

A contribution to the knowledge of the harvestman fauna of the Crimea (Arachnida: Opiliones)

К познанию сенокосцев фауны Крыма (Arachnida: Opiliones)

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KEY WORDS: Opiliones, faunistics, new species, descriptions, distribution, the Crimea.

КЛЮЧЕВЫЕ СЛОВА: Opiliones, фауна, новые виды, описания, распространение, Крым.

ABSTRACT. This paper presents the results of a study of Crimean opilionids collected by the second author from 1999–2001. In total, seven species from the families Dicranolasmatidae and Phalangiidae are (re)described; for five of them illustrations and distributional maps are provided. Two species, *Zacheus simferopolensis* sp.n. (♂) and *Rilaena crimeana* sp.n. (♂♀) are described as new. Finally, phenological data and landscape distribution of the studied Crimean species are provided.

РЕЗЮМЕ. Работа представляет результаты изучения фауны опилионид Крыма, собранных вторым автором в 1999–2002 г. Всего описано 7 видов из семейств Dicranolasmatidae и Phalangiidae, для 5 видов приведены рисунки и карты распространения. Два вида, *Zacheus simferopolensis* sp.n. (♂) и *Rilaena crimeana* sp.n. (♂♀), описаны как новые. В конце работы приведены данные по фенологии и ландшафтному распределению изученных видов в Крыму.

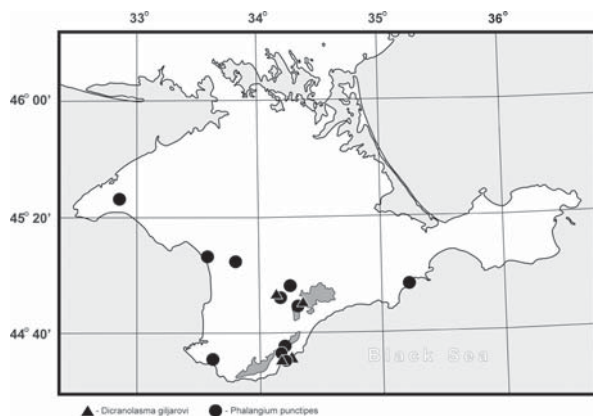
Introduction

The opilionid fauna of the Crimea remains poorly studied. To date, no synopsis of this fauna has been published and ecological data are scarce or absent. Some data on the Crimean Opiliones can be found in Chevrizov [1979a,b], Redikorzev [1936], Stårega [1978], Morin [1934] and Roewer [1911, 1912]. In

total, fourteen species have been recorded from the territory of Crimea: *Metaplathybunus hypanicus* Šilhavý, 1966; *Mitopus morio* (Fabricius, 1779); *Nemaspela caeca* (Grese, 1911); *Nemaspela sokolovi* (Ljovuschkin et Starobogatov, 1963); *Nemaspela taurica* (Lebedinskiy, 1914); *Odiellus zecariensis* Mcheidze, 1952; *Opilio parietinus* (De Geer, 1778); *Opilio redikorzevi* Roewer, 1951; *Paranemastoma roeweri* Stårega, 1978; *Phalangium punctipes* (C.L. Koch, 1878); *Phalangium opilio* Linnaeus, 1758; *Phalangium savignyi* (Audouin, 1825); *Rilaena picta* (Mcheidze, 1952); and *Zacheus anatolicus* (Kulczyński, 1903).

This study adds to the knowledge of seven opilionid species that occur in the Crimea, of which one is new to the region (*Dicranolasma giljarovi* Šilhavý, 1966) and two are new to science (*Zacheus simferopolensis* sp.n. and *Rilaena crimeana* sp.n.).

The types and other collected and studied specimens are shared between the following depositories: ISEA — Zoological Museum Institute of Systematics and Ecology of Animals, Novosibirsk, Russia (G.N. Azarkina); TNU — Zoology Department of Taurida National University, Crimea, Ukraine (M.M. Kovblyuk); ZMMU — the Zoological Museum of the Moscow State University, Russia (Dr. K.G. Mikhailov). Abbreviations used in the text and tables: Fm — femur, Pt — patella, Tb — tibia, Mt — metatarsus, Tr — tarsus, “clypeus” — space between ocularium and front margin of carapace; s.l. — same locality; p.t. — pitfall traps. The collector’s name is abbreviated as follows: M.K. — M.M. Kovblyuk. All measurements are in mm.



Map 1. Distribution of *Dicranolasma giljarovi* Šilhavý, 1966 and *Phalangium punctipes* (L. Koch, 1878) in the Crimea.

Map 1. Распространение *Dicranolasma giljarovi* Šilhavý, 1966 и *Phalangium punctipes* (L. Koch, 1878) на территории Крыма.

Survey of species

Family DICRANOLASMATIDAE

Dicranolasma giljarovi Šilhavý, 1966 Figs 1–8; Map 1.

Dicranolasma giljarovi Šilhavý, 1966: 153–154, figs 14–20.

Dicranolasma giljarovi: Chevrizov, 1979a: 9, figs 31–34.

MATERIAL. UKRAINE, THE CRIMEA: 30 ♂♂, 15 ♀♀ (ISEA), 3 ♂♂, 3 ♀♀ (TNU), Yalta, Massandra Park, p.t., 04.05.2000–24.12.2001, M.K.; 10 ♂♂, 18 ♀♀ (ISEA), 1 ♂, 1 ♀ (ZMMU), near Yalta, Nikita Vil., Mart'yan Cape Reserve, p.t., 15.01.2000–17.11.2001; 1 ♂, 1 ♀ (ISEA) Simferopol' Distr., Andrusovo Vil., man-made open-cut mine in Lozovoe Vil., roadcross of Simferopol' — Alushta roads, p.t., 26.05–10.11.06.2000, M.K.; 5 ♂♂, 4 ♀♀ (ISEA) same distr., E slope of the watershed between Orlineo and Taskor Gorges of Chatyr-Dag Massif, p.t., 07–21.05.2000, M.K.; 1 ♂ (ISEA), same distr., near Krasnoles'e Vil., Zantugaya River valley, 28.06.2001, E.Yu. Sviridenko.

DIAGNOSIS. *Dicranolasma giljarovi* is closest to the widespread European *D. scabrum* (Herbst, 1799). For diagnostic characters between these species see the following table:

	<i>Dicranolasma giljarovi</i>	<i>Dicranolasma scabrum</i>
Chelicera	Basal segment dorsally with a tall, swollen apophysis (Figs 2, 8)	Basal segment dorsally with a short, flat apophysis [Martens 1978: fig. 238; Chevrizov 1979b: fig. 28]
Palp	Patella noticeably longer than tarsus; patella thicker in proximal part (Fig. 3)	Patella and tarsus approximately equal in length; patella of equal thickness along its length [Martens 1978: fig. 236; Chevrizov 1979b: fig. 27]
Penis	Modified stylus bent to the right (Fig. 4)	Modified stylus directed upwards [Martens 1978: fig. 247; Chevrizov 1979b: figs 29-30]

DISTRIBUTION. Russia: Krasnodar Territory — the Caucasus [Šilhavý, 1966; Chevrizov, 1979 b]; Ukraine: the Crimea [present data]; Bulgaria [Starega, 1976].

HABITAT. Plantation of *Pinus pallasiana* overgrown with dogrose, *Swida australis*, *Cotinus coggygria* and aglet; (Hortus Pineto-Laburneta x Festucetum elytrigiosum); Arbuteto-Juniperetum (excelsae) cistoso achnatherosum; Carpineto-Juniperetum (excelsae) ruscus nudum; crooked forest from *Quercus petraea*; plantation of *Bambusa* sp. near a stream; wild strawberry and pistachio glades of *Pistacia mutica* — silva rara.

DESCRIPTION. MALE. Measurements. Body: length 4.92; width 2.70. Hood length 1.18. Hood width 1.27. Chelicera: basal segment 0.72; distal segment 0.63; forceps length 0.40. Penis: length 1.98; width at base 0.21 Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	0.78	0.58	0.60	-	0.40	2.36
Legs						
I	1.42	0.72	0.92	1.43	0.88	5.37
II	3.02	0.96	2.69	2.38	2.07	11.12
III	1.43	0.85	1.14	1.62	0.90	5.94
IV	1.87	0.92	1.57	2.42	0.94	7.72

Body (Figs 1, 5) small, but robust. Body integument of a papillose structure. Dorsal surface of carapace and abdomen fused together in a continuous shield. Odoriferous glands of carapace and supra-cheliceral lamella absent. The anterior edge of carapace forms a 'hood', viz. a wide paired outgrowth, which is armed on both sides with long shoots of integument. Hood covers chelicerae and palps from above. Eyes are situated on each side of the hood. Each tergite of the shield is armed with hook-like tubercles directed upwards (Figs 1, 5).

Chelicera small (Figs 2, 8). Basal segment dorso-distally with a tall and swollen apophysis (i.e. the cheliceral gland); ventrally with 2–3 small tubercles. The ectal side of the basal segment with a wide tubercle, as seen in lateral view. Distal segment of typical structure, sparsely covered with setae.

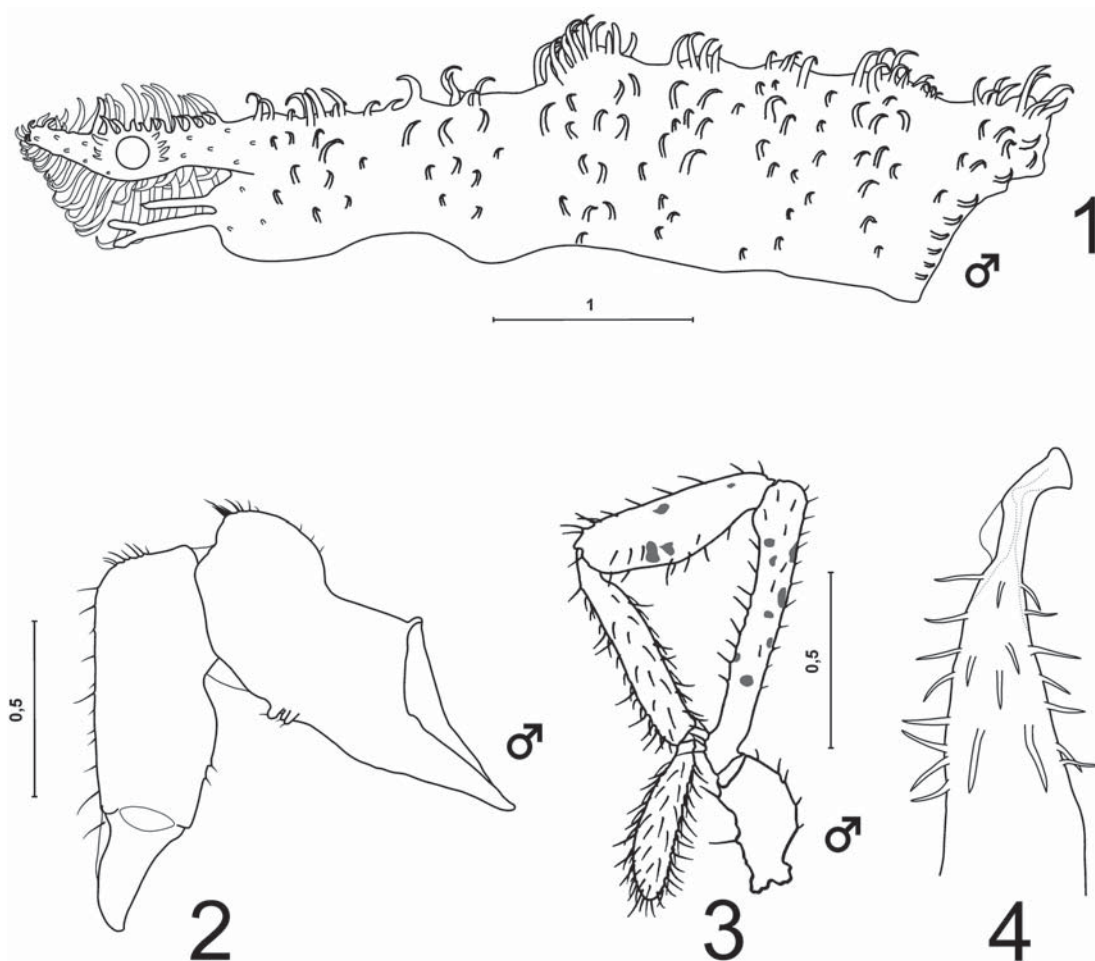
Palp short (Fig. 3). Patella noticeably longer than tarsus and thicker proximally, narrowing to its distal end. Tarsal claw absent. All segments covered with setae.

Legs. Pairs I, III and IV short and swollen. All segments armed with aciculae. Femurs I, III and IV almost totally covered with hook-like tubercles. Legs II long and thin, armed only with aciculae.

Penis (Fig. 6, 7). Corpus gradually extended to its base. Stylus, glans and corpus fused together. Glans (Fig. 4) with thin, long spines.

FEMALE. Measurements. Body: length 5.48; width 2.78. Hood length 1.14. Hood width 1.24. Chelicera: basal segment 0.62; distal segment 0.58; forceps length 0.39. Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	1.53	1.22	1.32	-	0.98	5.05
Legs						
I	1.38	0.68	0.87	1.28	0.88	5.09
II	2.88	0.87	2.32	2.17	1.88	10.12
III	1.48	0.67	1.08	1.53	0.92	5.68
IV	1.97	0.83	1.47	2.48	0.90	7.65



Figs 1–4. *Dicranolasma giljarovi* Šilhavý, 1966: 1 — ♂ body, lateral view; 2 — ♂ chelicera, lateral view; 3 — ♂ palp, lateral view; 4 — glans of penis, lateral view.

Рис. 1–4. *Dicranolasma giljarovi* Šilhavý, 1966: 1 — тело ♂, вид сбоку; 2 — хелицера ♂, вид сбоку; 3 — пальпа ♂, вид сбоку; 4 — головка пениса, вид сбоку.

Female general appearance is similar to that of the male, but the body is usually bigger and the palpal patella is thin, without a proximal thickening. Basal segment of chelicerae with a short apophysis.

COLORATION. In nature, both body and legs, except for palps and chelicerae, are covered with a continuous thin layer of small grains and motes, making the body colour light sandy-ochre or ochre-brown. Actually, the body is dark-brown, with scattered fine, black spots. Chelicerae entirely black to brown. Palps dark ochre, with lighter, ochre-yellow femora. Femora and tibiae with sparse, dark brown spots. Legs same colour as body.

Family PHALANGIIDAE

Phalangium punctipes (L. Koch, 1878)

Figs 9–18; Map 1.

