

A new Central Asian species of the spider genus *Lachesana* Strand, 1932 (Araneae, Zodariidae: Lachesaninae)

S. L. Zonstein & S. V. Ovtchinnikov

Institute for Biology & Pedology, Tchui Prospekt 265, Bishkek 720071, Kyrgyzstan

According to the last revision of zodariid spider genera (Jocqué, 1991), the genus *Lachesana* Strand, 1932 is proved to consist of five species. Beyond the limits of the Mediterranean region, the range of *Lachesana* includes only southern part of Central Asia where this genus was hitherto considered to be represented by *Lachesana. blackwalli* (O.Pickard-Cambridge, 1872). Having registered this species in Central Asia for the first time, Charitonov (1948) specially noted that it was formerly known from Near East only.

When examining the Central Asian specimens of *Lachesana*, we have satisfied ourselves that by the certain characters, e.g. genital structures, etc., our spiders distinctly differed not only from the specimens of *L. blackwalli*, but, judging from the available comparative material and the data reviewed by R. Jocqué (1991) and G. Levy (1990), from the other known congeners as well. Therefore, all the known Central Asian representatives of the genus *Lachesana* in our opinion should be referred to a separate new species described herein.

Abbreviations. ALE - anterior lateral eyes, ALS - anterior lateral spinnerets, AME - anterior median eyes, PLE - posterior lateral eyes, PLS - posterior lateral spinnerets, PME - median lateral eyes, PMS - posterior median spinnerets. Fm - femur; Pt - patella; Tb - tibia; Mt - metatarsus. d - dorsal; p - prolateral; r - retrolateral; v - ventral (position).

Dimensions. All measurements are given in millimeters, except eye diameters and interspaces shown as the ratio of the microscope scale units.

Lachesana tarabaei Zonstein et Ovtchinnikov, sp. n. (Figs. 1-5)

Laches blackwalli auct., not *Lachesis blackwalli* O.Pickard-Cambridge, 1872: Charitonov, 1948:

301; 1969: 70; Ivanov, 1965: 245; Andreeva, 1976: 42

Lachesana blackwalli: Mikhailov, 1996: 117; 1997: 165.

Lachesana sp. aff. *blackwalli* (O.P.C.): Zonstein, 1996: 144.

Diagnosis. Specimens of *Lachesana tarabaei* can be easily separated from the other species of the genus by the considerably larger body length (15 to 22 mm long vs. 7-16 mm in other congeners). Male distinguishes from *L. rufiventris* (Simon, 1873) and *L. insensibilis* Jocqué, 1991 by the shape of tibial apophysis and conductor, from *L. blackwalli* (O.Pickard-Cambridge, 1872) by the lesser leg spination and certain differences in the eye pattern and leg formula. Females differ from those of other congeners by the characteristic spoon-shaped or spatulate epigynal septum and very short spermathecae. For these reasons the relations of *L. tarabaei* with any other known species of *Lachesana* remain obscure.

Types. Holotype ♂: Southern Kyrgyzstan, 1.5 km E of Dzhahal-Abad, in the foothills of Ferghansky Mt. Range (about 850 m) at 40°56'N 73°02'E, South Kyrgyzstan, 14.03.1994 (S. V. Ovtchinnikov). Paratypes: 5 ♂, 37 ♀ (including the allotype), ibidem, 11-21.03.1994 (S. L. Zonstein & S. V. Ovtchinnikov); 1 ♂, 3 ♀, ibidem, 4-5.04.1988 (S. L. Zonstein & S. V. Ovtchinnikov); 1 ♂, 2 ♀, ibidem, 22.10.1992 (S. L. Zonstein & D. A. Milko).

Male (holotype). Total body length 18.10 mm. Carapace, sternum, labium and maxillae uniformly light yellowish-orange. Chelicerae, palps and legs are similar in coloration but darkened distally up to dark reddish-brown. Abdomen light grayish-yellow with the typical for the genus dorsal pattern consisting of brown medial lanceolate spot and inclined stripes. Epiandrum light orange. Carapace: length 8.83, width 5.57. Ratio of AME:ALE:PLE:PME = 11:10:10:10. AME-AME 3, ALE-AME 8, ALE-PLE 9, PLE-PME 18, PME-PME 5, ALE-PME 7. PMS reduced. Ratio of basal/distal segments of PLS 10:2, the same for ALS 27:4. Palp with few long bristles on the dorsal side of femur and patella, cymbium with 9 spines. Palpus and tibial apophysis as shown on Figs. 1, 2. Leg I: Fm d 1.1.2, p9, r8; Pt

