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Review of the genus *Camptotylus* Fieber, 1860 (Heteroptera: Miridae) with description of two new species

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ABSTRACT

Key, descriptions, data on distribution and host plants are given for species of Camptotylus Fieber, including two new ones: *Camptotylus apanaskevichi*, n. sp. (Armenia, Uzbekistan, Tajikistan, and Mongolia) and *Camptotylus reaumuriae*, n. sp. (Mongolia).

INTRODUCTION

Despite many efforts to document the Central Asian species of the tribe Phylini, many species still remain undescribed. Examination of material from the Zoological Institute, Russian Academy of Sciences, sampled mainly by I.M. Kerzhner, allows the prediction that more than 20 species await description. A review of the genus *Camptotylus* represent part of a larger effort to improve our knowledge of Central Asian fauna.

The genus *Camptotylus* Fieber, 1860 is a well-defined, small, host-specific phyline genus of principally Irano-Turanian distribution. Prior to this study, the genus was considered to contain six species, and two new species were found in the course of the present study. A key to both sexes of all species is provided. In order to simplify determination, descriptions, illustrations of male genitalia, available data on distribution, and hosts are given for each species except *C. gracilis*, which was unavailable for examination.

Specimen measurements (in millimeters) given are mean and range (in parentheses) for five specimens of each sex, taken from across the distributional range, unless otherwise indicated. The terminology of the male genital structures follows Konstantinov (2003). The term *dots* is used in the descriptions to denote small, usually round, variously colored spots, while *spots* is reserved to indicate small but irregularly shaped colored

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areas. The territories from which a species is recorded for the first time are marked with asterisks. Unless otherwise stated, all scale bars are 0.05 mm.

All material including type specimens is retained in the Zoological Institute, St. Petersburg, except for the holotype of *C. bipunctatus* housed in the Zoological Museum, Moscow Lomonosov State University, Russia (ZMMU), and specimens of *C. linae* from I. Sienkiewicz collection retained in the American Museum of Natural History (AMNH).

Bar code labels, which uniquely identify each specimen, were attached to the specimens, and are referred to as unique specimen identifiers (USIs). Generally each USI label corresponds to a single specimen; however, some USI labels correspond to two or three specimens in cases in which several specimens are mounted on one pin. Please refer to the www.discoverlife.org website to access additional information, such as color photographs, specimens dissected, notes, collecting method, and specimens photographed for specimens examined in the Planetary Biodiversity Inventories Project on Plant Bugs and the present paper. During the last century many toponyms in Russia and in Central Asian countries were renamed, sometimes several times. The borders between countries, provinces, and districts have also changed through time. Thus the exact data labels often became a source of long-standing confusion. The original locality data is given in square brackets, if different from currently existing toponyms (see specimens examined).

Camptotylus Fieber

Camptotylus Fieber, 1860: 70. Type species by subsequent monotypy (Fieber, 1861): *Capsus yersini* Mulsant and Rey, 1856.

Exaeretus Fieber, 1864: 81 (syn. by Reuter, 1891: 7). Type species by monotypy: *Camptotylus meyeri* Frey-Gessner, 1863.

Megalobasis Reuter, 1879: 205 (syn. by Reuter, 1891: 7). Type species by monotypy: *Megalobasis bipunctatus* Reuter, 1879.

DIAGNOSIS: The genus is unequivocally recognized by the following combination of characters: dorsum greenish to pale yellow, sometimes with scattered green, always with conspicuous small, dark, roundish spot in medioapical area of corium; claws slender and smoothly curved, pulvilli absent (figs. 35, 36, 49); vesica composed of two straps: one gutterlike smoothly curved, with secondary gonopore at apex that is tightly fastened to the second, which is twisted, bent, and strongly dentate apically, and which extends far beyond secondary gonopore (Figs 4, 6); secondary gonopore located at middle of vesica; apex of theca with prominent spinelike to nearly rectangular sclerotized process (figs. 15–21); left paramere atypical, usually with well-developed central process in addition to apical process and sensory lobe (figs. 23–26), rarely boat-shaped (fig. 34); labium relatively short, barely reaching middle coxae, usually with somewhat swollen articulation of segments III and IV.

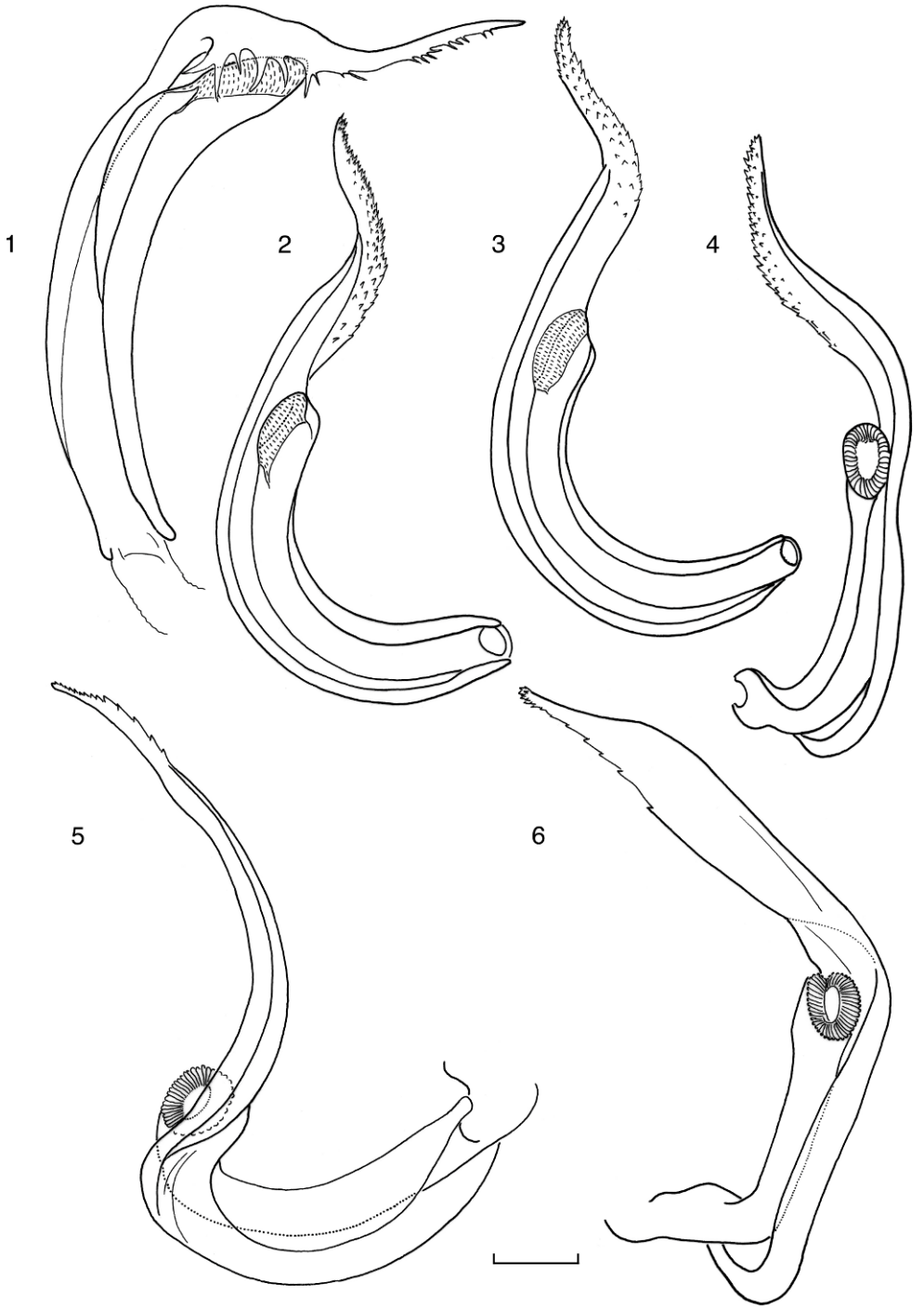
Some of the distinctive features mentioned above are occasionally found in other Phylini genera. Absence of pulvilli is typical of *Tuponia* spp., while the sclerotized process of the theca and the central process of the left paramere are known in *Yotvata* spp. *Camptotylus* spp. are most similar in the color pattern to the *Camptotylidea bipunctata* group of species although all three species of that group differ from *Camptotylus* in the presence of brown dotting on forewings.

HOST PLANTS: All species of *Camptotylus* are specialized feeders on Tamaricaceae. Almost all are known to breed on *Tamarix* spp., one species described here is found on *Reaumuria soongorica* and *C. meyeri* is reported from both *Tamarix laxa* and *Reaumuria oxiana*.

KEY TO SPECIES

1. Second antennal segment with four distinct dark brown rings and usually somewhat darkened apex (figs. 39, 44). Membrane cells greenish or yellowish. Rectangular lateral spot on membrane dark brown, nearly of same color with round dark spot in medioapical area of corium. Forewings whitish, with extensive greenish or yellowish mottling. 2

— Second antennal segment with darkened base and apex, sometimes also darkened at middle or uniformly pale (figs. 40–43). Membrane cells transparent. Rectangular spot on mem-



Figs. 1–6. Vesica of *Camptotylus* spp.: **1**, *C. meyeri*; **2**, *C. reuteri*; **3–4**, *C. reaumuriae*; **5–6**, *C. yersini*.

brane absent or noticeably paler than round spot in medioapical area of corium. 4

2. Theca with broad and apically rounded sclerotized process (fig. 21). Head and pronotum only with silvery-white simple setae. . . . . *apanaskevichi* n. sp.

— Theca with long and apically pointed, sword-like sclerotized process (fig. 19). Head and pronotum with long and erect dark setae in addition to silvery setae. 3

3. Gracile, body 3.6–3.7 × as long as width of pronotum. Second antennal segment 1.6–1.7 × as long as width of pronotum. Sensory lobe of left paramere large, nearly as large as central process. Apical strap of vesica richly dentate (see fig. 53 in Wagner, 1957). . . . . *gracilis* Wagner

— More robust. Body in males 3.1–3.2 ×, in females 3.1–3.3 × as long as width of pronotum. Second antennal segment in males 1.4–1.5 ×, in females 1.2–1.3 × as long as width of pronotum. Sensory lobe of left paramere reduced, angular (figs. 25, 26). Apical strap of vesica with a single row of denticles (figs. 5, 6). . . . . *yersini* (Mulsant and Rey)

4. First antennal segment distinctly longer than pronotum. Left paramere boat-shaped, central process absent (fig. 34) or minute (figs. 31, 32). 5

— First antennal segment distinctly shorter than pronotum. Left paramere with large central process (figs. 27–30, 33). 6

5. First antennal segment entirely dark. Hind femora with dark stripes along fore- and hind margins. Larger, 2.4–2.8 mm. . . . . *linae* (Puton)

— First antennal segment pale, with brown dot on inner surface. Apices of hind femora with pale brown dots. Smaller, 2.0–2.1 mm. . . . . *bipunctatus* (Reuter)

6. Dorsal surface covered with minute silver and dark scalelike setae. First antennal segment dark brown. Hind femora with dark line along foremargin. Middle and hind tibiae basally with longitudinal dark lines. . . . . *meyeri* Frey-Gessner

— Dorsal surface covered only with simple dark brown and silver setae. First antennal segment pale, with brown dot on inner surface. Hind femora with a series of round dark spots running along foremargins. Tibiae without dark lines. 7

7. Medioapical spot on forewings dark brown, somewhat larger in diameter than width of antennal segment I at middle (fig. 43). Series of round spots along foremargin of hind femora dark brown, distinct. Sclerotized process of theca longer and narrower (fig. 17). Larger, total length 2.2–2.5 mm. On *Tamarix* spp. . . . . *reuteri* Jakovlev

— Medioapical spot on forewings pale brown, nearly equal in diameter to width of antennal segment II at base (fig. 42). Series of round spots along foremargin of hind femora pale brown, sometimes indistinct. Sclerotized process of theca nearly triangular (fig. 15). Smaller, total length 1.6–2.1 mm. On *Reaumuria* spp. . . . . *reaumuriae* n. sp.