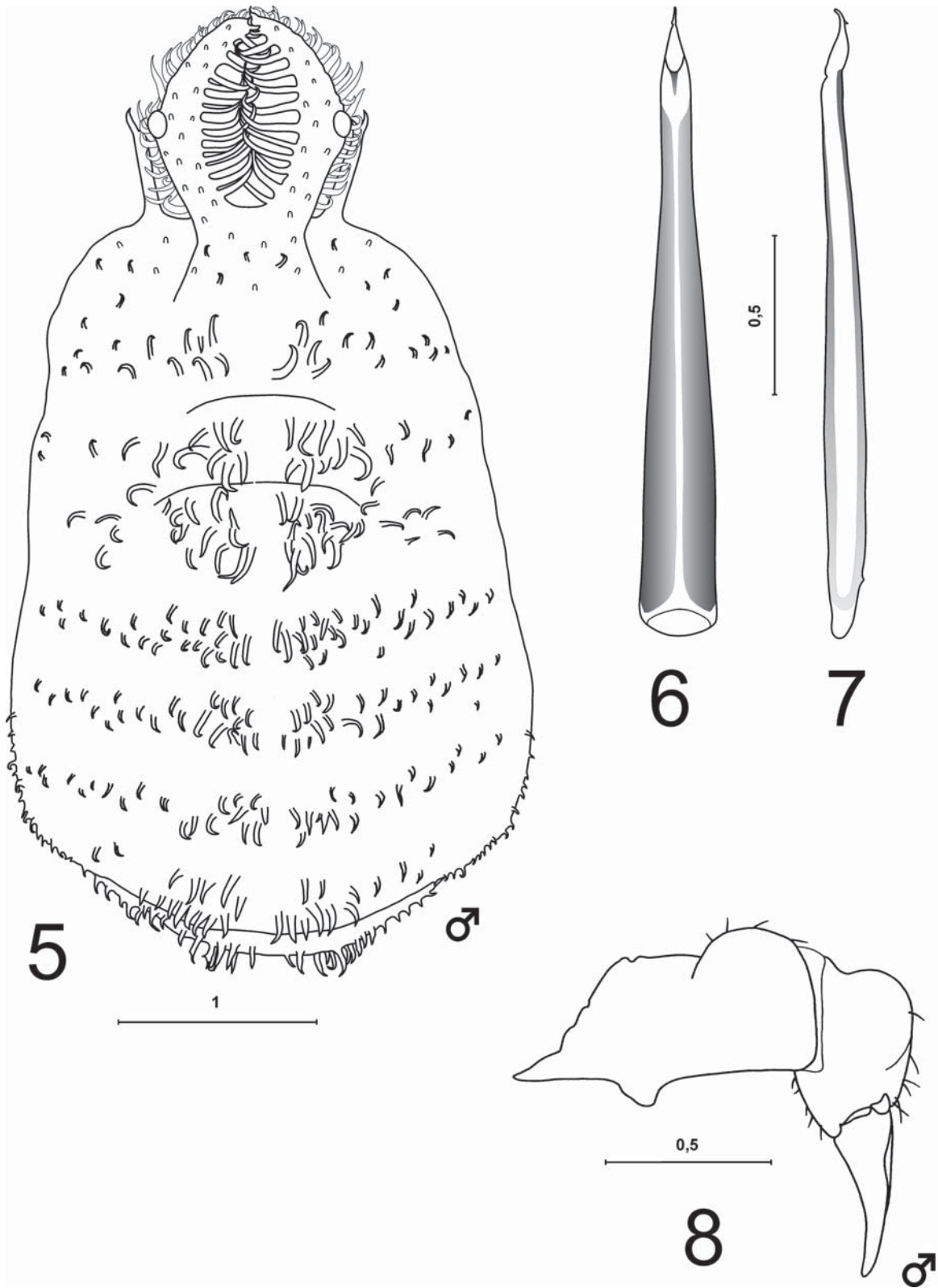
Phalangium punctipes: Starega, 1966: 401–402, 1973: 134–135, fig. 13–15; Chevrizov, 1979a: 19, figs. 110–111.

Phalangium pareissii: Roewer, 1911: 7, 13; 1912: 90, 99, Tab. II fig. 23, Tab. III fig. 7.

Zacheus canaliculatus: Roewer, 1911: 24, 26; 1912: 203, 207.

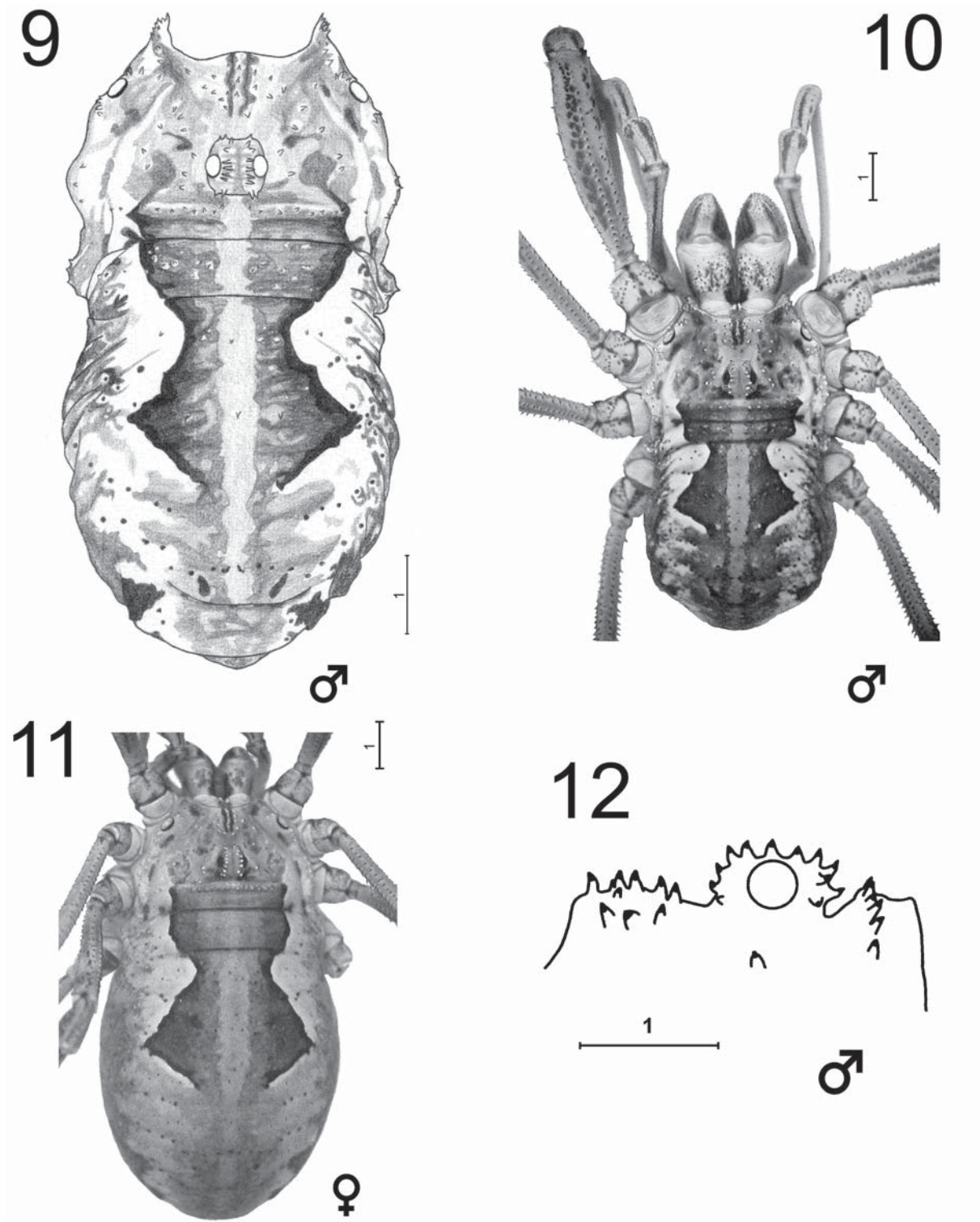
MATERIAL. UKRAINE, THE CRIMEA: 1 ♂, 4 ♀♀ (ISEA), near Simferopol' Water Reservoir, SE slope of Mt. Bairakly, 519 a.s.l., pt., 06–17.07.2000, M.K.; 97 ♂♂, 260 ♀♀ (ISEA), 5 ♂♂, 5 ♀♀ (TNU), 5 ♂♂, 5 ♀♀ (ZMMU), Simferopol Distr., Skvortsovskaya steppe, pt., 23.03–27.04.2002, M.K.; 1 ♂, 1 ♀ (ISEA), Saky Distr., near Pribrezhnaya Railway station., pt., 16–30.04.2000, M.K.; 28 ♂♂, 15 ♀♀ (ISEA) Nikitskaya Yaila, pt., 24.07–17.08.2001, M.K.; 1 ♂ (ISEA), Crimean State Natural Reserve, Babugan Yaila, Chuchel'skii Mt. Range, 14.06.2000, M.K.; 6 ♂♂, 13 ♀♀ (ISEA), near Yalta, c. 1 km N of Nikitskaya school, pt., 17.04–19.05.2001, M.K.; 4 ♂♂, 11 ♀♀ (ISEA), vicinities of Nikita Vil, Mart'yan Cape Reserve, pt., 20–27.05.2000, M.K.; 6 ♀♀ (ISEA), c. 3,5 km N of Rodnoe (Uppa) Vil, Uppa River valley, West part of Ai-Petri Yaila, from Kerezla Mt. Pass to Baidarskie Vorota, 12–13.06.1999, O.V. Kukushkin; 1 ♀ (ISEA), SW Bort of Balaklavsk valley, 21.05.2000, O. V. Kukushkin

DIAGNOSIS. *Phalangium punctipes* is easily distinguished from the closest species by the structure of its chelicerae, which are large and robust, with each of their distal segments bearing a short dorsal apophysis; in other *Phalangium* species, the dorsal cheliceral apophysis is prominent and tall.



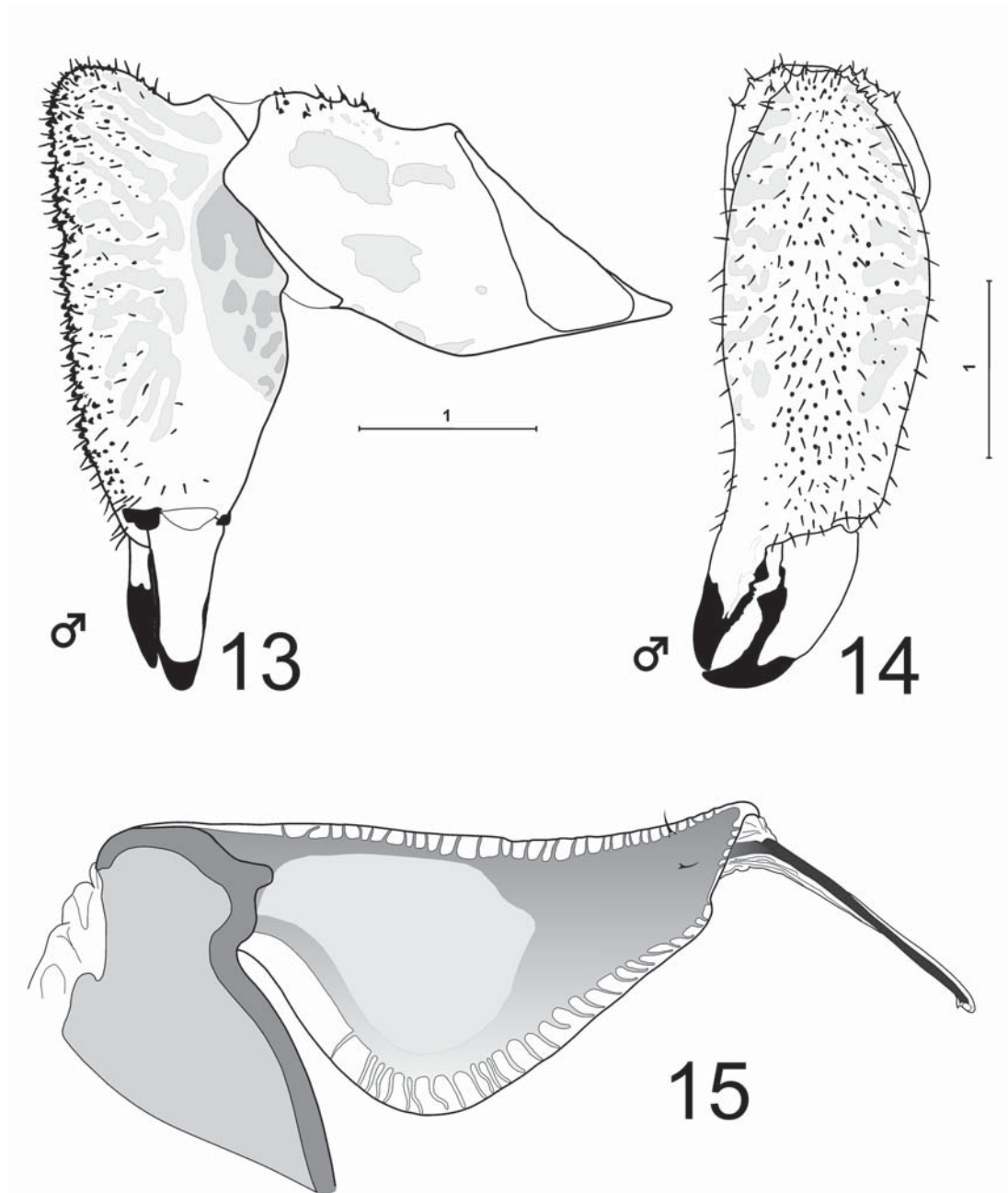
Figs 5–8. *Dicranolasma giljarovi* Šilhavý, 1966: 5 — ♂ body, dorsal view; 6 — penis, dorsal view; 7 — penis, lateral view; 8 — ♂ chelicera, dorsal view.

Рис. 5–8. *Dicranolasma giljarovi* Šilhavý, 1966: 5 — тело ♂, вид сверху; 6 — пенис, вид сверху; 7 — пенис, вид сбоку; 8 — хелицера, вид сверху.



Figs 9–12. *Phalangium punctipes* (L. Koch, 1878): 9, 10 — ♂ body, dorsal view; 11 — ♀ body, dorsal view; 12 — ♂ ocularium, lateral view.

Рис. 9–12. *Phalangium punctipes* (L. Koch, 1878): 9, 10 — тело ♂, вид сверху; 11 — тело ♀, вид сверху; 12 — глазной бугор ♂, вид сбоку.



