad. Fixed finger of the palpal chela with 34 , movable finger with 21 teeth. Nodus ramosus distal of both it and $t$. Position of est proximal, close to $i b-i s b-e b-e s b$ combined. Genital area fig. 28.
Measurements (in mm ): Carapace $0.41 / 0.31$. Pedipalp trochanter $0.18 / 0.10$, pedipalp femur $0.46 / 0.10$, pedipalp tibia $0.32 / 0.10$, pedipalp chela with pedicel $0.72 / 0.19$, length of chelal palm with pedicel 0.29 , length of palpal finger 0.46 .
Relationships: As seen from the original description and the above description of the $\mathrm{O}^{7}$, this species is strongly isolated from atopus Chamberlin 1930 from Egypt and can be distinguished by the position of both seta est and the seta on the palpal femur, distal position of the nodus ramosus, structure of the flagellum, and absence of granulation on the anterior part of the carapace. Besides, in most of its characters, asiaticus might be related to the genus Cardiolpium Mahnert 1986, but in our samples, the flagellum consists of only 2 setae, whereas in Cardiolpium of 3 setae! This seem to us a very important character, but one may suppose, that either stupidum Beier 1963, generotype of Cardiolpium, bears an anomalous flagellum or the genus diagnosis is wrong. The taxon asiaticus is anyway different from both stupidum and aeginense, as judged from the presence of granulation on the palpal femur, size, and by some other characters.

### 2.7. Serianus validus (Beier 1971) (figs. 29-37)

Material: Tadjikistan, Gandjina [14], 800 m , under bark of Pistacia vera, 19. IV. 1990
 3049). - Uzbekistan, Surkhandarya Distr., Babatag Mts. [13], Kokbel Pass, 1430 m, under bark of Pistacia vera, 5. V. 1990 leg. Dashdamirov, 2 ớ', 3 of 1 D (IZB 225), 1 O", 2 아 (SMNS 3050).

A study of both series has revealed an absolute identity with the species previously known as Garypinus validus Beier 1971, described from South Iran (Bender-Abbas). But the presence of special fields with shorter setae on the $O^{7}$ abdominal sternites VI-VII, characteristic position of $s b$ and $s t$ on the same level as well as the presence of a bifurcated arolium of the tarsi and the flagellum consisting of 4 blades clearly indicate, that the species belongs to Serianus. The same opinion was recently published by Mahnert (1991).

Among the new discoveries of this species, $O^{7} O^{7}$ are present, thus we can give a description of the $O^{7} O^{\pi}$ from Gandjina.

Description $\bigcirc^{\prime}$ : Carapace and tergites reddish-brown, pedipalps reddish, remaining parts lighter. Posterior margin of carapace and medial margins of half-tergites


Figs. 29-34. Serianus validus; O', from Gandjina (IZB 224). - 29. Body, dorsal view; 30. Palp, dorsal view; - 31. Chelicera, dorsal view; - 32. Chela, lateral view; - 33. Abdomen, ventral view; - 34. Leg-I, lateral view. - Scale line: 1.0 mm (29-30); $0.36 \mathrm{~mm}(31) ; 0.74 \mathrm{~mm}(32-34)$.
uneven (zig-zag-like), posterior margin of carapace y-shaped. Sclerotized part of carapace 1.32 x as long as wide, cucullus short and broad. All four eyes well-developed, posterior pair a little larger. Carapace chaetotaxy: 4-6-4-2-4. Tergites I-X clearly divided, XI undivided, first pair of half-tergites triangular. Tergal chaetotaxy: $4-4-4-4-4-6-6-6-6-8(4+4$ tactile setae)-8(4+4). Sternal chaetotaxy: x-x-6-6-6-6-$6-6-6-10(6+4)-8(4+4)$. Sternite VI medial with 34 short setae, VII with 38 , these


