

A review of the Asian species of the *Cercyon unipunctatus* group (Coleoptera: Hydrophilidae: Sphaeridiinae)

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Abstract. Asian species of the *Cercyon unipunctatus* species group are reviewed. Nine species are recognized in Asia, three of which are described as new: *C. flavimarginatus* sp. nov. and *C. kubani* sp. nov. from Yunnan province of China, and *C. undulipennis* sp. nov. from Sichuan and Yunnan provinces in China. Besides these, the species group contains the following Asian species: *C. divisus* Hebauer, 2002 (newly recorded from northern India and China), *C. quisquilius* (Linnaeus, 1761) (newly recorded from Kyrgyzstan, Turkmenistan, Syria and Iran), *C. unipunctatus* (Linnaeus, 1758), *C. unipustulatus* Nakane, 1982 and *C. verus* Shatrovskiy, 1989. All species are (re)described, illustrated and a summary of the known distribution is provided. An identification key to the Asian species of *C. unipunctatus* group is provided, and the species are also briefly diagnosed from similar Palaearctic and Oriental *Cercyon* species.

Key words. Coleoptera, Hydrophilidae, Megasternini, *Cercyon*, new species, new records, identification key, China, Palaearctic Region, Oriental Region

Introduction

The genus *Cercyon* Leach, 1817 is one of the largest genera of the family Hydrophilidae. At present, it comprises more than 250 described species distributed worldwide, i.e. nearly one third of all species of the subfamily Sphaeridiinae (SHORT & FIKÁČEK 2011, 2013). Still, many species are awaiting description especially in the Oriental, Afrotropical and Neotropical

Regions (Fikáček & Ryndevich, unpublished data). Moreover, a recent phylogenetic study by SHORT & FIKÁČEK (2013) has indicated that the genus is likely polyphyletic. All these cues indicate the urge of additional studies of *Cercyon* describing its species and morphological diversity, as a necessary prerequisite for understanding the phylogeny of the genus.

The present study is focused on the representatives of the *Cercyon unipunctatus* group occurring in Asia. It is based on a rather large amount of material, especially from China, accumulated during the last decades, but we also included the available material from other Asian regions, including the Russian Far East, Japan and the Himalaya. The paper follows the previous revisional studies of selected species of *Cercyon* from Eastern Palearctic by SHATROVSKIY (1989, 1992), HEBAUER (1991, 1994, 1995), RYNDEVICH (2004a,b; 2006a,b; 2008), ÔHARA & JIA (2006), RYNDEVICH & HEBAUER (2010), and those from China by JIA et al. (1995, 2011) and JIA (2010). Recent compilations of new data on the distribution of *Cercyon* in the Old World were published by HEBAUER & RYNDEVICH (2005), the distribution in the Palearctic Region was reviewed by HANSEN (2004) and FIKÁČEK et al. (2015), and new records from the Oriental Region were published by HEBAUER (2000, 2001, 2002a) and RYNDEVICH (2011).

The aim of this paper is to provide a comprehensive taxonomic treatment of the *C. unipunctatus* group in Asia, including the description of several new species from China, redescriptions of previously described species, and a summary of the known distribution of all species.

Material and methods

Type specimens and additional material for all species considered in this paper were studied. Complete label data are provided for the holotypes, adapted and formatted label data are mentioned for other specimens examined; brackets [...] are used for the comments attached by the authors. Label data of specimens deposited in collections of CSR, SZMN, ZISP and ZMMU are originally in Russian and written using Cyrillic; we transcribed them and in most cases also translated them into English. Specimens with no GPS label data were georeferenced using on-line sources, including Global Gazetteer (<http://www.fallingrain.com/world/index.html>) and the on-line version of Himalaya Gazetteer (<http://www.serica.gmxhome.de/layout05/HimGaz1NEW.htm>) based on data published by AHRENS (2004). Locality data of all examined specimens are provided in text form in this paper, but are also available in DarwinCore-formatted Excel spreadsheet in the Zenodo archive (see below).

Part of the specimens was dissected and the genitalia were placed either in water-soluble dimethyl hydantoin resin on a transparent plastic label pinned below the respective specimens, or in a drop of alcohol-soluble Euparal resin on a small piece of glass attached to a paper label pinned under the respective specimen.

Habitat photographs were taken using Canon D-550 digital camera with attached Canon MP-E65mm f/2.8 1–5× macro lens, and subsequently adapted in Adobe Photoshop CS5. Genitalia drawings were traced from photographs taken using Nikon Coolpix P6000 or Canon D6000 digital camera attached to the Olympus BX41 compound microscope. Electron micrographs were taken from uncoated specimens using the Hitachi S-3700N environmental scanning electron microscope. Unedited photographs and SEM micrographs are available on

Flickr (<https://www.flickr.com/photos/142655814@N07/collections/72157679004897063/>).

Examined specimens are deposited in the following collections:

- BMNH Natural History Museum, London, UK (M. Barclay & M. Geiser);
 CAK A. G. Koval collection, St. Petersburg, Russia;
 CAS A. Skale collection, Hof, Germany;
 CAP A. A. Prokin collection, Voronezh, Russia;
 CAPG A. Pütz collection, Eisenhüttenstadt, Germany;
 CSR S. K. Ryndevich collection, Baranovichi, Belarus;
 EIHU Hokkaido University, Sapporo, Japan (M. Ôhara);
 KMNH Kitakyushu Museum of Natural History and Human History, Kitakyushu, Japan (Y. Minoshima);
 NHMB Naturhistorisches Museum, Basel, Switzerland (M. Borer);
 NHMW Naturhistorisches Museum, Wien, Austria (M. A. Jäch, A. Komarek);
 NMPC National Museum, Prague, Czech Republic (M. Fikáček);
 SMTD Museum für Tierkunde, Dresden, Germany (O. Jäger);
 SYSU Entomological collection of Sun Yat-sen University, Guangzhou, China (F. Jia);
 SZMN Siberian Zoological Museum of Institute of systematic and ecology of animals of Siberian Branch of Russian Academy of Sciences, Novosibirsk, Russia (A. A. Legalov);
 ZISP Zoological Institute of Russian Academy of Sciences, St. Petersburg, Russia (A. G. Kirejtshuk & B. A. Korotyayev);
 ZMMU Zoological Museum of Moscow State University, Moscow, Russia (N. B. Nikitskiy).

Maps were constructed in QGIS 2.18 using the freely available altitude data (GLOBE project: <https://www.ngdc.noaa.gov/mgg/topo/globe.html>) and borderline files (DIVA-GIS: <http://diva-gis.org/>). The list of all specimens mentioned in this paper is also available as DarwinCore-formatted Excel file at the authors page (www.cercyon.eu).

All primary data on which we based this study (original unedited photos and SEM micrographs, MS Excel spreadsheet with data of all specimens used for this study) are deposited in Zenodo archive (<https://zenodo.org/>) under doi.org/10.5281/zenodo.1045482.

Taxonomy

Cercyon (Cercyon) unipunctatus group

Diagnosis. Body elongate oval, length 1.8–3.8 mm, width 0.9–1.9 mm; dorsal surface convex without microsculpture; head black, pronotum pale with central dark spot, or dark with pale lateral margins; elytron pale (yellow, reddish or brownish), in some species with dark sutural interval or dark spot on elytral disc, rarely dark coloration prevailing (resulting in seemingly dark elytra with pale spots in *C. kabaki* and dark form of *C. unipunctatus*); maxillary palps pale (yellowish); mesoventral plate narrowly elongate, 3.3–11.0× as long as wide; metaventrite without femoral lines.

Comparison with other species groups in *Cercyon* s. str. The pale maxillary palpi and absence of femoral lines of the metaventrite diagnose members of *C. unipunctatus* group from *C. haemorrhoidalis* species group (femoral lines present, palpi dark), *C. nigriceps* group (femoral lines present), *C. marinus* and *C. obsoletus* groups (maxillary palps dark) and from *C. berlovi* Shatrovskiy, 1999 (maxillary palpi dark). The dorsal coloration of the members of *C. unipunctatus* group is never unicolored, it always has at least the head and parts of the pronotum darker than the elytra; in this they differ from *C. olibrus* Sharp, 1874

and *C. rotundulus* Sharp, 1884 (dorsally unicolored), *C. borealis* Baranowski, 1985 (pronotum and elytra concoloured) and *C. cultriformis* Wu & Pu, 1995 (head pale dorsally). The dorsal surface of head, pronotum and elytra is always smooth, lacking any microsculpture; this diagnoses the *C. unipunctatus* group from the *C. dux* group, *C. algarum* group, *C. tristis* group, *C. sericatus* Hebauer, 2002 and *C. emarginatus* Baranowski, 1985. The body is never compressed and the tibiae are not distinctly widened distally and armoured by stout blunt spines; this distinguishes the *C. unipunctatus* group from *C. depressus* Stephens, 1829 and related species. See Discussion for a more detailed comparison with similar species (*C. ovillus* Motschulsky, 1860 and *C. lateralis* (Marshall, 1802) etc.).

List of species of the *Cercyon unipunctatus* group

<i>C. divisus</i> Hebauer, 2002	China (Yunnan, Sichuan), Nepal, India.
<i>C. flavimarginatus</i> sp. nov.	China (Yunnan).
<i>C. kabaki</i> Ryndevich, 2004	China (Sichuan).
<i>C. kubani</i> sp. nov.	China (Yunnan).
<i>C. limbatus</i> Mannerheim, 1842	Not occurring in Asia. <i>Other regions</i> : Western coast of Northern America.
<i>C. quisquilius</i> (Linnaeus, 1760)	China (Gansu, Guangxi, Henan, Inner Mongolia, Jiangxi, Qinghai, Shaanxi, Shanghai, Sichuan, Yunnan), Cyprus, Iran, Israel, Japan, Kazakhstan, Kyrgyzstan, Mongolia, Nepal, Russia (Western and Eastern Siberia, Far East), Saudi Arabia (north), Syria, Tajikistan, Turkey, Turkmenistan, Uzbekistan. <i>Other regions</i> : Europe, North Africa, North America, Caribbean (introduced), Australia (introduced), South America (introduced), Hawaii (introduced).
<i>C. undulipennis</i> sp. nov.	China (Sichuan, ?Yunnan)
<i>C. unipunctatus</i> (Linnaeus, 1758)	Kazakhstan, Russia (Western and Eastern Siberia, Far East), China (Heilongjiang), Japan. <i>Other regions</i> : Europe, North America.
<i>C. unipustulatus</i> Nakane, 1982	Japan, Russia (Far East).
<i>C. verus</i> Shatrovskiy, 1989	Russia (Far East, ?Western Siberia).

Cercyon (*Cercyon*) *divisus* Hebauer, 2002

(Figs 1–2, 13)

Cercyon (*Cercyon*) *divisus* Hebauer, 2002: 42.

Type locality. Nepal, Karnali zone, Khari Lagna, 3500–3700 m a.s.l. [GPS 29°21'N 82°10'E: AHRENS 2004].

Type material examined. HOLOTYPE: ♂ (SMTD): 'Nepal, Karnali zone Khari Lagna 35-3700 m N-Jumla, 23./24.6., 4.7.95 lg. Ahrens & Pommeranz'.

Additional material examined. CHINA: YUNNAN: 1 spec. (NHMB): Habashan Mts., E slope, 3000–3600 m, 27°20'N 100°09'E, 13–17.vii.1992, David Král leg.; 9 spec. (NHMB, CSR, NMPC): Yulongshan Mts., 2900–3500 m, 27°01'N 100°12'E, 24–26.v.1993, Vit. Kubáň leg.; 1 spec. (NHMB): Yulongshan, 3300 m, 27.07N 100.14E, 28.v.1993, V. Kubáň leg.; 1 spec. (NHMB): Yulongshan Mts., 3500–4000 m, 27.10N 100.13E, 16–19.vi.1993, V. Kubáň leg.; 1 spec. (NHMB): Yulong Mt., 3900 m, 27.10N 100.13E, 16–19.vi.1993, Bolm leg.; 1

spec. (NHMB): Yulong Mt., 3200 m, 27.00N 100.12E, 23–24.vi.1993, Bolm leg.; 3 spec. (NMPC, CSR): 26 km N Lijiang, 15.vi.2007, Ganhaizi pass, individually collected under stones, on soil surface and on plants and dense shrubs, sparse coniferous forest (with dominante *Pinus*), 27°07.1'N 100°14.9'E, 3000 m, J. Hájek & J. Růžicka leg.; 3 spec. (NMPC, CSR): 32 km N Lijiang, 16.vi.2007, Maoniuping, yak meadows (wet pasture), individually collected in and under fresh and older excrements of yak (*Bos mutus*), 27°09.9'N 100°14.5'E, 3540 m, J. Hájek & J. Růžicka leg.; 9 spec. (NHMB): Yulong Mts., 3200 m, 24–26.v.1993, 27°01N 100°12E, Bolm lgt.; 1 spec. (NMPC): Gaoligong Mts. NNR, Kongshu vill. env., 2035 m, 25°43.5'N 98°38.4'E, 30.vi.–1.vii.2016, J. Hájek & J. Růžicka leg.; 1 spec. (NMPC): Gaoligong Mts. NNR, E of Kongshu, cow excrements, 2035–2230 m, 25°43.2'N 98°38.4'E, 1.vii.2016, J. Hájek & J. Růžicka lgt.; 1 spec. (CAPG): Nujiang, Lisu Pref., Gaoligong Shan, valley 21 km W of Gongshan, 27°47'03"N 98°27'39"E, 3320 m, moss, alder, bamboo, *Rhododendron*, sifted, 6.vi.2007, Pütz leg. SICHUAN: 1 spec. (NHMB): Moxi-Hailougou, 1200–1900 m, 29°37'N 102°07'E, 1–7.vii.1994, D. Král & J. Farkač leg.; 1 spec. (NHMB): 20 km N Sabdē, 3200 m, 10–16.vii.1998, J. Král leg.; 2 spec. (CSR): pass N of Jiulong, 29°19'20"N 101°30'23"E, 4565 m, 22–23.vii.2009, Belousov & Kabak leg.; 3 spec. (NMPC, SYSU): Moxi env., Hailuogou valley, above Cableway station, mixed forest with *Abies*, *Betula*, *Rhododendron* and broad-leaf trees, baited pitfall trap (fish meat), 3100 m, 29°34'28"N 101°59'24"E, 18–21.vi.2014, J. Hájek, J. Růžicka & M. Tkoč lgt. INDIA: WEST BENGAL: 5 spec. (CAS, NMPC): Darjeeling, Tonglu, 19–23.v.1998, 2600–3000 m, Fabrizi & Ahrens leg. NEPAL: BAGMATI: 1 spec. (SMTD): Mt. Panchase, 20 km W of Pokhara, sifting of forest leaf litter, 2300 m, 20.v.1997, O. Jäger leg. KARNALI: 1 spec. (NMPC): Jumla, Churta, E Jagdula valley, 3800–4100 m, 3.vi.2007, 29°09'49N 82°31'09E, alpine mats, M. Hartmann leg. TAPLEJUNG: 1 spec. (NMPC): upper Simbua Khola, near Tseram, 10–15.v.1988, 3250–3350 m., Schawaller leg.

Published records. NEPAL: KARNALI: Lagna, N. Jumla; Mabu Pass, N of Dailekh. Bagmati: Langtang, Chandan Bari env.; Helambu, Tharepathi; Helambu, Mulkharka-Chisapani (HEBAUER 2002a).

Diagnosis. Head black; pronotum pale with central dark spot of variable size and shape (present only mesally, or large and laterally lobate, or covering nearly whole pronotum except pale lateral margins); elytra pale with variable pattern of dark spots (the following areas may be dark: sutural interval, bases of elytral intervals 1–4, humeral area, and subapical part of elytral intervals 7–9); last maxillary palpomere slightly darker; dorsal surface without hairs; elytral intervals flat; mesoventral plate 5.0–6.0× as long as wide; fifth abdominal ventrite without apical emargination; median projection of sternite 9 narrow to wide, base straight; paramere rather wide subapically, almost straight on outer margin, narrowly rounded apically, apex with setae. Median lobe widest near middle, slightly narrowing apically.

Redescription. *Form and color.* Body elongate oval (Fig. 1), length 2.2–2.7 mm, width 1.4–1.6 mm. Head black with very small brownish preocular spots; pronotum reddish-brown with central black spot of variable extent: confined to central part, extended more laterally in anterior portion (i.e. unilobate laterally) or anteriorly and posteriorly (i.e. bilobate laterally), or extending laterally throughout its length and leaving only a rather wide pale pronotal margin; scutellum brown to black; elytron brownish-yellow or reddish-yellow, base of elytra darker (in some specimens with dark spot at bases of intervals 1–4), sutural interval pale to almost completely dark; humeral area pale or with dark spot; epipleura of elytra brownish-yellow to brown. Antennae yellowish except for darker club. Maxillary palpomeres yellowish, ultimate palpomere darker. Ventral surface black or dark brown, mesoventral plate and metaventral pentagon brown to dark brown, posterior margins of abdominal ventrites brownish. Legs brownish-yellow to brown.

Head. Clypeus with dense, moderately coarse punctures, interstices without microsculpture. Anterior margin of clypeus with narrow bead. Frontoclypeal suture undetectable. Frons without microsculpture on interstices. Eyes small, somewhat protruding, interocular distance



Fig. 1. Dorsal and lateral habitus of *Cercyon divisus* Hebauer, 2002. A, C–D – specimens from China: Yunnan, Yulongshan; B – specimen from Nepal: Taplejung Distr., upper Simbua Khola near Tseram.

ca. $6\times$ of one eye in dorsal view. Mentum glabrous, ca. $1.8\text{--}2.1\times$ as wide as long, densely and coarsely punctate. Antennae with 9 antennomeres, scapus ca. $1.3\times$ as long as antennomeres 2–5 combined, club compact. Maxillary palpomere 2 strongly swollen, palpomere 4 almost symmetrical, equal to palpomere 3 in length.

Thorax. Elytra and pronotum without hairs. Pronotum ca. $2.4\times$ as wide as long. Pronotal punctation similar to that on head. Lateral margins of pronotum with narrow bead, the bead overlapping anterior and posterior corners, anterior and central part of posterior margin of pronotum without bead. Prosternum with strong longitudinal carina medially; antennal groove distinct, moderately large, rounded laterally. Mesoventral plate very narrowly elongate, ca.