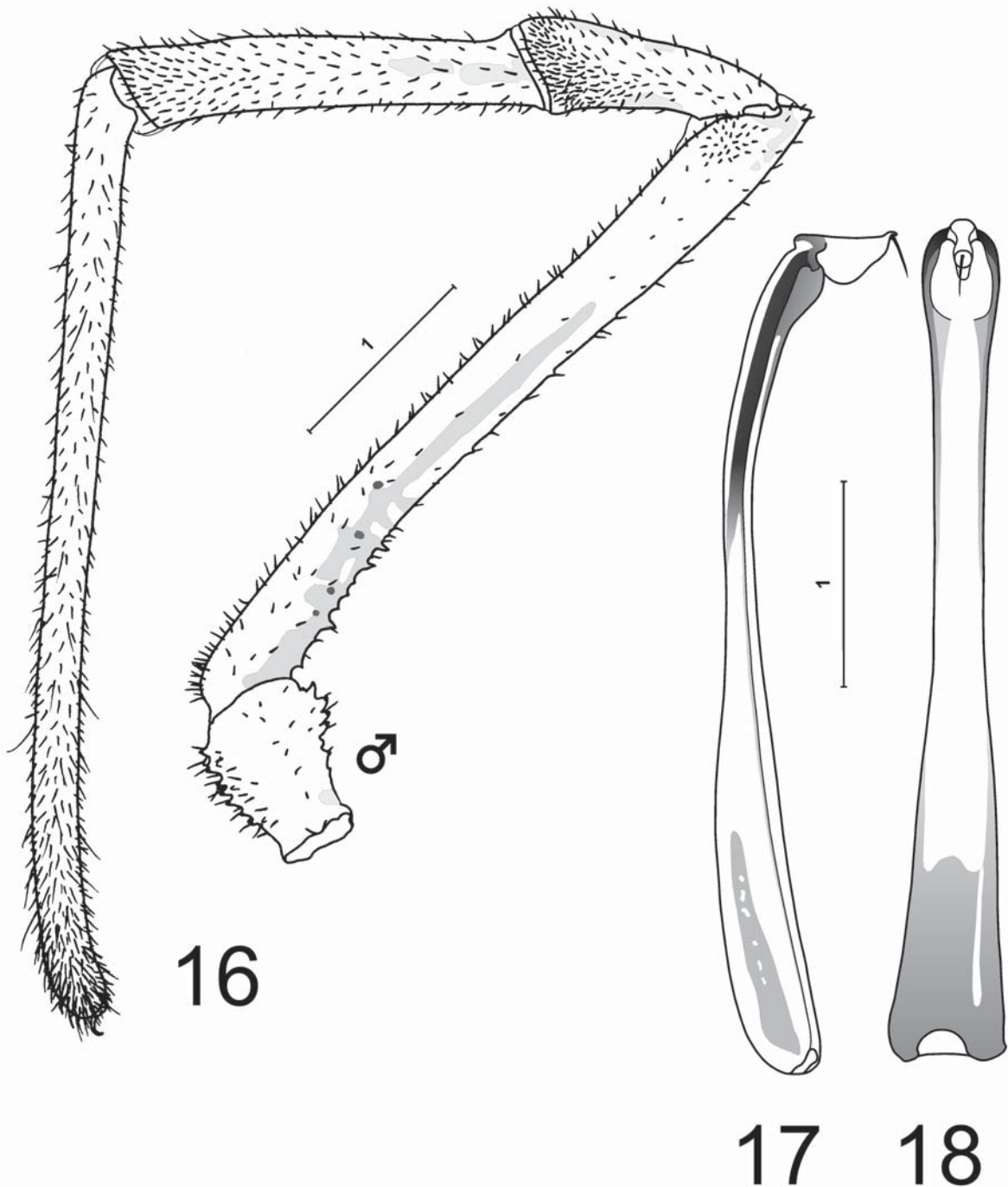
Figs 13–15. *Phalangium punctipes* (L. Koch, 1878): 13 — ♂ chelicerae, lateral view; 14 — ♂ distal segment of chelicerae, frontal view; 15 — glans of penis, lateral view.

Рис. 13–15. *Phalangium punctipes* (L. Koch, 1878): 13 — хелицера ♂, вид сбоку; 14 — ♂ distal segment of chelicerae, frontal view; 15 — головка пениса, вид сбоку.

DISTRIBUTION. Ukraine: the Crimea [present data; Chevrizov, 1979b; Roewer, 1911; 1912; Starega, 1973]; Russia: Kuban' [Starega, 1973], Ciscaucasia [Chevrizov, 1979b]; Azerbaijan [Starega, 1973]; Armenia; Georgia [Starega, 1966; 1973]; Turkey; Syria; Cyprus [Roewer, 1911; 1912]; Israel [Starega, 1973].

DESCRIPTION. MALE. Measurements. Body: length 8.18; width 4.31. Cephalothorax length 2.78. Ocularium width 0.78. Clypeus 0.98. Chelicera: basal segment 3.03; distal segment 2.82; forceps length 1.44. Penis: length 4.18; width of base 0.57. Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	3.92	1.28	2.07	-	4.62	11.89
Legs						
I	5.71	1.83	4.08	5.32	7.22	24.16
II	6.74	1.82	5.62	7.23	12.33	33.74
III	5.19	1.78	3.62	6.48	7.84	24.91
IV	6.68	1.97	4.32	9.34	8.12	30.43



Figs 16–18. *Phalangium punctipes* (L. Koch, 1878): 16 — ♂ palp, lateral view; 17 — penis, lateral view; 18 — penis, dorsal view.

Рис. 13–15. *Phalangium punctipes* (L. Koch, 1878): 16 — палепа ♂, вид сбоку; 17 — пенис, вид сбоку; 18 — пенис, вид сверху.

Body large, elongated (Figs 9, 10). Carapace (Figs 9, 10) with black-tipped denticles, situated in groups as follows: behind the ocularium, on the sides, corners, anterior and posterior edge of the glands, 3–4 near the ocularium closer to the front edge, and in transverse rows on the thoracic tergites. Glands are visible. The ocularium (Figs 9, 10, 13) dorsally carries two longitudinal rows of 8 to 12 tubercles. Supra-cheliceral lamella with acute tubercle.

Abdomen. Dorsally with transverse rows of black-tipped denticles.

Chelicera large and robust (Figs 14, 15). Basal segment swollen (in dorsal view) dorsally with numerous black-tipped denticles. Distal segment with a low dorsal apophysis, dorsally and frontally armed with numerous black-tipped denticles.

Palp very long (Fig. 12). Femur, tibia and tarsus long. Trochanter and femur dorsally with sparse denticles. Patel-

lae slightly swollen in its distal region, with a lateral apophysis. Tibia and tarsus throughout covered with scattered setae. Tarsal claw smooth.

Legs long (Fig. 10) pentagonal in cross section. First pair slightly swollen, especially the femora. All segments of the first legs with rows of black-tipped denticles, especially numerous on the dorsal and ventral surfaces of the tibiae and metatarsi; the same denticles situated on the 1st–5th tarsal segments. Legs II–IV long and thin; their femora with acutely inclined, black-tipped denticles on the edges; patellae with distal tubercles only; tibiae ventrally and laterally with inclined, black-tipped denticles. Metatarsi ventrally with sparse small denticles.

Penis (Figs 16, 17) with the extended corpus. Corpus gradually widens towards its base, in distal part with small, wing-shaped lateral keels, forming a depression in front of the glans. Glans (Fig. 18) flattened out laterally, distally with a pair of setae on each side.

FEMALE. Measurements. Body: length 11.02; width 5.74. Cephalothorax length 6.58. Ocularium width 0.72. Clypeus 1.28. Chelicera: basal segment 2.01; distal segment 1.58; forceps length 0.94. Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	1.02	0.52	0.63	-	1.23	3.40
Legs						
I	1.62	0.82	1.43	1.09	2.88	7.84
II	2.64	1.04	2.28	1.93	5.12	13.01
III	1.39	0.78	1.39	1.42	3.15	8.13
IV	2.32	0.83	1.82	2.62	3.98	11.57

Female general appearance is similar to that of the male (Fig. 11). Body usually larger than in males, with an extended abdomen. Legs of typical structure. Palps not as long as in males. Chelicerae of typical structure, small and weak.

COLORATION. Body light ochre, with a well marked brown greenish saddle and round or elongated brown to brown-marsh spots and patterns on the sides. Carapace light orange-ochre, with grey and dark brown spots. Chelicerae ochre, with dark brown, zebra-like pattern on the distal segment. Palps and legs ochre, with small, oval, brown spots, especially on leg femora and tibiae.

Phalangium opilio Linnaeus, 1758

MATERIAL. UKRAINE, THE CRIMEA: 23 ♂♂, 10 ♀♀ (ISEA), 5 ♂♂, 5 ♀♀ (TNU), Nikitskaya Yaila, p.t., 24.07–06.08.2001, M.K.

HABITAT. In the Crimea, this species has been found in pine forest predominated with *Pinus kochiana*.

NOTES. For description and distribution see Tchemeris *et al.* [1998].

Odiellus lendli (Soerensen, 1894)

Figs 19–26; Map 2.

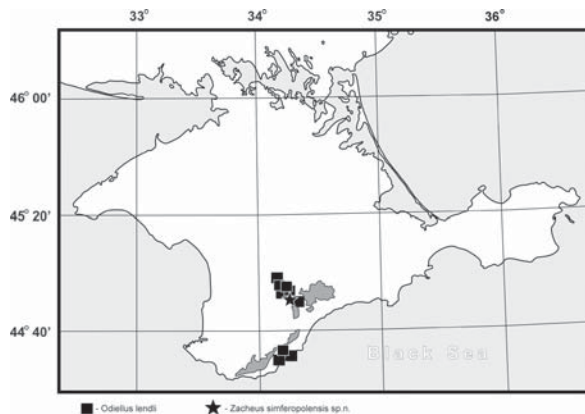
Odiellus lendli: Martens, 1978: 339, 343–344, figs 642, 651–656.

Odiellus bieniaszii: Starega, 1966: 395–397, figs 9–11, 1978: 213; Chevrizov, 1979a: 84, 1979b: 18, figs 89–91.

Odiellus bieniaszii: Redikortsev, 1936: 1.

Odius bieniaszii: Roewer, 1912: 62.

MATERIAL. UKRAINE, THE CRIMEA: 411 ♂♂, 388 ♀♀ (ISEA), 5 ♂♂, 5 ♀♀ (TNU), 5 ♂♂, 5 ♀♀ (ZMMU), Simferopol' Water Reservoir, c. 0.5 km NE of Dam, p.t., 09.10.1999–



Map 2. Distribution of *Odiellus lendli* (Soerensen, 1894) and *Zacheus simferopolensis* sp.n. in the Crimea.

Map 2. Распространение *Odiellus lendli* (Soerensen, 1894) и *Zacheus simferopolensis* sp.n. на территории Крыма.

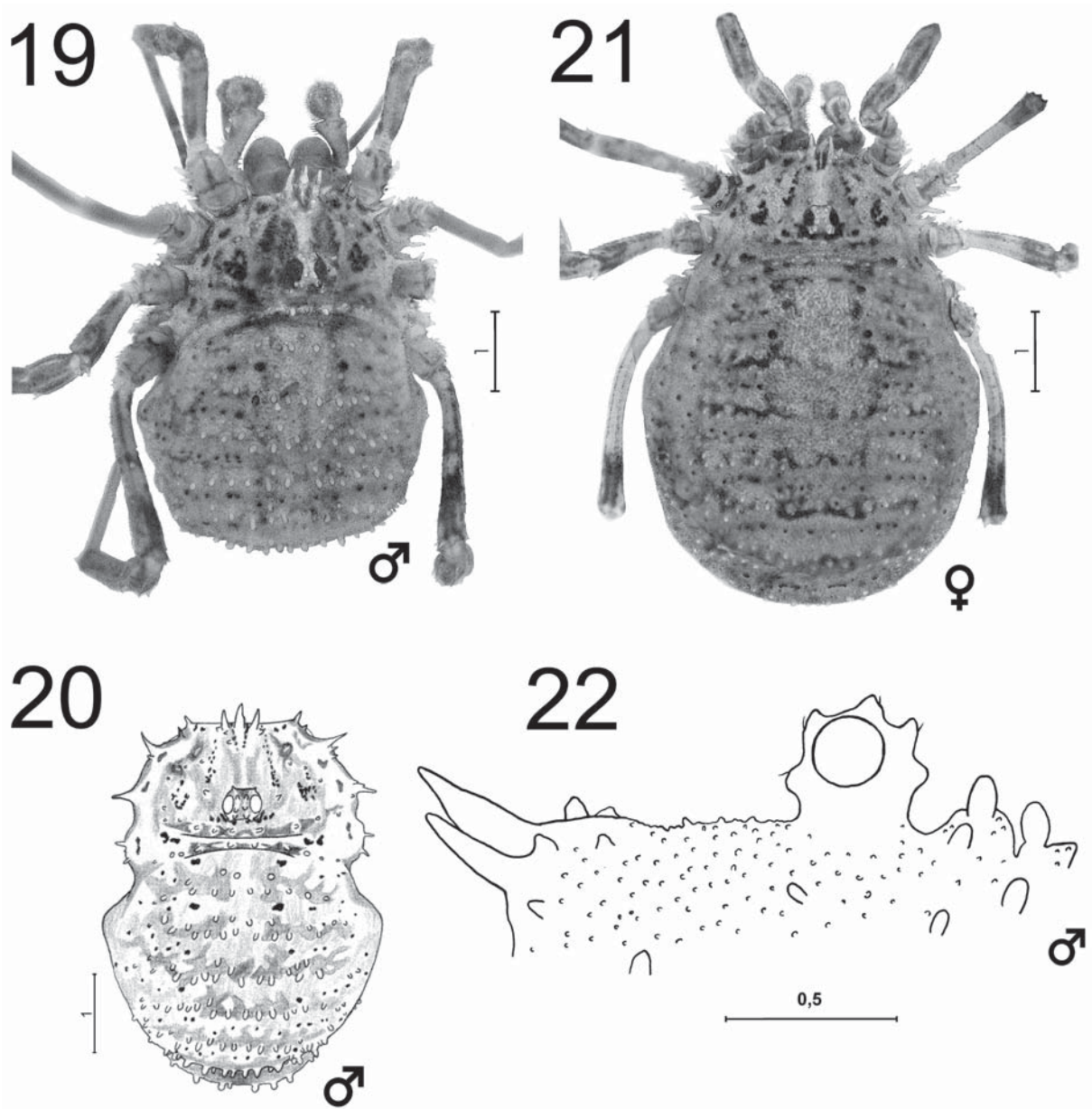
19.12.2000, M.K.; 2 ♂♂, 7 ♀♀ (ISEA), same locality, c. 500 m NE of Dam, S slope, p.t., 08.10–19.12.2000, M.K.; 8 ♂♂, 31 ♀♀ (ISEA) Simferopol' Distr., Env. of Lozovoe Vil., man-caused open-cut mine, p.t., 14.11.1999–19.12.2000, M.K.; 19 ♂♂, 76 ♀♀ (ISEA) same locality, 14.12.1999–19.12.2000, M.K.; 25 ♂♂, 77 ♀♀ (ISEA) same distr., 1.5–2 km N of Fersmanovo Vil., Kessler Forest Tract, p.t., 26.08–19.12.2000, M.K.; 11 ♂♂, 23 ♀♀ (ISEA), same distr., E slope of watershed between Orlinoe and Taskor Gorges of Chatyr-Dag Massif, p.t., 04.09–04.11.2000, M.K.; 41 ♂♂, 43 ♀♀ (ISEA), near Yalta, Nikita Vil., Mart'yan Cape Reserve, p.t., 07.01.2000–18.12.2001, M.K.; 17 ♂♂, 17 ♀♀ (ISEA), Yalta, Massandra Park, p.t., 12.10–23.12.2000, M.K.