Figs. 35-37. Serianus validus; ${ }^{7}$, from Gandjina (SMNS 3049). - 35. Chelicerae, ventral view (scale: 0.1 mm ); $-36-37$. Setae of sternite VI/VII with distal openings ( 0.01 mm ).
setae with distal opening (figs. 36-37). Anal cone with 2 dorsal and ventral setae. Pleural membrane smooth. Genital area fig. 33. Palm of chelicera with 5 setae, movable finger with 1 seta. Galea well-developed, with one subterminal and two short terminal branches. Serrula with 21 lamellae. Flagellum with 4 blades, distal blade serrate. Apex of pedipalp coxa with 3 long setae, palpal coxa with 6 , coxa I with 4 , coxa II with 5 , coxa III with 4 and coxa IV with 4 setae. Pedipalp trochanter 1.67 x as long as wide. Pedipalp femur with a long seta dorsally ( $\mathrm{TS}=0.45$ ), 2.8 x as long as wide. Chelal palm with pedicel 2.03 x , without pedicel 1.71 x as long as wide, pedipalp chela 3.59 x as long as wide. Fixed finger with 34 teeth, movable finger with about 25 teeth. Venomous tooth well-developed in both fingers, venom ducts short, nodus ramosus more distally than et. Position of the trichobothria characteristic of the genus, $i b-i s b-i s t-i t-e b-e s b-e s t . c l u s t e r e d ~ a t ~ b a s e ~ o f ~ f i x e d ~ f i n g e r, ~ e t ~ s o l i t a r y ~ i n ~ p o s i-~$ tion at tip of the finger, sb on the same level as st. Leg I: femur 2.69, tibia 3.2, basi-


Fig. 38. Geogarypus continentalis; O', from Chon-Uryuktu (IZB 227). - Scale line: 1.0 mm .
tarsus 1.57, telotarsus 2.33 x as long as broad. Leg IV: femur (basifemur + telofemur) 2.69 , tibia 2.73, basitarsus 1.44 , telotarsus 2.25 x as long as broad.

Measurements (in mm ): Carapace $0.78 / 0.59$. Palps: femur $0.70 / 0.25$, tibia $0.63 / 0.28$, chelal palm with pedicel $0.69 / 0.34$, length of chela (including pedicel) 1.22 , length of finger 0.60 . Leg I: femur (basi- + telo-) $0.43 / 0.16$, tibia $0.32 / 0.10$, basitarsus 0.11/0.07, telotarsus 0.14/0.06. Leg IV: femur (basi- + telo-) $0.70 / 0.26$, tibia $0.41 / 0.15$, basitarsus $0.13 / 0.09$, telotarsus $0.18 / 0.08$.

Relationships: This species is very closely related to S. sabariensis Mahnert 1988 from Algeria. S. validus can be distinguished from sahariensis only in the presence of both the hardly visible granulation on the ventral surface of the tibia and the lamella of serrula externa (21), while in sabariensis they are 17-20. All this considerably questions the status of sahariensis, probably we face only a single species.

Besides, Garypinus biimpressus (Simon 1890) seems to be very close to the above species. But its generic allocation is likewise doubtful. Most likely, biimpressus also belong to Serianus, judged from both the presence of fields with special setae on the $O^{7}$ sternites and probably the position of the trichobothria. The Serianus-Garypinus problem is discussed also by Mahnert (1988).


Fig. 39.

Collecting localities of pseudoscorpions in Middle Asia. - 1. Krasnovodsk (Minniza babylonica, Olpium (?)pusillulum); - 2. Sultan-Bent (M. babylonica); - 3. Bakhardena (M. babylonica); - 4. Firyuza (Calocheiridius antushi); - 5. Ashkhabad (M. babylonica, Calocheiridius centralis); - 6. Kalininsky State Reserve (C. centralis); - 7. Bairam-Ali (M. babylonica); - 8. Iolotan (M. babylonica); - 9. Takhta-Bazar (M. babylonica, C. centralis); - 10. Zafarabad (O. (?)pusillulum); - 11. Bukhara (M. babylonica); - 12. Termez (M. babylonica); - 13. Babatag (Serianus validus); - 14. Gandjina (S. validus, Calocheirus asiaticus); - 15. Poltoratsky (M. babylonica); - 16. Cholok (Geogarypus continentalis); - 17. Chon-Aryk (G. continentalis); - 18. Georgievka (G. continentalis); - 19. Kurtinsky Reservoir (G. continentalis); - 20. ChonUryukty (G. continentalis); - 21. Shahrikhan (Olpiidae spec.); - 22. Sibeston (Calocheirus asiaticus).
2.8. Geogarypus continentalis (Redikorzev 1934) (fig. 38)