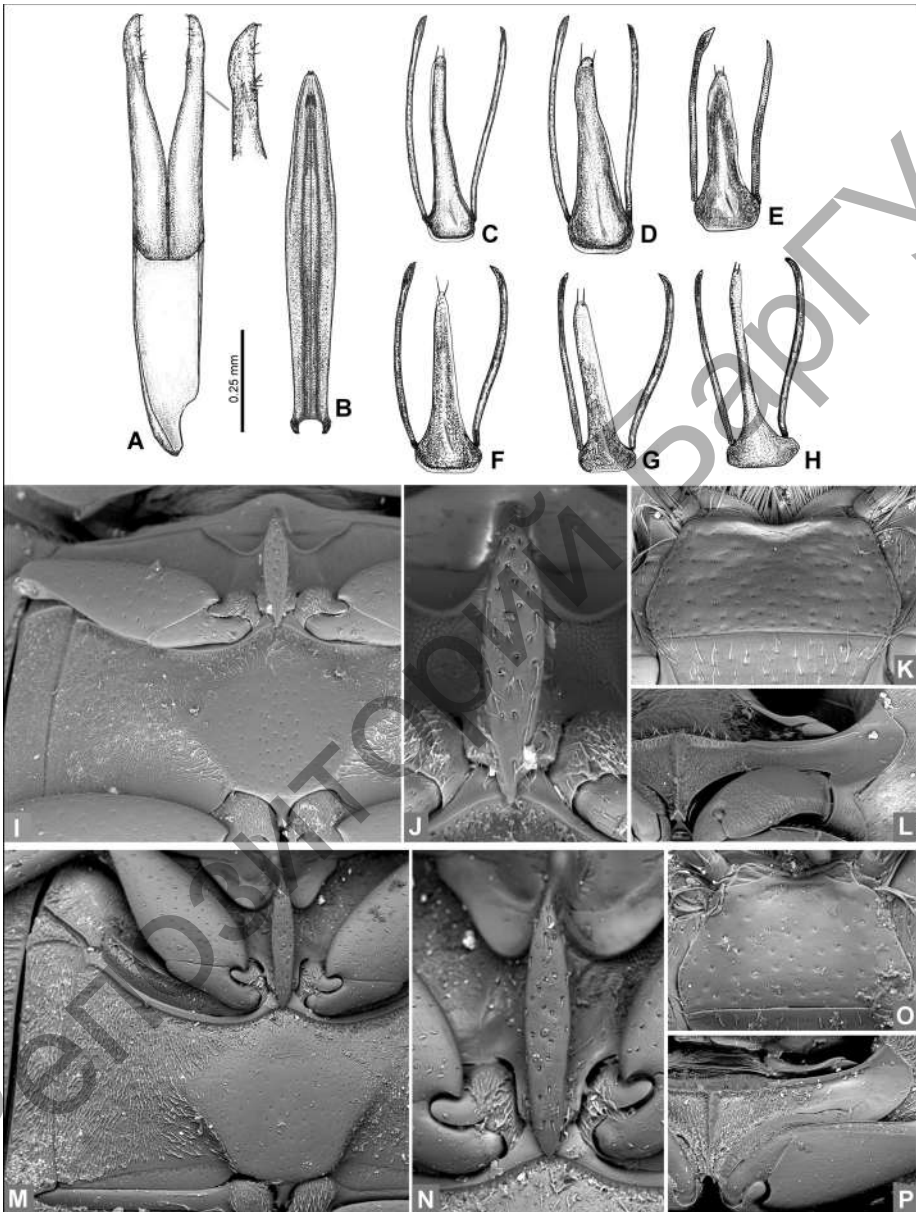


Fig. 2. *Cercyon divisus* Hebauer, 2002. A–C – genitalia of specimen from Nepal: Taplejung Distr. (NMPC) (A – tergmen; B – median lobe; C – sternite 9). D–H – variability in the shape of male sternite 9 (D – China: Yunnan: Habashan; E – Nepal: Karnali Prov.; F – China: Yunnan: Maoniuping; G – China: Yunnan: Yulongshan; H – China: Sichuan: Moxi). I–P – ventral morphology (I–L – specimen from India: West Bengal: Darjeeling; M–P – specimen from China: Yunnan: Maoniuping); I, M – meso- and metaventrite; J, N – detail of mesoventral plate; K, O – mentum; L, P – prosternum and antennal groove.

5.0–6.0× as long as wide, widest in medial part (Figs 2I–J, M–N). Metaventrite with raised, glabrous, sparsely punctate median pentagonal area; femoral lines absent (Figs 2I, M). Elytra with 10 punctate striae, striae 1–9 impressed, reaching base, stria 10 very short; intervals flat; ground punctures on intervals very fine; humeral bulge not distinct. Epipleuron flat, horizontal. Femora with sparse and shallow punctures ventrally, with distinct tibial groove. Tarsi with densely arranged whitish setae ventrally, first metatarsomere about as long as metatarsomeres 2–3 combined.

Abdomen. Abdomen with five exposed ventrites, first ventrite longer than other ventrites, ca. 2× as long as second ventrite, bearing distinct median longitudinal carina; fifth ventrite arcuate, not emarginate apically.

Male genitalia (Figs 2A–H). Phallobase slightly shorter than parameres, asymmetrical basally. Paramere gradually narrowing towards apex, rather wide subapically, almost straight on outer margin, narrowly rounded on lateral margin apically, apex and mesal edge with numerous setae subapically; apex of parameres membranous. Median lobe widest near mid-length, slightly narrowing apically, with short apodemes basally; apex pointed, gonopore moderately large, situated subapically. Median projection of sternite 9 narrow to wide, apex with 2 short setae, pointed to rounded, median portion shorter than lateral struts or equally long as lateral struts, base almost direct.

Comments on variation and distribution. *Cercyon divisus* is a very variable species especially in dorsal coloration and in the shape of male sternite 9, and also slightly in the proportions of the mesoventral plate and male genitalia. Variability of dorsal coloration and of male sternite 9 does not seem to be geographically based, and specimens from the same locality (or adjacent localities) may differ largely in these characters (e.g., compare coloration of two specimens from the same locality on Figs 1C–D, and shape of the male sternite 9 of the specimens from Yunnan on Figs 2D,F,G). Other characters vary geographically: Chinese specimens are slightly larger, having a slightly narrower mesoventral plate (6.0× as long as wide, Fig. 2N). Specimens from India and Nepal have a slightly more robust medial lobe of the male genitalia and a larger gonopore, a slightly wider mentum (ca. 2.1× as wide as long; Fig. 2K) and slightly deeper punctation of the median pentagonal area of the metaventrite (Fig. 2I).

We originally intended to regard the Chinese specimens as a separate species, but detailed examination of all available specimens revealed that the observed morphological differences are either too minute (shape of the median lobe and mesoventral plate), seem to vary in the same extent locally as well as across the whole range (dorsal coloration) and/or form a continual series of intermediate forms without clear limit between two morphotypes (male sternite 9). Unfortunately, the species is so far known only from western Himalaya and mountains in Yunnan and Sichuan, with a huge gap in the Eastern Himalaya from where no specimens are known (Fig. 13). This fact further complicates the assessment to what extent the variability is continual and geographically correlated. Our decision to regard all examined specimens as representatives of one species is therefore preliminary and should be corroborated later by DNA markers and/or by examination of Eastern Himalaya specimens.

Biology. Specimens in which collecting circumstances are known were collected from yak and cow excrements, in pitfall traps baited by rotten fish, sifted from leaf litter or collected individually under stones in high altitude forests (*Alnus* + *Rhododendron* + bamboo, mixed forests

with *Abies*, *Rhododendron* and broad-leaf trees, and sparse coniferous forests with *Pinus*).

Distribution. *Cercyon divisus* is known from western Himalaya (Nepal and India: Darjeeling area) and from mountains of Yunnan and Sichuan in China; records from Eastern Himalaya are missing but its occurrence there is very probable. **Newly recorded from India and China.**

***Cercyon (Cercyon) flavimarginatus* sp. nov.**

(Figs 3, 13)

Type locality. China, Yunnan prov., 25 km E of Zhongdian, 3300–4000 m [GPS ca. 27.82°N 99.71°E].

Type material. HOLOTYPE: ♂ (NHMB): ‘Yunnan 1995, 25 km E of Zhongdian, 3300–4000 m., Bolm lgt., 12–14 Jul.’.

PARATYPES: CHINA: YUNNAN: 63 spec. (NHMB, NMPC, CSR, SYSU, BMNH, KMNH): same data as the holotype; 1 spec. (NHMB): Yulong Mt., 3200 m, 27°01N 100°12E, 24–26.v. 1993, Bolm leg.

Diagnosis. Head black; pronotum black with narrowly yellowish lateral margins; elytra yellowish with dark sutural interval, epipleura yellowish; maxillary palpi yellow; dorsal surface without hairs; elytral intervals flat; mesoventral plate narrowly elongate, ca. 6.1–7.1× as long as wide; metaventrite without femoral lines; fifth abdominal ventrite of male with emarginate area of stronger cuticle apically; sternite 9 membranous near apex, base rounded; paramere narrow throughout, almost straight on outer margin, narrowly rounded apically, apex with setae; median lobe widest near base, narrowing apically, lateral margins bearing very short setae in apical half, apex pointed, gonopore small, subapical.

Description. *Form and color.* Body elongate oval (Fig. 3A), length 2.4–3.0 mm, width 1.4–1.9 mm. Head black with very small yellowish preocular spots. Pronotum black with lateral margins narrowly yellowish, pale coloration irregularly delimited, anterior margin very narrowly yellowish. Scutellum black. Elytra yellowish to reddish-yellow, sutural interval completely or almost completely dark, epipleuron yellow or reddish-yellow. Antennae yellow except for darker club. Maxillary palpomeres yellow. Ventral surface dark brown to black, mesoventral plate and metaventral pentagon brown to dark brown, posterior margins of abdominal ventrites brownish. Legs reddish-yellow to brownish-yellow, femora brown to dark brown.

Head. Clypeus with densely arranged, moderately coarse punctures, interstices without microsculpture. Anterior margin of clypeus with narrow bead. Frontoclypeal suture undetectable. Frons without microsculpture on interstices. Eyes small, somewhat protruding, interocular distance ca. 6× the width of one eye in dorsal view. Mentum glabrous, ca. 1.5× as wide as long, densely and coarsely punctate. Antennae with 9 antennomeres, scapus ca. 1.4× as long as antennomeres 2–5 combined, club compact. Maxillary palpomere 2 strongly swollen, palpomere 4 almost symmetrical, equal to palpomere 3 in length.

Thorax. Elytra and pronotum without hairs. Pronotum ca. 2.2–2.3× as wide as long. Pronotal punctation similar to that on head. Lateral margins of pronotum with narrow bead, the bead not overlapping anterior and posterior corners, anterior and posterior margin without bead. Mesoventral plate narrowly elongate, 6.1–7.1× as long as wide, widest in medial part (Fig. 3F). Metaventrite with raised glabrous sparsely punctate median pentagonal area; femoral lines absent. Elytra with 10 punctate striae, striae 1–9 slightly impressed and reaching elytral base, stria 10 very short. Elytral intervals flat. Ground punctures on intervals very fine. Humeral bulge indistinct. Epipleuron flat, horizontal. Femora with sparse and shallow punctures

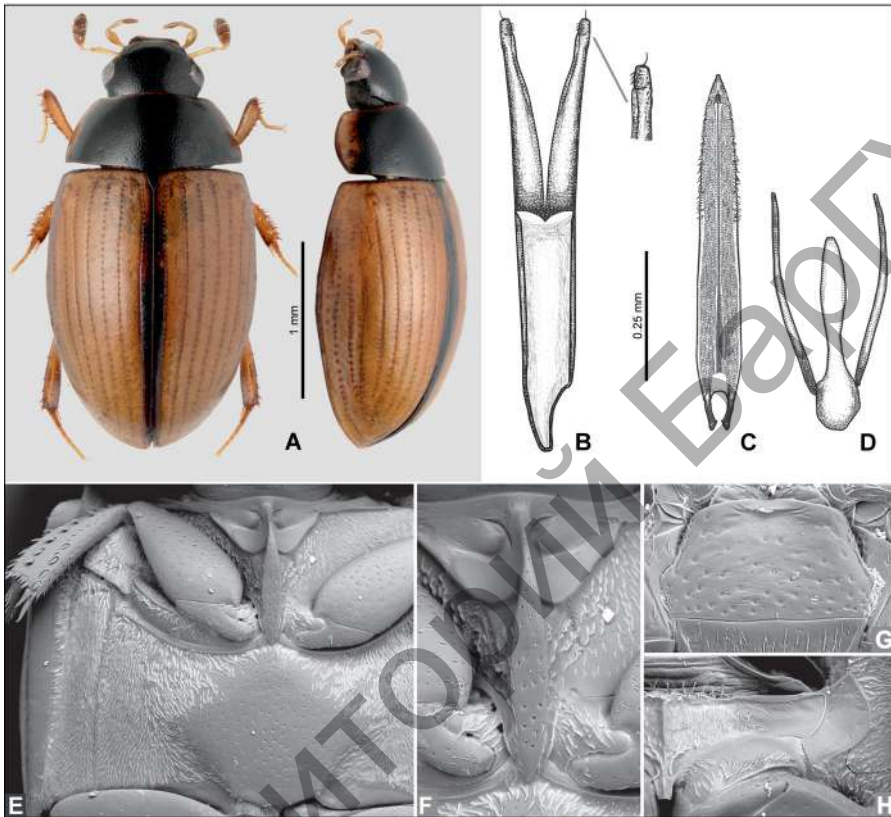


Fig. 3. *Cercyon flavimarginatus* sp. nov. A – dorsal and lateral habitus of the paratype from China: Yunnan: Zhondian; B–D – male genitalia of the holotype (B – tegmen; C – median lobe; D – sternite 9). E–H – ventral morphology (E – meso- and metaventrite; F – detail of mesoventral plate; G – mentum; H – prosternum and antennal groove).

ventrally, with distinct tibial groove. Tarsi with densely arranged whitish setae ventrally, first metatarsomere about as long as metatarsomeres 2–3 combined.

Abdomen. Abdomen with five ventrites, first ventrite distinctly longer than other ventrites, ca. 2× as long as second ventrite, bearing distinct median longitudinal carina; fifth ventrite of male with strengthened cuticle emarginate apically.

Male genitalia (Figs 3B–D). Phallobase ca. 1.2× longer than parameres, asymmetrical basally. Paramere narrow throughout, gradually narrowing towards apex, almost straight on outer margin, narrowly rounded apically, apex membranous, bearing setae. Median lobe widest near base, narrowing apically, lateral margins with very short setae in apical half, apex pointed; central part of lobe bearing few very short setae; gonopore small, situated subapically. Median projection of sternite 9 membranous near apex, bearing two short subapical setae, apex pointed

with two setae, base rounded, median portion shorter than lateral struts.

Variation. Some examined specimens have a very weak darker triangular spot on the elytral base and a darker ultimate palpomere.

Etymology. The name refers to the laterally yellowish pronotum; composed Latin adjective *flavimarginatus* (-a, -um): *flavus* means yellow, *marginatus* means “with a margin”.

Biology. Unknown.

Distribution. The species is only known from two localities in northeastern Yunnan (China) in altitudes 3200–4000 m a.s.l.

Cercyon (Cercyon) kabaki Ryndevich, 2004

(Figs 4, 13)

Cercyon kabaki Ryndevich, 2004a: 59.

Type locality. China, Sichuan, Qunlaishan Mts., 2700–3000 m a.s.l. [GPS ca. 31.38°N 103.071°E].

Type material examined: HOLOTYPE: ♂, (ZISP): ‘CH. Sichuan, Qunlaishan, Mt. R., WSW of Lixian, W of Mt. “5892”, 2700–3000 m, 10.7.2000, leg. Kabak, Belousov, Davidian’.

Additional examined material. CHINA: SICHUAN: 1 spec. (CSR): 2.1 km N of Dehgsheng, SE of Balanguan Pass, 3425 m, 30°53'03"N 102°58'23"E, 29.viii.2004, Belousov & Kabak leg.; 28 spec. (NMPC, CSR, KMNH, SYSU, BMNH): Emeishan Mt., Taiziping Temple, mixed forest with *Abies* and bamboo undergrowth, leaf litter sifting, 2820 m, 29°31'50"N 103°19'36"E, 8.vi.2014, J. Hájek & J. Růžička lgt.; 1 spec. (NMPC): Emeishan Mt., Golden Summit, mixed forest with *Abies*, *Sorbus* and bamboo undergrowth, leaf litter sifting, 3030 m, 29°31'23"N 103°20'05"E, 10.vi.2014, J. Hájek & J. Růžička lgt.; 1 spec. (NMPC): Moxi env., Hailuogou valley, side valley above Cableway station, mixed forest with *Betula*, *Sorbus*, *Rhododendron* and broadleaf trees on steep slope, leaf litter sifting, 3140 m, 29°34'23"N 101°59'19"E, 18–21.vi.2014, J. Hájek & J. Růžička lgt.; 3 spec. (NMPC): Emeishan Mt., Jieyingdian Temple, forest above temple, secondary mixed forest, leaf litter sifting, 2420 m, 29°32'17"N 103°19'59"E, 10.vi.2014, J. Hájek & J. Růžička lgt.; 1 spec. (NMPC): Wolong National Nature Reserve, Namasi vill., side valley above small water dam, shrubs in closed stream valley at base of rocks, baited pitfall trap (fish meat), 2144 m, 31°01'28"N 103°09'40"E, 23–25.v.2014, J. Hájek & J. Růžička lgt.

Diagnosis. Head black with yellow anterior margin of clypeus; pronotum black with narrowly yellowish lateral margin; elytra yellow with characteristic dark pattern in pale specimens, dark specimens with elytra more less black with paler spots on base and midlength of intervals 2–3, pale humeral spot and pale elytral apex; maxillary palpi yellow; elytra and pronotum without hairs, elytral intervals flat; mesoventral plate narrowly elongate, ca. 5.4× as long as wide; metaventrite without femoral lines; fifth ventrite not emarginate apically; sternite 9 with rounded base; median lobe widest near middle and base, narrowing apically, with long narrowly rounded apex; gonopore minute, subapical.