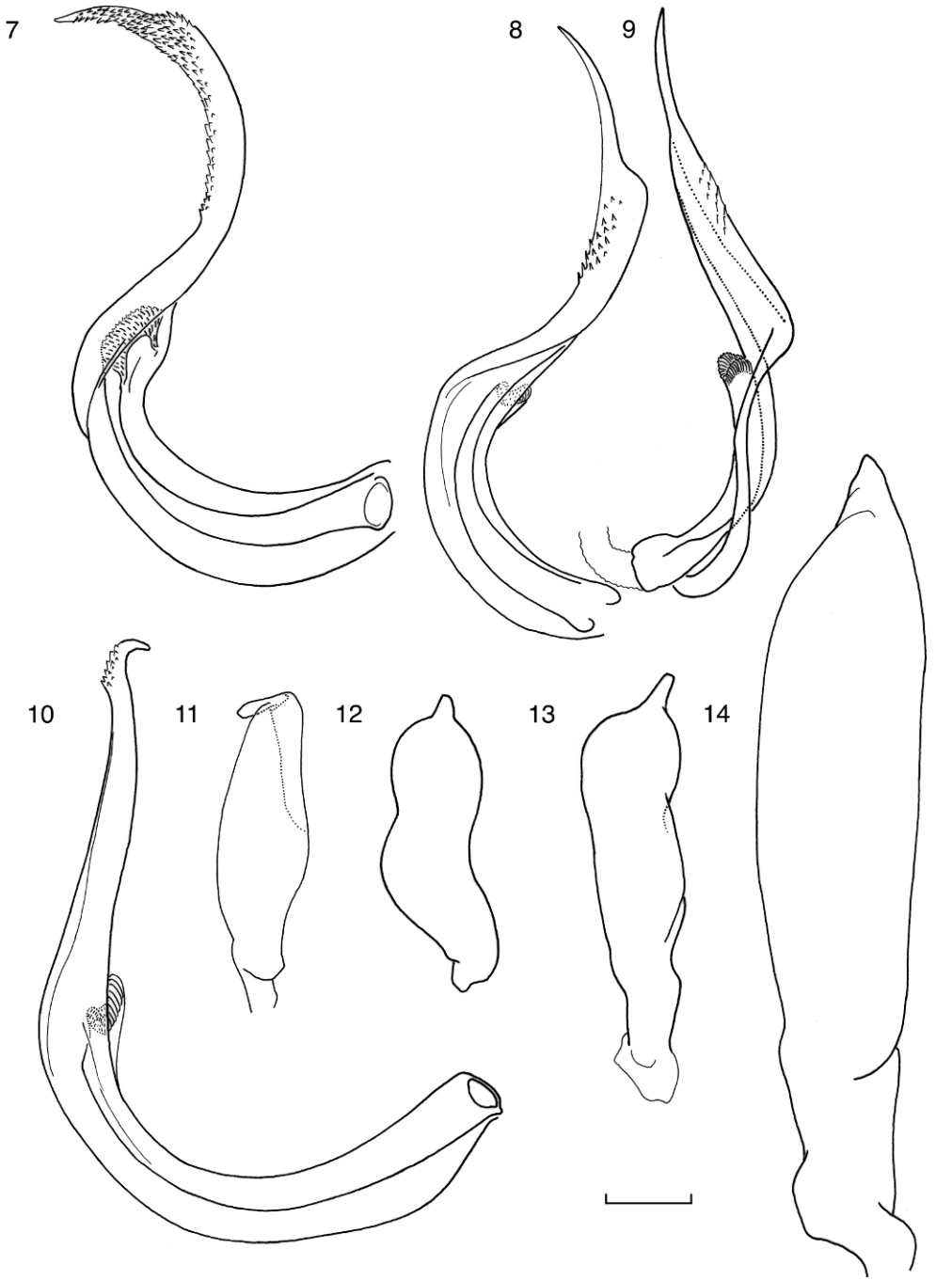
Camptotylus apanaskevichi n. sp.

Figures 7, 12, 21, 23, 24, 36, 38, 39

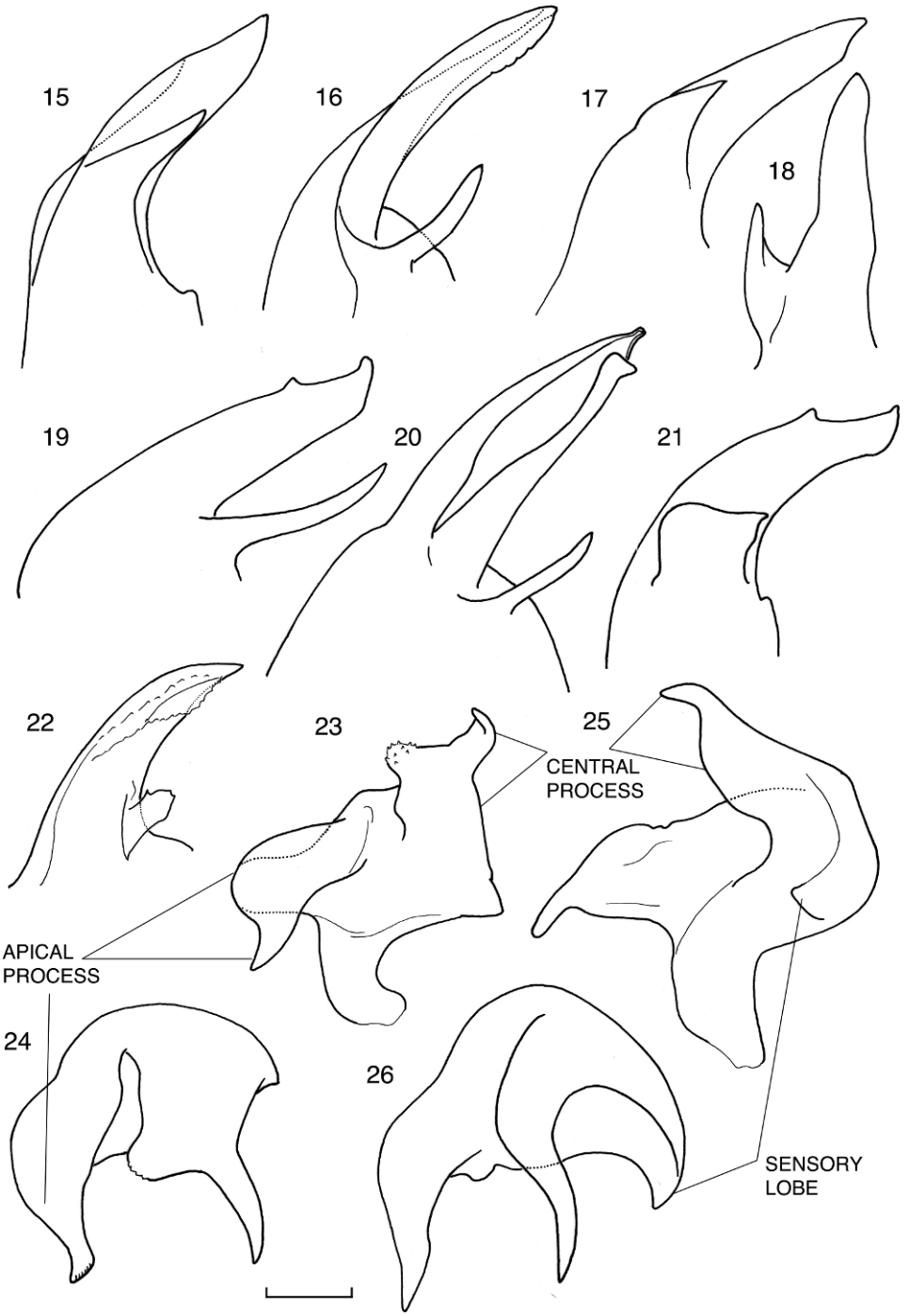
DIAGNOSIS: Similar to *C. yersini* and *C. gracilis* in the presence of four dark rings on the second antennal segment, mottled coloration of forewings, greenish-yellow membrane cells and contrasting dark spot on the membrane. Unequivocally differs from both species in the absence of long dark setae on the head and pronotum, nearly rectangular sclerotized process of theca, shape of the left paramere and structure of the vesica.

DESCRIPTION: VESTITURE: Setae long, semierect, and simple, dark brown on cuneus and apex of corium, silver elsewhere. Antennal segment I with two dark brown spinelike setae on inner surface; series of similar spinelike setae running along foremargin of hind femora. Ventral surface with silvery-white simple setae.

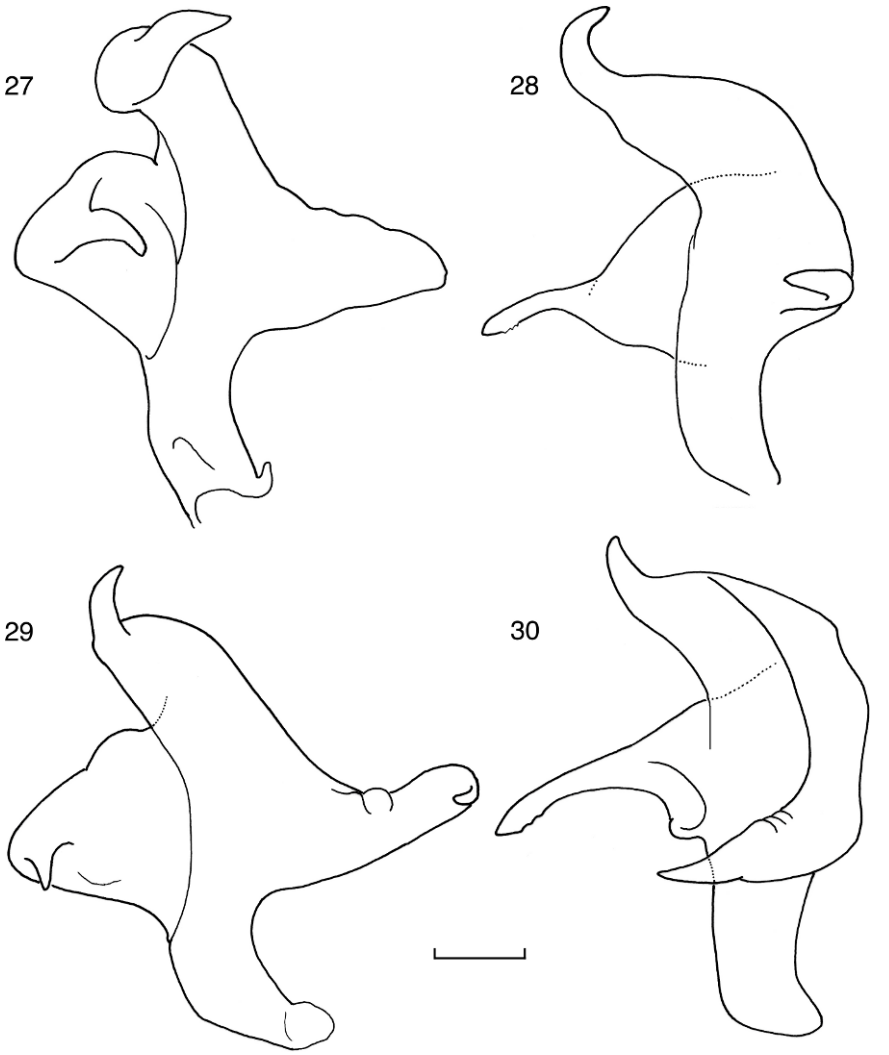
COLORATION: Antennal segment I with brown ring at middle, sometimes also brown at base; segment II with four brown rings, two distal rings generally somewhat longer than basal ones (fig. 39). Apex of second antennal segment often slightly darkened. Head, pronotum, and scutellum pale greenish yellow, with indistinct whitish, usually rounded areas. Forewings pale whitish, frequently covered with pale greenish to ochraceous, irregularly shaped, and sometimes confluent spots. Medioapical area of corium with conspicuous minute dark brown spot. Basal part of cuneus whitish, apical part pale ochraceous or greenish. Membrane transparent, laterally with large dark brown rectangular spot behind cells. Cells yellowish to ochraceous. All femora covered with large brown dots, dots on hind femora fused into spots along foremargin. Tibia with large brown dots at bases



Figs. 7–14. Male genitalia of *Camptotylus* spp.: **7–10**, vesica: **7**, *C. apanaskevichi*; **8–9**, *C. bipunctatus*; **10**, *C. linae*; **11–14**, right paramere: **11**, *C. bipunctatus*; **12**, *C. apanaskevichi*; **13**, *C. reaumuriae*; **14**, *C. meyeri*.



Figs. 15–26. Male genitalia of *Camptotylus* spp.: **15–22**, apex of theca: **15**, *C. reuteri*; **16**, *C. linae*; **17–18**, *C. reaumuriae*; **19**, *C. yersini*; **20**, *C. meyeri*; **21**, *C. apanaskevichi*; **22**, *C. bipunctatus*; **23–26**, left paramere: **23–24**, *C. apanaskevichi*; **25–26**, *C. yersini*.



Figs. 27–30. Left paramere of *Camptotylus* spp.: **27–28**, *C. reuteri*; **29–30**, *C. reaumuriae*.

of pale tibial spines. Ventral surface uniformly pale.

MALE GENITALIA: Left paramere with poorly developed, angular sensory lobe (figs. 23, 24). Central process large and directed toward apex of theca, with prominent clawlike apex. Apical process similar to central one in shape but wider and declined to base of paramere. Right paramere (fig. 12) elongate, oval, slightly constricted at middle. Theca (fig. 21) with two tubercles apically; sclerotized process wide, nearly rectangular, with small obtuse projection apically. Vesica (fig. 7) S-shaped, smoothly curved, with apical strap densely dentate and slightly broadened at middle.