0; Tb p8, v10-12; Mt v15-16. Leg II: Fm d 1.1.2, p9, r8; Pt p3; Tb p8, v12; Mt p5, v12. Leg III: Fm d 1.1.1.2, p8, r5; Pt d1, p4, r2; Tb d 1.1, p8, r4, v8; Mt d7, p4, r5, v16. Leg IV: Fm d 1.1.1.2, p10, r6; Pt d1, p5, r1; Tb d2, p8, r5, v11; Mt d5, p5, r4, v16. Tarsi with 22-30 small ventral spines. Leg formula (unique for the genus): 4132 (vs. 4123 or 4321). Leg measurements (those of the female allotype are shown in brackets):

| | Palp | I | II | III | IV |
|------------|-------------|---------------|---------------|---------------|---------------|
| Femur | 3.25 (3.55) | 6.70 (6.88) | 6.53 (5.68) | 5.65 (5.20) | 7.18 (6.43) |
| Patella | 1.23 (1.18) | 2.73 (3.05) | 2.40 (2.88) | 2.70 (2.78) | 2.70 (3.18) |
| Tibia | 0.98 (1.50) | 5.08 (4.58) | 4.55 (3.53) | 3.38 (3.08) | 4.63 (4.55) |
| Metatarsus | | 5.05 (3.98) | 4.98 (3.93) | 5.95 (4.70) | 7.75 (6.83) |
| Tarsus | 2.45 (2.13) | 2.75 (2.80) | 2.55 (2.65) | 3.40 (2.93) | 3.78 (3.45) |
| Total | 7.91 (8.36) | 22.31 (21.29) | 21.01 (18.67) | 21.08 (18.69) | 26.04 (24.44) |

Female (allotype). Total body length ca. 20.20 mm. Color in alcohol: resembles that in male but slightly more light in tonality. Carapace: length 9.45, width 6.38. Ratio of AME:ALE:PLE:PME = 11:10:10:9.5. AME-AME 10, ALE-AME 15, ALE-PLE 17, PLE-PME 30, PME-PME 8, AME-PME 12. Palp with few tibial bristles and about 15 tarsal spines. Leg I: Fm d4, p3; Pt 0; Tb p5, v10-11; Mt v15-17. Leg II: Fm d4, p3; Pt p2, r0-1; Tb p2-3, v8; Mt v13-14. Leg III: Fm d4, p9, r1; Pt p3, r1; Tb d3, p5, r3, v9; Mt d7, p8, r8, v14. Leg IV: Fm d5, p2, r1; Pt p4, r1; Tb d5, p8, r4, v9; Mt d5, p9, r7, v18. Leg tarsi with 20-30 small spines. Ratio of basal/distal segments of ALS 20:3. Epigyne with narrow median septum and short thick spermathecae (Figs. 3, 4).

Notes. Although the genus includes also the type species *L. perversa* (Audouin, 1827) from Egypt, and *L. vittata* (Strand, 1906) from Tunis, they cannot be compared neither with *L. tarabaei* nor with other congeners as the types of these scantily described species are considered to be lost (Levy, 1990). Anyway, the distinct definitive characters of *L. tarabaei* from the Mediterranean congeners are quite sufficient to confirm its peculiar position.

Other material examined. KAZAKHSTAN: Karatau Mts., SW slope, near Aktobe (50 km NW Turkestan), 43°43'N 68°11'E, 550 m, 9.05.1994 - 1 juv. (S. L. Zonstein). UZBEKISTAN: W part of Zeravshan Mt. R., 65 km S Samarkand, Aman-Kutan Pass, 39°18'N 66°54'E, 1700 m, 23.05.1942 - 2 ♂ (Fedotov), in the collection of D. E. Charitonov (Perm University, Russia); ibidem, 24.04.1993 - 2 males (S. L. Zonstein & D. A. Milko); ibidem, 5.05.1995 - 1 female (S. V. Ovtchinnikov); Baisuntau Mts., near Dekkhanabad, 38°21'N 66°30'E, 800 m, 15.05.1994 - 1 ♂, 1 ♀ (S. V. Ovtchinnikov). TADJIKISTAN: Aruktau Mts., near Gandzhina, 37°58'N 68°32'E, 750 m, 13.04.1986 - 1 ♂ (S. L. Zonstein); foothills of Hissar Mt. R., 7 km NW Dushanbe, 1100 m, 38°40'N 68°47'E, 18.10.1987 - 1 juv. (S. V. Ovtchinnikov); Sanglok Mts., 1,5 km W Kolkot, 1200 m, 38°15'N 69°13'E, 2.05.1991 - 2♂, 1 ♀ (S. L. Zonstein & S. V. Ovtchinnikov).