Description. Form and color. Body elongate oval (Fig. 4A), length 2.1–2.3 mm, width 1.2–1.3 mm. Head black with very small yellow preocular spots and yellow anterior margin of clypeus, pronotum black with lateral margins and anterior side of pronotum narrowly pale (yellow or brownish-yellow), base of pronotum paler near posterolateral angles. Scutellum black. Elytra yellow with black and dark brown spots, forming a characteristic pattern (large lobate central spot, anterior part of intervals 4–7 and nearly complete sublateral intervals darkened), dark specimens with elytra dark brown to black with weakly delimited paler spots on base and midlength of intervals 2–3, pale humeral spot and pale elytral apex. Epipleuron yellow or brownish. Antennae yellowish except for darker club. Maxillary palpomeres

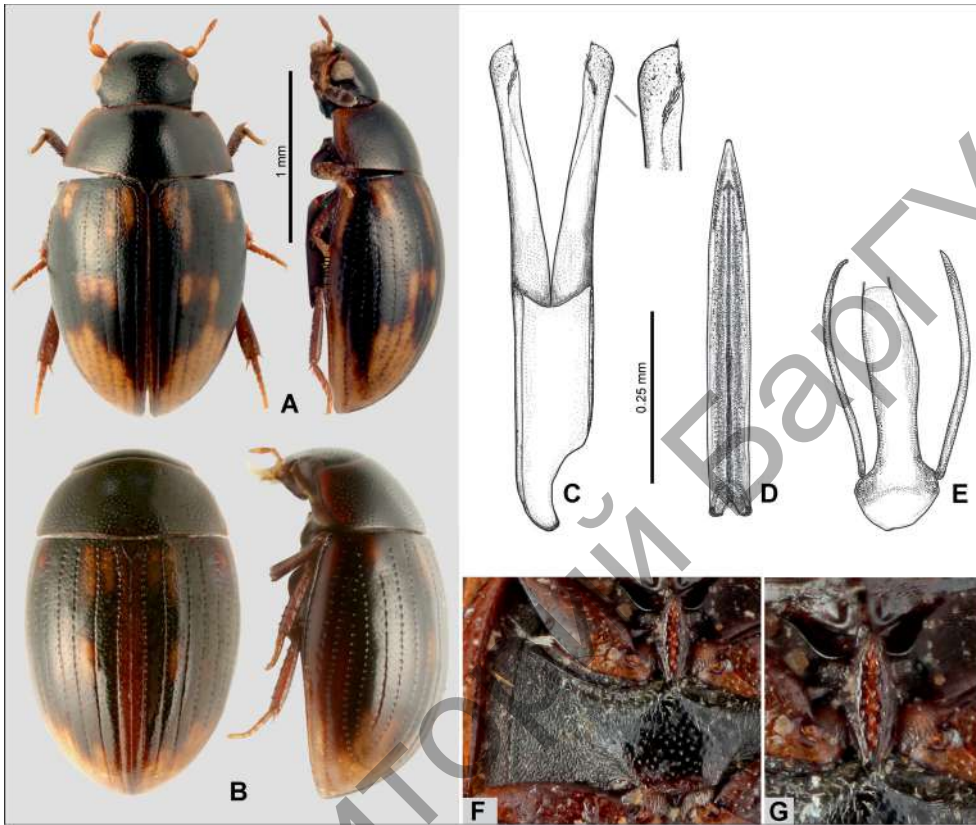


Fig. 4. *Cercyon kabaki* Ryndevich, 2004. A–B – dorsal and lateral habitus (A – pale form from China: Sichuan: north of Dehsheng; B – dark form from China: Sichuan: Taizping Temple); C–E – male genitalia (C – tegmen; D – median lobe; E – sternite 9); F – meso- and meta-ventrite; G – detail of mesoventral plate.

yellow. Ventral surface black, prosternum and mesoventral plate brown, posterior margins of abdominal ventrites yellowish-brown or brown. Metaventral pentagon black or dark brown. Legs brown, tarsi yellowish-brown.

Head. Clypeus with dense, moderately coarse punctures, interstices without microsculpture. Anterior margin of clypeus with narrow bead. Frontoclypeal suture undetectable. Frons without microsculpture on interstices. Eyes small, somewhat protruding, interocular distance 8.0–8.5× the width of one eye in dorsal view. Mentum glabrous, ca. 1.6–1.7× as wide as long, densely and coarsely punctate. Antennae with 9 antennomeres, scapus ca. 1.3× as long as antennomeres 2–5 combined, club compact. Maxillary palpomere 2 strongly swollen, palpomere 4 almost symmetrical, equal to palpomere 3 in length.

Thorax. Elytra and pronotum without hairs. Pronotum ca. 2.3–2.4× as wide as long. Pronotal punctation similar to that on head. Lateral margins of pronotum with narrow bead overlapping anterior and posterior corners, anterior and central part of posterior margins without bead.

Prosternum with strong longitudinal carina medially; antennal groove distinct, moderately large, rounded laterally. Mesoventral plate narrowly elongate, ca. $5.4\times$ as long as wide, widest at midlength (Fig. 4G). Metaventricle with raised, glabrous, sparsely punctate median pentagonal area; femoral lines absent. Elytra with ten punctate striae, striae 1–9 impressed and reaching base, stria 10 very short. Elytral intervals flat, central part of intervals slightly convex; ground punctures on intervals very fine. Humeral bulge not distinct. Epipleuron flat, horizontal. Femora with sparse and shallow punctures ventrally, with distinct tibial groove. Tarsi with densely arranged white setae ventrally, first metatarsomere about as long as metatarsomeres 2–3 combined.

Abdomen. Abdomen with five ventrites, first ventrite distinctly longer than other ventrites, ca. $1.7\times$ as long as second ventrite, bearing distinct median longitudinal carina, fifth ventrite not emarginate apically.

Male genitalia (Figs 4C–E). Phallobase slightly shorter than parameres, asymmetrical basally. Paramere slightly narrowed subapically, almost straight on outer margin, widely rounded apically, apex membranous, apex and inner edge with very short setae subapically. Median lobe narrow, nearly parallel-sided except apical fifth forming very long gradually narrowing apex, basal apodemes short, apex pointed; gonopore small, situated subapically. Median projection of sternite 9 evenly cut apically, bearing 4 short subapical setae, median portion shorter than lateral struts, base rounded.

Variation. Despite the small number of specimens known, the species seems quite variable in dorsal coloration: the holotype and the additional specimen from Dehsheng bear a characteristic pattern with very sharply defined yellow-black patterning, whereas all specimens collected in Emeishan Mts. and around Moxi in 2014 are darker, with nearly completely dark elytra with paler (reddish) more vaguely defined spots and a brownish sutural interval. The male genitalia of the dark specimens agree completely with that of the holotype.

Biology. Most known specimens were sifted from litter of mixed forests with *Abies*, *Rhododendron*, *Sorbus* and bamboo, few were also collected in baited pitfall traps in the same habitat.

Distribution. The species is endemic to the mountains in central Sichuan, in altitudes between 2400 and 3500 m.

Cercyon (Cercyon) kubani sp. nov.

(Figs 5, 13)

Type locality. China, Yunnan, Weibaoshan Mts., 2800–3000 m, 25°12'N 100°24'E.

Type material. HOLOTYPE: ♂ (NHMB): 'Yunnan, 2800–3000 m, 25°12'N 100°24'E, Weibaoshan, mts., 29-30/6.92, Vit Kubán leg.' PARATYPES: CHINA: YUNNAN: 13 spec. (NHMB, NMPC, CSR, SYSU): same data as holotype; 2 spec. (NHMB): same label data but 2600–3000 m, D. Král leg.; 1 spec. (CSR): E slope of Daxueshan, W of Niutoushan, 24°07'31''N 99°40'21''E to 24°07'15''N 99°39'12''E, 2940–3375 m, 3.vi.2010, I. Belousov & I. Kabak leg.

Diagnosis. Head black; pronotum pale brown to yellowish with central dark spot which may extend more or less laterally; elytra brown to yellowish, in some specimens with darker coloration along suture and in humeral area; epipleuron yellowish brown; maxillary palpi yellowish, last palpomere darker; elytra and pronotum with very sparse short pale hairs; elytral intervals flat, very slightly convex in apical part; mesoventral plate very narrowly elongate, ca. $9.0\text{--}10.0\times$ as long as wide; fifth abdominal ventrite not emarginate apically;

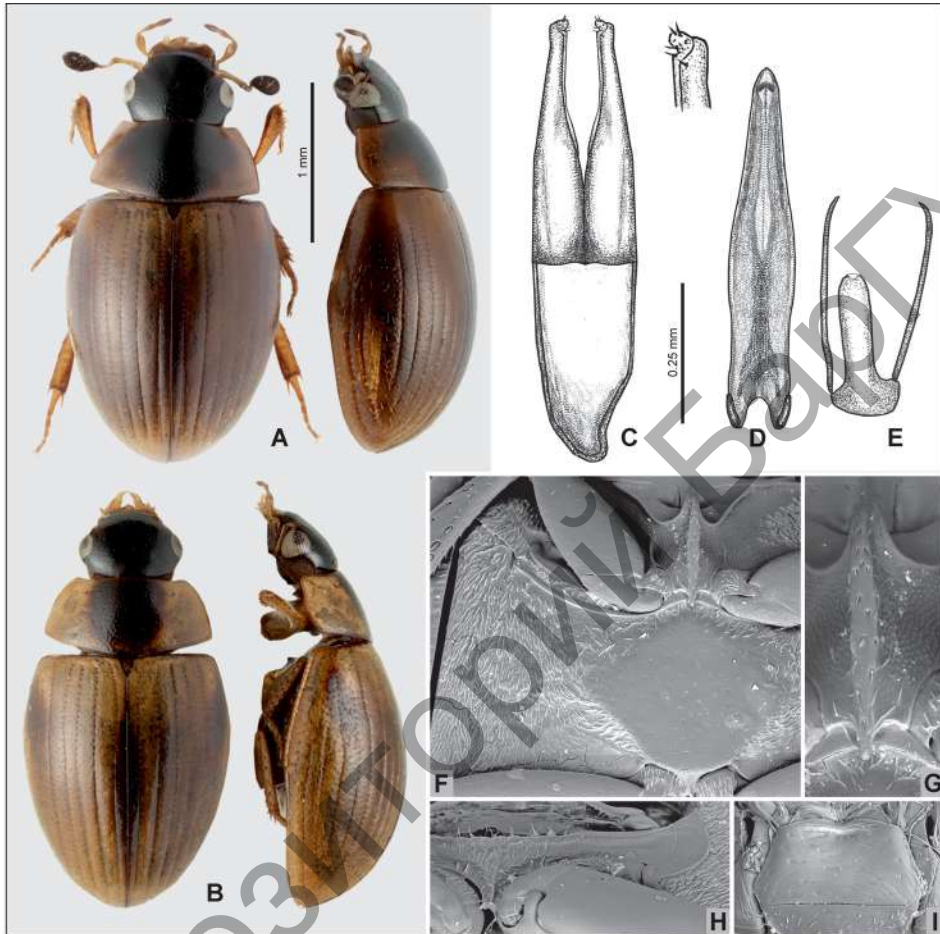


Fig. 5. *Cercyon kubani* sp. nov. A–B dorsal and lateral habitus of paratypes from China: Yunnan: Weibaoshan; C–E – male genitalia of the holotype (C – tegmen; D – median lobe; E – sternite 9). F–I – ventral morphology (F – meso- and metaventrite; G – detail of mesoventral plate; H – prosternum and antennal groove; I – mentum).

paramere wide subapically, strongly narrowing in apical half; median lobe strongly widening at midlength, strongly narrowing apically; apex of sternite 9 with six short subapical setae, base slightly rounded.

Description. Form and color. Body elongate oval (Figs 5A–B), length 2.4–2.7 mm, width 1.5–1.7 mm. Head black with very small brownish preocular spots. Pronotum pale brown to yellowish, with dark central spot which may extend more less laterally but still leaving

large lateral part of pronotum pale. Scutellum yellowish to brown. Elytra brown to yellowish brown, whole elytral disc may be slightly darker, or sutural interval and humeral area may bear vague dark areas; epipleuron brownish yellow. Antennae yellowish to yellowish brown except for darker club. Maxillary palpomeres yellowish to brownish yellow, last palpomere darker. Ventral surface dark brown to black, mesoventral plate and metaventral pentagon yellowish brown to brown, posterior margins of abdominal ventrites yellowish brown or brownish. Legs yellowish brown.

Head. Clypeus with densely arranged, moderately coarse punctures, interstices without microsculpture. Anterior margin of clypeus with narrow bead. Frontoclypeal suture undetectable. Frons without microsculpture on interstices. Eyes small, somewhat protruding, interocular distance ca. $6.0\times$ the width of one eye in dorsal view. Mentum glabrous, ca. $1.6\times$ as wide as long, densely and coarsely punctate. Antennae with 9 antennomeres, scapus ca. $1.3\times$ as long as antennomeres 2–5 combined, club compact. Maxillary palpomere 2 strongly swollen, palpomere 4 almost symmetrical, equal to palpomere 3 in length.

Thorax. Elytra and pronotum with very sparse short pale hairs. Pronotum ca. $2.2\text{--}2.3\times$ as wide as long. Pronotal punctation similar to that on head. Lateral margins of pronotum with narrow bead overlapping anterior and posterior corners, anterior and central part of posterior margin of pronotum without bead. Prosternum with strong longitudinal carina medially; antennal groove distinct, moderately large, rounded laterally. Mesoventral plate very narrowly elongate, ca. $9.0\text{--}10.0\times$ as long as wide, widest in medial part (Fig. 5G). Metaventrite with raised, glabrous, sparsely punctate median pentagonal area; femoral lines absent. Elytra with ten punctate striae, striae 1–9 impressed and reaching base, stria 10 very short; elytral intervals flat, very slightly convex in apically part; ground punctures on intervals very fine. Humeral bulge indistinct. Epipleuron flat, horizontal. Femora with sparse and shallow punctures ventrally, with distinct tibial groove. Tarsi with densely arranged whitish setae ventrally, first metatarsomere about as long as metatarsomeres 2–3 combined.

Abdomen. Abdomen with five ventrites, first ventrite distinctly longer than other ventrites, ca. $2\times$ as long as second ventrite, bearing distinct median longitudinal carina; fifth ventrite not emarginate apically.

Male genitalia (Figs 5C–E). Phallobase shorter than parameres, asymmetrical basally. Paramere rather wide basally, strongly narrowed in apical half; apex membranous, obliquely cut-off, its mesal edge with setae subapically. Median lobe swelling at midlength, weakly narrowing towards base with short apodemes, strongly narrowing towards widely triangular apex; apex obtusely pointed; gonopore rather large, situated subapically. Median projection of sternite 9 bearing six short subapical setae, base slightly rounded, median portion shorter than lateral struts.

Variation. The species varies in the dorsal coloration of the pronotum and elytra (Figs 5A–B). The genitalia of all specimens are identical irrespective of the coloration.

Etymology. The species is named after Vít Kubáň (Czech Republic) who collected the type material.

Biology. Almost all type specimens were collected at light in forest (V. Kubáň, pers. comm.).

Distribution. The species is known from two localities in the mountains of SW Yunnan, in altitudes 2800–3400 m a.s.l.

***Cercyon (Cercyon) undulipennis* sp. nov.**

(Figs 6, 13)

Type locality. China, Sichuan, NNE slope of Gonggashan Mts., cca 4000 m, 29.53°N 102.01°E.

Type material. HOLOTYPE: ♂ (NHMB): ‘W Sichuan, 9–11.VII.1994, 29°53’N 102°01’E, cca 4000 m, Gonggashan, mts., NNE sl, lgt. D. Král & J. Farkač’. PARATYPES: CHINA: SICHUAN: 144 spec. (NHMB, NMPC, CSR): same data as the holotype; 12 spec. (NHMB): Gonggashan-Hailuogou, 2900–3200 m, 29°35’N 102°00’E, 3–6.vii.1994, D. Král & J. Farkač leg.; 22 spec. (NHMB): Mioxi-Hailuogou, 1200–1900 m, 29°37’N 102°07’E, 1–7.vii.1994, D. Král & J. Farkač leg.; 10 spec. (NHMB): Gonggashan, Hailuogou, above Camp 3, 29°35’N 102°00’E, 3000 m, 6.vii.1996, J. Farkač, P. Kabátek & A. Smetana leg.; 261 spec. (NHMB, NMPC, CSR): Gonggashan, Hailuogou, above Camp 2, 2600–2750 m, 29°35’N 102°00’E, 3–6.vii.1998, J. Farkač leg.; 84 spec. (NHMB, NMPC, CSR): Gonggashan, Hailuogou, above Camp 3, 2800–3300 m, 29°35’N 102°00’E, 6–8.vii.1998, J. Farkač leg.; 5 spec. (NHMB): Gonggashan, Hailuogou, above Camp 3, 3200 m, 29°35’N 102°00’E, 7.vii.1996, J. Farkač, P. Kabátek & A. Smetana leg.; 12 spec. (NHMB): Gonggashan, Hailuogou, above Camp 3, 3050 m, 29°35’N 102°00’E, 6.vii.1996, J. Farkač, P. Kabátek & A. Smetana leg.; 8 spec. (NHMB): Rte. 138, 15 km W Kangding, 3250 m, 29°57’N 101°54’E, 19.vii.1998, D. Král leg.; 11 spec. (NHMB): Moxi, Gonggashan Mts., 3100 m, 28.vi.–2.vii.1994, Bolm leg.; 5 spec. (NMPC): Gonggashan Mt., NW of Moxi, 2950 m, 29°41’N 101°58’E, 14–19.vi.1999, V. Siniaev & A. Plutenko leg.; 1 spec. (CSR): NW of Jiuxiangzhen, 29°33’34’’N/102°20’46’’E, 2460 m, 10.vii.2009, Belousov & Kabak leg.; 1 spec. (ZISP): NW of Mianning, 2645 m, 28°38’45’’N 102°03’50’’E, 5.vi.2012, Belousov, Davidian, Kabak, Korolev leg.; 192 spec. (NMPC, KMNH, SYSU, NHMW, BMNH): Emeishan Mt., Leidongping env., on human faeces in mixed forest, 2140 m, 29°32’23’’N 103°19’52’’E, 8–9.vi.2014, J. Hájek, J. Růžička & M. Tkoč lgt.; 1 spec. (NMPC): Emeishan Mt., Leidongping env., near steep track to temples below, bamboo groove, in debris under rock abyss, 2140 m, 29°32’49’’N 103°20’22’’E, J. Hájek & J. Růžička lgt.; 3 spec. (NMPC): Moxi env., Hailuogou valley, below Cableway station, mixed forest with *Abies*, *Rhododendron*, broadleaf bushes, flat forest near brook, baited pitfall trap (fish meat), 3000 m, 29°34’24’’N 101°59’40’’E, 18–21.vi.2014, J. Hájek & J. Růžička lgt.; 3 spec. (NMPC): Emeishan Mt., Taiziping Temple, mixed forest with *Abies* and bamboo undergrowth, baited pitfall trap (fish meat), 2820 m, 29°31’50’’N 103°19’36’’E, 8.vi.2014, J. Hájek & J. Růžička lgt.; 44 spec. (NMPC): Moxi env., Hailuogou valley, above Cableway station, mixed forest with *Abies*, *Betula*, *Rhododendron* and broadleaf trees, baited pitfall trap (fish meat), 3100 m, 29°34’28’’N 101°59’24’’E, 18–21.vi.2014, J. Hájek, J. Růžička & M. Tkoč lgt.; 1 spec. (NMPC): 34 km N of Baoxing, Qiaofeng, 2015 m, 30°40.6’N 102°45’E, 22.vi.2014, J. Hájek lgt.; 2 spec. (NMPC): Moxi env. Hailuogou valley, Caohaizi (lakes), above Camp 2, mixed forest with *Abies*, *Pinus*, *Rhododendron*, broadleaf bushes and bamboo, baited pitfall trap (fish meat), 2770 m, 29°35’11’’N 102°01’36’’E, 18–21.vi.2014, J. Hájek & J. Růžička lgt.; 1 spec. (CAPG): Ya’an Prefecture, Tianquen County, E of Erlang Shan Pass, 2900 m, 29°52.36’N 102°17.82’’E, 20.vi.1999, A Pfitz leg.