STRUCTURE AND MEASUREMENTS: Total length: male 2.38 (2.3–2.5), female 2.32 (2.2–2.4). Head: width male 0.51 (0.50–0.53), female 0.53 (0.53–0.55); vertex width male 0.28 (0.26–0.29), female 0.29 (0.28–0.30); antennal segment I male 0.27 (0.25–0.28), female 0.26 (0.25–0.28); antennal segment II male 1.15 (1.05–1.25), female 1.06 (1.00–1.13). Pronotum: width male 0.71 (0.68–0.73), fe-

male 0.73 (0.70–0.75); length male 0.32 (0.30–0.35), female 0.34 (0.33–0.35).

Body almost parallel-sided, male 3.2–3.5 ×, female 3.0–3.4 × as long as width of pronotum; vertex male 2.2–2.7 ×, female 2.0–2.6 × as wide as eye; antennal segment I short and slightly swollen, male 0.8 ×, female 0.7–0.8 × as long as pronotum; antennal segment II notably long, male 1.5–1.7 ×, female 1.4–1.7 × as long as basal width of pronotum, male 2.1–2.5 ×, female 1.9–2.1 × as long as width of head. Labium with slightly swollen apex of segment III and base of segment IV, reaching middle coxae. Hind femora long and somewhat swollen; tarsi as in fig. 38; claws as in fig. 36.

ETYMOLOGY: Named after Dmitry A. Apanaskevich, my friend and colleague.

DISTRIBUTION: Armenia, Uzbekistan, Tajikistan, and Mongolia.

HOST PLANT: *Tamarix* spp.

SPECIMENS EXAMINED: Holotype: ♂, Uzbekistan, Termez [Buchara mer. = former Bukhara Chanate], 12 May 1912, A. Kiritshenko (AMNH_PBI 00140011).

Paratypes: **ARMENIA:** Metsamor [former Kamarlu] Railway Station, 28 Jul 1931, A. Kiritshenko, 1♀ (AMNH_PBI 00140016). **UZBEKISTAN:** Guliston [former Golodnaya Step'], 31 May 1903, G. Jacobson, 1♂ (AMNH_PBI 00140019), 1♀ (AMNH_PBI 00140021). Termez [Buchara mer. = former Bukhara Chanate], 12 May 1912, A. Kiritshenko, 1♂ (AMNH_PBI 00140012); 27 Apr 1912, A. Kiritshenko, 1♂ (AMNH_PBI 00140013), 1♀ (AMNH_PBI 00140014); 18 Apr 1912, A. Kiritshenko, 1♀ (AMNH_PBI 00140015). On Zeravshan River, between Vabkend and Bukhara, 14 Jul 1948, A. Kiritshenko, 1♀ (AMNH_PBI 00140020). **TAJIKISTAN:** 6 km W Kuibyshevsk, valley of Vakhsh River, 13 Aug 1943, A. Kiritshenko, 1♂ (AMNH_PBI 00139985); 19 Aug 1943, A. Kiritshenko, 1♂ (AMNH_PBI 00139986), 1♀ (AMNH_PBI 00139987); 17 Jul 1943, A. Kiritshenko, 3♀ (AMNH_PBI 00139988–AMNH_PBI 00139990); 20 Jul 1943, A. Kiritshenko, 1♀ (AMNH_PBI 00139991); 08 Aug 1943, A. Kiritshenko, 2♀ (AMNH_PBI 00139992, AMNH_PBI 00139993). DzhiliKul' on Vakhsh River, 02 Sep 1935, Gussakovskiy, 2♂ (AMNH_PBI 00140024, AMNH_PBI 00140025). Kurgan-Tyube, valley of Vakhsh River, 29 Aug 1935, Gussakovskiy, 1♂ (AMNH_PBI 00139995), 8♀ (AMNH_PBI 00139996–AMNH_PBI 00140003). Shaartuz, lower course of Kafirnigan River, 09 Jun 1944, A. Kiritshenko, 2♀ (AMNH_PBI 00140027, AMNH_PBI 00140028). Staraya Pristan' nr Dzhilikul', Vakhsh River, 17 Jul 1944, Gussakovskiy, 3♂ (AMNH_PBI 00140005–AMNH_PBI 00140007), 2♀ (AMNH_PBI 00140008, AMNH_PBI 00140009); 18 Jun 1944, Gussakovskiy, 1♀ (AMNH_PBI 00140010). Uyalu, valley of Vakhsh River, 24 May 1944, A. Kiritshenko, 1♂ (AMNH_PBI 00139994). Delta of Yavan-Su River nr Kuibyshevsk, 25 Jul 1943, A. Kiritshenko, 1♂ (AMNH_PBI 00140029), 1♀ (AMNH_PBI 00140023); 13 May 1943, A. Kiritshenko, 1♂ (AMNH_PBI 00140022); 31 Jul 1943, A. Kiritshenko, 1♀ (AMNH_PBI 00140030). Nr Kulyab, 11 Jul 1933, V. Popov, 1♀ (AMNH_PBI 00140026). **MONGOLIA: Hovd Aimak:** Elhon, 20 km SE Altai on Bodonchi River, 27 Jul 1970, I. M. Kerzhner, on *Tamarix* sp., 1♂ (AMNH_PBI 00140018). Lower course of Bodonchin-Gol River, 20 km SE Altai-somon, 04 Aug 1968, Emeljanov, 1♂ (AMNH_PBI 00140017).

Camptotylus bipunctatus (Reuter, 1879)

Figures 8, 9, 11, 22, 31, 32

Megalobasis bipunctatus Reuter, 1879: 205.
Camptotylus bipunctatus: Reuter, 1891: 8.

DIAGNOSIS: Clearly recognized by the small size, color pattern, long and pale antennal segment I, comparatively short antennal segment II, shape of the sclerotized process of the theca, absence of dentation on the long and thin apical process of the vesica, shape of the left paramere. Somewhat resembles *C. linae* in the vestiture, enlarged antennal segment I, comparatively thin vesica and boat-shaped left paramere. However, clearly distinguished by the measurements and ratios, coloration of antennal segment I and legs, presence of minute central process of the left paramere, and structure of the apical part of the vesica.

DESCRIPTION: VESTITURE: Entire dorsum covered with dense, dark, suberect to reclining

simple setae and very scarce, reclining, silver simple setae. Pronotum and extreme base of forewings with contrastingly robust, erect, and at least twice as long as elsewhere dark setae. Antennal segment I with contrastingly long, erect seta at middle, pubescence on antennal segment III erect and longer than that on other antennal segments. Ventral surface only with silver simple setae.Ventral surface only with silver simple setae.

COLORATION: Antennae, head, pronotum, and scutellum uniformly pale, without dark markings. Forewings uniformly pale yellow, with dark brown roundish spot in medioapical area of corium. Membrane transparent, laterally with faint brown rectangular spot posterior to cells. Cells transparent. Hind femora apically with pale brown dots. Tibia with minute brown dots at bases of darkened tibial spines.

MALE GENITALIA: Left paramere (figs. 31, 32) of typical phyline shape. Central process greatly reduced, hooklike. Right paramere (fig. 11) elongate oval, without constriction, with comparatively long apical process. Theca (fig. 22) with dentate mouth, apex of sclerotized process broadly rounded, with subapical denticle. Vesica (figs. 8, 9) S-shaped, smoothly curved; apical strap with four rows of minute denticles, abruptly narrowed apically, slightly curved and tapering distally.

STRUCTURE AND MEASUREMENTS (N = 2 MALES): Total length 2.0–2.1. Head: width 0.50, vertex width 0.28, antennal segment I 0.40–0.45, antennal segment II 0.73–0.78. Pronotum: width 0.68–0.70, length 0.33–0.35.

Body elongate oval, 3.0 × as long as width of pronotum; vertex 2.4 × as wide as eye; antennal segment I notably long and swollen, twice as thick as antennal segment II, 1.1–1.3 × as long as pronotum; antennal segment II very short, 1.1 × as long as basal width of pronotum, 1.5–1.6 × as long as width of head. Labium with slightly swollen apex of segment III and base of segment IV, hardly reaching middle coxae. Hind femora long and somewhat swollen.

DISTRIBUTION: Chimkent Prov. of Kazakhstan, extreme south of Uzbekistan, Afghanistan (Hoberlandt, 1961).

REMARKS: The record of *C. bipunctatus* from Syria (Puton, 1881a) was actually based on the specimen from Haifa (Israel), later (Puton, 1881b) described as *C. linae*. Subsequent citations of *C. bipunctatus* both from Syria (Wagner, 1975) and Israel (Linnavuori, 1961) are based on Puton (1881a) and the compilation by Bodenheimer (1937), respectively. The record of *C. bipunctatus* from Tajikistan (Kiritshenko, 1964) is based on a misidentification and should be referred to *C. apanaskevichi*.

HOST PLANT: Unknown.

DISCUSSION: The species was described by Reuter (1879) from two specimens collected by famous Russian geographer and naturalist A.P. Fedchenko during the expedition to Turkestan. Although the fauna of Central Asia is comparatively well sampled, I have found only one additional specimen of the species, from Termez, in the collection of the Zoological Institute, Russian Academy of Sciences.

SPECIMENS EXAMINED: Holotype: **KAZAKHSTAN: South Kazakhstan Prov.:** Chardara, 25 Apr 1871, Fedtshenko, 1♂ without USI label (ZMMU).

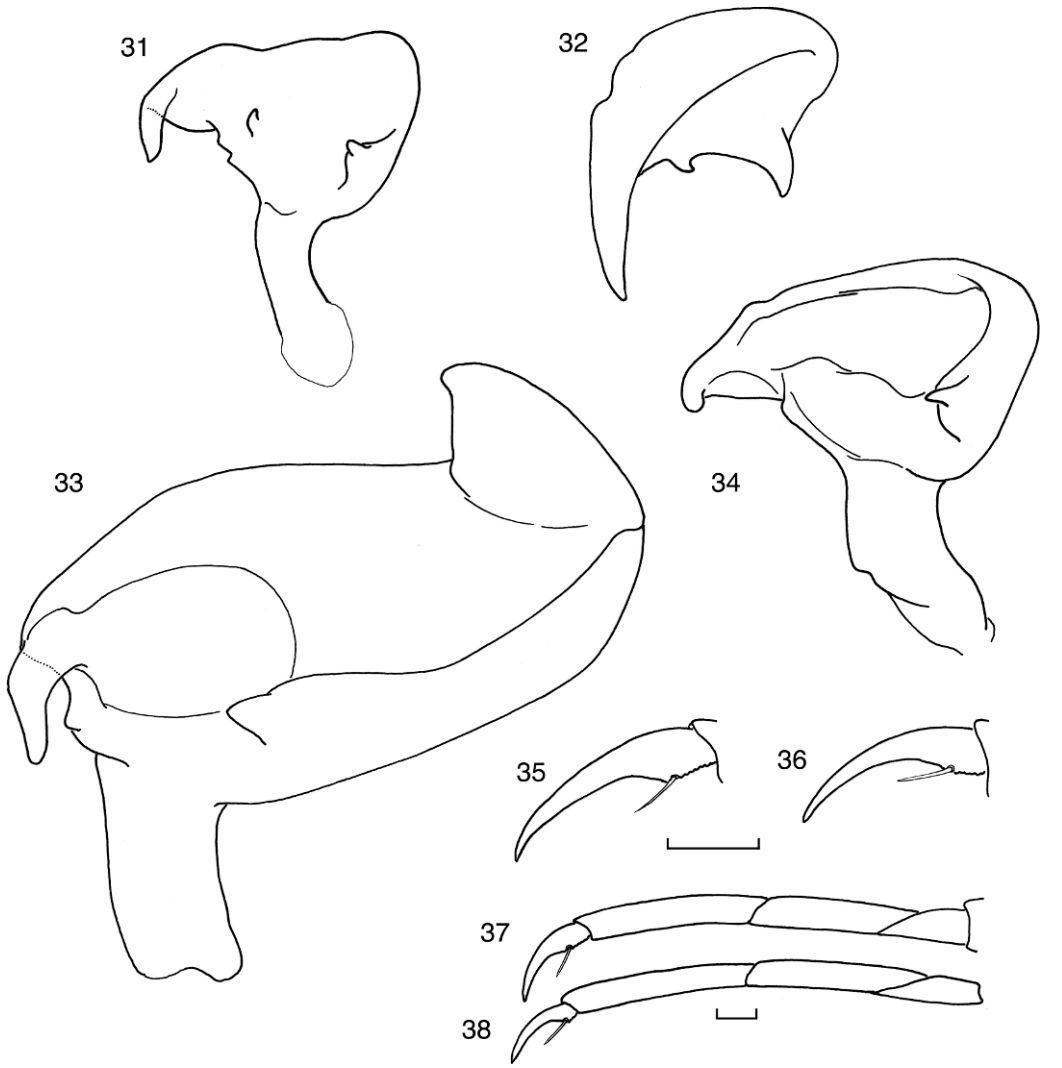
Additional specimen: **UZBEKISTAN:** Termez [Buchara mer. = former Bukhara Chanate], 15 May 1912, A. Kiritshenko, 1♂ (AMNH_PBI 00140410).