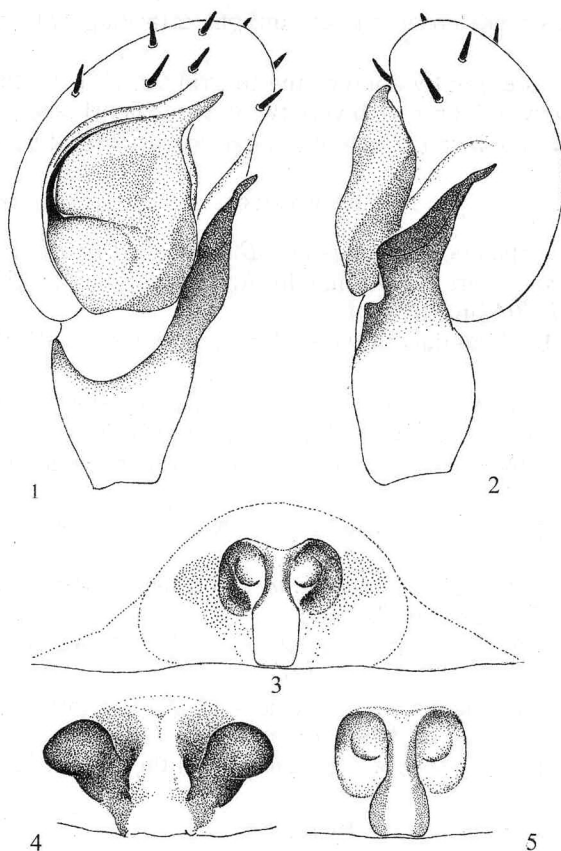
Etymology. The specific name is given in a memory of our good friend and colleague, well-known arachnologist from Kazakhstan, Dr. Chingis Tarabaev (1951 - 1999).

Variability. The carapace length varies in males from 7.93 to 9.05 (total body length 15.20-18.70), in females from 8.30 to 9.78 (total body length 19.50-22.10). Male cymbium with 7-25 spines. The distal edge of epigynal septum is slightly excavated in some females (Fig. 5).

Depository. Holotype and allotype specimens are prepared to be placed into the spider collection of American Museum of Natural History. The paratype series and other materials are distributed between the Zoological Museum of the Moscow University, the Zoological Museum of the Siberian Department of Russian Academy of Sciences, Institute of Zoology of the National Academy of Sciences of Kazakhstan Republic, and Hebrew University of Jerusalem, Israel.

Habitat and biology. The way of life in *Lachesana* spp. still remains poorly studied. All the known species were collected in semiarid to extra-arid habitats, although occasionally were found in the relatively humid mountain regions. Charitonov (1948, 1969) and Andreeva (1976) mentioned that in Central Asia the sporadic *Lachesana* specimens were taken under stones, without any web or nest. Jocqué (1991) noted that, according to scarce literature data, representatives of the genus were collected either from their tubular webs or without any web under stones, or from the tubes in sand covered with lumps of sandy soil and closed in the daytime. Levy (1990) specified that in Israel females of *L. blackwalli* were found among or under stones inside their silk-lined burrows. The character of prey in the Mediterranean species still remains unknown.

Judging from the data of our field collecting trips, *Lachesana tarabaevi* living in the zone with the winter-spring peak of rainfalls reaching 200-600, sometimes up to 1000 mm per year, clearly prefers the semiarid foothill plains situated at 200-1700 m above sea level and generally covered with a low open woodland consisting of *Pistacia vera* L., *Amygdalus* spp., *Zygophyllum* spp., etc. In other cases this type of vegetation is replaced by the ephemeral grasslands (at lower altitudes), or by the *Juniperus* open woodland (above 1300-1500 m). Soils may be developed on the rocky substrate and include gravel and stones. In general, they are composed of tiny clay components only and appear to be quite homogenous in their structure.