Additional material examined. CHINA: YUNNAN: 3 ♀♀ (CAS, CSR): Najiang Lisu Aut. Pref., Gaoligong Shan, side valley, 19 km NW Liuku 2590 m, 25°58’10’’N 98°42’27’’E, devastated primary forest, sifted litter, 9–10.vi.2007, W. Wrase leg.

Diagnosis. Head black; pronotum yellowish with large central black spot; elytron brownish-yellow, maxillary palpi yellowish, last palpomere darker; head, pronotum and elytra with sparse short pale hairs; elytral intervals slightly convex in medial and apical parts; mesoventral plate narrowly elongate, ca. 7.9–11.0× as long as wide; metaventrite without femoral lines; fifth abdominal ventrite not emarginate apically; paramere rather wide basally, nearly straight on outer margin, narrowly rounded apically, apex with setae; median lobe widest at midlength, almost parallel-sided except for apical 1/8, pointed apically; sternite 9 narrowly rounded with 4 long subapical setae, base rounded.

Description. Form and color. Body elongate oval (Fig. 6A), length 2.4–3.0 mm, width 1.5–1.7 mm. Head black with very small brownish preocular spots. Pronotum brownish-yellow with large vaguely defined central dark spot leaving all pronotal margins widely pale. Scutellum brown to dark brown. Elytra and epipleura brownish-yellow. Antennae yellowish except for darker club. Maxillary palpomeres yellowish, last palpomere darker. Ventral surface dark

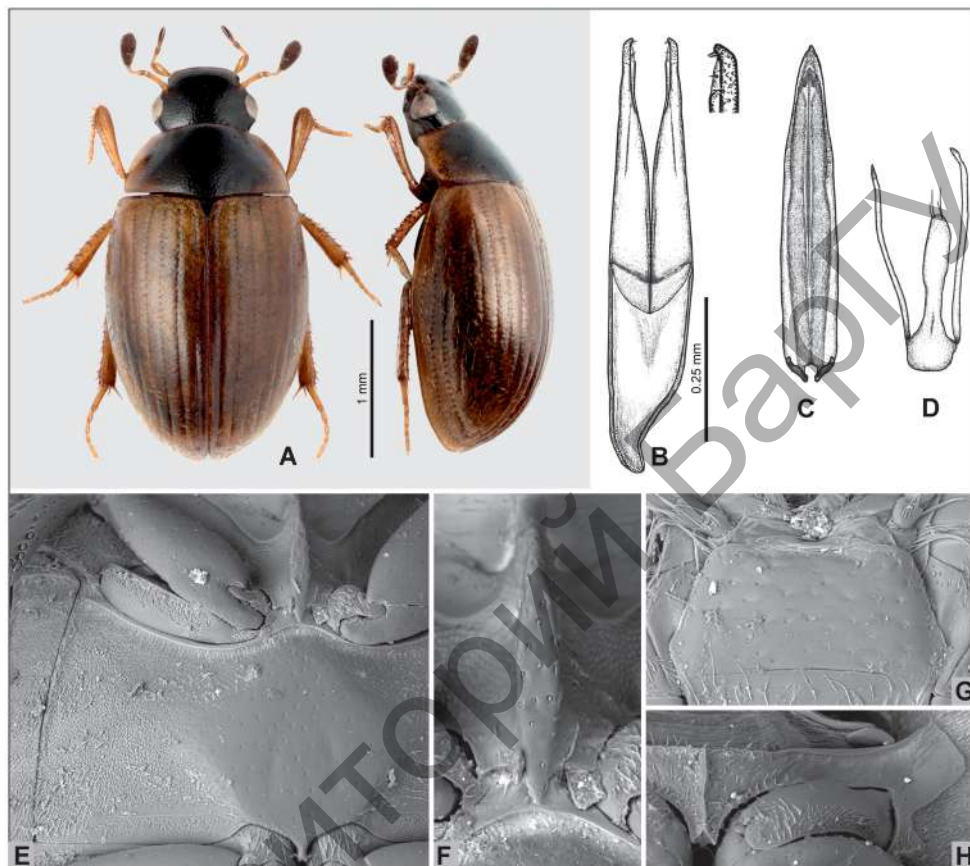


Fig. 6. *Cercyon undulipennis* sp. nov. A – dorsal and lateral habitus of paratype from China: Yunnan: Gaoligong Shan; B–D – male genitalia of the holotype (B – tegmen; C – median lobe; D – sternite 9). E–H – ventral morphology (E – meso- and metaventrite; F – detail of mesoventral plate; G – mentum; H – prosternum and antennal groove).

brown to black, ventral plate and metaventral pentagon brown to dark brown, posterior margins of abdominal ventrites yellowish or brownish. Legs brownish-yellow to brownish.

Head. Dorsal surface with sparse short pale hairs. Clypeus with dense, moderately coarse punctures, interstices without microsculpture. Anterior margin of clypeus with narrow bead. Frontoclypeal suture undetectable. Frons without microsculpture on interstices. Eyes small, somewhat protruding, interocular distance $6.0\times$ the width of one eye in dorsal view. Mentum glabrous, ca. $1.6\times$ as wide as long, sparsely and finely punctate. Antennae with 9 antennomeres, scapus ca. $1.3\times$ as long as antennomeres 2–5 combined, club compact. Maxillary palpomere 2 strongly swollen, palpomere 4 almost symmetrical, equal to palpomere 3 in length.

Thorax. Pronotum and elytra with sparse pale hairs. Pronotum ca. $2.0\text{--}2.1\times$ as wide as long. Pronotal punctation similar to that on head. Lateral margins of pronotum with narrow bead overlapping anterior and posterior corners, anterior and central part of posterior margin

without bead. Prosternum with strong longitudinal carina medially; antennal groove distinct, moderately large, angulate laterally. Mesoventral plate very narrowly elongate, 7.9–11.0× as long as wide, widest at midlength (Fig. 6F). Metaventricle with raised glabrous sparsely punctate median pentagonal area; femoral lines absent. Elytra with ten punctate striae, striae 1–9 impressed and reaching base, stria 10 very short; intervals slightly convex in medial and apical parts, ground punctures on intervals very fine; humeral bulge not distinct. Epipleuron flat, horizontal. Femora with sparse and shallow punctures ventrally, with distinct tibial groove. Tarsi with densely arranged whitish setae ventrally, first metatarsomere about as long as metatarsomeres 2–3 combined.

Abdomen. Abdomen with five ventrites, first ventrite distinctly longer than other ventrites, ca. 2× as long as second ventrite, with distinct median longitudinal carina, fifth ventrite arcuate, not emarginate apically.

Male genitalia (Figs 6B–D). Phallobase shorter than parameres, asymmetrical basally. Paramere rather wide basally, abruptly narrowing in apical third, straight on outer margin, narrowly rounded apically; apex membranous, apex and inner edge with setae subapically. Median lobe rather wide, nearly parallel-sided throughout except at apex, base with short apodemes, apex pointed; gonopore large, situated subapically. Sternite 9 with narrowly rounded median projection bearing four long subapical setae, base rounded; median portion shorter than lateral struts.

Variation. All examined specimens from Sichuan are rather uniform in morphology and coloration. The females from western Yunnan are larger in body size (length 3.0 mm, width 1.7 mm) than Sichuan specimens, have wider mesoventral plate (8.0–8.5× as long as wide) and their elytra are darker in central part. Since no male was available from that locality which is moreover far from other known records, we are excluding these specimens from the type series.

Etymology. The species name reflects the convex elytral intervals; composed Latin adjective *undulipennis* (*-is, -e*) derived from Latin *unduli-* (undulate) and *penne* (wing, elytra).

Biology. The specimens were collected from cow and human excrements and from baited pit-fall traps in forests at altitudes of 1200–4000 m a.s.l. They seem to be very common in some localities in Sichuan.

Distribution. The species seems to be common in the mountains of central Sichuan; its occurrence in Yunnan is here recorded on the basis of three females and needs to be confirmed by male specimens.

Cercyon (Cercyon) quisquilius (Linnaeus, 1761)

(Figs 7, 13)

Scarabaeus quisquilius Linnaeus, 1761: 138. Transferred to *Cercyon* by STEPHENS (1829: 153).

Cercyon guangxiensis Wu & Pu, 1995 in JIA et al. (1995: 128). Synonymized with *C. quisquilius* by JIA et al. (2011: 48). For complete synonymy see HANSEN (1999).

Type locality. Sweden.

Type material. *Scarabaeus quisquilius*: SYNTYPES: The species was described from Sweden based on an unspecified number of specimens. Based on the on-line catalogue of the Linnaeus collection, there are two pinned specimens present in the collection, one with labels '83 [p] // quisquilius', the second without any label data. We consider both these specimens as syntypes. Based on the photographs available on-line, both correspond well with the European specimens treated under the name *Cercyon quisquilius* by the body form and coloration (yellow elytra, dark pronotum with pale lateral sides).

Cercyon guangxiensis. HOLOTYPE: male (SYSU): “Nanning, 19.vi.1977, leg. Zhihe Huang [transcribed from Chinese] // Holotype, *Cercyon guangxiensis* sp. nov., det. Pu et Wu”. PARATYPES: 1 female (SYSU): same label data as the holotype; 2 spec. (SYSU): Shanghai.

Additional material examined. CHINA: GUANGDONG: 4 spec. (SYSU): Lianzhou, Dadongshan Natural Reserve, 25.ix.2008, Yun Wang leg. **HEBEI:** 26 spec. (SYSU): Handan, Shexian county, Piancheng, 1190m, 36°44'02"N 113°39'30"E, 1.viii.2003, Xie & Lin leg. **HEILONGJIANG:** 5 spec. (SYSU): Wudalianchi, 9.viii.2005, Fenglong Jia leg. **HUBEI:** 79 spec. (SYSU): Dabieshan Mt., Wujiashan, 31°7.6'N 115°45.1'E, 29.vi.2014, light trap, Liu Zhenhua leg.; 24 spec. (SYSU): Dabieshan Mt., Qingtaiguan, 31°12.2'N 115°42.1'E, 1–4.viii.2014, Liu Zhenhua leg.; 3 spec. (SYSU): Dabieshan Mt., Taohuachong, 30°50.9'N 116°1.7'E, 25.vi.2014, Liu Zhenhua leg. **NEI MONGOL:** 79 spec. (SYSU): Linxi county, Husitai village, 23.viii.2003, Fenglong Jia leg.; 2 spec. (SYSU): Hulunbeir, Yiminhe town, 28.vii.2014, Fenglong Jia leg.; 1 spec. (ZISP): Manchuria, Greater Khingan Mts., station Zhalantun [ca. 48°N 122°43'1.2"E], 1905, Lakshevits leg. **JIANGXI:** 5 spec. (SYSU): Sanqingshan, 28.93°N 118.05°E, 15–16.v.2012, Living leg. **SICHUAN:** 11 spec. (SYSU): Luding, Hailuoguo, 1100–2900 m, 3–4.vii.2012, Living & Chen leg.; 2 spec. (NHMB): Maowen, 1000 m, 31.30°N 103.5°E, 10–18.vii.1990, J. Kolibáč leg.; 1 spec. (NHMB): Songpan, 2000 m, 32.3°N 103.4°E, 13–17.vii.1990, J. Kolibáč leg. **YUNNAN:** 4 spec. (SYSU): Jingdong County, Taizhong Town, 24°30'N 100°56'E, 1395 m, 15.iv.2015, Renchao Lin & Yudan Tang leg.; 16 spec. (NHMB): Lijiang, Xiangshan, 2400 m, 6.vii.1990, V. Kubán leg.; 1 spec. (NHMB): Yulongshan Mts., Baishui, 2900–3500 m, 27°08'N 100°14'E, 7–12.vii.1990, V. Kubán leg.; 1 spec. (NHMB): 60 km SEE of Kunming, Shilin (Stone Forest), 3.vii.1990, V. Kubán leg.; 1 spec. (NHMB): Lijiang, 2600 m, 30.vi.–2.vii.1990, L. & M. Bocák leg.; 1 spec. (NMPC): Zizhi, at light, 1995 m, 25°43.7'N 98°34.1'E, 29.vi.–2.vii.2016, J. Hájek & J. Růžicka; 2 spec. (NMPC): Tongbiguan vill., at light, 1340 m, 24°36.7'N 97°39.4'E, 24–26.vi.2016, J. Hájek & J. Růžicka lgt. **ANHUI:** 1 spec. (NHMB): Dabieshan, 65 km SW of Huoshan, 1400 m, 21–22.vi.1998, Bolm leg. **HENAN:** 8 spec. (NHMB): 10 km S of Guanpo, 1600 m, 17.vii.1998, Bolm leg. **QINGHAI:** 3 spec. (NMPC): Yunning Si lamasery, 2890 m, 36°45.6'N 102°10.6'E, 16.vii.2005, J. Hájek, D. Král & J. Růžicka leg.; 1 spec. (NMPC): 6.6 km NW of Golmud, 2805 m, 36°25.7'N 94°51.2'E, 8.vii.2005, J. Hájek, D. Král & J. Růžicka leg. **GANSU:** 3 spec. (ZISP): sel. Say-Duytszy, Gobiysk okr. Gan'su, [Gobi Region, =? Sai Duizi], ix.1901, Kozlov leg. **SHAANXI:** 1 spec. (CSR): S of Huaxian, SE Damingzhen, Huashan Mts., 2010 m, 34°18'27"N 109°49'52"E, 24.v.2009, Belousov & Kabak leg. **JAPAN:** **HOKKAIDO:** 1 spec. (KMNH): Rumoi, Tôge-shita, vi.2009, Y. Minoshima leg. **HONSHU:** 17 spec. (KMNH, NMPC): Ibaraki Pref., Ishige-machi, vi.2002, T. Shimada leg.; 1 spec. (KMNH): Kanagawa Pref., Atsugi-shi, Funako, 5–12.vii.2007, K. Usui leg.; 1 spec. (KMNH): Shimane Pref., Oki Islands, Dôgo Island, Goka-mura, mouth of Omosu-gawa River, light trap, 21.vii.2003, T. Shimada leg. **KYUSHU:** 1 spec. (KMNH): Fukuoka Pref., Tagawa-shi, at light, 10.vi.1958, Y. Takakura leg.; 2 spec. (KMNH): Fukuoka Pref., Tagawa-shi, 28.vi.1978, Y. Takakura leg.; 1 spec. (KMNH): Fukuoka Pref., Tagawa-shi, Higashi-machi, 5.x.1982, Y. Takakura leg.; 1 spec. (KMNH): Fukuoka Pref., Tagawa-shi, Urano, 14.vi.1958, Y. Takakura leg. **MONGOLIA:** **BAZARKHONGOR:** 1 spec. (ZISP): W predg. Ikhe-bagdo, Gob. Altay, Mong. [the foothills of Ikh-Badg Mts., Gobi Altai, Mongolia], 15.viii.[19]26, Kirichenko leg. **KHUVSGUL:** 7 spec. (ZISP): r. Khorioy yu. prit, oz. Dod-nor, Grenk. kr. [southern tributary of Khorioy river, Dood-Tsagan-nuur lake, Grenk Mts.], 6.vi.[18]80, Pytanin [leg.]. **UMNGOVI:** 2 spec. (ZISP): Mongoliya, YuzhnoGobiysk. ayamak, Bordzon-Gobi, 80 km. YuYuV Nomgona [South Gobi region, Bordzon-Gobi, 80 km SSE of Nomgon], 5–8.viii.1967, Emel'yanov & Kerzhner [leg.]. **TÖV:** 2 spec. (ZISP): Ushch. Sutszukte, yu-z. Kentey, Mongoliya [Suzukte ravine, SW Khentii Mts. Mongolia], 28–31.v.[1]925, Kozlov [leg.]; 1 spec. (ZISP): Syutszukte, yu.-v. Kentey, s. z. Urchi [Suzukte ravine, SE Khentii Mts., NW of Urchi], 13–28.v.1925, Kozlov [leg.]; 15 spec. (ZISP): Mongoliya, Tsentralnyy ayamak, 150 km Yu Yu Z Ulan-Batora [Central Ayamak, 150 km SSW of Ulan-Bator], 2.ix.[1]969, Gur'eva [leg.]; 4 spec. (ZISP): same data, but 27.viii.[1]967. **ZAVKHAN:** 1 spec. (ZISP): Shuryk bl Ulyasutaya, S-Z Mongoliya [Shuryk near Uljasutai, northwestern Mongolia], 20.viii.1877, Pytanin leg. **Without precise data:** 1 spec. (ZISP): S-Z Mongoliya [= NW Mongolia], 1877, Pytanin [leg.]; 14 spec. (ZISP): 'Sogtan, S-Z Mongoliya' [= NW Mongolia], 1877, Pytanin [leg.]. **RUSSIA:** **TYUMEN OBLAST:** 5 spec. (ZISP): Tobolsk, 2.v.1924, Samko [leg.]; 1 spec. (ZISP): Tyumen, Tobolsk. g. [guberniya], 11.v.1925 [without collector]; 1 spec. (ZISP): Ishim [without date and collector]. **OMSK OBLAST:** 2 spec. (ZISP): Tara [without date and collector]. **ALTAI KRAI:** 8 spec. (ZISP): Sib. oz. Severnaya step. Kulunda, 18.viii.[1]922, Reichardt [leg.]; 5 spec. (ZISP): same data but 15.viii.[1]922; 3 spec., (SZMN): YuS Altay, okr. Alekseevki, vdchr. na Ortaterky, konsk. navoz [Alekseevka env., horse dung], 15.vi.1997, R. Dudko & V. Zinchenko leg.; 1 spec. (ZISP): 'r. Kyerlyk 15 v. ot Tengy Biys. u., Silant' [Onguday district], 5.vii.[18]97, without collector. **ALTAI REPUBLIC:** 1 spec. (ZISP): Chuyskaya step, pik Yustyd', 2.vi.1907, [without collector]; 6 spec. (ZISP) Uznezya na