DISTRIBUTION. This species is widespread in Central and Eastern Europe.

HABITAT. Petrophyte steppe *Stipeto-Festucetum asphodelosum nudum*; (ultraxerophyte variant on the non calcareous soils) in the middle of plantations of *Pinus pallasiana*; *Festuceto-Stipetum artemidosum* vegetation; periodically flooded reed thicket — wet place with ruderal and mesophytic elements of *Phragmiteta communitis monospeiosum* (*Festuceto-Elytrigiosum compositae-herbosum*); *Quercetum (pubescentis) cornoso-physospermum*, *Quercetum (pubescentis) cornoso-polygonatosum*, *Quercetum (pubescentis) lithospermum x Thamnetum mixtoherbosum*, *Pineto-Quercetum (pubescentis) juniperoso-brachypodium*, *Carpinetum-Juniperetum (excelsae) ruscum nudum* and *Fraxinetum-Quercetum lithospermum* vegetation; feather grass — motley grasses steppe *Stipetum (capillatae) pratoherbosum*, subass. *Festucetum filipendulosum* in the middle of plantations of *Pinus pallasiana*; crooked forest of *Quercus petraea*; *Bambusa* sp. thicket near the stream.

DESCRIPTION. MALE. Measurements. Body: length 5.04; width 3.48. Cephalothorax length 1.52. Ocularium width 0.48. Clypeus 0.72. Chelicera: basal segment 1.21; distal segment 0.92; forceps length 0.41. Penis: length 2.13; width of base 0.39. Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	1.02	0.52	0.63	-	1.23	3.40
Legs						
I	1.62	0.82	1.43	1.09	2.88	7.84
II	2.64	1.04	2.28	1.93	5.12	13.01
III	1.39	0.78	1.39	1.42	3.15	8.13
IV	2.32	0.83	1.82	2.62	3.98	11.57



Figs 19–22. *Odiellus lendli* (Soerensen, 1894): 19, 20 — ♂ body, dorsal view; 21 — ♀ body, dorsal view; 22 — ocularium of ♂, lateral view.

Рис. 19–22. *Odiellus lendli* (Soerensen, 1894): 19, 20 — тело ♂, вид сверху; 21 — тело ♀, вид сверху; 22 — глазной бугор ♂, вид сбоку.

Body (Fig. 19, 20) rounded and robust, with hard integument. Each thoracic and abdominal tergite with transverse rows of numerous, oval, tall and short tubercles.

Carapace (Fig. 19, 20, 22) with long acute tubercles situated at the corners and on each side of the odoriferous glands. In the middle of the anterior carapace edge a group of three large teeth forms a trident. Low oval tubercles are situated on each side and in front of the ocularium, on anterior and posterior carapace edges, and 3–4 occur near the ocularium, closer to the front edge of the carapace. Glands are visible. The ocularium (Fig. 19, 20, 22) relatively high, dorsally carries two longitudinal rows of 4–6 obtuse, spherical short tubercles.

Chelicera (Fig. 23) small. Basal segment dorsally only with seta, ventrally with spur. Distal segment of a typical structure, covered with setae.

Palp (Fig. 24) small. Trochanter and femur on ventral surface armed with short, spine-tipped tubercles, dorsally with setae. Patella and tibia slightly swollen, covered with setae. Tarsus short, nearly as long as the femur, covered with setae only. Tarsal claw smooth.

Legs pentagonal in cross section. Coxae ventrally with numerous narrow, small tubercles, laterally with large tubercles. Trochanters with spine-tipped tubercles on both sides. Femora, patellae and tibiae with edges covered with setae. Metatarsi and tarsi throughout covered with setae.

Penis (Fig. 25, 26). Corpus gradually extended to its base, near the glans with wing-shaped lateral keels on each side. Glans on each side with depression.

FEMALE. Measurements. Body: length 5.61; width 3.86. Cephalothorax length 1.61. Ocularium width 0.48. Clypeus 0.69. Chelicera: basal segment 0.91; distal segment 0.82; forceps length 0.50. Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	1.03	0.48	0.62	-	1.13	3.26
Legs						
I	1.13	0.73	1.22	1.22	2.06	6.36
II	2.33	0.83	2.08	1.89	4.52	11.65
III	1.32	0.72	1.12	1.38	2.70	7.24
IV	2.38	0.84	1.72	2.48	3.52	10.94

Female general appearance is similar to that of the male (Fig. 21). Body with a strongly swollen abdomen.

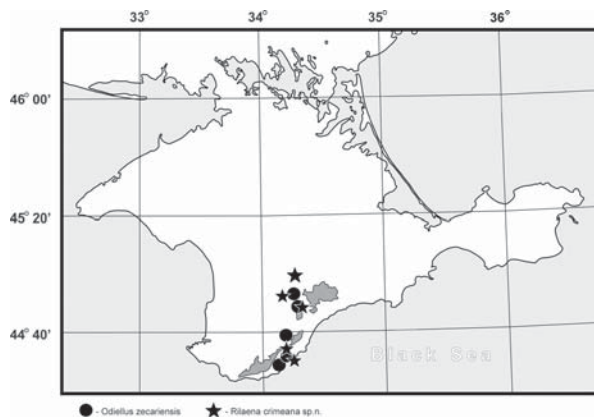
COLOURATION. Body light ochre to ochre-brown, without a visible saddle. Carapace and abdomen with brown and black-brown spots. Limbs orange-ochre, with large, dark brown spots slightly darker than those of the body. Females usually darker than males.

Odiellus zecariensis Mcheidze, 1952
Figs 27–33; Map 3.

Odiellus zecariensis: Martens, 1978: 337, figs 638–640; Stårega, 1966: 397–398, figs 12–14, 1978: 213; Chevrizov, 1979a: 84, 1979b: 18, figs 92–93.

MATERIAL. UKRAINE, THE CRIMEA: 4 ♂♂, 17 ♀♀ (ISEA), 3 ♂♂, 3 ♀♀ (TNU), Simferopol Distr., E slope of watershed between Orlinoe and Taskor Gorges of Chatyr-Dag Massif, pt., 11.08–20.10.2000, M.K.; 8 ♂♂, 11 ♀♀ (ISEA), 3 ♂♂, 3 ♀♀ (ZMMU), same distr., 1.5–2 km N of Fersmanovo Vil., Kessler Forest natural boundary, pt., 08.08–08.12.2000, M.K.; 7 ♂♂, 40 ♀♀ (ISEA), Yalta, Massandra Park, pt., 12.07.2000–24.12.2001, M.K.; 4 ♂♂, 8 ♀♀ (ISEA), near Yalta, c. 1 km N from Nikita Vil., pt., 06–17.11.2001, M.K.; 10 ♂♂, 9 ♀♀ (ISEA), Crimean State Natural Reserve, c. 1.5 km NW of Asport Cordon, bank of Al'ma River, 21.08.2001, M.K.

DISTRIBUTION. Georgia (including Abkhasia and Adzharia) [Starega, 1966, 1978]; Russia: Krasnodar Area, Stavropol' Territory; Ukraine: the Crimea [present data].



Map 3. Distribution of *Odiellus zecariensis* Mcheidze, 1952 and *Rilaena crimeana* sp.n. in the Crimea.

Map 3. Распространение *Odiellus zecariensis* Mcheidze, 1952 и *Rilaena crimeana* sp.n. на территории Крыма.

HABITAT. In litter of hardbeam-maple — *Swida australis* forest; crooked forest of *Quercus petraea*; *Bambusa* sp. thicket; Quercetum (pubescentis) cornoso-physospermum, Quercetum (pubescentis) cornoso-polygonatosum, Fraxineto-Quercetum lithospermum; on pebble banks near water.

DESCRIPTION. MALE. Measurements. Body: length 4.13; width 2.24. Cephalothorax length 1.48. Ocularium width 0.54. Clypeus 0.47. Chelicera: basal segment 1.23; distal segment 0.98; forceps length 0.42. Penis: length 2.18; width of base 0.32. Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	1.08	0.53	0.63	-	1.38	3.62
Legs						
I	1.92	0.98	1.98	2.42	4.48	11.78
II	4.22	1.35	3.72	3.71	10.22	23.22
III	2.12	0.88	1.98	2.88	4.57	12.43
IV	3.53	1.12	2.74	4.16	5.88	17.43

Carapace (Figs 27, 28) with sparse, tiny black-tipped denticles situated in groups as follows: in front of the ocularium, sparsely on the sides, corners, anterior and posterior edges of the odoriferous glands. Supra-cheliceral lamellae are visible from above, not armed. The trident (3 teeth) is situated in the middle of the anterior edge of the carapace. The ocularium (Figs 27, 28) dorsally carries two longitudinal rows of 5–6 tiny tubercles. Meta-, mesopeltidium and abdominal tergites with transverse rows of tiny denticles.

Chelicera (Fig. 30) medium-sized. Basal segment dorsally with sparse setae only, ventrally with a spur. Distal segment of typical structure, covered with setae.

Palp (Fig. 31) medium-sized. Femur ventrally armed with small tubercles, dorsally with setae. Patella, tibia and tarsus covered with setae. Tarsus long, longer than femur, covered with setae only. Tarsal claw smooth.

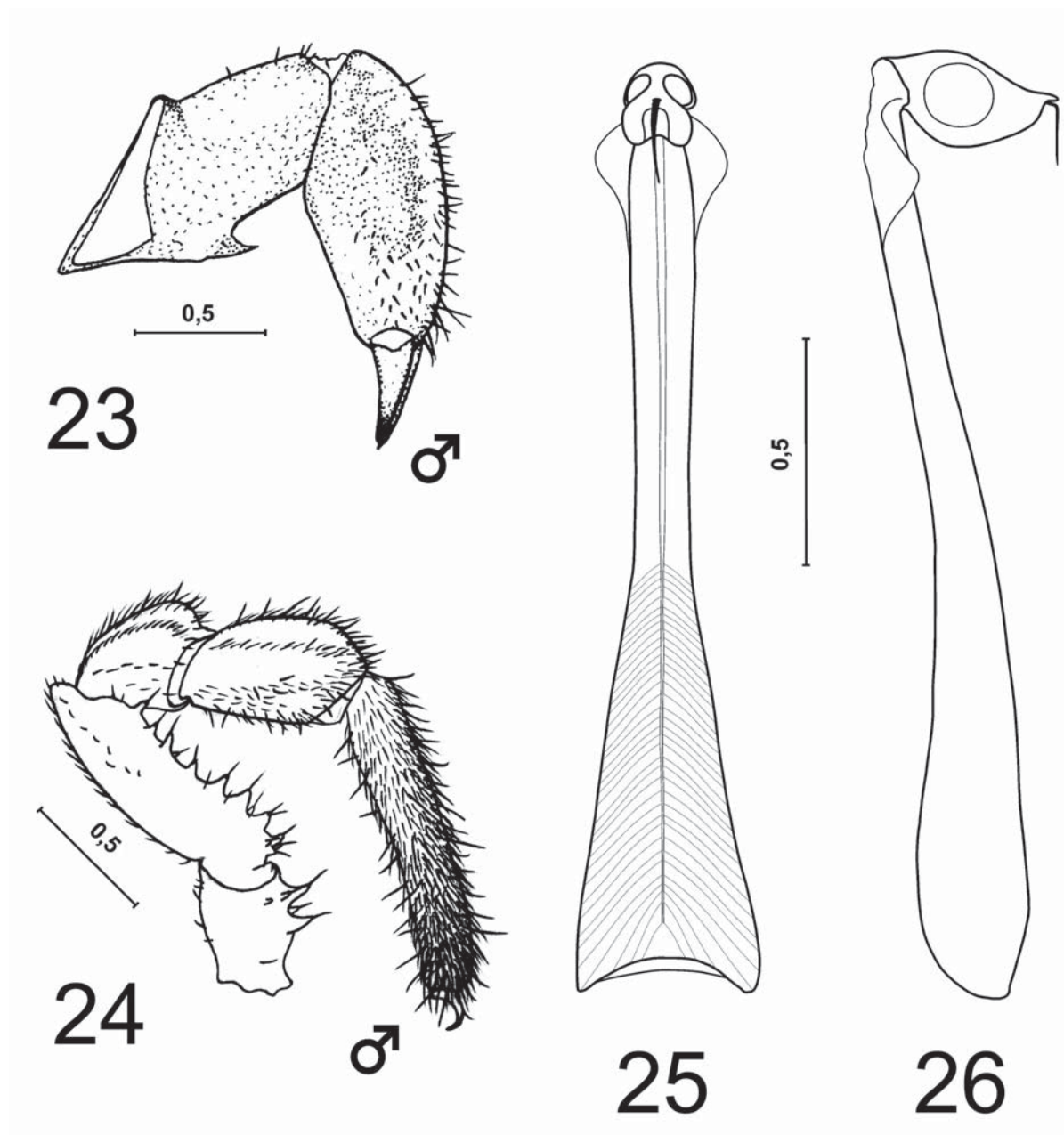
Legs pentagonal in cross section. Coxae ventrally with numerous setae, on sides with acute tubercles. Trochanters covered with setae on both sides. Femora, patellae and tibiae bear rows of setae along their edges. Metatarsi and tarsi covered with setae and hairs.

Penis (Figs 32, 33). Corpus gradually extended to its base, forming a hollow near the glans. Glans rostral, with two setae in the distal region.

FEMALE. Measurements. Body: length 5.78; width 4.12. Cephalothorax length 1.32. Ocularium width 0.54. Clypeus 0.50. Chelicera: basal segment 1.07; distal segment 0.98; forceps length 0.41. Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	1.41	0.58	0.61	-	1.52	4.12
Legs						
I	2.24	0.86	2.23	2.62	4.86	12.81
II	5.32	1.51	4.81	4.72	10.93	27.29
III	2.12	1.08	2.03	3.03	4.65	12.91
IV	4.28	1.12	3.13	5.21	6.18	19.92

Female general appearance is similar to that of the male (Fig. 29), but it is often larger.



Figs 23–26. *Odiellus lendli* (Soerensen, 1894): 23 — ♂ chelicerae, lateral view; 24 — ♂ palp, lateral view; 25 — penis, dorsal view; 26 — penis, lateral view.

Рис. 23–26. *Odiellus lendli* (Soerensen, 1894): 23 — хелицера ♂, вид сбоку; 24 — пальпа ♂, вид сбоку; 25 — пенис, вид сверху; 26 — пенис, вид сбоку.

COLORATION. Body milk-ochre or light ochre, with a well marked brown saddle, sometimes black-brown in males. Carapace and abdomen with brown and black-brown spots. Limbs ochre, with dark brown spots.