Figs. 1-5. *Lachesana tarabaevi* sp. n.: 1 - male palpus, ventral position; 2 - ditto, retrolateral position; 3 - epigyne; 4 - spermathecae; 5 - epigyne (variant).

Lachesana tarabaevi is found to live in the comparatively narrow burrows built by these spiders in early spring when the wet soil is soft and convenient for digging. Individual burrows are grouped into large dense colonies where spiders live side-by-side with the colonial burrowing mygalomorphs from the families Ctenizidae and Nemesiidae. In the colonies studied the distance between separate burrow entrances does not exceed 2-3 m, but in the majority of cases it varies from 10 to 50 cm. Unlike the burrows of ctenizids and nemesiids whose entrances are defended by the trapdoor in the former spiders, or lack any cover in the latter ones, the burrow entrance in *L. tarabaevi* is protected with a collar which is similar to that found in the burrow construction of *Antrodiaetus* spp. (cf. Coyle, 1971, figs. 40-46). In the daytime the collars are contracted completely masking the burrows and protecting inactive spiders hiding deeply in their tubes.

The burrow length usually varies from 20 to 30 cm and up to 40-45 cm in the specimens inhabiting open woodless slopes of southern exposure. The diameter of entrance ranges from 7 to 12 mm for the burrows of adult females. After the narrow upper (initial) part occupying approximately one third of its total length, the burrow strongly dilates ending with the living cell 15-20 mm in diameter.

Lachesana tarabaevi clearly belongs to the dominant spider species in the above mentioned type of biotopes. Thus, the number of spiders forming any colony is enormous. We have obtained some

comparable data only once, when 22 females and large juveniles no less than 7 mm long were collected in the type locality from the 1 m² area.

At the beginning of twilight and during the night-time females and juveniles open the burrows and start their hunting in the nearest surroundings of burrow entrances while the males wander around in search of females; however, such behavior is truthful only for the period from April to October. In the early spring when the daytime is not yet hot, spiders keep their burrow entrances open day-and-night waiting for a prey near entrance. As far as it possible to judge from the insect residues at the bottom of some burrows and from the direct observations, the spiders prey mainly upon the ants (most often *Messor* spp.); woodlice seem to be the second and the less significant component in the *L. tarabaevi* diet. Finally, a few specimens were observed at sunlight attacking ants rather far away from their burrows.

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Резюме

Зонштейн С.Л., Овчинников С.В. Новый среднеазиатский вид паука из рода *Lachesana* Strand, 1932 (Araneae, Zodariidae: Lachesaninae)

Институт биологии и почвоведения, проспект Чуй, 265, Бишкек 720071, Кыргызстан

Дается описание нового вида *Lachesana tarabaevi*, sp. n. по материалам из Южного Казахстана, Южного Киргизстана, Узбекистана и Таджикистана. Описываемый вид, экземпляры которого до сих пор считались принадлежащими к ближневосточному виду *Lachesana blackwalli* (O. Pickard-Cambridge, 1872), является единственным центральноазиатским представителем рода *Lachesana* и отличается от остальных видов рода очень крупными размерами как самцов, так и самок (15-22 мм против 7-16 мм у других видов рода), наличием в эпигине самки сильно склеротизованного обособленного септума характерной формы, а также деталями вооружения конечностей и строения копулятивных органов обоих полов.

В статью включены также сведения об образе жизни колониальных особей нового вида, обитающих в вырытых ими норах. Плотность поселения в одной из колоний достигала 22 экз. с участка площадью 1 м² (учитывались только взрослые самки и крупные ювенилы с длиной тела не менее 7 мм). Расстояние между норами составляет обычно 10-50 см; глубина их у самок варьирует от 20 до 30 см, достигая 40-45 см на открытых склонах южной экспозиции. Входные отверстия нор защищены стягивающимися паутиными воротничками, благодаря чему в дневное время, когда пауки неактивны, норы становятся малозаметными. В сумерках и ночью пауки открывают вход и начинают охотиться в ближайших окрестностях своей норы. Насколько можно судить по остаткам на дне нор, добычей паукам в основном служат муравьи рода *Messor*, частично мокрицы. Ранней весной пауки охотятся и в дневное время суток.