Katuni, 4–6.viii.[1]909, Gorchakovskiy [leg.]; 1 spec. (ZISP): same data but 22.vi.[1]909; 1 spec. (ZISP): Barnaul, Tom. g. [Tomsk guberniya], 22.vii.[1]911, Sentenina [leg.]; 1 spec. (ZISP): Zmeinigor. okr., Tomsk. gub. [Zmeinogorsk district, Tomsk region], ‘d. [village] Sabushka’, 31.v.1908, V. Khvorov [leg.]; 2 spec. (CSR): Altay, okr. [env.] Kosh-Agach district, 26.v.1989, Saluk leg. **NOVOSIBIRSK**: 2 spec. (SZMN): Novosib. obl., Karasukskiy r-n, okr. s. Troitskoe, korov. navoz, [Karasuk district, env. vill. Troitskoe, cow dung], 24.vii.1995, V. K. Zinchenko [leg]. **KEMEROVO OBLAST**: 4 spec. (ZISP): Kuznetsk, Tomsk. g. [guberniya], 28.v.[1]908, Khvorov [leg.]; 12 spec. (ZISP): Tisul’, Mariin. u., [Mariinsk uyezd, = district] Tomsk. g. [guberniya], 6.vi.[1]911, Gorchakovskiy [leg.]; 1 spec. (ZISP): same data but 13.vi.[1]911; 1 spec. (ZISP): Shor-su river, Kuznetsk Alatau, 12.vii.[1]908, Khvorov [leg]. **KRASNOYARSK KRAI**: 1 spec. (ZISP): Uchum, 1892, Glassunov [leg.]; 2 spec. (ZISP): Taseevo, Kansk. u. [uyezd, = district], Enis. g. [Yeniseysk guberniya], [1]914, Varaksina [leg.]; 3 spec. (ZISP): Yurty Kansk u. [uyezd, = district], ‘Enis. g.’ [Yeniseysk guberniya], 13.v.[1]912, Mishin & Verkhov [leg.]; 1 spec. (ZISP): Krasnoyarsk, ‘Enis. g. [Yeniseysk guberniya], Anuchino’, 28.v.1905, [without collector]. **IRKUTSK OBLAST**: 1 spec. (ZISP): r. Belaya, sist. Angary, Irk. g. [Belaya river, tributary of Angara, Irkutsk guberniya], [18](74), Gartung [leg.]; 1 spec. (ZISP): s. Padun na V. Tunguske, Irk., [village Padun on Verkhnyaya Tunguska (old name of lower part of Angara river), Irkutsk guberniya] [18]67, Chekanovsk. [leg.]; 1 spec. (ZISP): st. [ation] Malta, Sibirskaya zh. d. [Siberian Railway], vi.1901, D.A. Smirnov leg.; 2 spec. (ZISP): s. Ust’ Khut, lev. ber. r. Leny [Ust-Khut, left bank of Lena river], 2.vi.[19]25, Ivanov [leg.]. **SAKHA REPUBLIC**: 1 spec. (ZISP): okr. Yakutsk, [Yakutsk env.], [1]901, Olenin. [leg.]; 6 spec. (ZISP): okr. Yakutsk [env.], 1915–16, Yurynskiy [leg.]; 20 spec. (ZISP): Yakutsk, 28.vii.1927, Moskvyn [leg.]; 3 spec. (ZISP): same data, but 17.vi.1927; 1 spec. (ZISP): M. Cherapanikha, Yakutskaya obl. [Malaya Cherapanikha river, Yakutsk oblast], 15–16.vi.[19]07, Kharitonov [leg.]; 1 spec. (ZISP): same locality, but 31.vii.[19]07; 6 spec. (ZISP): [lake] Syargalyakh, 3 ver. ot Yakutsk [Yakutsk env.], 23.v.1911, I. Afanas’ev [leg.]; 1 spec. (ZISP): Zhamkonsk. nasl. Yakuts okruga, [Zhemkonskiy nasleg, Vilyuysk district, near Yakutsk], 8.vii.[1]925, Bianki [leg.]. **BURYAT REPUBLIC**: 1 spec. (ZISP): Mondy, 3.vi.1915, S. Rodionoff [leg.]. **ZABAYLSKIY KRAI**: 1 spec. (ZISP), Targituy k S ot Chity, Zabayk., [Targituy N of Chita, Transbaikal], 15.vii.1914, Gavriluyk [leg.]. **JEWISH AUTONOMOUS OBLAST**: 1 spec. (ZISP): Raddevka-na-Amure [= Radde], [18]76, Khristof leg. **KHABAROVSK KRAI**: 1 spec. (ZISP): Khabarovsk, Primorskaya obl., vi–vii.1905, Gudzenko [leg.]; 1 spec. (CSR): Khabarovsk area, Chirki, at UV-light, 27.vii.1992, A.V. Frolov leg. **PRIMORSKY KRAI**: 1 spec. (ZISP): Ussuriysk, Primor. [Primorye], 20.viii.1969, Kryzhanovskiy [leg.]; 2 spec. (ZISP): Vladivostok, Primor. o. [Primorskaya Oblast], 17.v.1916, Rimskiy-Korsakov [leg.]; 5 spec. (ZISP): same data, but 24.viii.1914; 1 spec. (ZMMU): Ussuriyskiy zap-k [Ussuriysk Nature Reserve], 19.vi.1980, Nikitskiy [&] Belov [leg.]; 3 spec. (ZMMU): Kamenushka, bl. Ussuriyska [near Ussuriysk], 6.viii.1980, Nikitskiy [&] Belov [leg.]; 1 spec. (ZISP): sopka Kamen. Padi, Kam-Rybol, [lake] Khanka, 5–6.viii.[19]08, Cherskiy leg.; 4 spec. (ZISP): Kamen’-Rybolov, [lake] Khanka, 5–7.ix.[19]08, Cherskiy [leg.]; 1 spec., (ZISP): s. [vill.] Troitskoye, oz. Khanka [lake], 1.vii.[19]09, Cherskiy [leg.]; 2 spec. (ZISP): same data but 5.vii.[19]09; 2 spec. (ZISP): same data but 14.vii.[19]09; 2 spec. (ZISP): same data but 16.vii.[19]08; 4 spec. (ZISP): same data but 17.vii.[19]09; 11 spec. (ZISP): same data but 22.vii.[19]09; 5 spec. (ZISP): same data but 28.vii.[19]09; 1 spec. (ZISP): same data but 5.ix.1914; 1 spec. (ZISP): Vladivostok, Primor. obl. [Primorskaya Oblast], 13–26.viii.1911, Berger [leg.]; 3 spec. (ZISP): same data but 29.viii.–11.ix.1911; 1 spec. (KMNH): Banevurovo, 10–12.vii.1997, A. Khvylya leg. **SAKHALIN OBLAST**: 2 spec. (ZISP): Kunashir [Is.], Alékhino, 15.vi.1973, Kerzhner [leg.]. **KAZAKHSTAN: EAST KAZAKHSTAN**: 1 spec. (CSR): Kazakhstan, Jungar Alatau Mts., area of river Musdybulak, 24.viii.1994, A.V. Frolov leg.; 1 spec. (ZISP): Jungar Alatau Mts., Topolevka, 5.v.1957, Kerzhner leg. **WEST KAZAKHSTAN**: 1 spec. (ZISP): okr. Uralska [Uralsk env.], 19.v.[19]06, [leg.] B. Uvarov. **ZHAMBYL**: 1 spec. (ZISP): Merke, Syrdar. obl. [Syrdarya region], 16.v.1910, Kirichenko leg.; 1 spec. (ZISP): St. Akyr-Tyube, Turksib [Akyr-Tyube station, Turkestan–Siberia Railway], 5.vii.1930, Bianki [leg.]. **KVYZLORDA**: 2 spec. (ZISP): okr. Perovska [Perovsk env.], 15.vi.1925, [without collector]. **KYRGYZSTAN: ISSYK KUL**: 3 spec. (CAK): near Issyk-kul lake, 22.viii.1983, O. G. Guseva leg. **JALAL ABAD**: 1 spec. (CSR): Kirgizia, Tian-Shan, Fergana Mts., near Kek-Art river, 1800 m, in excrements, 41°08’N 73°35’E, 25.vii.2010, S.V. Saluk leg. **TALAS**: 2 spec. (ZISP): Talass, iv.[19]08, Fisher leg.; 8 spec. (ZISP): Talass-Thai, Fisher leg.; 1 spec. (ZISP): Talasskiy Alatau, iv.[19]09, Fisher leg. **TAJIKISTAN: GORNO-BADAKHSHAN**: 3 spec. (ZISP): Pamirskiy post na r. Murgab [Pamirskiy Post at Murghab river], [1]901, Fedchenko [leg.]. **KHATLON**: 2 spec. (ZISP): okr. Kulyaba, Tadzhiik [Kulob env., Tajikistan], 28.viii.1933, V. Popov [leg.]; 3 spec. (ZISP): Kurgan-Tyube, Tadz., [Qurghontepa, Tajikistan], 15.v.1939, Kryzhanovskiy [leg.]; 1 spec. (ZISP): parkhar na r. Pyandzh, Tadzhiikistan, [Parkhar (= Farkhor) at Pyandzh river], 29.vi.[1]934, Luppova [leg.]; 1 spec. (ZISP): Kabadian, Tadzhiikistan, 18.

vi.1934, Gusakovskiy [leg.]; 1 spec. (ZISP): istoki Amu-Dar'i, [headwaters of Amu-Darya river], 6.viii.19]08. **SUGH D REGION:** 1 spec. (ZMMU): Tadjikistan, Kondara, ushch. [ravine] Varzana, 22.vi.1920, L. Zimina [leg.]. **TURKMENISTAN:** **ASHGABAT:** 1 spec. (ZISP): Askhabad [= Ashgabad], Zakasp. obl. [old name of Transcaspian Oblast], [18]96, Anger [leg.]. **MARY:** 1 spec. (ZISP): Merv, Sredne-Az. Zh.d., 15.vi.1905, Sumakov [leg.]. **BALKAN:** 4 spec. (ZISP): 'Trans-Caspi G. Turcemenien', E. König [leg.]. **UZBEKISTAN:** **KASHKADARYA:** 1 spec. (ZISP): Bukhara, Guzar-Dar'ya, Guzar', 1904, Suvorov [leg.]; 1 spec. (ZISP): Kummashi na NO ot Guzara, Bukh [= Kamashi, NE G'uzor, Bukhara], 12.vi.1932, Radd [leg.]. **TASHKENT:** 2 spec. (ZISP): Pskemskiy khr. Nanay, Pskemskiy khrebet [Psemskiy ridge], r-n, kish. Nanay, ca. 1000 m, 27.v.1998, Gur'eva [leg.]; 3 spec. (ZISP): Golodnaya step [= Guliston of Sirdaryo region], Sr. Az. zh.d. [= Middle Asian Railway], Khadzh. U. [= old name for Khojent uyezhd = district], 28.iv.19]03, G. Yakobson [leg.]; 13 spec. (KMNH, NMPC): Tashkent env., 6.ix.2000, [without collector]. **LEBAP:** 1 spec. (ZISP): Czardjui [= Chardzhui], 16.v.19]05, Fisher leg.; 1 spec. (ZISP): 'Chardzhui, S.-Z. Bukhara' [= Chardzhui], 4.ix.19]04, E. Fisher [leg.]; 3 spec. (ZISP): Chardzhui, 30.ix.19]04, Fisher [leg.]; 1 spec. (ZISP): same data but 20.xii.19]04; 2 spec. (ZISP): same data but 4.v.19]05; 1 spec. (ZISP): same data but 9.v.19]05. **IRAN:** 10 spec. (ZISP): Persia, Caspii [coast of the Caspian Sea], 26.ii.1915, Hassanlejadien leg. **SYRIA:** 1 spec. (ZISP): Syrien. **TURKEY:** 1 spec. (ZISP): Sarykamyş et vicina, 14.vii.14; 1 spec., (ZISP): Kozik distr., Erzerum, ix.17, coll. Zaytsev.

Published records. **RUSSIA:** **ALTAI REPUBLIC:** near Kosh-Agach (PROKIN et al. 2008). **KHABAROVSK:** 20 km N of Troitskoe, bank of Amur river (HEBAUER 1995). **PRIMORSKY KRAI:** Chernye Gory, Venedivnovo [likely misspelled form of "Venevitinovo"] (HEBAUER 1995). **SAKHALIN OBLAST:** Is. Iturup, Rubetsu [= Pioneer] (ÔHARA & JIA 2006). **TAJIKISTAN:** **DISTRICTS OF REPUBLICAN SUBORDINATION:** Pamir-Alai, Hassar Mts., near Marsob, Adshuk-Cleft (HEBAUER 1991). **KAZAKHSTAN:** **KYZYLORDA:** Lake Kymyshlybas; Mamyr (both TERMESHEV 2016). **SOUTH KAZAKHSTAN:** Kyzylkum, Baymahan wells; Syr-Darya 60 km E of Arys; on the shore of Shardara reservoir (all TERMESHEV 2016). **JAMBYL:** Tasotkel reservoir (TERMESHEV 2016). **UZBEKISTAN:** **SURKHANDARYA:** Uchkizil (PROKIN et al. 2016). **NEPAL:** **KARNALI:** Chauta Sinja Khola (HEBAUER 2002a). **CHINA:** **NEI MONGOL:** Hailar; Hulunbeir, Zhalainour, Linxi county, Zhanpu (all JIA et al. 2011). **QINGHAI:** Yunning Si lamasey (JIA et al. 2011). **GUANGXI:** Yangshuo (JIA et al. 1995). **SHANGHAI:** Shanghai (JIA et al. 2011). **MONGOLIA:** **KHENTII:** Onon-Balj National Park, Bayan-Ovoo (KORSUN et al. 2012). **JAPAN:** **HOKKAIDO:** Tomakomai (SHARP 1884). **FUKUOKA:** Kawatchi [= Kawachi] (SHARP 1874).

Diagnosis. Elytra and pronotum without hairs; head black; pronotum black with narrowly pale lateral margins; elytra and epipleuron yellow to brownish-yellow; maxillary palpomeres yellowish or yellowish-red, last palpomere darker; elytral intervals flat; mesoventral plate very narrowly elongate, ca. 5.5–6.2× as long as wide; metaventrite without femoral lines; fifth abdominal ventrite not emarginate apically; paramere rather wide at base, slightly sinuate on outer margin, rounded apically, apex with setae; median lobe widest near apex, slightly narrowing towards base, basal apodemes long; median projection of sternite 9 narrowly rounded apically, base strongly arcuate.

Redescription. *Form and color.* Body elongate oval (Fig. 7A), length 1.8–2.7 mm, width 0.9–1.3 mm. Head black with very small brownish preocular spots. Pronotum black with narrowly yellowish to yellowish-red margins, anterior margin very narrowly pale, base of pronotum very narrowly pale only near posterolateral angles. Scutellum black to dark brown. Elytra and epipleura pale yellow to brownish-yellow. Antennae yellowish except for darker club. Maxillary palpomeres yellowish or yellowish-red, last palpomere darker. Ventral surface dark brown to black, mesoventral plate and metaventral pentagon brown to dark brown, posterior margins of abdominal ventrites brownish. Legs yellow to brownish-yellow.

Head. Clypeus with dense, moderately coarse punctures, interstices without microsculpture. Anterior margin of clypeus with narrow bead. Frontoclypeal suture undetectable. Frons without

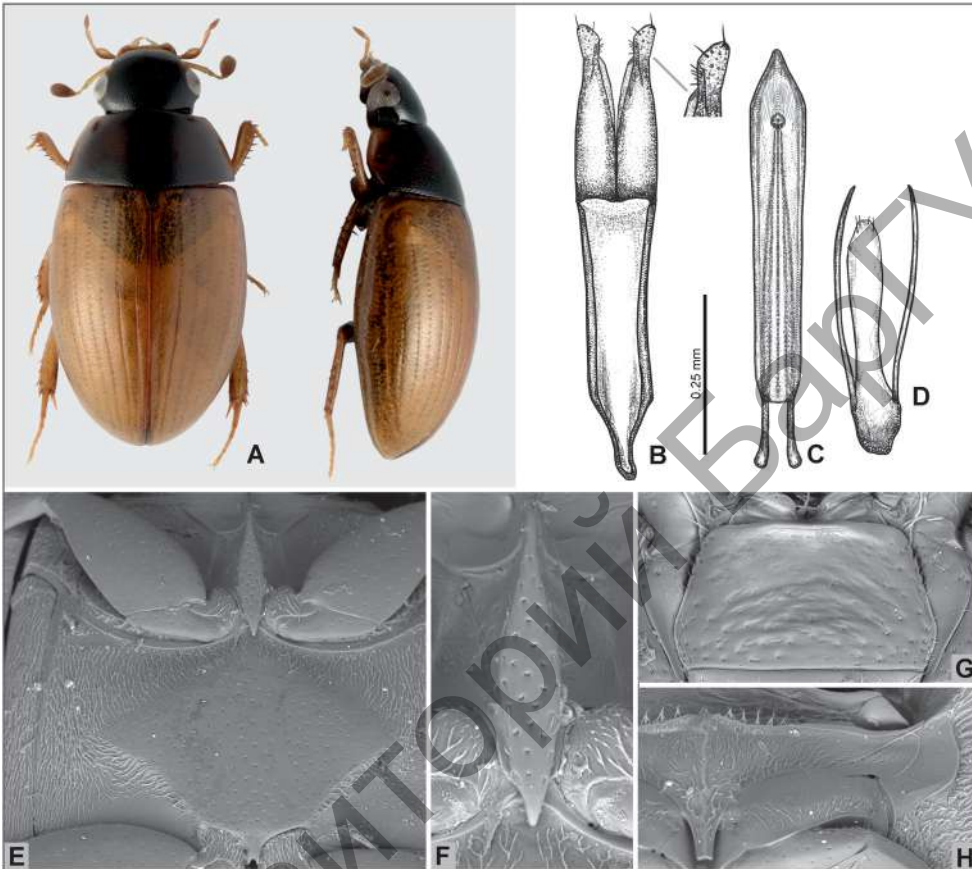


Fig. 7. *Cercyon quisquilius* (Linnaeus, 1761). A – dorsal and lateral habitus of the specimen from China: Yunnan: Lijiang; B–D – male genitalia (B – tegmen; C – median lobe; D – sternite 9). E–H – ventral morphology (E – meso- and metaventrite; F – detail of mesoventral plate; G – mentum; H – prosternum and antennal groove).

microsculpture on interstices. Eyes small, somewhat protruding, interocular distance ca. $6.0\times$ the width of one eye in dorsal view. Mentum glabrous, ca. $1.6\times$ as wide as long, densely and coarsely punctate. Antennae with 9 antennomeres, scapus ca. $1.3\times$ as long as antennomeres 2–5 combined, club compact. Maxillary palpomere 2 strongly swollen, palpomere 4 almost symmetrical, equal to palpomere 3 in length.