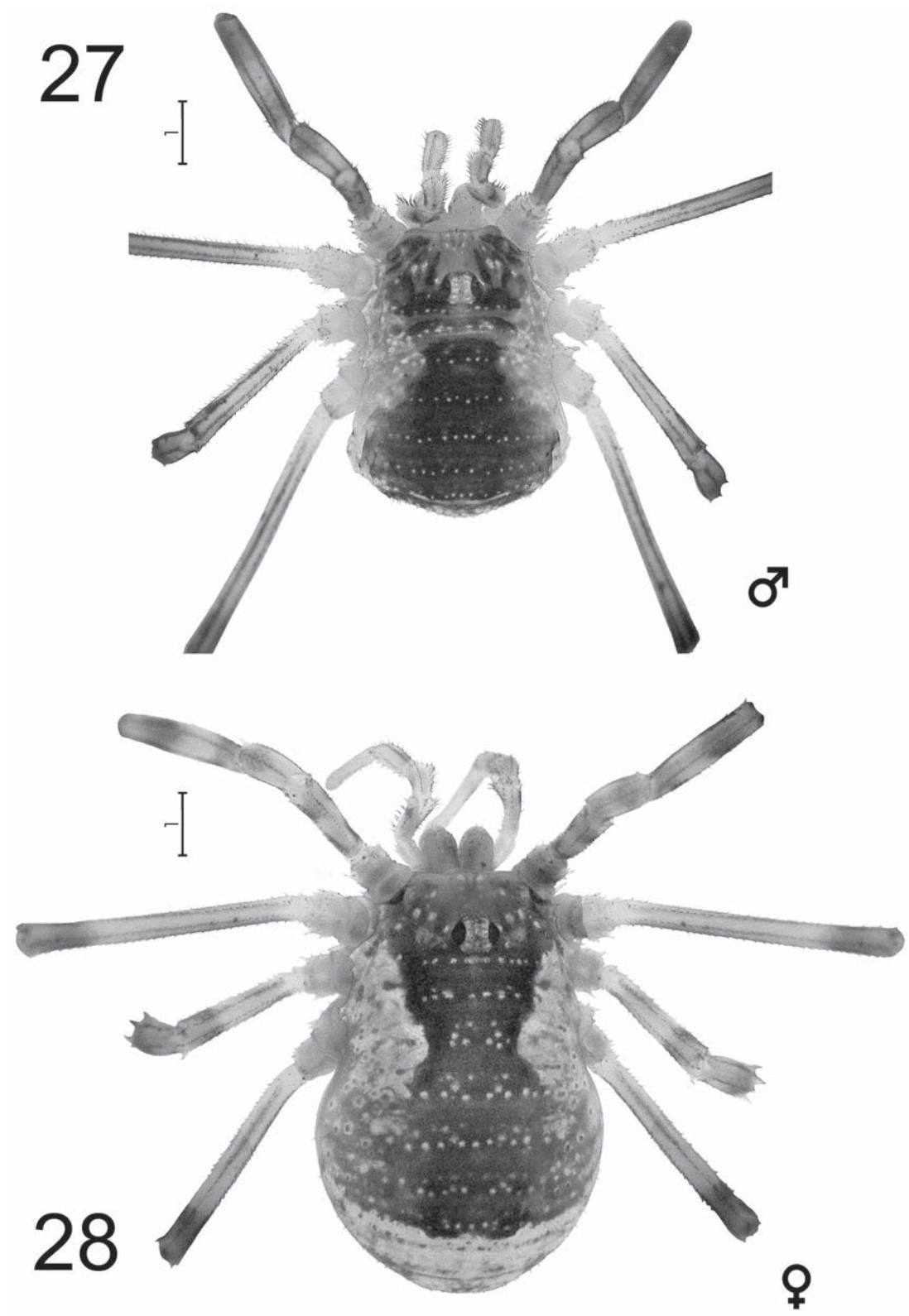
Opilio parietinus (De Geer, 1778)

MATERIAL. UKRAINE, THE CRIMEA: 1 ♂, 2 ♀♀ (TNU), Simferopol' Distr., 1.5–2 km N of Fersmanovo Vil., Kessler Forest natural boundary, p.t., 26.08–10.11.2000, M.K.; 1 ♀ (ISEA), same distr., near Nikita Vil., Mart'yan Cape Reserve, p.t.,

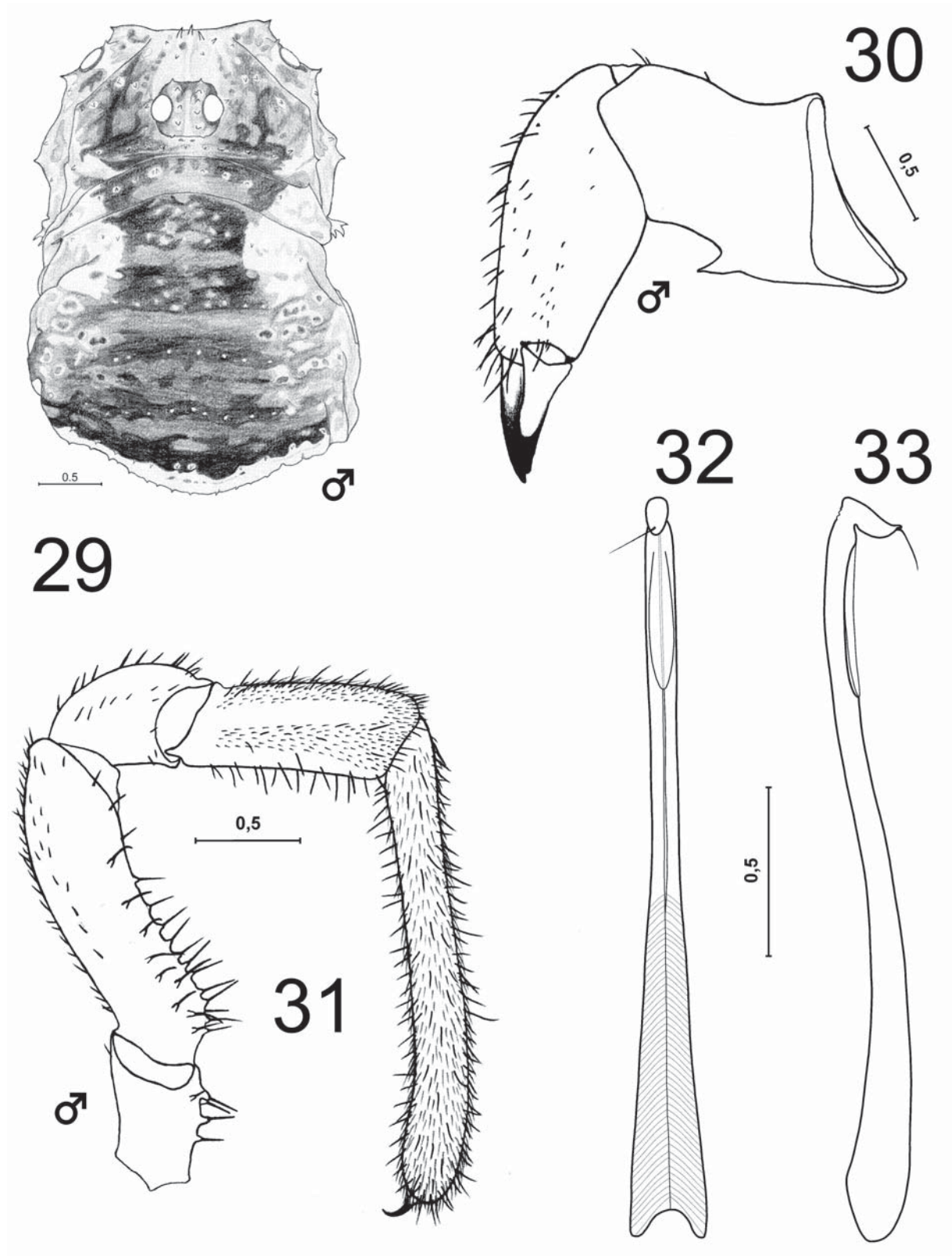
18–25.06.2000, M.K.; 1 ♂ (ISEA), same distr., near Krasnoles'e Vil., 04.07.2003, M. Azarova; 2 ♀♀ (ISEA), Yalta, Massandra Park, p.t., 01.07–29.01.2001, M.K.; 1 ♂, 1 ♀ (ISEA), E slope of watershed between Orlineo and Taskor Gorges of Chatyr-Dag Massif, p.t., 11.08–2.09.2000, M.K.

HABITAT. Forest margins of *Quercetum* (pubescentis) lithospermous x *Thamnetum* mixtoherbosum; Wild pistachio glades of *Pistacia mutica*; crooked forest of *Quercus petraea*; butcher's — broom thicket; *Bambusa* sp. thicket near a stream.

NOTES. For description and distribution see Tchemeris et al. [1998].

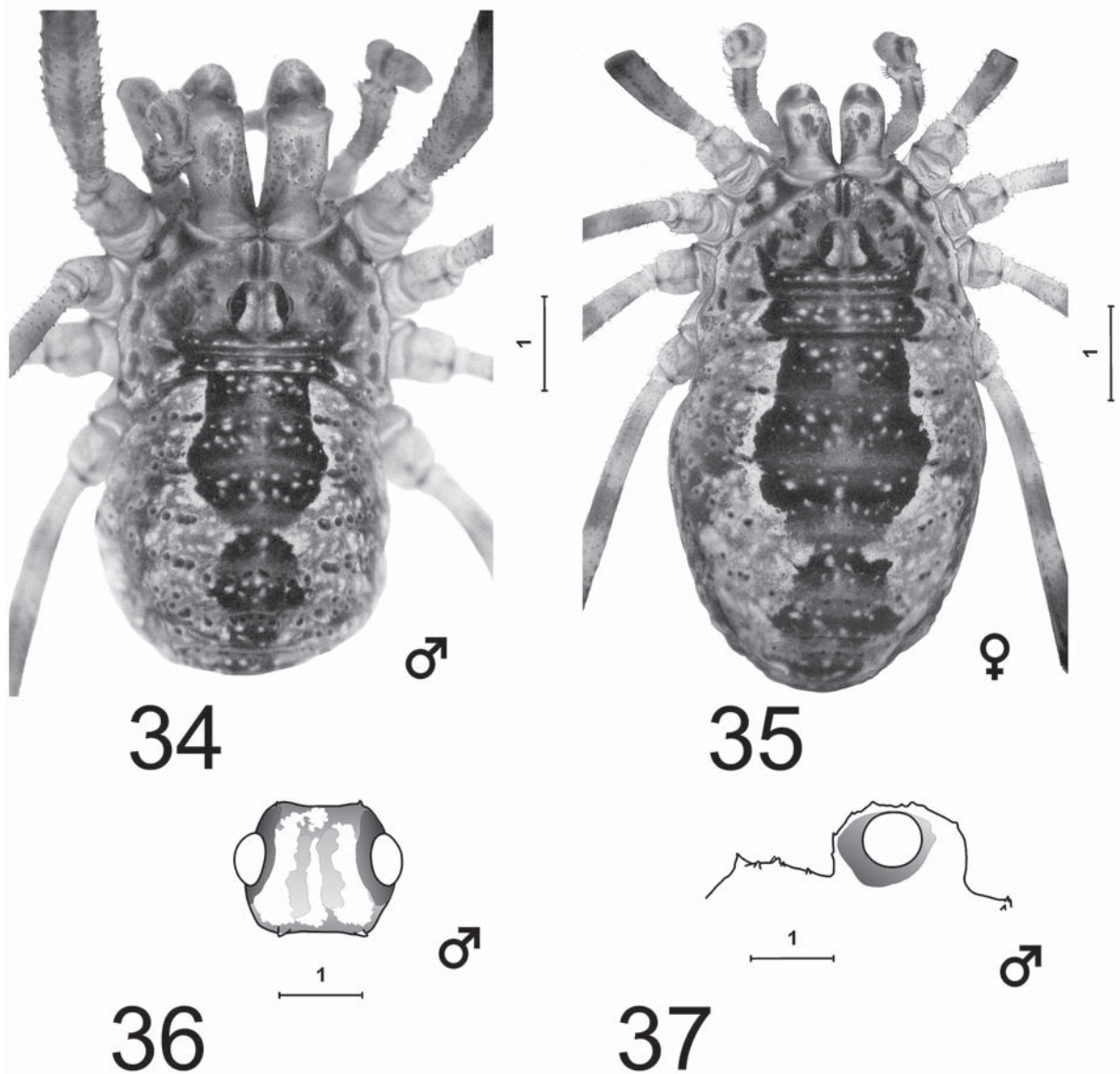


Figs 27–28. *Odiellus zecariensis* Mcheidze, 1952: 27 — ♂ body, dorsal view; 28 — ♀ body, dorsal view.
Рис. 27–28. *Odiellus zecariensis* Mcheidze, 1952: 27 — тело ♂, вид сверху. 28 — тело ♀, вид сверху.



Figs 29–33. *Odiellus zecariensis* Mcheidze, 1952: 29 — ♂ body, dorsal view; 30 — ♂ chelicerae, lateral view; 31 — ♂ palp, lateral view; 32 — penis, dorsal view; 33 — penis, lateral view.

Рис. 29–33. *Odiellus zecariensis* Mcheidze, 1952: 29 — тело ♂, вид сверху; 30 — хелицера ♂, вид сбоку; 31 — пальпа ♂, вид сбоку; 32 — пенис, вид сверху; 33 — пенис, вид сбоку.



Figs 34–37. *Rilaena crimeana* sp. n.: 34 — ♂ body, dorsal view; 35 — ♀ body, dorsal view; 36 — ocularium, dorsal view; 37 — ocularium, lateral view.

Рис. 34–37. *Rilaena crimeana* sp. n.: 34 — тело ♂, вид сверху; 35 — тело ♀, вид сверху; 36 — глазной бугор, вид сверху; 37 — глазной бугор, вид сбоку.

Rilaena crimeana sp.n.