Camptotylus gracilis Wagner, 1957

Camptotylus gracilis Wagner, 1957: 90

DISCUSSION: *C. gracilis* is undoubtedly closely related to *C. yersini* and *C. apanaskevichi* by the presence of four dark rings on the antennal segment II, mottled coloration of forewings, greenish-yellow cells, and contrastingly dark spot on the membrane. Based on illustrations in Wagner (1957, upper row of figs. 51–54), *C. gracilis* possesses a spinelike sclerotized process of the theca, somewhat broadened and richly dentate apical strap of the vesica, and well-developed, unpointed sensory lobe of the left paramere.

C. gracilis differs from *C. apanaskevichi* in the presence of long dark setae on the head and pronotum, spinelike shape of the sclerotized process of the theca, and large sensory lobe of the left paramere. *C. yersini* is similar to *C. gracilis* in the shape of the thecal process



Figs. 31–38. *Camptotylus* spp.: **31–34**, left paramere: **31–32**, *C. bipunctatus*; **33**, *C. meyeri*; **34**, *C. linae*; **35–36**, hind claw: **35**, *C. reaumuriae*; **36**, *C. apanaskevichi*; **37–38**, hind tarsus: **37**, *C. reaumuriae*; **38**, *C. apanaskevichi*.

and vestiture, but that species is more gracile, with body 3.7 × in males and 3.5 × in females as long as width of pronotum. In addition, the apical strap of the vesica in *C. yersini* is barely dentate, with single row of denticles and the sensory lobe of the left paramere is comparatively small, curved, and apically pointed.

DISTRIBUTION: Iran; Hobertlandt (1961) recorded *C. gracilis* from Afghanistan.

HOST PLANT: Unknown.

Camptotylus linae (Puton, 1881)

Figures 10, 16, 34, 40

Megalobasis bipunctatus (non Reuter, 1879): Puton, 1881a: 126 Misidentification (see *C. bipunctatus* for details)
Megalobasis linae Puton, 1881b: 84.
Camptotylus linae: Reuter, 1891: 9.
Camptotylus aphidoides Jakovlev, 1881: 199 (syn. by Reuter, 1885: 159).

DIAGNOSIS: Clearly recognized by the large size, long antennal segments I and II, brown

stripes along foremargins of all femora, vestiture, shape of the vesica, and absence of central process of the left paramere. Similar in length of antennal segment I to *C. bipunctatus*, although it has pale antennae, while the first segment in *C. linae* is entirely darkened. Somewhat similar to *C. meyeri* in the darkened antennal segment I and presence of stripes on femora, but clearly distinguished from this species by the absence of scalelike setae, structure of the male genitalia, and almost all ratios and sizes.

DESCRIPTION: VESTITURE: Entire dorsum covered with mixture of dense, dark simple setae and scarce, reclining silver simple setae. Head, pronotum, exposed part of mesonotum, apices of fore- and middle femora, and foremargin of hind femora with contrasting long and robust, erect simple dark setae similar in structure and size to tibial spines. Two setae of same structure located at middle of antennal segment I. Forewings with dense, simple adpressed dark setae one-third to one-half as long as those on head and pronotum. Vestiture on legs and antennae reclining to suberect; pubescence on antennal segment III usually erect and longer than that on other antennal segments. Entire ventral surface with silver simple setae.

COLORATION: Dorsal surface (fig. 40) pale greenish; head and pronotum with indistinct yellowish markings. Antennal segment I uniformly dark brown to black; extreme base and apex of antennal segment II, segments III and IV usually slightly darkened. Medioapical area of corium with conspicuous dark roundish spot; membrane transparent, with brown at apex, along outer vein, and apices of cells. Foremargins of all femora with brown stripe. Hind femora with stripes along both fore- and hind margins. Ventral surface of middle femur with round brown spot at middle; ventral surface of hind femur with similar large spot and a series of five smaller spots. Tibiae with large brown dots at bases of dark tibial spines. Ventral surface uniformly pale.

MALE GENITALIA: Left paramere (fig. 34) of typical structure, without central process. Right paramere simple, elongate oval, not constricted at middle. Apex of theca (fig. 16) thin; sclerotized process swordlike, located at some distance from apex of theca, thin and smoothly curved. Vesica (fig. 10) C-shaped, smoothly curved; apical strap straight, only extreme apex curved and dentate.

STRUCTURE AND MEASUREMENTS: Total length male 2.75 (2.6–2.8), female 2.63 (2.4–2.8). Head: width male 0.56 (0.55–0.58), female 0.56 (0.55–0.58); vertex width male 0.30 (0.30), female 0.30 (0.29–0.31); antennal segment I male 0.61 (0.53–0.65), female 0.48 (0.45–0.50); antennal segment II male 1.53 (1.43–1.63), female 1.33 (1.28–1.38). Pronotum: width male 0.79 (0.75–0.83), female 0.80 (0.78–0.83); length male 0.41 (0.40–0.43), female 0.44 (0.43–0.48).

Body almost parallel-sided, distinctly oblong in males, more stout in females; male 3.4–3.7 ×, female 3.1–3.4 × as long as width of pronotum; vertex male 2.2–2.4 ×, female 2.2–2.4 × as wide as eye; antennal segment I remarkably long and swollen, male 1.2–1.6 ×, female 1.0–1.2 × as long as pronotum; antennal segment II notably long, male 1.7–2.1 ×, female 1.6–1.7 × as long as basal width of pronotum, male 2.5–2.9 ×, female 2.3–2.5 × as long as width of head. Labium reaching middle coxae, segments III and IV not swollen. Hind femora long and somewhat swollen.

DISTRIBUTION: Israel (Puton, 1881b), Jordan (Wagner, 1975), Asian Turkey (Hoberlandt, 1956), Iran* (Azerbaijan: Khoda Alafin Station Tatar; Matocq, personal commun.), Azerbaijan (Gidayatov and Atakishieva, 1972), Georgia (Zaitseva, 1988), Armenia*, Ukraine, southern part of European Russia (Dagestan, Chechnya).

HOST PLANT: *Tamarix* spp.

SPECIMENS EXAMINED: Lectotype of *C. aphidoides* Jak.: RUSSIAN FEDERATION: **Dagestan Rep.:** Makhachkala [former Petrovsk], V. Jakovlev coll., 1♂ (AMNH_PBI 00140811).

Paralectotypes of *C. aphidoides* Jak.: same label as holotype, 5♀ (AMNH_PBI 00140811). **Additional specimens: TURKEY: Nevsehir:** Avanos, 27 Jun 1990, I. Sienkiewicz, 4♂ (AMNH_PBI 00140754, AMNH_PBI 00140755), 50 specimens without USI labels (AMNH). **UKRAINE:** Molochnenskiy Lake nr Melitopol, Ageeva, 1♂ (AMNH_PBI 00140127), 2♀ (AMNH_PBI 00140125, AMNH_PBI 00140126). **ARMENIA:** Gekharot [former Keshishkend], 80 km SO Yerevan, 07 Jul 1934, Ter-Minasyan, 3♂ (AMNH_PBI 00140054–AMNH_PBI 00140056), 3♀ (AMNH_PBI

00140051–AMNH_PBI 00140053), 2 larvae (AMNH_PBI 00140057, AMNH_PBI 00140058). Metsamor [former Kamarlu] Railway Station, 14 Aug 1931, Korinek, 1♂ (AMNH_PBI 00140039), 3♀ (AMNH_PBI 00140044–AMNH_PBI 00140046); 21 Jun 1931, Korinek, 3♂ (AMNH_PBI 00140036, AMNH_PBI 00140040–AMNH_PBI 00140041), 4♀ (AMNH_PBI 00140047–AMNH_PBI 00140050); 28 Jul 1931, Korinek, 2♂ (AMNH_PBI 00140037, AMNH_PBI 00140038), 2♀ (AMNH_PBI 00140042, AMNH_PBI 00140043). Yerevan, 18 Aug 1935, Ter-Minasyan & Richter, 1♀ (AMNH_PBI 00140059). **AZERBAIJAN:** Yevlax [Evlakh] on Kura River, 17 Jun 1949–20 Jun 1949, Bogachev, 1♂ (AMNH_PBI 00140123). **RUSSIAN FEDERATION: Chechnya Rep.:** Starogladkovskaya stanitsa, 09 Jul 1927, A. Kiritshenko, 1♀ (AMNH_PBI 00140124).

Camptotylus meyeri Frey-Gessner, 1863

Figures 1, 14, 20, 33, 41

Campylotylus (sic) *meyeri* Frey-Gessner, 1863: 119.
Exaeretus meyeri: Fieber, 1864: 81; Wagner and Weber, 1964: 377.
Camptotylus meyeri: Reuter, 1891: 12; Kerzhner, 1964: 764.

DIAGNOSIS: Unequivocally recognized by stumpy body, transverse head, short and darkened antennal segment I, greatly swollen hind femora with brown longitudinal stripes, presence of scalelike setae on dorsum, enlarged male genitalia, shape of the left paramere, structure, and dentation of the vesica. The species is unique in the genus, but slightly resembles *C. linae* in the dark coloration of antennal segment I and presence of longitudinal lines on femora.

DESCRIPTION: VESTITURE: Dorsal surface and thorax densely covered with minute lanceolate, adpressed, scalelike setae: silvery-white mixed with dark on forewings and purely silvery-white elsewhere; entire cuneus or at least apical two thirds covered with dark scalelike setae only. Abdomen, antennae and legs with pale, reclining simple setae.

COLORATION: Dorsal surface (fig. 41) pale greenish; head with whitish or ochraceous markings. Antennal segment I uniformly dark brown to black, segment II apically brown; in darkest specimens entire antennal segment II brown, with black apex. Corium with conspicuous brown roundish spot medioapically. Membrane transparent, with infuscate apical part, area along outer vein and apices of cells. Fore- and middle femora apically with dark line along foremargin and series of dark brown dots on ventral surface. Hind femora with dark line along entire foremargin, two longitudinal dark lines and series of dark dots on ventral surface. All tibiae with minute dark dots at bases of dark tibial spines, fore- and usually middle tibiae with dark longitudinal line basally.

MALE GENITALIA: Genital capsule and other parts of genital apparatus greatly enlarged. Body of left paramere (fig. 33) elongate, with robust blunt central process at apex; sensory lobe and apical process of typical structure. Right paramere (fig. 14) very long, without medial constriction. Sclerotized process of theca (fig. 20) long, spinelike, located at some distance from apex of theca. Vesica (fig. 1) unique, C-formed, robust, denticles of its apical strap large, long, thin, and partly dendritic.

STRUCTURE AND MEASUREMENTS: Total length male 2.68 (2.5–2.9), female 2.8 (2.6–2.9). Head: width male 0.71 (0.68–0.75), female 0.77 (0.73–0.83); vertex width male 0.43 (0.43–0.44), female 0.47 (0.45–0.50); antennal segment I male 0.28 (0.28–0.30), female 0.29 (0.25–0.33); antennal segment II male 1.02 (0.83–1.15), female 1.13 (0.90–1.30). Pronotum: width male 0.93 (0.88–0.96), female 1.06 (0.95–1.15); length male 0.44 (0.40–0.48), female 0.52 (0.45–0.55).

Body stumpy in both sexes, lateral margins of forewings broadly ovate, male 2.7–3.0 ×, female 2.5–2.7 × as long as width of pronotum; head distinctly transverse, eyes relatively small and somewhat laterally protruded, vertex male 2.8–3.1 ×, female 3.0–3.3 × as wide as eye; antennal segment I short, male 0.6–0.7 ×, female 0.5–0.6 × as long as pronotum; antennal segment II comparatively short, male 1.0–1.2 ×, female 1.0–1.1 × as long as basal width of pronotum, male 1.4–1.6 ×, female 1.2–1.6 × as long as width of head. Labium not extending beyond middle coxae, with distinctly swollen segment III. Hind femora distinctly swollen.

DISTRIBUTION: Southern part of European Russia (Volgograd Prov. and Dagestan),

Asian part of Kazakhstan, Uzbekistan, Turkmenistan, Mongolia*.