Thorax. Elytra and pronotum without hairs. Pronotum ca. $1.9\text{--}2.0\times$ as wide as long. Pronotal punctation similar to that on head. Lateral margins of pronotum with narrow bead overlapping anterior and posterior corners, anterior and central part of posterior margin of pronotum without bead. Prosternum with strong longitudinal carina medially; antennal groove distinct, moderately large, rounded laterally. Mesoventral plate narrowly elongate, ca. $5.5\text{--}6.2\times$ as long as wide, widest at midlength (Fig. 7F). Metaventrite with raised, glabrous, sparsely punctate median pentagonal area; femoral lines absent. Elytra

with ten punctate striae, striae 1–9 impressed and reaching base, stria 10 very short; intervals flats, ground punctures on intervals very fine; humeral bulge indistinct. Epipleura flat, horizontal. Femora with sparse and shallow punctures ventrally, with distinct tibial groove. Tarsi with densely arranged whitish setae ventrally, first metatarsomere about as long as metatarsomeres 2–3 combined.

Abdomen. Abdomen with five ventrites, first ventrite distinctly longer than other ventrites, ca. 2× as long as second ventrite, bearing distinct median longitudinal carina, fifth ventrite arcuate, not emarginate apically.

Male genitalia (Figs 7B–D). Phallobase slightly longer than parameres, asymmetrical basally. Paramere rather wide basally, slightly sinuate on outer margin, asymmetrically rounded apically; apex membranous, with setae. Median lobe widest near apex, slightly narrowing towards base, with long apodemes, apex triangular, obtusely pointed; gonopore small, situated subapically. Median projection of sternite 9 narrowly rounded apically, bearing 4 short subapical setae; base strongly arcuate, median portion shorter than lateral struts.

Variation. The species varies in size, but otherwise is very uniform across its range; in some specimens, the base of the metaventral pentagon is yellowish-red.

Biology. Polysaprophage. It inhabits mainly the excrements of mammals (cows, horses, sheep and others). It frequently occurs in compost, rotting plant debris, rotten mushrooms (SMETANA 1978, 1988; NIKITSKY et al. 1996; RYNDEVICH 2004c, 2007). Some specimens were also collected in the nest of black stork *Ciconia nigra* (Linnaeus, 1758) (LUNDYSHEV & RYNDEVICH 2010). The species comes frequently to light.

Distribution. The species is widespread in the whole Palaearctic Region and in North America south to Mexico. In Asia, it is recorded from ca. 62°N in Russia (Western and Eastern Siberia, Far East) south through Mongolia to China including its southern provinces (Gansu, Henan, Jiangxi, Inner Mongolia, Qinghai, Shaanxi, Sichuan, Guangxi, Shanghai, Yunnan), Japan (Hokkaido, Honshu and Kyushu) and Nepal, and through Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan) to Turkey, Iran, Israel and Syria; no records are known from northern and central Kazakhstan and from the proper Tibetan Plateau. *Cercyon quisquilius* is also introduced outside of its native range to the Pacific (Hawaii: HANSEN 1995), Australia (Fikáček, unpubl. data) and Neotropics (Argentina, Caribbean: FIKÁČEK 2009, ARRIAGA-VARELA et al. 2017). **New for Chinese province of Anhui, Gansu, Guangdong, Hebei, Heilongjiang, Henan, Hubei, Jiangxi, Shaanxi, Sichuan and Yunnan, and for Kyrgyzstan, Turkmenistan, Syria and Iran.**

Cercyon (Cercyon) unipunctatus (Linnaeus, 1758)

(Figs 8, 11, 13)

Coccinella unipunctata Linnaeus, 1758: 364. Transferred to *Cercyon* by LEACH (1817: 95).

For complete synonymy see HANSEN (1999).

Type locality. Europe.

Type material examined. *Coccinella unipunctata*. The species was described from Europe based on an unspecified number of specimens. Based on the on-line catalogue of the Linnaeus collection, there is a single pinned specimen present in the collection, bearing the labels 'unipunctata [hw] // 6 [p]'. We consider this specimen as the syntype. Based on the photographs available on-line, the specimen corresponds well with the European specimens treated under the name *Cercyon unipunctatus* by the body form and coloration (yellow elytra with central dark spot and

darkened sutural interval, dark pronotum with pale lateral sides).

Additional material examined. **KAZAKHSTAN:** EAST KAZAKHSTAN REGION: 1 spec. (SZMN): Vost. Kazakhstan, Markakolskiy r-n [Markakol district], s. [vill.] Urunkhayka, korov. n-z [cow dung], Markakolskiy rayon, 2.vii.1996, V. Zinchenko [leg.]. **RUSSIA:** YAMALO-NENETS AUTONOMOUS OKRUG: 2 spec. (ZMMU): Salekhard, 19.vi.1955, Telishev leg. **KEMEROVO OBLAST:** 1 spec. (ZISP): 'Kuznetsk, Tomsk g.', Khvorov & Gorchakovskiy [leg.]. **TYUMEN OBLAST:** 1 spec. (ZISP): okr. Tobolska [Tobolsk env.], 21.v.1925, Fridolin [leg.]. **IRKUTSK OBLAST:** 1 spec. (ZISP): Irkutsk, Yakovlev [leg.]. **SAKHA (YAKUTIA) REPUBLIC:** 4 spec. (ZISP): Yakutsk, 22.v.1911; 1 spec. (ZISP): same locality, 22.vi.[19]25, Bianki [leg.]; 2 spec. (ZISP): same data but 18.vi.[19]25. **ALTAI REPUBLIC:** 1 spec. (ZISP): Uznezya on Katun, Altai, 25.vii. [1]909, [leg.] Gorchakovskiy; 1 spec. (ZISP): same locality, 4.–6.viii.[1]909. **SAKHALIN OBLAST:** 1 spec. (CSR): Kunashir, cordon Alekhinskiy, 7.vii.2015, Yu. Sundukov & L. Sundukova leg. **Published records.** **RUSSIA:** PRIMORSKY KRAI: Chernye Gory, Venedivnovo [likely misspelled form of "Venevitinovo"] (HEBAUER 1995). **MONGOLIA:** KHENTI: Onon-Balj National Park, Bayan-Ovoo (KORSUN et al. 2012). **CHINA:** HEILONGJIANG: Mishan (JIA et al. 2011).

Diagnosis. Head black; pronotum black with widely pale lateral margins; elytra reddish-yellow with black central pentagonal spot, sutural interval black except basal part; maxillary palpi yellowish to reddish, last palpomere darker; elytral intervals flat; mesoventral plate narrowly elongate, ca. 3.7–5.0× as long as wide, metaventrite without femoral lines; pentagonal area of metaventrite with shallow and sparse punctation, distance between individual punctures in lateral parts as 4–6 diameters of puncture, fifth ventrite not emarginate apically; paramere rather narrow near base, slightly concave on outer margin, apex almost straight with some setae; median lobe nearly parallel-sided, triangularly narrowing apically; sternite 9 narrowly rounded apically, with 2 very short subapical setae, base strongly rounded.

Redescription. **Form and color.** Body elongate oval (Fig. 8A), length 2.0–3.8 mm, width 1.0–1.8 mm. Head black without paler preocular spots. Pronotum black, lateral margins narrowly pale, anterior margin very narrowly pale, base very narrowly pale only near posterolateral angles. Scutellum black. Elytra and epipleura reddish to yellowish, elytral disc with black pentagonal spot located in the middle of elytra; sutural interval black except basal part. Antennae yellowish except for darker club. Maxillary palpomeres yellowish to reddish, last palpomere darker. Ventral surface black or dark brown, posterior margins of abdominal ventrites yellowish or brownish. Legs brownish-yellow to reddish-brown.

Head. Clypeus with dense, moderately coarse punctures, interstices without microsculpture. Anterior margin of clypeus with narrow bead. Frontoclypeal suture undetectable. Frons without microsculpture on interstices. Eyes small, somewhat protruding, interocular distance ca. 6.3–6.6× the width of one eye in dorsal view. Mentum glabrous, ca. 1.6× as wide as long, sparsely and finely punctate, with barely transverse wrinkles (Fig. 8G). Antennae with 9 antennomeres, scapus ca. 1.3–1.6× as long as antennomeres 2–5 combined, club compact. Maxillary palpomere 2 strongly swollen, palpomere 4 almost symmetrical, equal to palpomere 3 in length.

Thorax. Elytra and pronotum without hairs. Pronotum ca. 2.0–2.1× as wide as long. Pronotal punctation similar to that on head. Lateral margins of pronotum with narrow bead overlapping anterior and posterior corners, anterior and central part of posterior margin of pronotum without bead. Prosternum with strong longitudinal carina medially; antennal groove distinct, medium large, rounded laterally. Mesoventral plate narrowly elongate, ca. 3.7–5.0× as long as wide, widest in medial part (Fig. 8F). Pentagonal area of metaventrite with shallow and

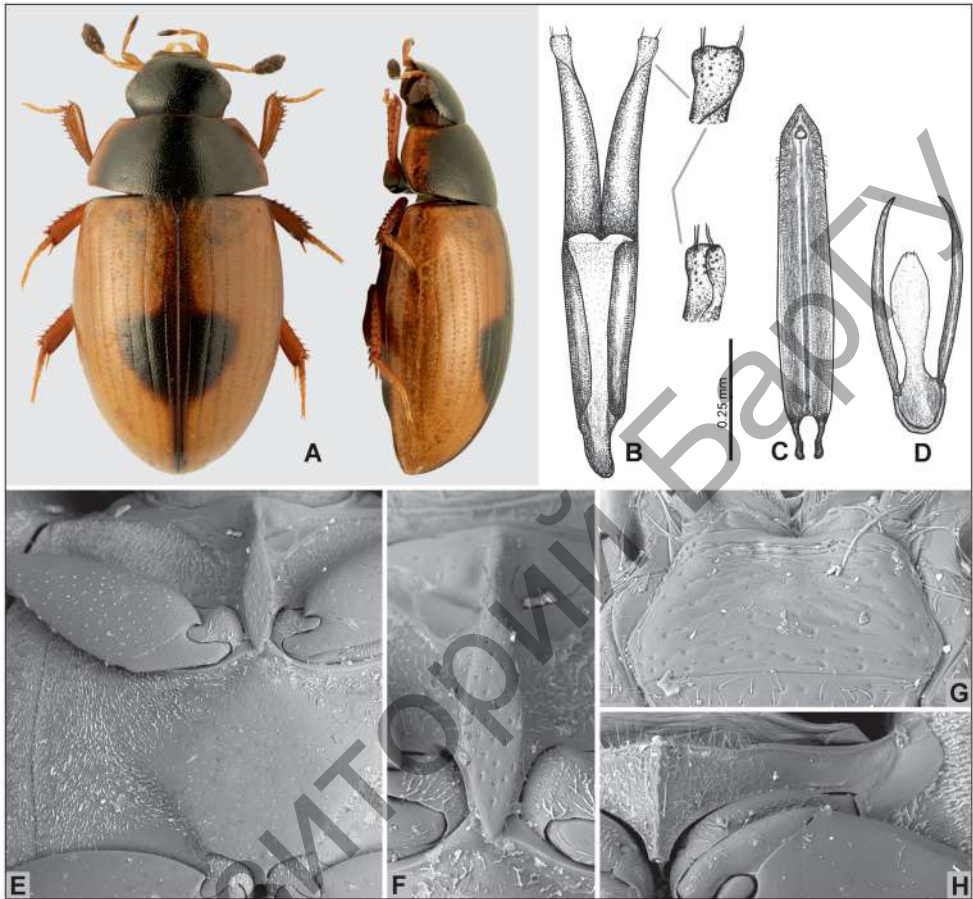


Fig. 8. *Cercyon unipunctatus* (Linnaeus, 1758). A – dorsal and lateral habitus; B–D – male genitalia (B – tegmen; C – median lobe; D – sternite 9). E–H – ventral morphology (E – meso- and metaventrite; F – detail of mesoventral plate; G – mentum; H – prosternum and antennal groove).

sparse punctation, distance between individual punctures in lateral parts as 4–6 diameters of puncture (Fig. 8E). Metaventrite with raised glabrous sparsely punctate median pentagonal area; femoral lines absent. Elytra with ten punctate striae, striae 1–9 impressed and reaching base, stria 10 very short; intervals flat; ground punctures on intervals very fine, humeral bulge indistinct. Epipleura flat, horizontal. Femora with sparse and shallow punctures ventrally, with distinct tibial groove. Tarsi with densely arranged whitish setae ventrally, first metatarsomere about as long as metatarsomeres 2–3 combined.

Abdomen. Abdomen with five ventrites, first ventrite distinctly longer than other ventrites, ca. 1.7–1.8× as long as second ventrite, with distinct median longitudinal carina, fifth ventrite arcuate, not emarginate apically.

Male genitalia (Figs 8B–D). Phallobase slightly longer than parameres, asymmetrical basally. Paramere rather narrow near base, slightly concave on outer margin, apex membranous, almost straight, with some setae. Median lobe nearly parallel-sided, lateral margins with very short setae in apical part, apex triangular, obtusely pointed; gonopore large, situated subapically; apodemes long. Median projection of sternite 9 narrowly rounded apically, bearing 2 very short subapical setae, base strongly rounded, median portion shorter than lateral struts.

Variation. Some specimens of *C. unipunctatus* have almost black lateral margins of pronotum, with narrowly pale areas only near anterior angles of pronotum. Form and size of sutural spot are very variable (Fig. 11) and extremely pale specimens have only weakly visible sutural spot. The dark morph of *C. unipunctatus* was described by NYHOLM (1952) as *C. janssoni* Nyholm, 1952 later recognized as belonging to *C. unipunctatus* (LINDBERG 1955, SMETANA 1978). This rare morph only occurs in southern Sweden, and hence is not treated here in detail. The ratio of length to width of mesoventral plate may vary significantly even in specimens from the same location.

Biology. Polysaprophage; the species inhabits different organic rotting material (SMETANA 1978, 1988; RYNDEVICH 2004c, 2007), mainly mammal excrements (especially cows, horses and sheep) and chicken manure. It frequently occurs in compost and rotting plant debris, and sometimes specimens can be found in decomposing remains near water. In Europe, specimens of *C. unipunctatus* were collected in the nests of different bird species: mute swan *Cygnus olor* (Gmelin, 1789), tufted duck *Aythya fuligula* (Linnaeus, 1758), black-headed gull *Larus ridibundus* (Linnaeus, 1766), marsh harrier *Circus aeruginosus* (Linnaeus, 1758), greater spotted eagle *Aquila clanga* Pallas, 1811 and song thrush *Turdus philomelos* Linnaeus, 1758 where they look for decaying organic remains (manure, plant debris etc.) (RYNDEVICH & LUNDYSHEV 2005, LUNDYSHEV & RYNDEVICH 2010). *Cercyon unipunctatus* flies to light.

Distribution. *Cercyon unipunctatus* is a widespread Palaearctic species occurring throughout Europe except its southernmost parts (FIKÁČEK et al. 2015), in Asia it is known from Kazakhstan, Russia, Mongolia, northernmost China (Nei Mongol) and northern Japan. In the middle of 19th century the species was introduced to North America where it also became widespread (SMETANA 1978).

Cercyon (Cercyon) unipustulatus Nakane, 1982

(Figs 9, 12A–D, 13)

Cercyon unipustulatus Nakane, 1982: 101.

Type locality. Japan, Honshu, Chiba, Abiko.

Type material examined. PARATYPE: ♀ (EIHU): ‘Riv. Tone, Abiko (Chiba), 21.IV.1968, coll. M. Shimoi, Nakane coll., Sehu Japan, 1999, 0000030762, Sys.Ent., Hokkaido Univ., Japan’ [SEHU]. [Comment: This paratype is listed with slightly different data in the original description: Abiko (Tonegawa), 21.iv.1968, M. Shimoi leg.]

Additional material examined. JAPAN: KYUSHU: 1 spec. (KMNH): Fukuoka Pref., Tagawa-shi, Urano, 19.vi.1958, at light, Y. Takakura leg., Y. Minoshima det. 2017. RUSSIA: AMUR OBLAST: 1 spec. (ZISP): Tarbogotay, second half of vi.1910. PRIMORSKY KRAI: 1 spec. (CSR): Primorskiy kray, Shkotovskiy r-n, d. [Shkotovsky district], Lukyanovka, 1.ix.1992, A.O. Lukashuk leg.; 5 spec. (CAP, CSR): Lazovskiy zap-k [Lazovskiy Nature Reserve], Sokolovka, na svet [at light], 16.viii.2005, Yu. Sundukov & V. Shokhrin leg.; 1 spec. (CAP): Lazo, 7–13.viii.2005, V. Shokhrin & Yu. Sundukov leg.; 1 spec. (CAP): s. [vill.] Lazo, na svet [at light], 7–8.viii.2005, Yu. Sundukov leg. SAKHALIN OBLAST: 1 spec. (MPU): Kunashir, cordon Alekhinskiy, 7.vii.2015, Yu. Sundukov & L. Sundukova leg.