Material: Kazakhstan, Djambul Distr., Georgievka [18], 25. X. 1984 leg. Ovtchinnikov, $3 O^{\prime \prime} O^{\prime \prime}, 3$ q早 (IZB 169). - Alma-Ata Distr., Kurtinsky reservoir [19], under stones, 4. V. 1988 leg. Tarabaev, $1 O^{\text {T, }} 1$ ¢ (IZB 171). - Kirghizia, Kirghizsky Mts., Cholok [16], $1000 \mathrm{~m}, 1$. VII. $1985 \mathrm{leg} . \mathrm{Ovtchinnikov} ,1 \mathrm{O}^{\prime \prime}$ (IZB 168). - Chuisky Valley, Chon-Aryk [17], 1. III. 1986 leg. Ovtchinnikov, 2 O'O $^{\prime \prime}, 1$ \& (IZB 195). -Kungey-Alatau Mts., Chon-Uryukty [20], near Issyk-Kul Lake, 2500-3000 m, under stones, 22. V. 1990 leg. Dashdamirov, $10^{\prime \prime}, 5$ q $q 2$ T (IZB 227), $10^{\text {r, }} 3$ 9 q (SMNS 3051).

## 3. References

Beier, M. (1971): Pseudoscorpione aus dem Iran. - Annln naturhist. Mus. Wien, 75: 357-366; Wien.
Dashdamirov \& Schawaller, W. (1992): Pseudoscorpions from Middle Asia, Part 1 (Arachnida: Pseudoscorpiones). - Stuttgarter Beitr. Naturk., (A) 474: 1-18; Stuttgart.
Heurtault, J. (1979): Complément à la description de Olpium pallipes Lucas, 1845, type de la famille Olpiidae (Arachnides, Pseudoscorpions). - Revue suisse Zool., 86: 925-931; Genève.

- (1980): Données nouvelles sur les genres Xenolpium, Antiolpium, Indolpium et Euryolpium (Arachnides, Pseudoscorpions). - Revue suisse Zool., 87: 143-154; Genève.
Krumpal, M. (1983): Ein neuer Calocheiridius (Pseudoscorpionides, Olpiidae) aus der USSR. - Acta biol., 13: 58-61; Katowice.

Mahnert, V. (1986): Une nouvelle espèce du genre Tyrannochthonius Chamb. des îles Canaries, avec remarques sur les genres Apolpiolum Beier et Calocheirus Chamberlin (Arachnida, Pseudoscorpiones). - Mém. Soc. r. belge Ent., 33: 143-153; Bruxelles.

- (1988): Zwei neue Garypininae-Arten (Pseudoscorpiones: Olpiidae) aus Afrika mit Bemerkungen zu den Gattungen Serianus Chamberlin und Paraserianus Beier. - Stuttgarter Beitr. Naturk., (A) 420: 1-11; Stuttgart.
- (1991): Pseudoscorpions (Arachnida) from the Arabian Peninsula. - Fauna Saudi Arabia, 12: 171-199; Basel.
Redikorzev, V. (1949): Pseudoscorpionidea of Central Asia. - Trav. Inst. zool. Leningrad, 8: 638-668; Leningrad.
Schawaller, W. (1989): Pseudoskorpione aus der Sowjetunion, Teil 3 (Arachnida: Pseudoscorpiones). - Stuttgarter Beitr. Naturk., (A) 440: 1-30; Stuttgart.


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