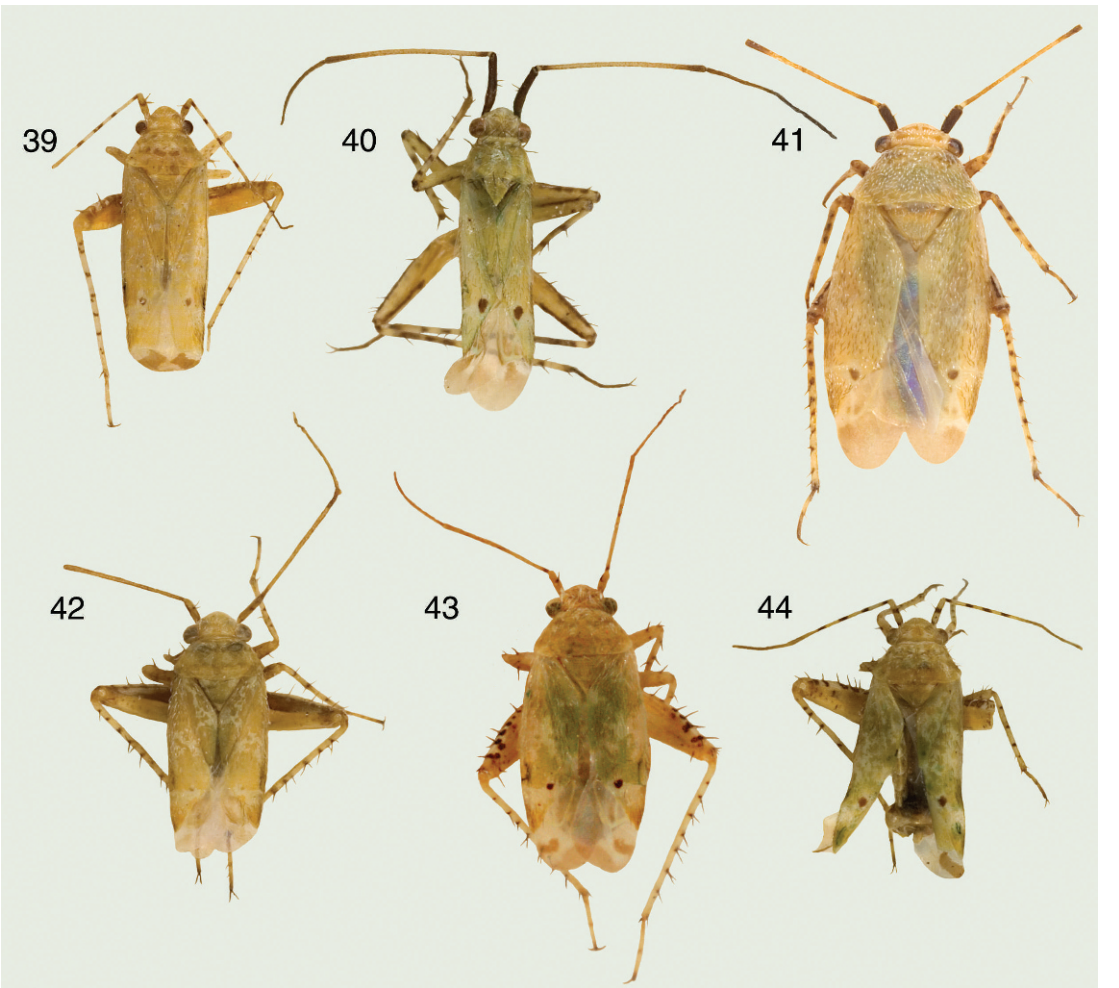
HOST PLANT: *Tamarix* spp. According to observations by Putshkov (1976) at Molla-Kara (Turkmenistan), *C. meyeri* feeds also on *Reaumuria oxiana*. The first instar of the first generation appears in late April and adults were found in May.

SPECIMENS EXAMINED: **RUSSIAN FEDERATION: Volgograd Prov.:** Krasnoarmeysk [former Sarepta], V. Jakovlev coll., 4♂ (AMNH_PBI 00140372, AMNH_PBI 00140411–AMNH_PBI 00140413), 8♀ (AMNH_PBI 00140373–AMNH_PBI 00140380); Becker, 9♂ (AMNH_PBI 00140388–AMNH_PBI 00140396), 14♀ (AMNH_PBI 00140362–AMNH_PBI 00140371, AMNH_PBI 00140397–AMNH_PBI 00140400). **Dagestan Rep.:** Lower course of Kuma River, 14 Jun 1914, A. Kiritshenko, 1♀ (AMNH_PBI 00140424). **KAZAKHSTAN: Kyzylorda Prov.:** 90 km upstream from mouth of Sarysu River, 04 Jul 1948, Formozov, 1♂ (AMNH_PBI 00140592), 3♀ (AMNH_PBI 00140593–AMNH_PBI 00140595). Kara-Kum Sands nr Aral Lake, Murunchi, 26 Jun 1931, Luppova, 9♂ (AMNH_PBI 00140583–AMNH_PBI 00140591), 13♀ (AMNH_PBI 00140569–AMNH_PBI 00140581) on *Tamarix* sp. 1♂ (AMNH_PBI 00140745), 1♀ (AMNH_PBI 00140727), 1 larvae (AMNH_PBI 00140746). **West Kazakhstan Prov.:** Khaki nr Urda, 03 Jul 1961, Emeljanov and Kerzhner, on *Tamarix* sp., 18♂ (AMNH_PBI 00140479–AMNH_PBI 00140489, AMNH_PBI 00140498–AMNH_PBI 00140504), 17♀ (AMNH_PBI 00140429–AMNH_PBI 00140439, AMNH_PBI 00140492–AMNH_PBI 00140497). **UZBEKISTAN:** Ayakagytma depression, 23 May 1948, A. Kiritshenko, 1♀ (AMNH_PBI 00140729). Termez [Buchara mer. = former Bukhara Chanate], 15 May 1912, A. Kiritshenko, 1♀ (AMNH_PBI 00140582). **TURKMENISTAN:** Dzhebel, 07 Jun 1934, V. Popov, 2♂ (AMNH_PBI 00140709, AMNH_PBI 00140710), 2♀ (AMNH_PBI 00140719, AMNH_PBI 00140720); 15 Jun 1934, V. Popov, 5♂ (AMNH_PBI 00140608, AMNH_PBI 00140699, AMNH_PBI 00140711–AMNH_PBI 00140712, AMNH_PBI 00140725), 4♀ (AMNH_PBI 00140721–AMNH_PBI 00140724). Farap [Farab], V. Oshanin coll., 3♂ (AMNH_PBI 00140381–AMNH_PBI 00140383), 14♀ (AMNH_PBI 00140384–AMNH_PBI 00140387, AMNH_PBI 00140414–AMNH_PBI 00140423). Mollakara nr Dzhebel, 09 Jun 1934, V. Popov, 12♂ (AMNH_PBI 00140687–AMNH_PBI 00140698), 12♀ (AMNH_PBI 00140596–AMNH_PBI 00140607); 06 Jun 1934, V. Popov, 5♂ (AMNH_PBI 00140713–AMNH_PBI 00140717), 4♀ (AMNH_PBI 00140700–AMNH_PBI 00140703); 07 Jun 1934, V. Popov, 1♂ (AMNH_PBI 00140718), 5♀ (AMNH_PBI 00140704–AMNH_PBI 00140708). N of Shakhi-Burun, Uly Balkan Gershi Mts. [Bol'shie Balkhany], 16 Jun 1934, V. Popov, 1♀ (AMNH_PBI 00140728). Saragt [former Serakhs], 17 May 1903, Ahnger, 7♀ (AMNH_PBI 00140425–AMNH_PBI 00140428). Turkmenbashi [former Krasnovodsk], 20 Jul 1934, V. Popov, 6♀ (AMNH_PBI 00140739–AMNH_PBI 00140744); 19 Jul 1934, V. Popov, 1♂ (AMNH_PBI 00140726). **MONGOLIA: Bayanhongor Aimak:** Bun Tsagan-nur, Halha, 27 Aug 1926, A. Kiritshenko, 22♂ (AMNH_PBI 00140453–AMNH_PBI 00140467, AMNH_PBI 00140488–AMNH_PBI 00140491, AMNH_PBI 00140738, AMNH_PBI 00140756–AMNH_PBI 00140757), 48♀ (AMNH_PBI 00140440–AMNH_PBI 00140452, AMNH_PBI 00140470–AMNH_PBI 00140478, AMNH_PBI 00140557–AMNH_PBI 00140568, AMNH_PBI 00140609–AMNH_PBI 00140621, AMNH_PBI 00140758), 2 larvae (AMNH_PBI 00140468, AMNH_PBI 00140469). E coast of Adgiyn-Tsagan-nur Lake, 19 Aug 1967–20 Aug 1967, I. M. Kerzhner, on *Tamarix* sp., 31♂ (AMNH_PBI 00140737, AMNH_PBI 00140747–AMNH_PBI 00140751, AMNH_PBI 00140759–AMNH_PBI 00140764), 16♀ (AMNH_PBI 00140730–AMNH_PBI 00140736).

Camptotylus reaumuriae, n. sp.

Figures 3, 4, 13, 17, 18, 29, 30, 35, 37, 42

DIAGNOSIS: Recognized by the small size, stumpy body, unusually pale and reduced medioapical spot on forewings nearly equal in diameter to width of the antennal segment II at base, structure of the male genitalia, and coloration of hind femora and antennal segment II. Very similar to *C. reuteri* in the vestiture, mottled color pattern of dorsum, color pattern of antennal segment II, and



Figs. 39–44. Dorsal habitus photographs of *Camptotylus* spp.: **39**, *C. apanaskevichi*, ♂; **40**, *C. linae*, ♂; **41**, *C. meyeri*, ♀; **42**, *C. reaumuriae*, ♂; **43**, *C. reuteri*, ♀; **44**, *C. yersini*, ♂.

structure of the male genitalia. However, the medioapical spot in *C. reuteri* is of typical color and size—dark brown, somewhat larger in diameter than width of antennal segment I at middle. The series of round spots along the foremargin of the hind femora is pale brown and sometimes indistinct in *C. reaumuriae* whereas in *C. reuteri* the spots are dark brown and distinctly shaped. Additionally, *C. reuteri* is larger and more gracile than *C. reaumuriae*, total length of the former rarely exceeds 2.0 mm in both sexes. Antennal segment II in *C. reaumuriae* is comparatively short, 1.7–1.9 × in males, 1.4–1.5 × in females as long as width of head while in *C. reuteri* this ratio is 2.1–2.3 × and 1.7–1.9 × as long, respectively. The male genitalia of both species are distinctive: shape of the sclerotized process of theca is nearly triangular in *C. reaumuriae* and longer and narrower in *C. reuteri*, apices of central processes and sensory lobes of these species also differ (figs. 27–30). Although both species have very similar structure of vesica, there are distinctions in the degree of twisting and dentation of the apex (compare figs. 2–4).

DESCRIPTION: VESTITURE: Dorsal surface covered with a mixture of brown and silvery-white long simple setae. Dark setae on head and pronotum sparse, contrastingly long and erect, spinelike, distinctly smaller and ad-

pressed on forewings. Inner surface of antennal segment I with two dark spinelike setae; apices of all femora and foremargins of hind femora with dark spinelike setae similar to tibial spines in size and structure. Setae on legs and antennae reclining, short and pale. Ventral surface with silver setae only.

COLORATION: Dorsal surface (fig. 42) greenish, with whitish markings. Antennal segment I with indistinct brown dot at base of medial setae, other antennal segments pale, rarely apex of segment II slightly darkened. Whitish areas on head and pronotum and scutellum rounded; head with two spots on vertex, two spots adjacent to eyes and median spot on frons. Pronotum with two spots located near apical margin and four at middle. Scutellum with whitish spots basally at sides. Forewings with mosaiclike irregularly shaped whitish areas on basal part of clavus, middle part of corium, and base of cuneus. Medioapical area of corium with very small, pale brown rounded spot. Membrane transparent, slightly infuscate apically, laterally with indistinct brown rectangular spot behind apically infuscate cells. Apices of fore- and middle femora with pale brown dots. Entire ventral surface of hind femora with large pale brown spots fused into transversal stripes on foremargin. Tibiae with brown dots at bases of dark brown tibial spines. Tarsi as in fig. 37; claws as in fig. 35.

MALE GENITALIA: Left paramere (figs. 29, 30) with well-developed, contrastingly long and thin sensory lobe, apical process robust, strongly curved and somewhat dentate apically; central process large, with laterally directed hooklike apex. Right paramere (fig. 13) simple, elongate oval, with indistinct constriction at middle. Apex of theca (figs. 17, 18) straight and narrow, with nearly triangular sclerotized process. Vesica (figs. 3, 4) S-formed, apical strap densely covered with denticles, smoothly tapering, curved at middle.

STRUCTURE AND MEASUREMENTS: *C. reaumuriae* is the smallest species of the genus discovered to date. Total length male 1.90 (1.6–2.1), female 1.97 (1.6–2.1). Head: width male 0.59 (0.55–0.60), female 0.62 (0.58–0.65); vertex width male 0.30 (0.28–0.30), female 0.33 (0.30–0.35); antennal segment I male 0.24 (0.23–0.25), female 0.24 (0.20–0.25); antennal segment II male 1.04 (0.95–1.13), female 0.93 (0.83–0.98). Pronotum: width male 0.72 (0.65–0.78), female 0.77 (0.70–0.80); length male 0.32 (0.28–0.35), female 0.34 (0.29–0.38).