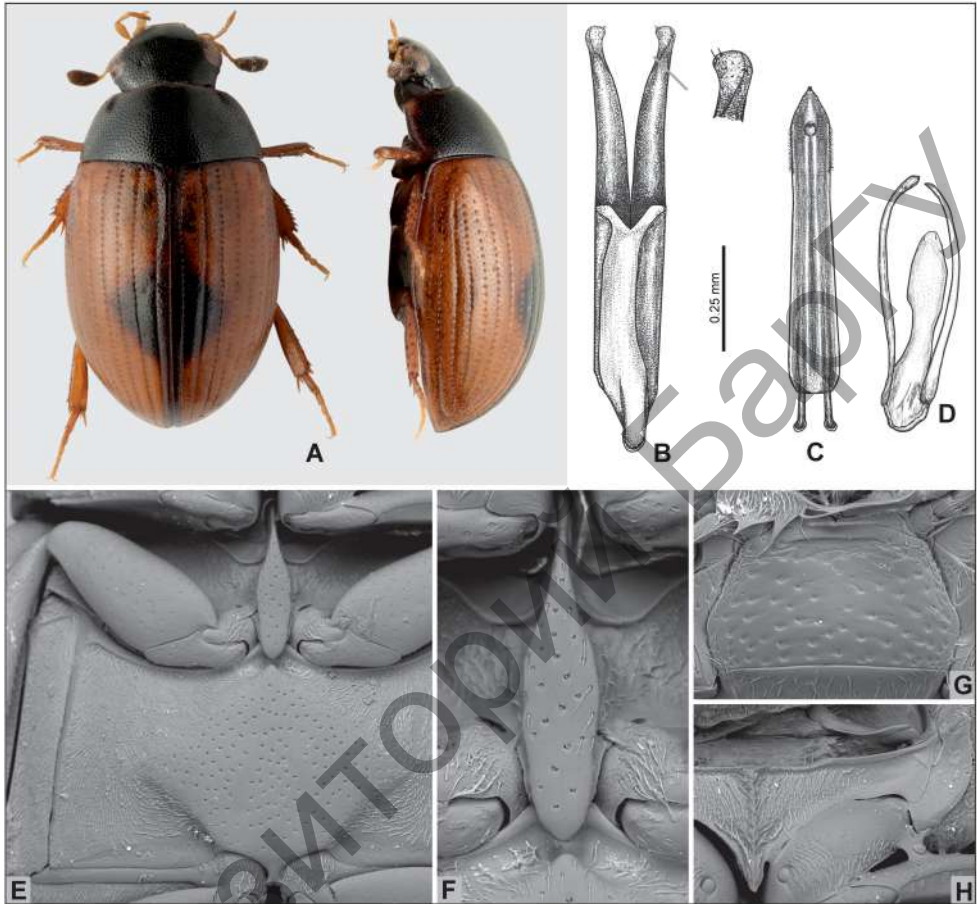


Fig. 9. *Ceryon unipustulatus* Nakane, 1982. A – dorsal and lateral habitus of the paratype from Japan: Chiba Pref., Abiko; B–D – male genitalia (B – tegmen; C – median lobe; D – sternite 9). E–H – ventral morphology of the paratype (E – meso- and metaventrite; F – detail of mesoventral plate; G – mentum; H – prosternum and antennal groove).

Published records. **RUSSIA: PRIMORSKY KRAI:** Chernye Gory, Venedivnovo [likely misspelled form of “Venevitinovo”] (HEBAUER 1995); Lazovsky Nature Reserve (PROKIN 2009). **JAPAN: Honshu:** Chiba Pref., Abiko (Tonegawa) (NAKANE 1982).

Diagnosis. Head black, without pale preocular spot; pronotum black with narrowly pale lateral margins; elytra reddish-yellowish with big black pentagonal sutural spot in the middle of elytra; sutural interval completely black or dark brown; maxillary palpi yellowish to brownish-yellow; elytral intervals flat, very slightly convex in apical part; mesoventral plate narrowly elongate, ca. 4.0–5.2× as long as wide; metaventrite without femoral lines; fifth ventrite not emarginate apically; paramere narrow near base, slightly concave on outer margin, apex almost straight with setae; median lobe widest near base, triangular apically; sternite 9 very narrowly rounded apically, with 2 very short subapical setae.

Redescription. Form and color. Body elongate oval (Fig. 9A), length 2.4–3.3 mm, width 1.4–1.9 mm. Head black. Pronotum black with narrowly pale lateral margins, anterior margin very narrowly pale, base very narrowly pale near posterolateral angles. Scutellum brown or dark brown. Elytra reddish-yellowish with big black pentagonal sutural spot located in the middle of elytra; sutural interval completely black or dark brown. Epipleuron reddish-yellowish. Antennae yellowish except for darker club. Maxillary palpomeres yellowish, reddish-yellow to brownish-yellow. Ventral surface black or dark brown, posterior margins of abdominal ventrites yellowish or brownish. Legs brownish-yellow to reddish-brown.

Head. Clypeus with dense, moderately coarse punctures, interstices without microsculpture. Anterior margin of clypeus with narrow bead. Frontoclypeal suture undetectable. Frons without microsculpture on interstices. Eyes small, somewhat protruding, interocular distance ca. 6.1–6.3× the width of one eye in dorsal view. Mentum glabrous, ca. 1.6–1.7× as wide as long, densely and coarsely punctate. Antennae with 9 antennomeres, scapus ca. 1.3–1.4× as long as antennomeres 2–5 combined, club compact. Maxillary palpomere 2 strongly swollen, palpomere 4 almost symmetrical, equal to palpomere 3 in length.

Thorax. Elytra and pronotum without hairs. Pronotum ca. 2.1–2.2× as wide as long. Pronotal punctation similar to that on head. Lateral margins of pronotum with narrow bead overlapping anterior and posterior corners, anterior and posterior margin without rim. Prosternum with strong longitudinal carina medially; antennal groove distinct, moderately large, rounded laterally. Mesoventral plate narrowly elongate, ca. 4.0–5.2× as long as wide, almost parallel-sided in posterior two thirds, strongly narrowing in anterior third (Fig. 9F). Metaventricle with raised glabrous, sparsely punctate median pentagonal area, anteriorly protruding towards mesoventral plate; femoral lines absent. Elytra with ten punctate striae, striae 1–9 impressed and reaching base, stria 10 very short. Intervals flat anteriorly, slightly convex in apical part; ground punctures on intervals very fine. Humeral bulge indistinct. Epipleura flat, horizontal. Femora with sparse and shallow punctures ventrally, with distinct tibial groove. Tarsi with densely arranged whitish setae ventrally, first metatarsomere about as long as metatarsomeres 2–3 combined.

Abdomen. Abdomen with five ventrites, first ventrite distinctly longer than others, ca. 2–2.2× as long as second ventrite, bearing distinct median longitudinal carina, fifth ventrite arcuate, not emarginate apically.

Male genitalia (Figs 9B–D). Phallobase slightly longer than parameres, asymmetrical basally. Paramere narrow near base, slightly concave on outer margin, apex membranous, almost straight, bearing setae. Median lobe widest proximal to midlength near base, strongly narrowing apically, basal apodemes long; lateral margins with very short setae in apical part, apex obtusely pointed; gonopore moderately large, situated subapically. Median projection of sternite 9 very narrowly rounded apically, bearing 2 very short subapical setae, median portion shorter than lateral struts.

Variation. Form and size of sutural spot are variable (Figs 12A–D). Pale colored specimens have very vaguely visible small brownish spots near front margin of eyes.

Biology. Polysaprophage, inhabiting decaying organic material (NAKANE 1982, SHATROVSKIY 1989). The majority of specimens were collected in cow excrements. *Cercyon unipustulatus* flies to light.

Distribution. *Cercyon unipustulatus* is endemic in the southern part of Russian Far East (Amur Oblast, Primorsky Krai, Kuril Islands) and for Japan. In northern part of its range it co-occurs with the similar *C. unipunctatus* with which it can be even syntopic (found together).

Cercyon (Cercyon) verus Shatrovskiy, 1989

(Figs 10, 12, 13)

Cercyon (Cercyon) verus Shatrovskiy, 1989: 282.

Cercyon (Cercyon) verus: SHATROVSKIY (1992): 364 (detailed redescription).

Type locality. Russia, Far East, Kuril Islands, Kunashir.

Type material examined. PARATYPES: 1 spec. (ZISP): ‘O. Kunasir, bl. Mendeleevo, 22.VI.1985, Nikitskiy [in Russian]’; 1 spec. (ZISP): ‘Novoaleksandrovsk, Yuzh. Sakhalin, leg. Kerzhner, 7.IX.1973 [in Russian]’.

Additional material examined. RUSSIA: KEMEROVO OBLAST: 1 spec. (CSR): W Siberia, Kemerovo reg., Lipovyy ostrov, 17.vii.1994, leg. A.B. Ryvkin, **SAKHALIN OBLAST:** 1 spec. (CSR): 15 km Yu Sernovodsk, Kunashir, [Kunashir Is., 15 km S of Sernovodsk], 7.vi. [19]93, Kerzhner leg.; 4 spec. (CAP): Kunashir Is., Yu. V. oz. Peschanoe [southwest of Peschanoe Lake], 8.vii.2008, Makarov leg.; 1 spec. (MPU): Kunashir isl., sea foreland Ivanovskiy, 18–21.ix.2014, Yu. Sundukov leg.; 2 spec. (CSR): Kunashir isl., lower reaches of river Saratovka, 14–15.vii.2014, Yu. Sundukov & L. Sundukova leg.; 4 spec. (MPU, CSR): same data but 10–16.vii.2014; 22 spec. (MPU, CSR): same data but 12–18.vii.2014; 2 spec. (MPU): same data but 14–15.vii.2014; 1 spec. (CSR): Kunashir Is., volcanic caldera near Goryachee lake, 14–17.vii.2015, Yu. Sundukov & L. Sundukova leg.; 1 spec. (MPU): Kunashir Is., foreland Ivanovskiy, 2 km S of Grozovoe, 2.vi.2015, Yu. Sundukov leg.; 1 spec. (CSR): Kunashir Is., volcanic caldera near Goryachee lake, 14–17.vii.2015, Yu. Sundukov & L. Sundukova leg.; 1 spec. (MPU): Kunashir Is., foreland Ivanovskiy, 2 km S of Grozovoe, 2.vi.2015, Yu. Sundukov leg.; 3 spec. (MPU, CSR): Kunashir isl., near cordon Saratovskiy, 2–4.vii.2014, Yu. Sundukov & L. Sundukova leg.; 2 spec. (NMPC): Urup Is., 46°01.29’N 149°51.67’E, Rybnaya River, Smugly Bay, under leaves of *Petasites japonica*, hand collecting, 24.viii.1995, M. Ôhara leg. (UR95MO055); 1 spec. (NMPC): Urup Is., 46°12.84’N–150°12.89’E, Novo-Kurylsk bay, near mouth of Bystraya River, 8.viii.1995, cow dung, hand collected, M. Ôhara leg. (UR95MO-8); 2 spec. (NMPC): Simushir Is., 46°51.36’N–151°47.19’E, hills near the shore at Kitoboynaya Bay, feces of pig, 11.viii.1995, M. Ôhara leg. (SI95MO011).

Published records. RUSSIA: SAKHALIN OBLAST: Sakhalin Is.: Novoaleksandrovsk (SHATROVSKIY 1989, 1992); Kunashir Is.: Lagunnoe, Filatova river, klyutsh Zolotoi, Mendeleevo (SHATROVSKIY 1989, 1992; ÔHARA & JIA 2006); Shikotan Is.: coastal shrubs of *Rosa rugosa* (SHATROVSKIY 1992); Iturup Is.: Rubetsu [= Pioneer] (ÔHARA & JIA 2006); Urup Is. (ÔHARA & JIA 2006); Simushir Is. (ÔHARA & JIA 2006).

Diagnosis. Head black with very small preocular spot; pronotum black with widely reddish lateral margin; elytra reddish-yellow to brownish, with or without central dark spot; maxillary palpi yellowish, last palpomere darker; lateral part of elytra with very sparse short pale hairs; elytral intervals flat; mesoventral plate elongate, ca. 3.3–4.0× as long as wide; metaventrite without femoral lines; pentagonal area of metaventrite with coarse and dense punctation, distance between individual punctures in lateral parts ca. 1–3 diameters of puncture (Fig. 10F), fifth ventrite emarginate apically; median lobe widest near base, almost parallel-sided, strongly narrowing apically, lateral margins with very short setae in apically part; sternite 9 wider in apical half, bearing four short subapical setae.

Redescription. Form and color. Body elongate oval (Figs 10A–B), length 2.6–2.9 mm, width 1.5–1.7 mm. Head black with very small yellowish or brownish preocular spot. Pronotum black to dark brown, lateral margins widely pale (reddish), anterior margin very narrowly pale, base very narrowly pale near posterolateral angles. Scutellum dark. Elytra and epipleura reddish yellow to brownish; sutural interval of elytra in apical half dark brown or black; central part of elytra with or without darker spot. Antennae yellowish except for darker club.

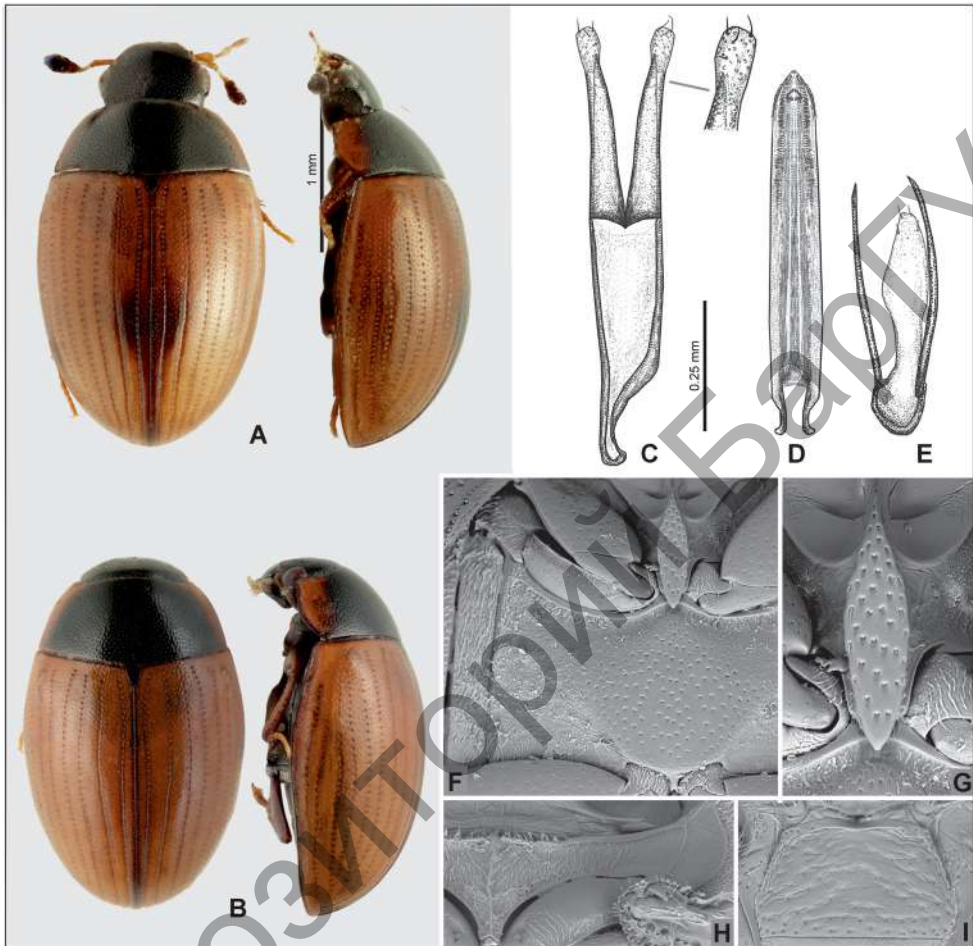


Fig. 10. *Cercyon verus* Shatrovskiy, 1989. A–B – dorsal and lateral habitus of specimens from Kuril Islands; C–E – male genitalia (C – tegmen; D – median lobe; E – sternite 9). F–I – ventral morphology (F – meso- and metaventrите; G – detail of mesoventral plate; H – prosternum and antennal groove; I – mentum).

Maxillary palpomeres yellowish, last palpomere darker. Ventral surface dark brown to black, mesoventral plate and metaventral pentagon brown to dark brown, posterior margins of abdominal ventrites yellowish or brownish. Legs brownish-yellow to brownish.

Head. Clypeus with dense, moderately coarse punctures, interstices without microsculpture. Anterior margin of clypeus with narrow bead. Frontoclypeal suture undetectable. Frons without microsculpture on interstices. Eyes small, somewhat protruding, interocular distance ca. $6.0\times$ the width of one eye in dorsal view. Mentum glabrous, ca. $1.6\times$ as wide as long, densely and coarsely punctate, with clear dense transverse wrinkles (Fig. 10I). Antennae with 9 antennomeres, scapus ca. $1.3\times$ as long as antennomeres 2–5 combined, club compact. Maxillary palpomere 2 strongly swollen, palpomere 4 almost symmetrical, equal to palpomere 3 in length.

Thorax. Pronotum ca. 2.2–2.5× as wide as long. Pronotal punctation similar to that on head. Lateral margins of pronotum with narrow bead overlapping anterior and posterior corners, anterior and central part of posterior margin without bead. Prosternum with strong longitudinal carina medially; antennal groove distinct, moderately large, rounded laterally. Mesoventral plate elongate, ca. 3.3–4.0× as long as wide, widest at midlength, with almost evenly convex margins. Metaventrite with raised, glabrous, sparsely punctate median pentagonal area; femoral lines absent. Pentagonal area with coarse and dense punctation, distance between individual punctures in lateral parts ca. 1–3 diameters of puncture (Fig. 10F). Elytra with ten punctate striae, striae 1–9 impressed and reaching base, stria 10 very short. Intervals slightly convex in medial and apical parts. Ground punctures on intervals very fine. Humeral bulge not distinct. Lateral part of elytra with very sparse, short, pale hairs. Epipleura flat, horizontal. Femora with sparse and shallow punctures ventrally, with distinct tibial groove. Tarsi with densely arranged white setae ventrally, first metatarsomere about as long as metatarsomeres 2–3 combined.

Abdomen. Abdomen with five ventrites, first ventrite distinctly longer than other ones, ca. 2× as long as second ventrite, with distinct median longitudinal carina; fifth ventrite arcuate, not emarginate apically.

Male genitalia (Figs 10C–E). Phallobase slightly longer than parameres, asymmetrical basally. Paramere narrow basally, narrowly rounded apically, with slight subapical constriction, apex membranous, with setae. Median lobe widest near base, almost parallel-sided, strongly narrowing apically, with long apodemes basally, lateral margins with very short setae in apical part, apex obtusely pointed; gonopore small, situated subapically. Median projection of sternite 9 wider in apical half, pointed apically, bearing 4 short subapical setae, base strongly rounded; median portion shorter than lateral struts.