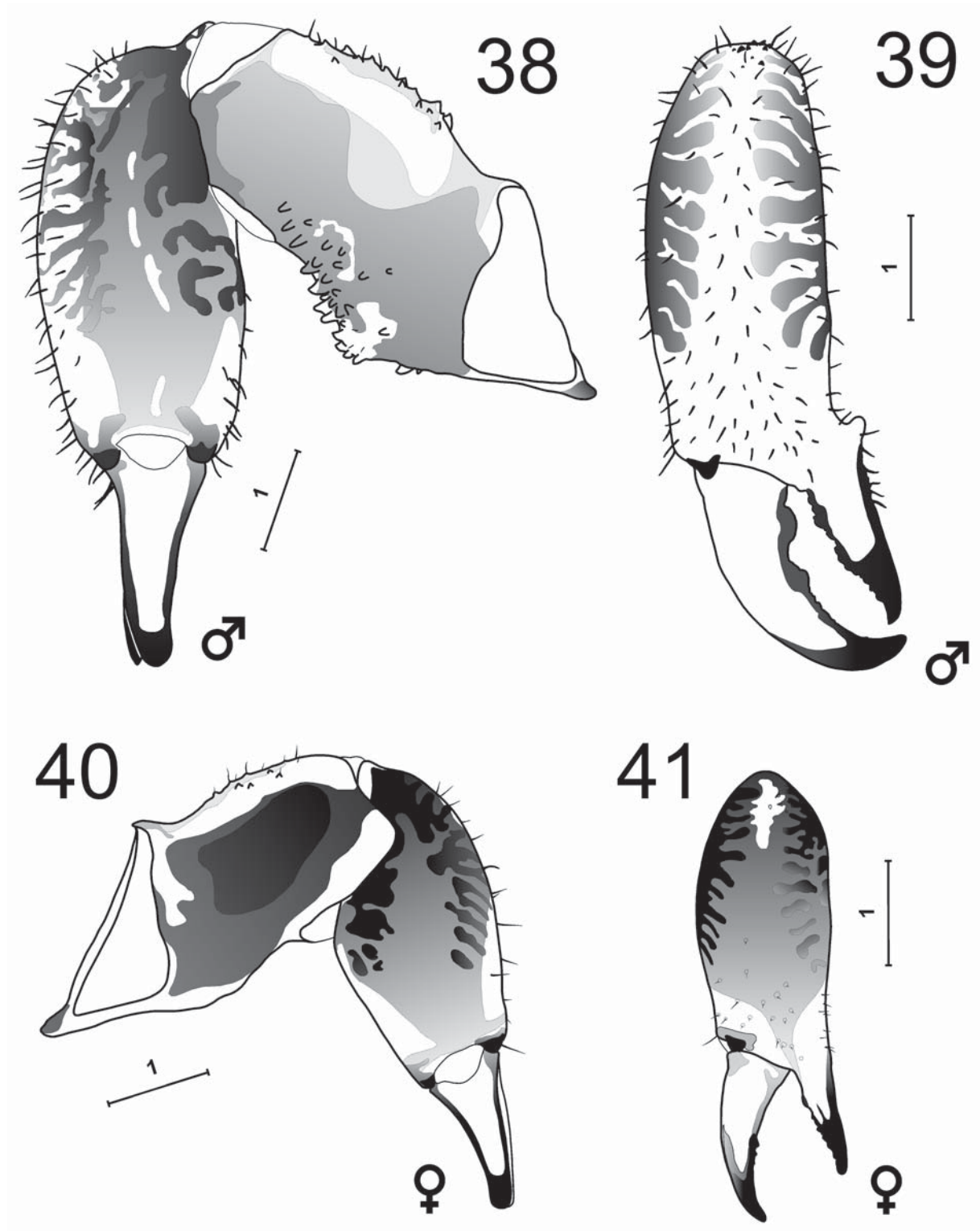
Figs 34–47; Map 3.

MATERIAL. HOLOTYPE: 1 ♂ (ISEA), Ukraine, the Crimea, near Yalta, Nikita Vil., Mart'yan Cape Reserve, p.t., 15.04.2000–04.06.2001, M.K. **PARATYPES:** UKRAINE, THE CRIMEA: 35 ♂♂, 64 ♀♀ (ISEA), 3 ♂♂, 3 ♀♀ (TNU), 3 ♂♂, 3 ♀♀ (ZMMU), together with the holotype; 6 ♂♂, 9 ♀♀ (ISEA), Simferopol' Distr., E slope of watershed between Orlineo and Taskor Gorges of Chatyr-Dag Massif, p.t., 21.05–17.07.2000, M.K.; 2 ♀♀ (ISEA), same distr., near Lozovoe Vil., man-made open-cut mine, p.t., 4–18.04.2000, M.K.; 2 ♂♂, 3 ♀♀ (ISEA), Nikitskaya Yaila (Scrinita), p.t., 23.06–03.07.2001, M.K.; 1 ♂ (ISEA), Belogorsk Distr., Zuya River, ?06.1996, M.K.

DIAGNOSIS. *Rilaena crimeana* sp.n. is closest to *Rilaena gruberi* (Starega, 1973) from Iraq and Turkey. For diagnostic characters between these species see the following table:

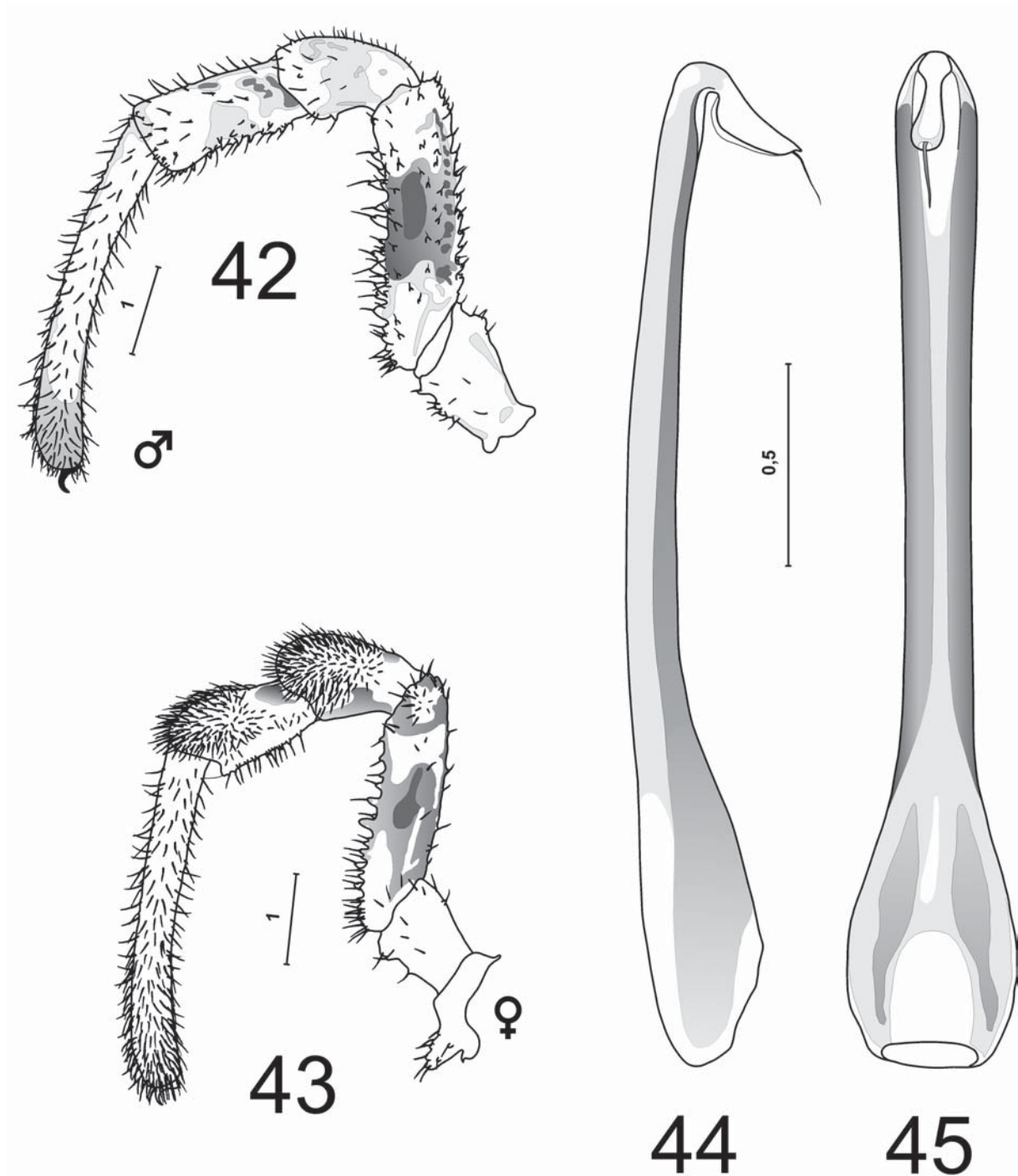
	<i>Rilaena crimeana</i> sp.n.	<i>Rilaena gruberi</i>
Chelicera	Fixed cheliceral digit with a basal apophysis (Fig. 39)	Fixed cheliceral digit without an apophysis [Starega 1973: fig. 36]
Palp	Tibia ventrally with numerous pointed tubercles (Fig. 40)	Tibia ventrally with sparse denticles [Starega 1973: fig. 35]
Penis	Glans rather wide, without a cut at its base (Fig. 4)	Glans rather narrow, with a small cut at its base [Starega 1973: fig. 37]

DISTRIBUTION. Ukraine: the Crimea.



Figs 38–41. *Rilaena crimeana* sp. n.: 38 — ♂ chelicerae, lateral view; 39 — ♂ distal segment of chelicerae, frontal view; 40 — ♀ chelicerae, lateral view; 41 — ♀ distal segment of chelicerae, frontal view.

Рис. 38–41. *Rilaena crimeana* sp. n.: 38 — хелицера ♂, вид сбоку; 39 — дистальный членик хелицеры ♂, вид спереди; 40 — хелицера ♀, вид сбоку; 41 — дистальный членик хелицеры ♀, вид спереди.



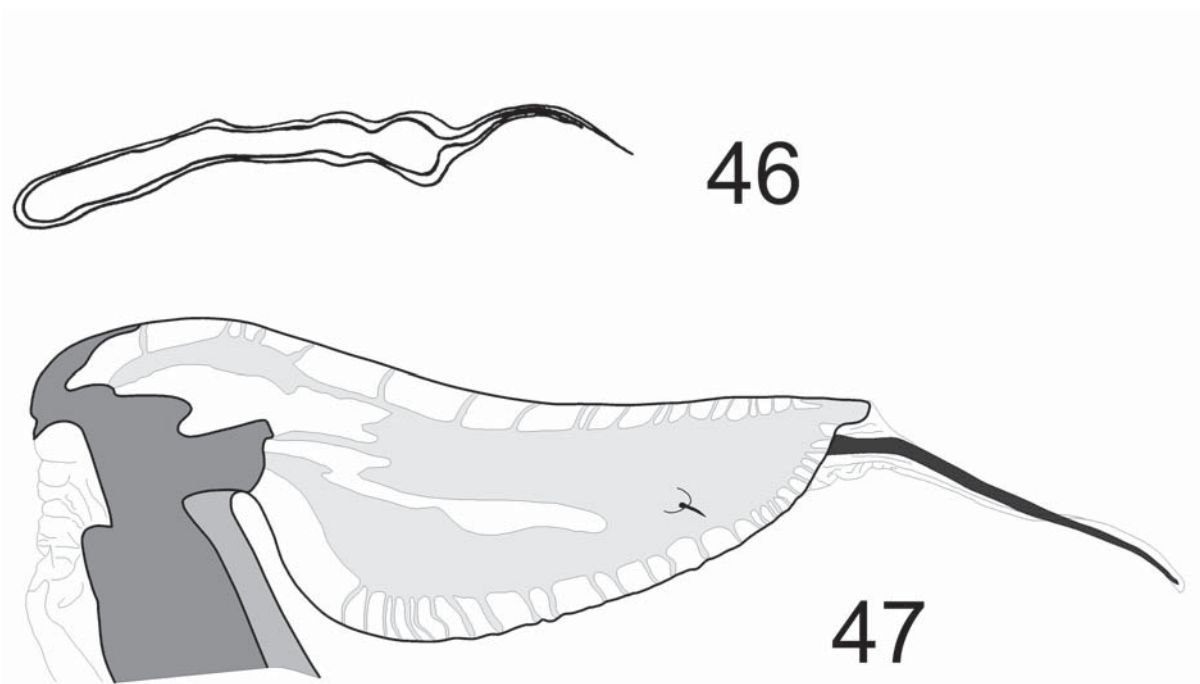
Figs 42–45. *Rilaena crimeana* sp. n.: 42 — ♂ palp, lateral view; 43 — ♀ palp, lateral view; 44 — penis, lateral view; 45 — penis, dorsal view.

Рис. 42–45. *Rilaena crimeana* sp. n.: 42 — палепа ♂, вид сбоку; 43 — палепа ♀, 44 — пенис, вид сбоку; 45 — пенис, вид сверху.

HABITAT. Carpineto-Juniperetum (excelsae) ruscum nudum, Pineto-Quercetum and Quercetum (pubescentis) juniperoso-brachypodiosum vegetation; crooked forest of *Quercus petraea*; pine forest of *Pinus kochiana*; petrophyte steppe Stipeto-Festucetum artemidosum (ultraxero-

phyte variant on the non-calcareous soils); butcher's — broom thicket.

DESCRIPTION. MALE. Measurements. Body: length 5.48; width 3.56. Cephalothorax length 1.88. Ocularium width 0.72. Clypeus 0.47. Chelicera: basal segment 2.44;



Figs 46–47. *Rilaena crimeana* sp. n.: 46 — seminal receptacle; 47 — glans of penis, lateral view.
Рис. 46–47. *Rilaena crimeana* sp. n.: 46 — семяприемник; 47 — головка пениса, вид сбоку.

distal segment 1.58; forceps length 0.92. Penis: length 2.48; width of base 0.48. Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	1,62	0,72	0,80		1,88	5,02
Legs						
I	3,02	1,24	3,22	3,21	4,56	15,25
II	6,11	1,61	5,52	6,03	9,82	29,09
III	3,42	1,02	2,68	4,74	5,42	17,28
IV	5,17	1,42	3,62	6,68	7,82	24,71

Body (Fig. 34) small. Meso-, metapeltidium and abdominal tergites with transverse rows of tiny black-tipped denticles.

Carapace (Fig. 34) with sparse, tiny, black-tipped denticles, situated in groups as follows: in front of the ocularium, sparsely on the sides, at the corners, by the anterior and posterior edges of the odoriferous glands, and on the projections situated nearby the external edges of the chelicerae. Supra-cheliceral lamellae (Fig. 34) are visible from above, armed with a tubercle. The ocularium (Figs 36, 37) dorsally bears two longitudinal rows of 5–7 tiny tubercles.

Chelicerae (Figs 38, 39) strong, longer than carapace. Basal segment slightly bent, dorsally with a group of black-tipped denticles shifted to its proximal end, ventrally with a group of numerous tubercles. Distal segment somewhat elongated, with a group of black-tipped denticles on top, anterior surfaces covered with the setae. The fixed digit of the forceps with an ectal apophysis at its base.

Palp (Fig. 39) with a relatively short trochanter, armed dorsally and ventrally with sparse denticles. Coxa with a short maxillary lobe. Femora dorsally with denticles, ventrally

with rows of spine-tipped tubercles and denticles, on the external lateral side armed with denticles. Patella distally swollen, with a lateral apophysis, dorsally with sparse, tiny denticles near the proximal end. The ectal surface of the patellae very thick, covered with setae. Tibia ventrally with denticles. Tibiae and tarsi covered with setae, particularly dense on their ectal sides. Tarsus with a smooth claw, its internal surface bears microdenticles almost along its entire length.