Body stumpy in both sexes, lateral sides of forewings broadly ovate, male 2.5–2.8 ×, female 2.6–2.7 × as long as width of pronotum; vertex male 2.0–2.2 ×, female 2.0–2.5 × as wide as eye; antennal segment I short, male 0.6–0.8 ×, female 0.7 × as long as pronotum; antennal segment II male 1.3–1.5 ×, female 1.2 × as long as basal width of pronotum, male 1.7–1.9 ×, female 1.4–1.5 × as long as width of head. Labium with swollen segment III and base of segment IV; reaching middle coxae. Hind femora distinctly swollen.

ETYMOLOGY: Named for its occurrence on *Reaumuria*.

DISTRIBUTION: Mongolia.

HOST PLANT: *Reaumuria soongorica*. Two females were taken on *Kalidium* sp. (Chenopodiaceae); these records are considered sitting records.

SPECIMENS EXAMINED: Holotype: ♂, Mongolia, Bayanhongor Aimak, Bun Tsagan-nur, Halha, 27 Aug 1926, A. Kiritshenko (AMNH_PBI 00139829).

Paratypes: **MONGOLIA: Bayanhongor Aimak:** 55 km SSW Shine-Dzhinst, 28 Aug 1970, Emeljanov, 1♂ (AMNH_PBI 00140154). Bun Tsagan-nur, Halha, 27 Aug 1926, A. N. Kiritshenko, 7♂ (AMNH_PBI 00139831–AMNH_PBI 00139837), 37♀ (AMNH_PBI 00139830, AMNH_PBI 00139838–AMNH_PBI 00139856). E coast of Adgiyn-Tsagan-nur Lake, 19 Aug 1967–20 Aug 1967, I. M. Kerzhner, on *Reaumuria* sp., 5♀ (AMNH_PBI 00139973) on *Reaumuria soongonica*, 1♂ (AMNH_PBI 00140245). Ehiyn-Gol, 50 km NNE Tsagan-Bogdo Mt., 01 Sep 1970, I. M. Kerzhner, on *Reaumuria soongonica*, 1♂ (AMNH_PBI 00140151); 01 Sep 1970, Emeljanov, 1♂ (AMNH_PBI 00140152). Shara-Hulsny-Bulak Spring, 04 Sep 1970, Emeljanov, 1♂ (AMNH_PBI 00140153). **Central Aimak:** 5 km S Erdene-Huduk, 21 Jul 1967, Emeljanov, on *Reaumuria* sp., 2♀ (AMNH_PBI 00140155, AMNH_PBI 00140156). Tuhmiyn-Nur Lake, 07 Jul 1970, Emeljanov, 10♂ (AMNH_PBI 00140148–AMNH_PBI 00140150), 3♀ (AMNH_PBI 00140150), 2 larvae (AMNH_PBI 00140255).

East Govi Aimak: 23 km WSW Bayan-Munh, 03 Jul 1971, Emeljanov, 5♂ (AMNH_PBI 00140130–AMNH_PBI 00140132), 1♀ (AMNH_PBI 00140133). 25 km E Shokhoy-nur, 03 Aug 1971, Emeljanov, 1♂ (AMNH_PBI 00140236), 2♀ (AMNH_PBI 00140236). 35 km NE Bayan-Munh, 03 Jul 1971, Emeljanov, 2♂ (AMNH_PBI 00140114, AMNH_PBI 00140128); 03 Jul 1971, I. M. Kerzhner, 3♀ (AMNH_PBI 00140230) on *Reaumuria* sp., 6♂ (AMNH_PBI 00140232, AMNH_PBI 00140233) on *Kalidium gracile*, 1♀ (AMNH_PBI 00140231). 45 km NE Bayan-Munh, 03 Jul 1971, Kozlov, 1♂ (AMNH_PBI 00140234), 1♀ (AMNH_PBI 00140234). 5 km W Tenger-Nur Lake, 25 Jun 1971, I. M. Kerzhner, on *Reaumuria* sp., 14♂ (AMNH_PBI 00140076–AMNH_PBI 00140081); 25 Jun 1971, Emeljanov, 5♂ (AMNH_PBI 00140082–AMNH_PBI 00140085), 2♀ (AMNH_PBI 00140087, AMNH_PBI 00140088), 1 larvae (AMNH_PBI 00140249); 25 Jun 1971, Kozlov, 1♂ (AMNH_PBI 00140090), 2♀ (AMNH_PBI 00140089). 50 km ENE Sain-Shand, 02 Jul 1971, Emeljanov, 6♂ (AMNH_PBI 00139980–AMNH_PBI 00139983), 3♀ (AMNH_PBI 00139984), 2 larvae (AMNH_PBI 00140252, AMNH_PBI 00140253). Bayan-Ulan Mt., 12 km NE Bayan-Munh, 03 Jul 1971, I. M. Kerzhner, 3♀ (AMNH_PBI 00140227) on *Reaumuria* sp., 3♂ (AMNH_PBI 00140235). Nomt-Ula Mt., 30 km SSE Shohoi-Nur Lake, 04 Aug 1971, Emeljanov, 1♀ (AMNH_PBI 00140228). **Eastern Aimak:** 10 km W Buhyn-Hashatyn-Huduk Well, 26 Jul 1972, Emeljanov, 3♂ (AMNH_PBI 00140107–AMNH_PBI 00140109), 4♀ (AMNH_PBI 00140110–AMNH_PBI 00140113). 8 km W Buhyn-Hashatyn-Huduk, 16 Jul 1971, Emeljanov, 2♂ (AMNH_PBI 00140140, AMNH_PBI 00140141), 2♀ (AMNH_PBI 00140142). **Govialtay Aimak:** 15 km WNW Dzahoi, 24 Aug 1970–26 Aug 1970, I. M. Kerzhner, on *Reaumuria* sp., 1♂ (AMNH_PBI 00139931), 7♀ (AMNH_PBI 00139932–AMNH_PBI 00139935); 24 Aug 1970–26 Aug 1970, Emeljanov, 7♂ (AMNH_PBI 00139927–AMNH_PBI 00139929), 2♀ (AMNH_PBI 00139930); 16 Jul 1970, Emeljanov, 3♂ (AMNH_PBI 00140105), 2♀ (AMNH_PBI 00140106) on *Reaumuria* sp., 1♂ (AMNH_PBI 00140239). 20 km SW Shchargi, 18 Jun 1980, I. M. Kerzhner, 1♂ (AMNH_PBI 00139975). 20 km W Huh-Mor't, 22 Aug 1968, Emeljanov, 1♂ (AMNH_PBI 00140164). 30 km S Tugreg, 14 Aug 1968, Emeljanov, 4♂ (AMNH_PBI 00139937–AMNH_PBI 00139938, AMNH_PBI 00139946–AMNH_PBI 00139947), 13♀ (AMNH_PBI 00139939–AMNH_PBI 00139945). 6 km E Bayan, 15 Aug 1968–17 Aug 1968, Emeljanov, 3♂ (AMNH_PBI 00139948–AMNH_PBI 00139950), 2♀ (AMNH_PBI 00139951, AMNH_PBI 00139952); 15 Aug 1968–17 Aug 1968, Kozlov, 7♂ (AMNH_PBI 00139953–AMNH_PBI 00139957, AMNH_PBI 00140134–AMNH_PBI 00140135), 3♀ (AMNH_PBI 00139958–AMNH_PBI 00139959, AMNH_PBI 00140136). Shargyn-Gobi, 10 km NEE Bayan, 23 Aug 1976, Emeljanov, 16♂ (AMNH_PBI 00139872–AMNH_PBI 00139880, AMNH_PBI 00140143), 33♀ (AMNH_PBI 00139857–AMNH_PBI 00139871, AMNH_PBI 00140144–AMNH_PBI 00140147), 1 larvae (AMNH_PBI 00139881); 23 Aug 1976, I. M. Kerzhner, 4♂ (AMNH_PBI 00139905, AMNH_PBI 00139908) on *Reaumuria soongonica*, 27♂ (AMNH_PBI 00139903–AMNH_PBI 00139904, AMNH_PBI 00139906–AMNH_PBI 00139907, AMNH_PBI 00139909–AMNH_PBI 00139913), 59♀ (AMNH_PBI 00139882–AMNH_PBI 00139902), 4 larvae (AMNH_PBI 00139914, AMNH_PBI 00139915). Ushiyn-Bulak spring, 30 km NW Beger, 22 Aug 1970, I. M. Kerzhner, 1♀ (AMNH_PBI 00140238) on *Reaumuria* sp., 3♂ (AMNH_PBI 00139970), 3♀ (AMNH_PBI 00139967–AMNH_PBI 00139969); 13 Jul 1970, Emeljanov, 1♂ (AMNH_PBI 00140237), 3♀ (AMNH_PBI 00140165). Nr Dzahoi, 17 Jul 1970, I. M. Kerzhner, on *Reaumuria* sp., 1♂ (AMNH_PBI 00139960), 1♀ (AMNH_PBI 00139961). **Hentiy Aimak:** 10 km SSW Buyant, 31 Jul 1971, Emeljanov, 4♂ (AMNH_PBI 00140119–AMNH_PBI 00140122), 7♀ (AMNH_PBI 00140102–AMNH_PBI 00140104). 15 km N Buyant, 31 Jul 1971, Emeljanov, 1♀ (AMNH_PBI 00140229). **Hovd Aimak:** Bodonchin-Gol River, 12 km SW Altai, 22 Jul 1970, I. M. Kerzhner, 9♂ (AMNH_PBI 00139979, AMNH_PBI 00140073) on *Reaumuria* sp., 1♀ (AMNH_PBI 00140072), 2 larvae (AMNH_PBI 00140251); 22 Jul 1970, Emeljanov, 1♂ (AMNH_PBI 00140129). Elhon, 20 km SE Altai on Bodonchin-Gol River, 27 Jul 1970, I. M. Kerzhner, on

Reaumuria sp., 6♂ (AMNH_PBI 00140060–AMNH_PBI 00140064, AMNH_PBI 00140071), 6♀ (AMNH_PBI 00140065–AMNH_PBI 00140070). **Middle Govi Aimak:** 20 km W Lus somon, 23 Jul 1967–24 Jul 1967, Emeljanov, 1♂ (AMNH_PBI 00140163). 30 km NE Delger-Hangay, 24 Jul 1967, I. M. Kerzhner, on *Reaumuria* sp., 7♂ (AMNH_PBI 00139976–AMNH_PBI 00139978, AMNH_PBI 00140074–AMNH_PBI 00140075). **South Govi Aimak:** 10 km E Sudzhiyn-Huduk Well, 02 Aug 1967, I. M. Kerzhner, on *Reaumuria soongonica*, 8♂ (AMNH_PBI 00139962, AMNH_PBI 00139964, AMNH_PBI 00140242); 02 Aug 1967, Emeljanov, 2♀ (AMNH_PBI 00140219), 1 larvae (AMNH_PBI 00140250) on *Reaumuria* sp., 5♂ (AMNH_PBI 00139963, AMNH_PBI 00139966) on *Reaumuria soongonica*, 3♀ (AMNH_PBI 00139965). 13 km E Tsailan, 24 Aug 1969–25 Aug 1969, I. M. Kerzhner, on *Reaumuria* sp., 1♂ (AMNH_PBI 00139974). 30 km SSE Tsogt-Obo, 11 Aug 1971, Emeljanov, 4♂ (AMNH_PBI 00139971, AMNH_PBI 00140137–AMNH_PBI 00140138), 2♀ (AMNH_PBI 00139972) on *Reaumuria* sp., 3♀ (AMNH_PBI 0014 0139); 11 Aug 1971, I. M. Kerzhner, on *Reaumuria* sp., 1♂ (AMNH_PBI 00140240). 9 km SSW Tsogt-Obo, 11 Aug 1971, Emeljanov, 1 larva (AMNH_PBI00140248). Dzemgin-Gobi, 25 km SSW Haylastyn-Huduk, 20 Jun 1971, I. M. Kerzhner, 5♂ (AMNH_PBI 00140158, AMNH_PBI 00140159) on *Reaumuria* sp., 7♂ (AMNH_PBI 00140157, AMNH_PBI 00140160, AMNH_PBI 00140166), 3♀ (AMNH_PBI 00140161); 20 Jun 1971, Kozlov, 2♂ (AMNH_PBI 00140241) on *Reaumuria* sp., 1♀ (AMNH_PBI 00140162). Hushu-Sair, 25 km SW Hailastyn-Huduk, 21 Jun 1971, I. M. Kerzhner, UV Lighting, 3♀ (AMNH_PBI 00140220). Undyn-Gol sair, 25 km S Han-Bogdo Mt., 23 Jun 1971, Emeljanov, 1♀ (AMNH_PBI 00140221). **South Hangay Aimak:** E coast of Tatsyn-Tsagan-nur Lake, 15 Aug 1967, I. M. Kerzhner, on *Reaumuria* sp., 8♂ (AMNH_PBI 00139917, AMNH_PBI 00139919), 3♀ (AMNH_PBI 00139920) on *Kalidium* sp., 1♀ (AMNH_PBI 00140246); 15 Aug 1967, Emeljanov, 1♂ (AMNH_PBI 00139923), 2♀ (AMNH_PBI 00139923) on *Reaumuria* sp. 5♂ (AMNH_PBI 00139916, AMNH_PBI 00139918), 7♀ (AMNH_PBI 00139921, AMNH_PBI 00139922); 02 Aug 1969–04 Aug 1969, I. M. Kerzhner, on *Reaumuria* sp., 2♀ (AMNH_PBI 00140247). **Suhbaatar Aimak:** 7 km W Hongor, 04 Jul 1971, Kozlov, 1♀ (AMNH_PBI 00140244); 04 Jul 1971, Emeljanov, 2♂ (AMNH_PBI 00140091, AMNH_PBI 00140092), 1♀ (AMNH_PBI 00140095); 04 Jul 1971, Kozlov, 4♂ (AMNH_PBI 00140100); 4 Jul 1971, I. M. Kerzhner, 5♂ (AMNH_PBI 00140094), 3♀ (AMNH_PBI 00140096) on *Reaumuria* sp., 1♀ (AMNH_PBI 00140243), 3♂ (AMNH_PBI 00140093), 8♀ (AMNH_PBI 00140097–AMNH_PBI 00140099). Galyn-Nur Lake, 40 km SE Hongor, 07 Jul 1971, Kozlov, 4♂ (AMNH_PBI 00140222); 07 Jul 1971, Emeljanov, 2♀ (AMNH_PBI 00140223, AMNH_PBI 00140224). Ongon-Els Sands, 15 km SSE Hongor, 05 Jul 1971–06 Jul 1971, Emeljanov, 3♂ (AMNH_PBI 00140115–AMNH_PBI 00140117), 2♀ (AMNH_PBI 00140118, AMNH_PBI 00140226). **Uvs Aimak:** 50 km N Urgamal, 11 Aug 1970, Emeljanov, 1♂ (AMNH_PBI 00139924), 2♀ (AMNH_PBI 00139925, AMNH_PBI 00139926); 11 Aug 1970, Narchuk, 1♂ (AMNH_PBI 00139936).