Legs short, cylindrical. Legs I slightly swollen, especially their coxae, femora, patellae and tibiae. Femora I–IV with longitudinal rows of small, black-tipped denticles, which are most dense on femur I. Remaining segments of legs II–IV covered with setae only. Patella I ventrally scattered scarcely with tiny black denticles — cones. Ventral surfaces of tibia and metatarsi covered throughout with tiny black cones. Tarsi without such denticles.

Penis (Figs 40, 41) with an abruptly widened base. Glans as in Fig. 42, in distal part with a seta on each side.

FEMALE. Measurements. Body: length 7.62; width 4.92. Cephalothorax length 2.38. Ocularium width 0.78. Clypeus 0.51. Chelicera: basal segment 2.28; distal segment 1.20; forceps length 0.68. Length of palp and legs:

	Fm	Pt	Tb	Mt	Tr	Total
Palp	1.43	0.62	0.78	-	1.32	4.15
Legs						
I	2.52	1.05	2.61	2.72	4.22	13.12
II	5.78	1.52	4.56	5.11	9.32	26.29
III	2.81	1.12	3.83	3.38	4.38	15.52
IV	4.72	1.33	3.32	6.00	6.21	21.58

Table 1. Diagnostic characters between *Zacheus simferopolensis* sp.n., *Zacheus anatolicus* and *Zacheus crista*
Таблица 1. Отличия между *Zacheus simferopolensis* sp.n., *Zacheus anatolicus* и *Zacheus crista*

Species	<i>Zacheus simferopolensis</i> sp.n.	<i>Zacheus anatolicus</i>	<i>Zacheus crista</i>
Legs	First pair strongly swollen and armed; metatarsi ventrally with rows of numerous large microdenticles (Figs. 48, 55)	First pair slightly swollen; metatarsi ventrally with a single row of 10-20 normal microdenticles	No data
Chelicerae	Large and strong, well armed (Figs. 53-54)	Small, poorly armed	Large and strong, well armed [Martens 1978: fig. 561]
Supra-cheliceral lamella	With 2-3 large tubercles (Fig. 49)	With one normal tubercles	No data
Palp	Femur dorsally and ventrally with irregular tubercles; patellae dorsally and laterally with small tubercles (Fig. 52)	Femur dorsally and ventrally with tubercles; patellae dorsally and laterally with small tubercles. [Chevrizov 1979b: fig. 119]	Femur only dorsally with tubercles; remaining segments without tubercles [Martens 1978: fig. 564]
Penis	Corpus slightly curved; glans slightly curved and strongly expanded in the mid-region (Figs. 56-58)	Corpus straight; glans slightly arc-like and not expanded in the mid-region [Starega 1976: figs 75-76]	Corpus straight, narrow close to the base; glans arc-like, slightly expanded in the mid-region [Starega 1976: figs 71-72; Martens 1978: fig. 559]

Female general appearance is similar to that of the male (Fig. 35), but its body is larger than in males, with an extended abdomen. Limbs without armature as in males (Fig. 35). Chelicera small (Figs 45, 46), with sparse, black-tipped denticles. Palp is less armed than in the male (Fig. 44). Seminal receptacles are situated within the 5–8th segments of the ovipositor. Seminal receptacle as in Fig. 47.

COLORATION. Body with a distinct, khaki-coloured saddle and round or elongated brown greenish spots and lateral patterns. Carapace dark ochre-orange-brown, with large dark khaki-coloured spots. Chelicerae light ochre-orange-brown, with black-brown marks on the basal segment and dark brown zebra-like pattern on the distal segment. Palps ochre-orange, with oval brown spots. Legs appear striped due to ochre and brown rings, in dorsal view lighter than the body, light ochre-orange, with numerous small, oval, light brown and brown spots. Ventrally, body lighter than dorsally, with light brown spots. Ventral surface of the leg I dark brown, particularly the femur.

ETYMOLOGY. The specific epithet refers to the Crimea, the area where this species occurs.

Zacheus simferopolensis sp.n.
Figs 48–60; Map 2.

MATERIAL HOLOTYPE: 1 ♂ (ISEA), Ukraine, the Crimea, Simferopol' Distr., near Krasnoles'e Vil., 26.06.2003, M.K.

Comparative material on *Zacheus anatolicus* (Kulczynski, 1903): BULGARIA: 1 ♂, 1 ♀ (ISEA), Sofia Distr., Vrazhdebna-Dolin Bogrov, 09.07–21.07.1999, R. Kostova.

DIAGNOSIS. *Zacheus simferopolensis* sp.n. is closest to *Zacheus anatolicus* and *Zacheus crista* (Brulle, 1832). For diagnostic characters between these species see Table 1.

DISTRIBUTION. Ukraine: the Crimea [present data].

HABITAT. Sloping meadow in crooked forest of *Quercus petraea*.

DESCRIPTION. MALE. Measurements. Body: length 9.12; width 5.48. Cephalothorax length 4.38. Ocularium

width 0.52. Clypeus 1.37. Chelicera: basal segment 3.48; distal segment 3.31; forceps length 2.13. Penis: length 4.76; width of base 0.48. Length of palp and legs:

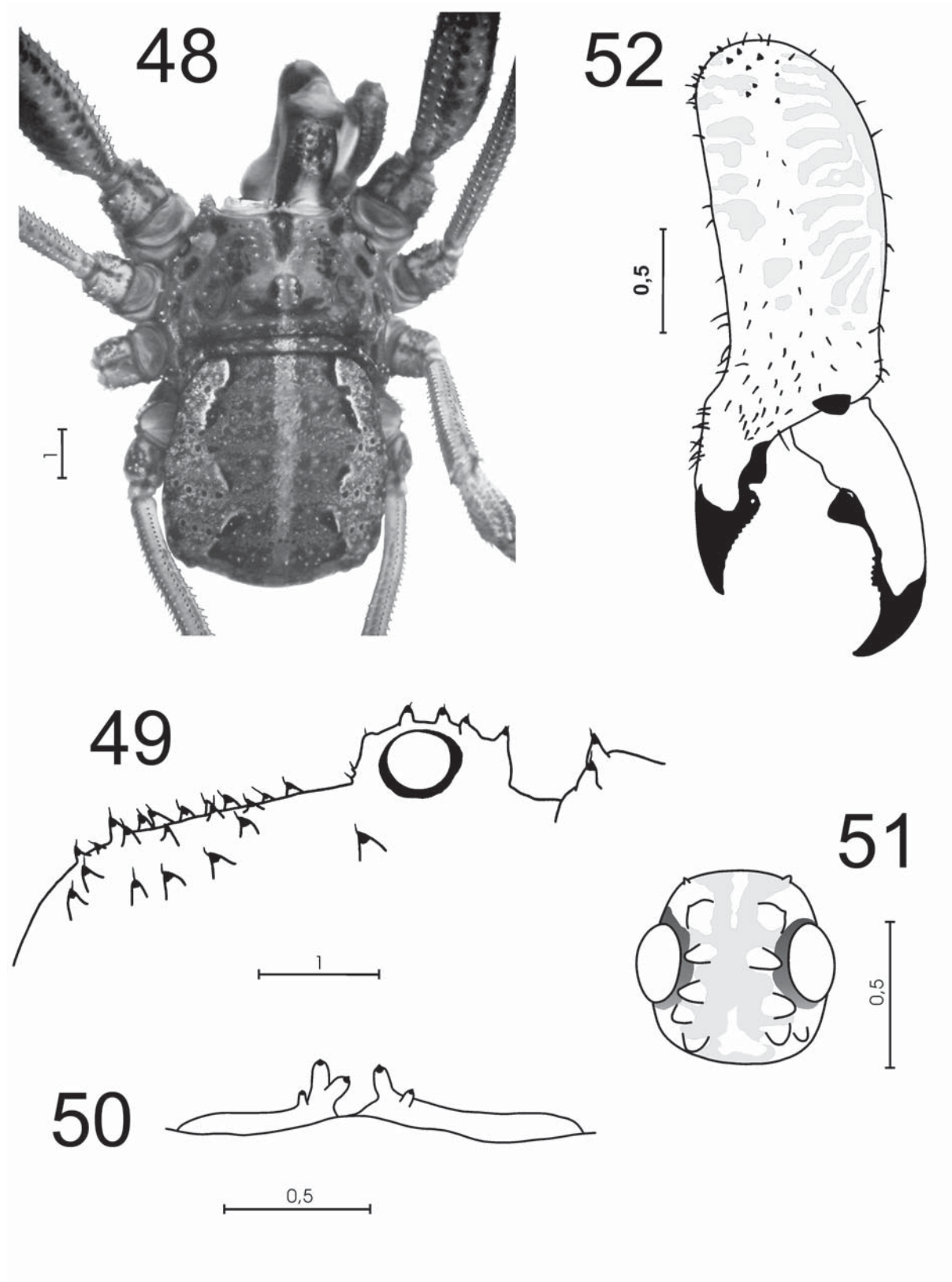
	Fm	Pt	Tb	Mt	Tr	Total
Palp	2.47	1.46	1.68	-	3.52	9.13
Legs						
I	5.58	2.16	4.52	4.85	6.62	23.73
II	6.31	2.18	5.16	5.18	12.72	31.55
III	4.42	1.94	3.52	5.62	8.41	23.91
IV	6.48	2.23	4.74	8.88	11.68	34.01

Body (Fig. 48) rectangular and elongated. Meso-, metapeltidium and abdominal tergites with transverse rows of black-tipped denticles.

Carapace (Figs 48, 50) with numerous black-tipped denticles, situated in groups as follows: in front of the ocularium, on the sides, corners, anterior and posterior edges of the odoriferous glands, and on the projections situated near the external edge of the chelicerae. Supra-cheliceral lamellae visible from above, armed with the 2–3 relatively large tubercles (Figs 48, 49). The ocularium (Figs 48, 50, 51) dorsally bears two longitudinal rows of 4–5 low tubercles.

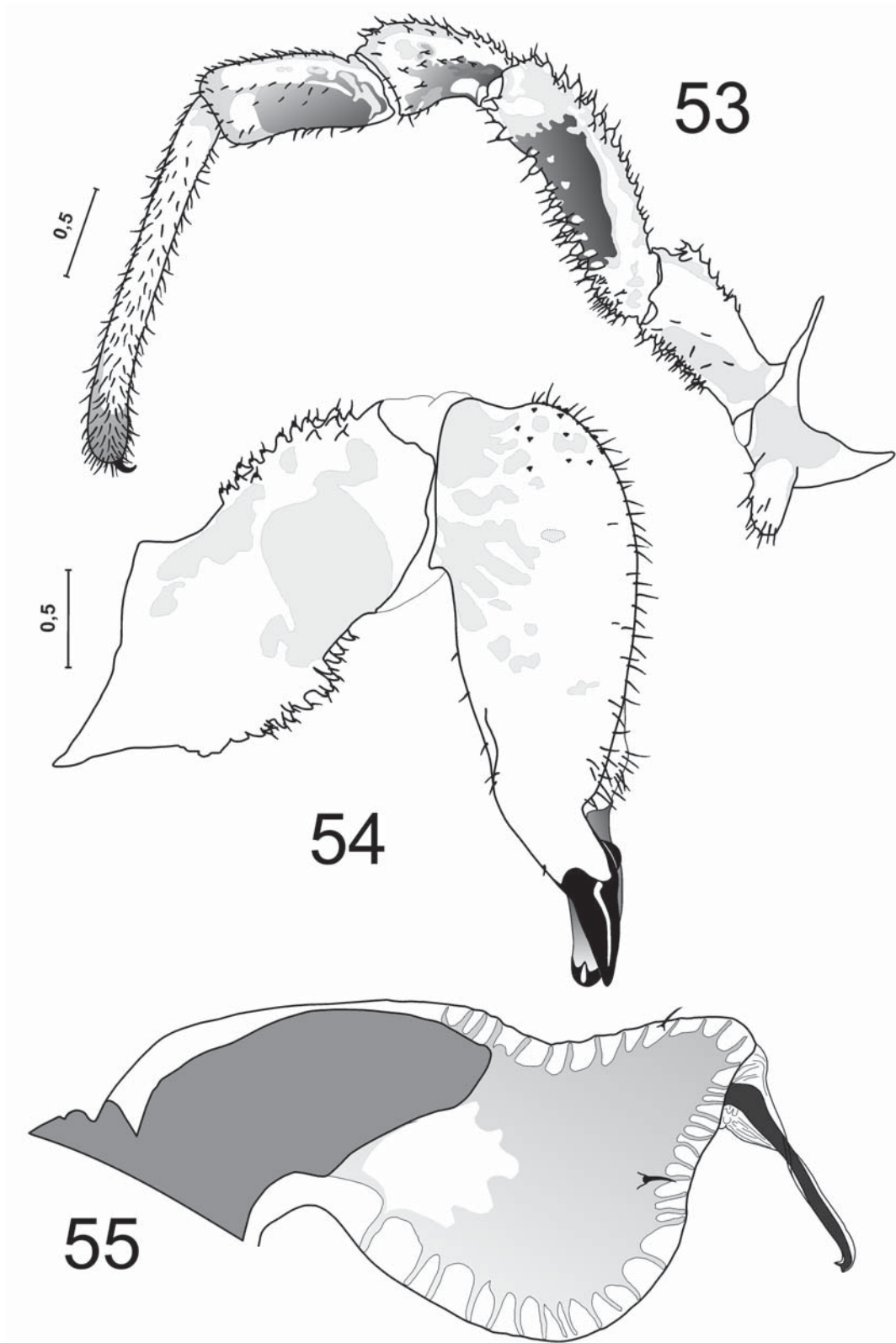
Chelicerae (Figs 53, 54) strong and robust. Basal segment slightly bent, dorsally and ventrally with a group of numerous tubercles. Distal segment somewhat elongated, with a group of black-tipped denticles on top, anterior surfaces covered with setae. The fixed digit of the forceps is bent.