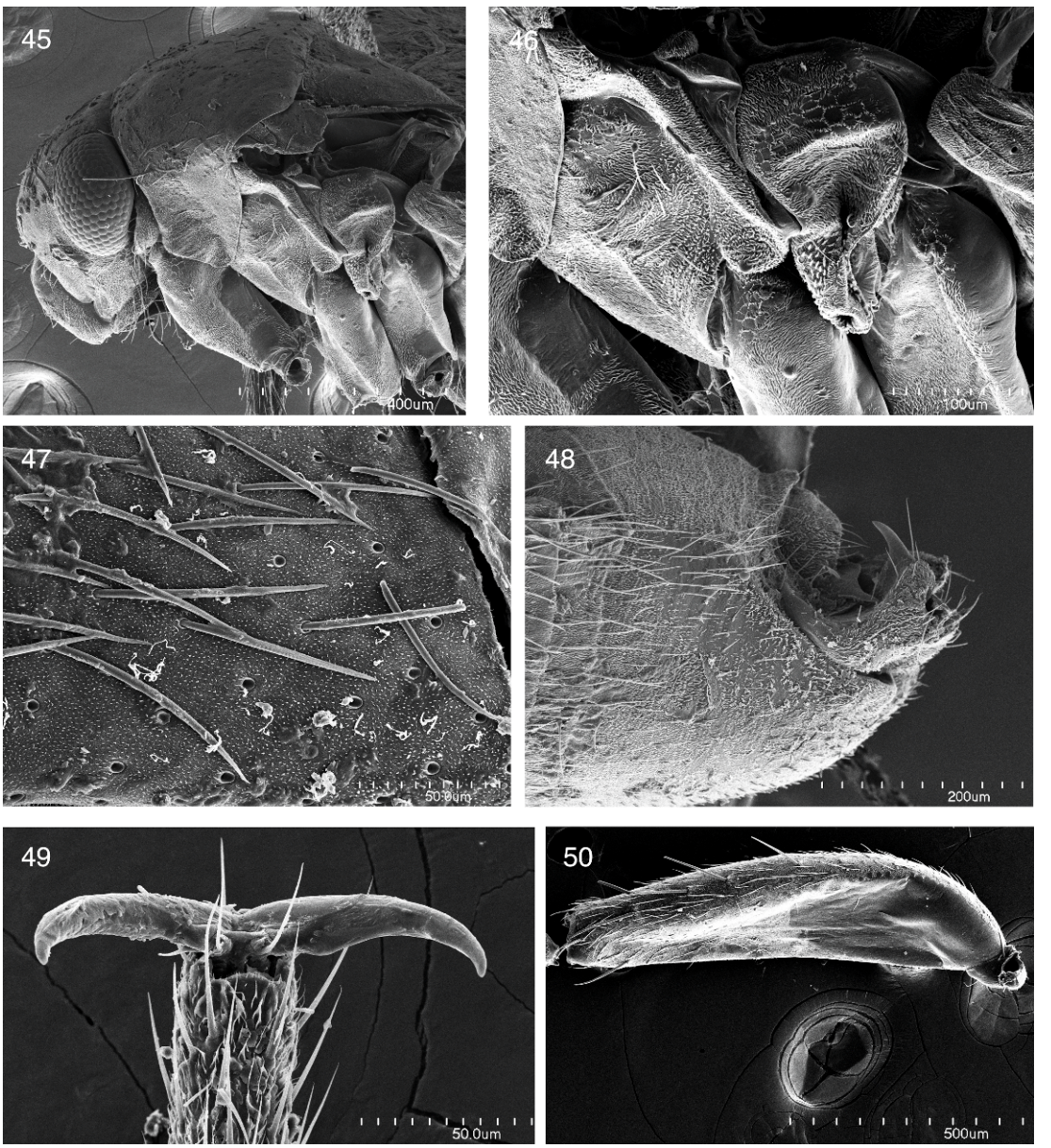
Camptotylus reuteri Jakovlev, 1881

Figures 2, 15, 27, 28, 43, 45–50

Camptotylus reuteri Jakovlev, 1881: 196.

DIAGNOSIS: Recognized by the presence of a dark ring at base of antennal segment II, mottled color pattern of dorsum, color pattern of hind femora, well-developed sensory lobe of the left paramere, shape of apex of the theca, strong dentation of the vesica, and ratios. Most similar in the structure of the male genitalia, coloration of dorsum and antennae to *C. reamuriae*, but this species is smaller, more faintly colored, with reduced pale brown medioapical spot and spots on hind femora.

DESCRIPTION: VESTITURE: Dorsal surface with mixture of dark brown and silvery-white, long, reclining to adpressed simple setae (fig. 47). Silvery-white setae located on whitish areas of dorsum while dark setae located on greenish areas and generally predominate on apical parts of corium and on cuneus. Entire ventral surface with silver setae. Inner surface of antennal segment I, foremargin of hind femora (fig. 50), and apices of fore- and



Figs. 45–50. *C. reuteri*, male, scanning micrographs of morphological details: **45**, lateral of head and pronotum; **46**, mesothoracic spiracle and metathoracic scent-efferent system; **47**, setae on hemelytra; **48**, lateral view of genital capsule; **49**, pretarsus, ventral view; **50**, hind femur, ventrolateral view.

middle femora with robust brown spinelike setae. Vestiture on legs and antennae pale, reclining to suberect.

COLORATION: Dorsal surface (fig. 43) greenish, with indistinctly bordered whitish areas. Antennal segment I with darkened base and two fused pale brown dots at bases of medial spines; antennal segment II darkened at very base, usually more or less brown apically and sometimes with indistinct pale brown ring at middle. Head, pronotum, and scutellum pale greenish, with indistinct whitish, usually

rounded areas. Forewings greenish, basal part of clavus, middle part of corium, and base of cuneus with irregularly shaped whitish areas. Medioapical area of corium with conspicuous brown roundish spot. Membrane transparent, apically infuscate, laterally with indistinct brown rectangular spot behind apically infuscate cells. Apical parts of fore- and middle femora with round dark spots on ventral surfaces and few spots on dorsal surfaces. Hind femora with a series of round spots running along foremargins; adjacent area of ventral surface with irregularly shaped spots often fused into transverse stripes. Tibiae with brown dots at bases of dark tibial spines. Ventral surface uniformly pale.

MALE GENITALIA: Left paramere (figs. 27, 28) with well-developed, contrastingly long and thin sensory lobe, apical process large and curved, apically dentate; central process large, with laterally directed, large, twisted hooklike apex. Right paramere simple, elongate oval, with indistinct constriction at middle. Apex of theca (fig. 15) straight and narrow, with straight, smoothly broadened at base sclerotized process. Vesica (fig. 2) S-formed, apical strap with area of dentation almost reaching secondary gonopore, smoothly tapering and curved at middle.

STRUCTURE AND MEASUREMENTS: Total length male 2.28 (2.2–2.3), female 2.35 (2.3–2.5). Head: width male 0.55 (0.53–0.58), female 0.56 (0.55–0.58); vertex width male 0.30 (0.29–0.33), female 0.33 (0.33); antennal segment I male 0.28 (0.28–0.30), female 0.26 (0.25–0.28); antennal segment II male 1.18 (1.13–1.20), female 0.99 (0.95–1.08). Pronotum: width male 0.76 (0.75–0.80), female 0.81 (0.80–0.83); length male 0.36 (0.35–0.38), female 0.36 (0.35–0.38).

Body elongate oval, females more stumpy, lateral sides of forewings broadly ovate, male 2.9–3.1 ×, female 2.9–3.1 × as long as width of pronotum; vertex male 2.4–2.6 ×, female 2.6–2.9 × as wide as eye; antennal segment I short, male 0.7–0.8 ×, female 0.7 × as long as pronotum; antennal segment II male 1.5–1.6 ×, female 1.2–1.3 × as long as basal width of pronotum, male 2.1–2.3 ×, female 1.7–1.9 × as long as width of head. Labium with somewhat swollen apex of segment III and base of segment IV; reaching middle coxae. Hind femora distinctly swollen.

DISTRIBUTION: Greece (Reuter, 1891), Cyprus (Wagner, 1975), Syria (Wagner, 1975), Asian part of Turkey (Hoberlandt, 1956), Armenia*, Azerbaijan (Gidayatov and Atakishieva, 1972), southern part of European Russia (Krasnodar Prov., Chechnya, Dagestan, Astrakhan' Prov.), Ukraine, NW Kazakhstan*, Uzbekistan*, Turkmenistan*, Mongolia*, North China (Hsiao and Meng, 1963; Qi et al., 1995).

HOST PLANT: *Tamarix* spp.

SPECIMENS EXAMINED: Lectotype of *C. reuteri* Jak.: **RUSSIAN FEDERATION: Dagestan Prov.:** Makhachkala [former Petrovsk], V. Jakovlev coll., 1♂ (AMNH_PBI 00140167).

Paralectotypes of *C. reuteri* Jak.: **RUSSIAN FEDERATION: Dagestan Prov.:** Makhachkala [former Petrovsk], V. Jakovlev coll., 2♂ (AMNH_PBI 00140171, AMNH_PBI 00140172), 1♀ (AMNH_PBI 00140168). **Volgograd Prov.:** Krasnoarmeysk [former Sarepta], E, V. Jakovlev coll., 1♀ (AMNH_PBI 00140175). Without locality label (probably Astrakhan), V. Jakovlev coll., 5♂ 3♀ (AMNH_PBI 00140173, AMNH_PBI 00140174). Additional specimens: **TURKEY**: **Aydin:** Ortakche on Menderes River, E of Aydin, 23 Jul 1931, B.P. Uvarov, 4♂ (AMNH_PBI 00140176–AMNH_PBI 00140179), 8♀ (AMNH_PBI 00140180–AMNH_PBI 00140187). **ARMENIA:** Metsamor [former Kamarlu] Railway Station, 14 Aug 1931, Korinek, 2♂ (AMNH_PBI 00140272, AMNH_PBI 00140273), 5♀ (AMNH_PBI 00140275–AMNH_PBI 00140276, AMNH_PBI 00140279, AMNH_PBI 00140295–AMNH_PBI 00140296); 28 Jul 1931, Korinek, 4♀ (AMNH_PBI 00140274, AMNH_PBI 00140298–AMNH_PBI 00140300); 11 Jul 1931, Korinek, 1♀ (AMNH_PBI 00140277); 31 Jul 1931, Korinek, 2♀ (AMNH_PBI 00140278, AMNH_PBI 00140297); 21 Aug 1931, Korinek, 3♀ (AMNH_PBI 00140292–AMNH_PBI 00140294); 17 Jul 1931, Korinek, 1♀ (AMNH_PBI 00140301). **RUSSIAN FEDERATION: Astrakhan Prov.:** Vyshka, 80 km S Astrakhan, 16 Jul 1961, I. M. Kerzhner, 1♂ (AMNH_PBI 00140188), 3♀ (AMNH_PBI 00140189–AMNH_PBI 00140191). **Chechnya Rep.:** Staroglad-kovskaya stanitsa, 14 Jul 1927, A. Kiritshenko, 1♂ (AMNH_PBI 00140283), 2♀ (AMNH_PBI 00140280, AMNH_PBI 00140282); 07 Jul 1927,