Palp (Fig. 52) with a relatively long trochanter, armed dorsally and ventrally with groups of pointed tubercles. Coxa with a long maxillary lobe. Femora dorsally and ventrally with rows of tubercles, its prolateral side armed with similar tubercles to those situated at its distal end. Patellae distally swollen, dorsally with two rows of sharp tubercles, its prolateral side with scattered tubercles. Ectal surfaces of patellae very thick, covered with setae. Tibiae and tarsi covered with setae only, most densely on ectal sides. Tarsus with a



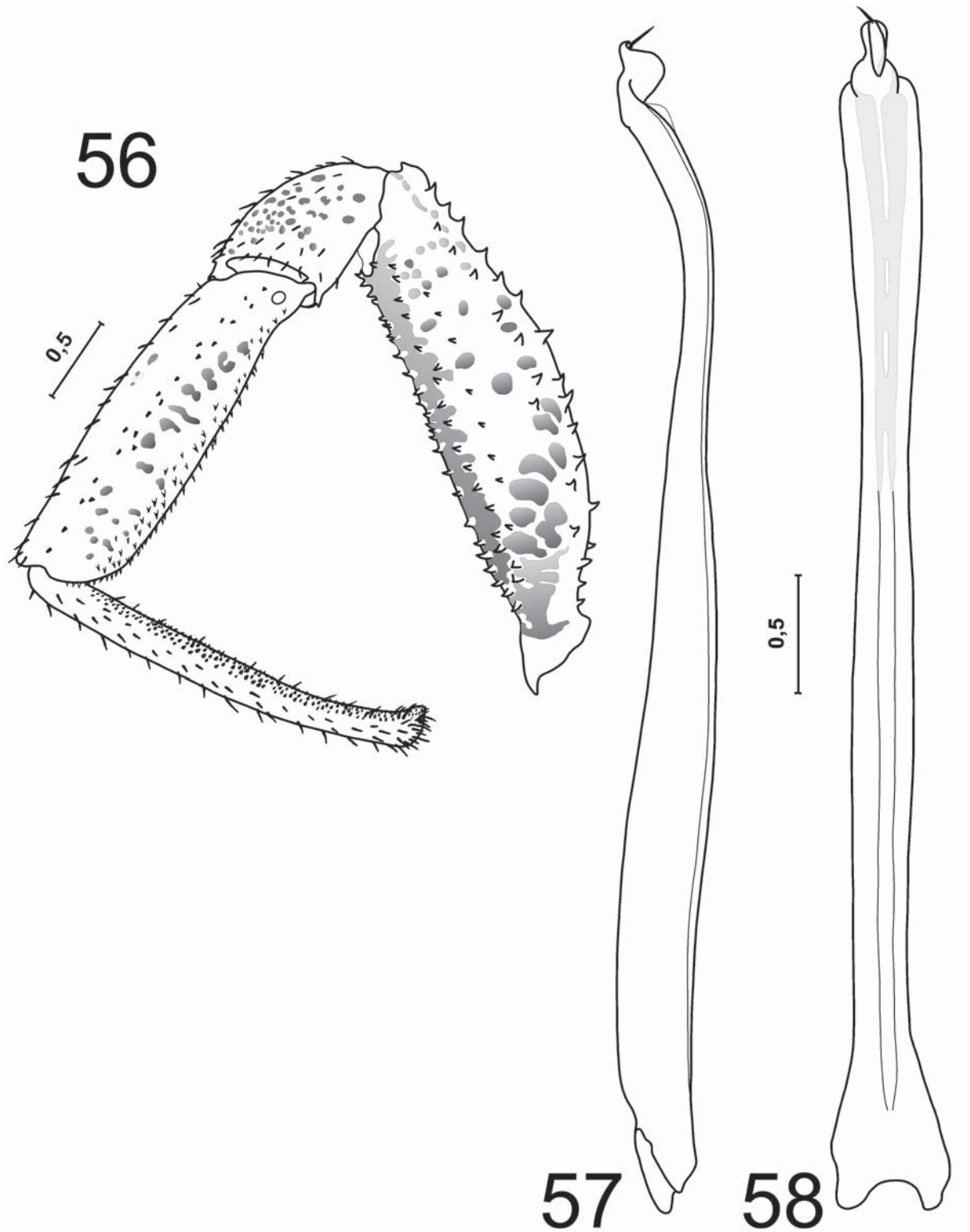
Figs 48–52. *Zacheus simferopolensis* sp.n. Holotype, ♂: 48 — body, dorsal view; 49 — ocularium, lateral view; 50 — supracheliceral lamellae; 51 — ocularium, dorsal view; 52 — distal segment of chelicerae, frontal view.

Рис. 48–52. *Zacheus simferopolensis* sp.n. Голотип, ♂: 48 — тело, вид сверху; 49 — глазной бугор, вид сбоку; 50 — надхелицерные пластинки; 51 — глазной бугор, вид сверху; 52 — дистальный членок хелицеры, вид спереди.



Figs 53–55. *Zacheus simferopolensis* sp.n. Holotype, ♂: 53 — palp, lateral view; 54 — chelicerae, lateral view; 55 — glans of penis, lateral view.

Рис. 53–55. *Zacheus simferopolensis* sp.n. Голотип, ♂: 53 — пальпа, вид сбоку; 54 — хелицера, вид сбоку; 55 — головка пениса, вид сбоку.



Figs 53–55. *Zacheus simferopolensis* sp.n. Holotype, ♂: 56 — leg I, lateral view; 57 — penis, lateral view; 58 — penis, dorsal view.

Рис. 56–58. *Zacheus simferopolensis* sp.n. Голотип, ♂: 56 — нога I, вид сбоку; 57 — пенис, вид сбоку; 58 — пенис, вид сверху.

Table 2. Landscape distribution of the Crimean opilionids.
Table 2. Landscape distribution of the Crimean opilionids.

Landscape zones	Semi-desert steppe and saline lands	Genuine steppe	Premontane forest-steppe	Forests of the northern slope	Mountain meadows and yaila steppe	Forests of the southern slope	Sub-Mediterranean vegetation of the Southern coast	Quantity of zones
<i>Dicranolasma giljarovi</i>			+	+		+	+	4
<i>Odiellus lendli</i>		+	+	+		+	+	5
<i>Odiellus zecariensis</i>			+	+			+	3
<i>Opilio parietinus</i>			+	+			+	3
<i>Phalangium opilio</i>					+			1
<i>Phalangium punctipes</i>		+			+	+	+	4
<i>Rilaena crimeana</i>			+	+		+	+	4
<i>Zacheus simferopolensis</i>				+				1
Number of species	0	2	5	6	2	5	6	

smooth claw, 2/3 of the internal tarsal surface bears micro-denticles.

Legs short (Fig. 55), pentagonal. First pair strongly swollen, especially the coxae, femora, patellae and tibiae. Femur dorsally armed with longitudinal rows of acute, black-tipped denticles, ventrally covered with scattered, black-tipped denticles. Patella with scattered, black-tipped denticles. Ventral surfaces of tibia and metatarsus completely covered with black denticles, or cones. Tarsi without such denticles. Remaining legs of typical structure. Edges of the femur, patella and tibia with rows of acute tubercles.

Penis (Figs 56–58) noticeably thin and relatively long. Corpus widened distally and at its base. Glans as in Fig. 58, flattened out laterally, in the distal region it has a pair of setae on each side.

COLORATION. Body with a well defined brown greenish saddle, with round and elongated brown and brown greenish spots and lateral patterns. Carapace dark ochre-brown, with dark brown spots. Chelicerae dark ochre-brown, with black-brown marks on the basal segment and dark brown zebra-like pattern on the distal segment. Palps ochre, with small, oval, brown spots. Legs dorsally lighter than the body, light-ochre, with numerous small, oval, brown spots. Body ventrally lighter than the legs. Ventral surfaces of legs dark-brown, particularly in the first pair.

ETYMOLOGY. The specific epithet refers to the city, in which district this species was collected.

Phenology and landscape distribution

Figs 59–60 show the seasonal dynamics of the number of adult individuals collected through the seasons 1999–2001. Some additional comments are given for each species.

Phalangium punctipes (Fig. 59) is a highly abundant species in the Crimea, occurring in dry environments (Table

2). The first adult specimens were found in February. Their numerical abundance gradually increased until the middle of March and then sharply increased in April. Towards the middle of May the numbers of this species sharply decreased, but some specimens were collected until July.

Odiellus lendli (Fig. 59) demonstrates a high ecological plasticity (Table 2), as it was collected in the majority of the studied biotopes, though it preferred moister places. Individuals of this species were collected from July to March, with their maximum occurrence in October and December.

Rilaena crimeana sp.n. (Fig. 59) prefers forest biotopes (Table 2) and is characterized by a short period of development, from March to July (the period when adults were collected).

Dicranolasma giljarovi and *Odiellus zecariensis* are rare species, preferring forest biotopes (Table 2). *D. giljarovi* inhabits the litter only, its adults can be caught throughout the year (Fig. 62), but the maximum density was observed in May and autumn. *O. zecariensis*, likewise *O. lendli* (Fig. 60), was collected from July to March, with the peak of activity in August and November.

To sum up, the adults of *Phalangium punctipes* and *Rilaena crimeana* sp.n. were observed for a short period of the season, whereas those of *Dicranolasma giljarovi*, *Odiellus zecariensis* and *Odiellus lendli* were collected over a long period.

Seven landscape zones were described for the Crimea [Biodiversity Support Program, 1999]; all of them were explored with regards to the opilionid fauna from 1999–2001. Results of the opilionids' landscape distribution are given in Table 1. The richest (in a number of opilionid species recorded) habitats were the submediterranean parklands of south Crimea, and the nemoral forests of the northern macroslope of the Crimean Mts. In steppe, only two species were recorded; in the semi-desert steppes and alkaline soil flats, opilionids were absent. *Phalangium opilio*

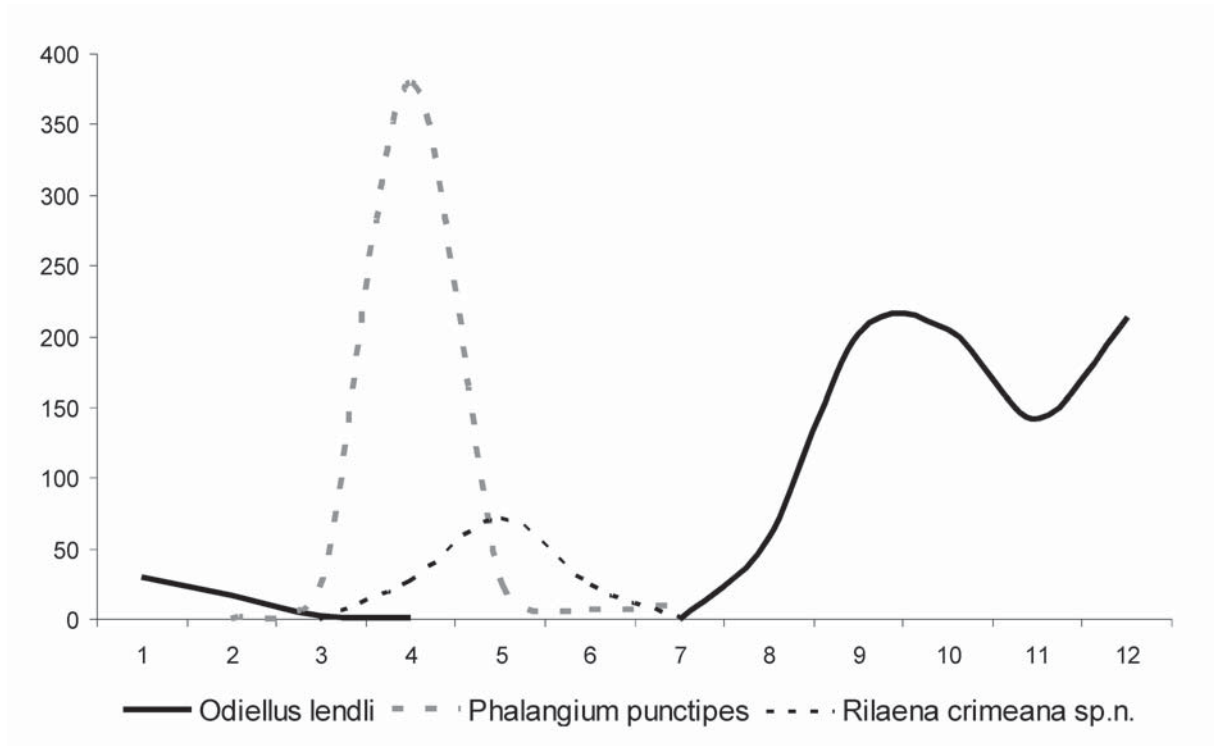


Fig. 59 Seasonal fluctuation in the number of adult individuals of *Odiellus lendli*, *Phalangium punctipes* and *Rilaena crimeana* sp.n. in the Crimea.

Рис. 59 Изменение численности взрослых особей *Odiellus lendli*, *Phalangium punctipes* and *Rilaena crimeana* sp.n. в Крыму

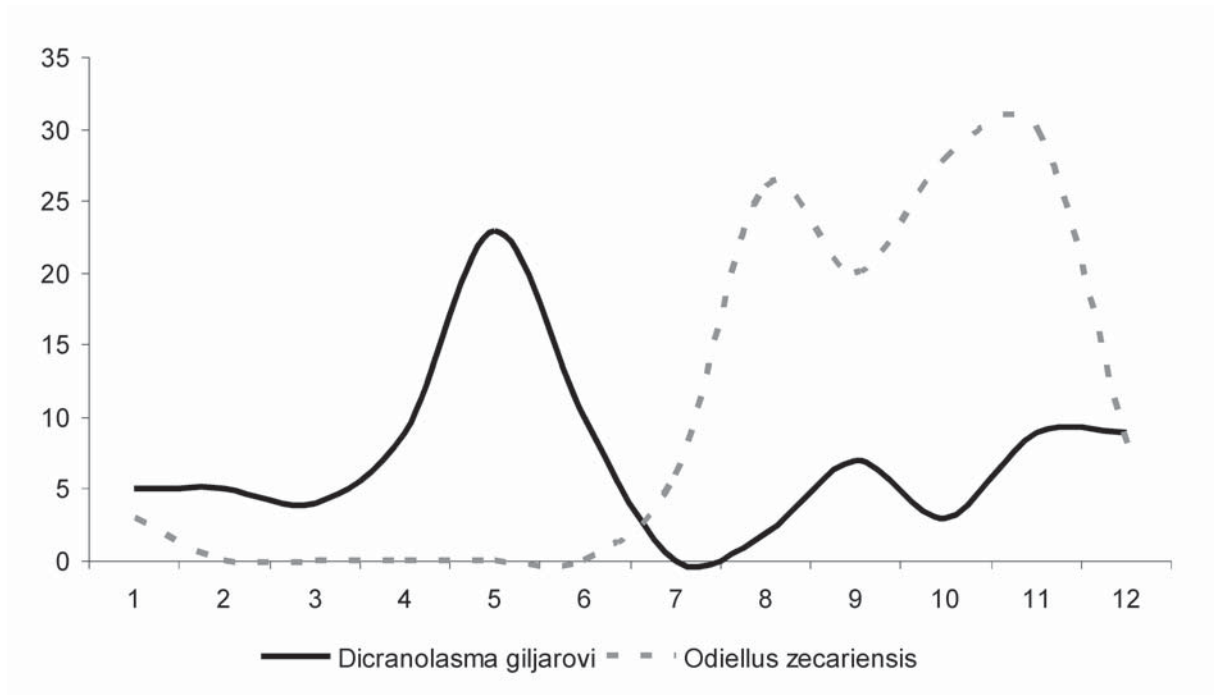


Fig. 60 Seasonal fluctuation in the number of adult individuals of *Dicranolasma giljarovi* and *Odiellus zecariensis* in the Crimea.

Рис. 60 Изменение численности взрослых особей *Dicranolasma giljarovi* and *Odiellus zecariensis* в Крыму

was found in Yaila only, *Zacheus simferopolensis* sp.n. in the nemoral forests of the northern macroslope of the Crimean Mts.

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