A. Kiritshenko, 1♀ (AMNH_PBI 00140281). **Dagestan Rep.:** Malaya Areshevka, 22 km from Kizlyar, 10 Jul 1934, Formozov, 1♀ (AMNH_PBI 00140309). **Krasnodar Terr.:** Grivenskaya stanitsa, 12 Oct 1933, Rysakov, 15♂ (AMNH_PBI 00140284, AMNH_PBI 00140336–AMNH_PBI 00140339), 11♀ (AMNH_PBI 00140288–AMNH_PBI 00140290, AMNH_PBI 00140340–AMNH_PBI 00140341); 29 Jun 1934, Rysakov, 2♂ (AMNH_PBI 00140285, AMNH_PBI 00140286), 1♀ (AMNH_PBI 00140287). **UKRAINE: Crimea:** Eupatoria, 23 Aug 1907, V.E. Jakovlev, 2♂ (AMNH_PBI 00140169, AMNH_PBI 00140170), 9♀ (AMNH_PBI 00140206–AMNH_PBI 00140214); 21 Aug 1907, V.E. Jakovlev, 2♀ (AMNH_PBI 00140193, AMNH_PBI 00140215). Kertsch, 17 Jul 1918, A. Kiritshenko, 1♂ (AMNH_PBI 00140192), 3♀ (AMNH_PBI 00140216–AMNH_PBI 00140218); 24 Jul 1917, A. Kiritshenko, 1♂ (AMNH_PBI 00140194), 1♀ (AMNH_PBI 00140195); 07 Jul 1917, A. Kiritshenko, 1♂ (AMNH_PBI 00140199), 1♀ (AMNH_PBI 00140196); 06 Jul 1917, A. Kiritshenko, 1♀ (AMNH_PBI 00140198); 08 Jul 1917, A. Kiritshenko, 3♀ (AMNH_PBI 00140197, AMNH_PBI 00140302, AMNH_PBI 00140304); 06 Jul 1915, A. Kiritshenko, 1♀ (AMNH_PBI 00140200); 20 Jun 1916, A. Kiritshenko, 2♀ (AMNH_PBI 00140201, AMNH_PBI 00140202); 09 Jul 1917, A. Kiritshenko, 1♀ (AMNH_PBI 00140303). **KAZAKHSTAN: Atyrau Prov.:** Saraychik, lower course of Ural River, 09 Jun 1932, Lukyanovich, 2♂ (AMNH_PBI 00140305, AMNH_PBI 00140306). **West Kazakhstan Prov.:** Chapaev [former Lbishchensk] on Ural River, 04 Nov 1931, Lukyanovich, 1♂ (AMNH_PBI 00140307). **UZBEKISTAN:** Ayakagytma depression, 19 May 1948, A. Kiritshenko, 1♀ (AMNH_PBI 00140308). Termez [Buchara mer. = former Bukhara Chanate], 15 May 1912, A. Kiritshenko, 2♂ (AMNH_PBI 00140203, AMNH_PBI 00140204). On Zeravshan River, between Vabkend and Bukhara, 14 Jul 1948, A. Kiritshenko, 1♀ (AMNH_PBI 00140205). **TURKMENISTAN:** Chardzhui Railway Station, 08 Jul 1905, Bekman, 1♀ (AMNH_PBI 00140271). **MONGOLIA: Bayanhongor Aimak:** Burkhant-Bulak, 60 km SSW Shine-Dzhinst, 29 Aug 1970, Emeljanov, 2♂ (AMNH_PBI 00140324), 1♀ (AMNH_PBI 00140333), 1♂, 2♀ (AMNH_PBI 00140408). E coast of Adgiyn-Tsagan-nur Lake, 19 Aug 1967–20 Aug 1967, I. M. Kerzhner, 1♂, 2♀ (AMNH_PBI 00140409) on *Tamarix* sp., 57♂ (AMNH_PBI 00140310–AMNH_PBI 00140322, AMNH_PBI 00140342–AMNH_PBI 00140347), 61♀ (AMNH_PBI 00140326–AMNH_PBI 00140332, AMNH_PBI 00140349–AMNH_PBI 00140361, AMNH_PBI 00140401). **Govialtay Aimak:** 6 km E Bayan, 15 Aug 1968–17 Aug 1968, Kozlov, 1♀ (AMNH_PBI 00140335). **South Govi Aimak:** 10 km NE Onch-Khayrkhan-ula Mt., 04 Aug 1967, Emeljanov, 4♂ (AMNH_PBI 00140325, AMNH_PBI 00140407), 4♀ (AMNH_PBI 00140334, AMNH_PBI 00140406). Hushu-Sair, 25 km SW Hailastyn-Huduk, 21 Jun 1971, I. M. Kerzhner, 11♂ (AMNH_PBI 00140323, AMNH_PBI 00140348, AMNH_PBI 00140404–AMNH_PBI 00140405), 7♀ (AMNH_PBI 00140402, AMNH_PBI 00140403).

Camptotylus yersini (Mulsant and Rey, 1856)

Figures 5, 6, 19, 25, 26, 44

Capsus yersini Mulsant and Rey, 1856: 129
Camptotylus yersini: Fieber, 1861: 286

DIAGNOSIS: Recognized by the four brown rings on the antennal segment II, greenish mottling on forewings, greenish membrane cells, comparatively bright brown spot on the membrane, and structure of the male genitalia. Close to *C. apanaskevichi* and *C. gracilis* in external characters. Differs from *C. apanaskevichi* in the presence of long erect setae on the head and pronotum, spinelike sclerotized process of the theca, shape of the central process of left paramere, and shape and degree of dentation of the vesica. Differs from *C. gracilis* in the more robust body, reduced dentation of apical part of the vesica, small angle-shaped sensory lobe of the left paramere, long sclerotized process of the theca nearly reaching thecal apex.

DESCRIPTION: VESTITURE: Dorsal surface covered with a mixture of brown and silvery white long simple setae. Silvery-white setae reclinate to adpressed, located on whitish areas of dorsum, predominate on head and at sides of pronotum; dark setae longer than silvery-white setae, located on greenish areas, adpressed on forewings, scarce, erect, and contrastingly long, spinelike on head and pronotum. Inner surface

of antennal segment I with two dark spinelike setae; foremargin of hind femora and apices of fore- and middle femora with dark spinelike setae. Vestiture on legs and antennae reclining, short and pale. Ventral surface covered with silver setae only.

COLORATION: Antennal segment I with incomplete brown median ring, usually also brown at base; segment II with four dark brown rings. Head and pronotum greenish to pale yellow, with indistinct whitish areas. Scutellum uniformly pale. Forewings pale whitish, frequently covered with mosaiclike, irregularly shaped greenish spots (fig. 44). Corium with conspicuous dark brown spot medioapically. Membrane transparent, laterally with large dark brown rectangular spot posterior of cells. Cells greenish to ochraceous. All femora covered with round brown spots, spots on hind femora larger, fused into transverse stripes on foremargin. Tibia with large brown dots at bases of brown to partly pale tibial spines.

MALE GENITALIA: Left paramere (figs. 25, 26) with well-developed, hooklike sensory lobe, long and thin apical process; central process large, with hooklike, inward directed apex. Right paramere simple, lanceolate, without constriction at middle. Theca (fig. 19) with two tubercles at apex; sclerotized process long, spinelike and very slightly curved. Vesica (figs. 5, 6) S-shaped, strongly curved at middle, apical strap long, somewhat flattened and apically dentate.

STRUCTURE AND MEASUREMENTS (N ♂ = 1, N ♀ = 4): Total length male 2.2, female 2.57 (2.5–2.6). Head: width male 0.54, female 0.55 (0.55); vertex width male 0.29, female 0.32 (0.30–0.33); antennal segment I male 0.25, female 0.26 (0.25–0.28); antennal segment II male 1.03, female 1.01 (1.00–1.03). Pronotum: width male 0.70, female 0.80 (0.78–0.83); length male 0.33, female 0.38 (0.38).

Body elongate oval, male 3.1 ×, female 3.1–3.4 × as long as width of pronotum; vertex male 2.3 ×, female 2.4–2.9 × as wide as eye; antennal segment I short, male 0.8 ×, female 0.7 × as long as pronotum; antennal segment II male 1.5 ×, female 1.2–1.3 × as long as basal width of pronotum, male 1.9 ×, female 1.8–1.9 × as long as width of head. Labium with slightly swollen apex of segment III and base of segment IV; reaching middle coxae. Hind femora swollen.

DISTRIBUTION: Spain (Gravestein, 1978; Ribes, 1984), France (Wagner and Weber, 1964), Italy (Carapezza, 1995), Algeria (Eckerlein and Wagner, 1965), Tunisia (Carapezza, 1997), Libya (Eckerlein and Wagner, 1970), Egypt (Linnavuori, 1964), Sudan (Wagner, 1963; Linnavuori, 1993a), Saudi Arabia (Linnavuori, 1986), Iraq (Linnavuori, 1993b), Israel (Kerzhner and Josifov, 1999).

DISCUSSION: Oshanin (1910) recorded *C. yersini* for Tshinaz and Tashkent (Uzbekistan). I have not been able to locate the specimens from this locality although remnants of Oshanin's collection are kept at the Zoological Institute, Russian Academy of Sciences. However, the mentioned records seem highly doubtful, as *C. yersini* is so far known only from the Mediterranean area. It seems highly probable that Oshanin's record should be referred to *C. apanaskevichi*, as this species is similar to *C. yersini* in external characters and known from Central Asia.

HOST PLANT: *Tamarix* spp.

SPECIMENS EXAMINED: **MOROCCO:** Goulmima, 07 May 1967, Eckerlein, 1♂ (AMNH_PBI 00140031), 1♀ (AMNH_PBI 00140032). **LIBYA:** Fezzan, Sebha Ain Kirim, 17 Apr 1965, Eckerlein, 2♀ (AMNH_PBI 00140033, AMNH_PBI 00140034). **EGYPT:** Kom Ombo, 04 Mar 1931, H. Priesner, 1♂ (AMNH_PBI 00140035).

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APPENDIX

Locality data for illustrated specimens

C. apanaskevichi: **figs. 7, 12**, **23**: Tajikistan: Staraya Pristan' nr Dzhilikul', Vakhsh River, 17.VII.1944 (Gussakovskiy), AMNH_PBI 00140007; **figs. 36, 38**: Tajikistan: Uyalu, valley of Vakhsh River, 24.V.1944 (Kiritshenko), AMNH_PBI 00139994; **figs. 21, 24**: Mongolia: Elhon, 20 km SE Altai on Bodonchi River, on *Tamarix*, 27.VII.1970 (Kerzhner), AMNH_PBI 00140018; **fig. 39**: Holotype, Uzbekistan, former Bukhara Prov., Termez, 19.V.1912 (Kiritshenko), AMNH_PBI 00140011.

C. bipunctatus: Holotype, Kazakhstan, Chardara, 25.IV.1871 (Fedtshenko).

C. linae: Armenia: Gekharot [former Keshishkend], 80 km SO Yerevan, 7.VII.1934 (Ter-Minasyan), AMNH_PBI 00140056.

C. meyeri: **figs. 1**, **14**, **20**, **33**: Mongolia: E coast of Adgiyn-Tsagan-Nur Lake, on *Tamarix*, 19–20.VIII.1967 (Kerzhner), AMNH_PBI 00140749; Mongolia, **Fig. 41**: Bayanhongor aimak, Bun Tsagan-nur, Halha, 27.VIII.1926 (Kiritshenko), AMNH_PBI 00140451.

C. reaumuriae: **figs. 3, 4**, **35, 37**: Mongolia: 6 km E Bayan, 15–17.VIII.1968 (Kozlov), AMNH_PBI 00139956; **figs. 13**, **17, 18**, **29, 30**, **42**: Mongolia: Bun Tsagan-nur, Halha, 27.VIII.1926 (Kiritshenko), AMNH_PBI 00139833.

C. reuteri: **figs. 2**, **28**: Mongolia: E coast of Adgiyn-Tsagan-nur Lake, on *Tamarix*, 19–20.VIII.1967 (Kerzhner), AMNH_PBI 00140347; **figs. 15**, **27**: Paralectotype, Jakovlev coll., AMNH_PBI 00140173; **fig. 43**: Ukraine, Crimea, Kertch, 8.VII.1917 (Kiritshenko), AMNH_PBI 00140304; **figs. 45–50**: Turkey: Nevsehir: Avanos, 27.VI.1990 (I. Sienkiewicz).

C. yersini: **figs. 5, 6**, **19, 25, 26**: Morocco: Goulmima, 7.V.1967 (Eckerlein), AMNH_PBI 00140031; **fig. 44**: Egypt, Kom Ombo, 4.III.1931 (Priesner), AMNH_PBI 00140035.

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