Variation. *Cercyon verus* varies strongly in coloration (Figs 12E–J); some specimens have a totally pale sutural interval of the elytra, lack a central sutural spot, and the last palpomere of the maxillary palpi is pale yellowish.

Diagnosis from *C. unipunctatus* and *C. quisquilius*. By coloration, pale specimens of *C. verus* are very similar to *C. quisquilius*, and typically colored specimens of *C. verus* resemble *C. unipunctatus* with a weakly developed central elytral spot. Pale specimens of *C. verus* differ from *C. quisquilius* by the wider pale (reddish) lateral part of the pronotum (narrower in *C. quisquilius*). Typically colored *C. verus* differ from pale *C. unipunctatus* by the more rounded body form, wider pale lateral margins of the pronotum, pentagonal area of the metaventrite with coarse and dense punctation (distance between individual punctures in lateral parts ca. 1–3× their diameters, mentum with distinct dense transverse wrinkles). In contrast, *Cercyon unipunctatus* has a more elongate body form, narrower pale lateral margins of the pronotum, pentagonal area of the metaventrite with shallow and sparse punctation (distance between individual punctures in lateral parts ca. 4–6× their diameters), and the mentum with barely developed transverse wrinkles.

Biology. Coprophagous species inhabiting mammal excrements (cows, pigs). It comes to light.

Distribution. *Cercyon verus* is only known from Kuril Islands. A single specimen from Western Siberia is a female, but otherwise fully corresponds to the Far Eastern specimens; the occurrence in continental Far East and Siberia would however need further confirmation.

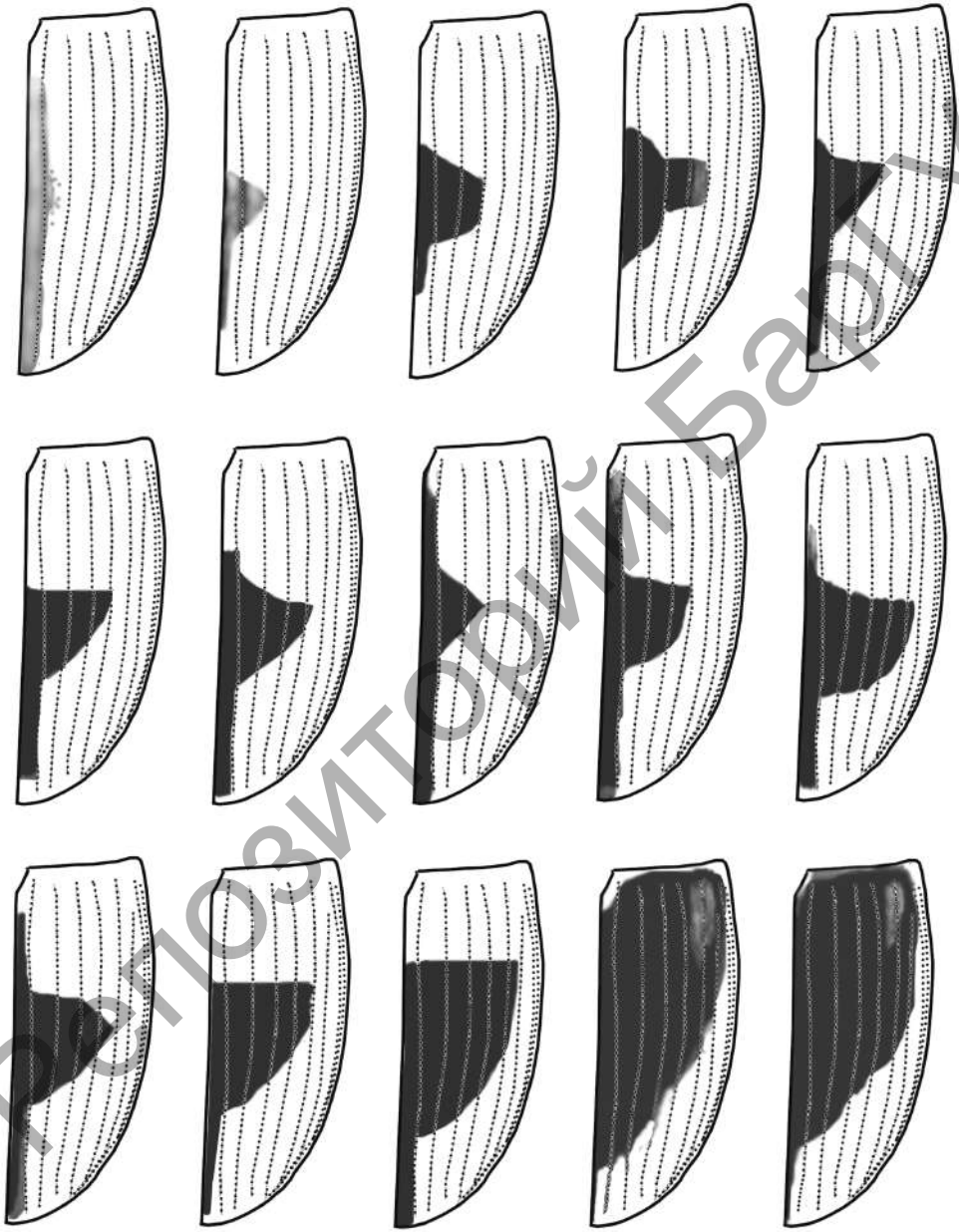


Fig. 11. *Cercyon unipunctatus* (Linnaeus, 1758), variability of the elytral coloration.

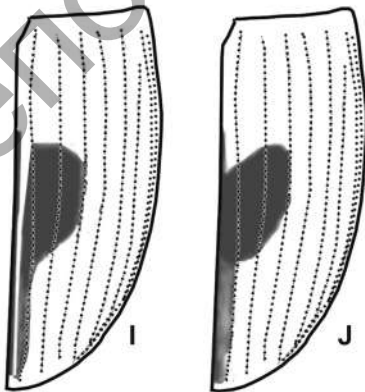
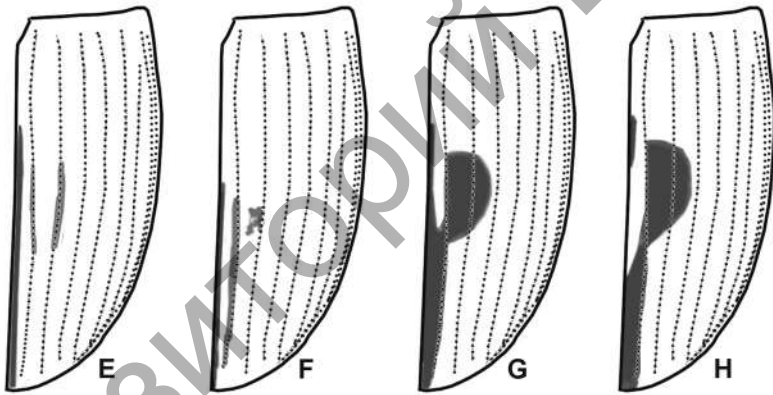
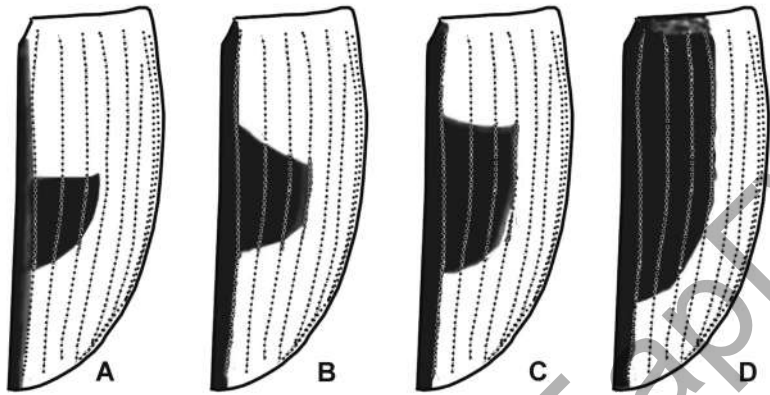


Fig. 12. Variability of elytral coloration. A–D – *Cercyon unipustulatus* Nakane, 1982. E–J – *Cercyon verus* Shatrovskiy, 1989.

Key to Asian species of the *C. unipunctatus* group

- 1(4) Elytra with very apparent sparse long semi-erect yellowish pubescence at least laterally (may be broken dorsally; Figs 5A,B, 6A in lateral view). Elytral intervals weakly but distinctly convex (Figs 5A,B, 6A). Elytra uniformly yellowish or reddish or slightly darker on elytral disc, but without distinct central dark spot or dark sutural interval. Mesoventral plate very narrow (8–11× longer than wide; Figs 5G, 6F).
- 2(3) Lateral margins of pronotum narrowly pale (Fig. 6A) Ssutural interval of elytra not darker than general elytral coloration. Intervals of elytra slightly convex in medial and apical parts. Median lobe of the aedeagus evenly wide throughout, strongly narrowing at extreme apex (Fig. 6C). *Cercyon undulipennis* sp. nov.
- 3(2) Lateral margins of pronotum very widely pale (Figs 5A–B). Ssutural interval of elytra darker than general elytral coloration. Intervals of elytra very slightly convex only in apical part. Median lobe of the aedeagus widest at midlength, very strongly narrowing in apical half (Fig. 5D). *Cercyon kubani* sp. nov.
- 4(1) Elytra without pubescence, or at most with short very inconspicuous pubescence at lateral-most parts. Elytral intervals flat, if weakly convex then elytra with very distinct black central spot. Elytra uniformly yellow or with very distinct black patterns, even darker specimens with a set of pale spots. Mesoventral plate wider (at most 6× longer than wide).
- 5(6) Elytra largely black, with characteristic pattern of pale spots, or yellow with black and dark brown spots, forming a characteristic pattern (Figs 4A–B). Median lobe of the aedeagus narrow with very long apex (Fig. 4D). *Cercyon kabaki* Ryndevich, 2004
- 6(5) Elytra largely yellowish of reddish, if larger black areas are present they form a central dark spot, leaving apical and lateral portions widely pale (Figs 1, 3A, 7A, 8A, 9A, 10A–B, 11–12). Median lobe wide throughout, or at least widening at midlength.
- 7(8) Lateral margins of pronotum very widely pale, dark central pronotal spot may be confined to central area or lobate laterally. Elytra rarely uniformly yellow, usually with dark sutural interval, or with dark spots basally and/or in humeral region, or with combination of these (Fig. 1). Median lobe without series of setae in apical half, basal apodemes short (Fig. 2B). *Cercyon divisus* Hebauer, 2002
- 8(7) Lateral margins of pronotum narrowly pale, dark pronotal spot never confined only to central area and never distinctly bilobate laterally (Figs 3A, 7A, 8A, 9A, 10A–B). Elytra uniformly pale, or with dark sutural interval or more or less small central dark spot, but never with basal or humeral dark spots. Median lobe with series of setae in apical half, basal apodemes long.
- 9(12) Elytra uniformly pale.
- 10(11) Elytra and lateral parts of pronotum yellowish, pale lateral part of pronotum less extended (Fig. 7A). Phallobase longer than parameres, median lobe widest subapically (Figs 7B–C). *Cercyon quisquilius* (Linnaeus, 1760)

- 11(10) Elytra and lateral parts of pronotum reddish, pale lateral part of pronotum wide (Fig. 10B). Phallobase ca. as long as parameres, median lobe parallel-sided (Figs 10C–D).
..... *Cercyon verus* Shatrovskiy, 1989 (part)
- 12(9) Elytra pale with central dark spot or dark sutural interval (Figs 3A, 11–12).
- 13(18) Elytra at most with dark sutural interval, without distinct central dark spot.
- 14(15) Sutural interval nearly completely dark (except at extreme base) (Fig. 3A). Median lobe narrower, without abruptly narrowing apex (Fig. 3C).
..... *Cercyon flavimarginatus* sp. nov.
- 15(14) Sutural interval usually not completely dark (dark coloration confined to narrow stripe at suture or small central area). If sutural interval nearly completely dark, then median lobe wider, with abruptly narrowing apex (Figs 8C, 10D).
- 16(17) Pentagonal area of metaventrte with coarse and dense punctation, distance between the individual punctures in lateral parts ca. 1–3× their diameters (Fig. 10F). Mentum with distinct dense transverse wrinkles (Fig. 10I). Pale lateral margins of pronotum wider (Figs 10A–B). Coloration of elytra as in Figs 12E–F.
..... *Cercyon verus* Shatrovskiy, 1989 (part)
- 17(16) Pentagonal area of metaventrte with shallow and sparse punctation, distance between individual punctures in lateral parts ca. 4–6× their diameters (Fig. 8E). Mentum with very indistinct transverse wrinkles (Fig. 8G). Pale lateral margins of pronotum narrower (Fig. 8A). Coloration of elytra as in Fig. 11A.
..... *C. unipunctatus* (Linnaeus, 1758) (part)
- 18(13) Elytra with distinct central dark spot; spot rounded, triangular or pentagonal in shape.
- 19(20) Mesoventral plate widely rounded posteriorly, facing a distinct anterior projection of metaventral pentagon (Fig. 9F). Median lobe slightly constricted in apical third (Fig. 9C). Sutural interval of elytra completely dark including basally, elytral central spot always large, reaching at least to one third of elytral interval (Figs 12A–D).
..... *Cercyon unipustulatus* Nakane, 1982
- 20(19) Mesoventral plate sharply pointed posteriorly, anterior part of metaventral pentagon only indistinctly bulged (Figs 8F, 10G). Median lobe parallel-sided (Figs 8C, 10D). Sutural interval of elytra usually pale basally. Elytral central spot small (on intervals 1–2 only) to very large (Figs 11, 12E–J).
- 21(22) Pentagonal area of metaventrte with coarse and dense punctation, distance between individual punctures in lateral parts ca. 1–3× their diameters (Fig. 10F). Mentum with distinct dense transverse wrinkles (Fig. 10I). Pale lateral margins of pronotum wider (Figs 10A–B). Coloration of elytra as in Figs 12E–J.
..... *Cercyon verus* Shatrovskiy, 1989 (part)
- 22(21) Pentagonal area of metaventrte with shallow and sparse punctation, distance between individual punctures in lateral parts ca. 4–6× their diameters (Fig. 8E). Mentum with with very indistinct transverse wrinkles (Fig. 8G). Pale lateral margins of pronotum narrower (Fig. 8A). Coloration of elytra as in Fig. 11.
..... *C. unipunctatus* (Linnaeus, 1758) (part)

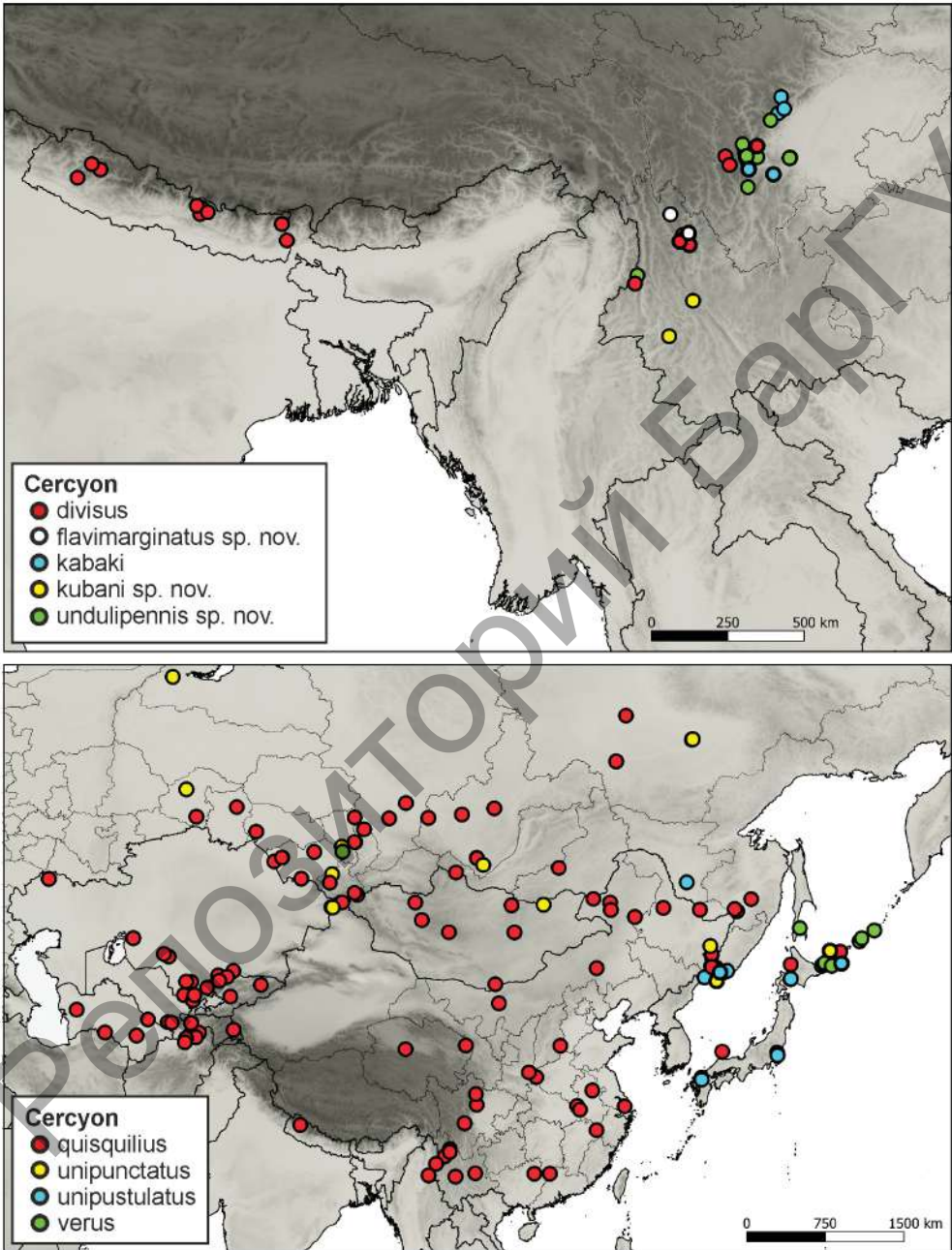


Fig. 13. Known distribution of the species of *C. unipunctatus* species group in Asia.

Discussion

***Cercyon unipunctatus* group.** The composition of the *C. unipunctatus* species group as defined here is rather heterogeneous. The widely distributed species (*C. quisquilius*, *C. unipunctatus*) and those restricted to southern Siberia and the eastern Palaearctic Region (*C. unipustulatus*, *C. verus*) are very similar in coloration (e.g. having pale elytra with a central dark spot variously developed from totally missing to very large) and in the structure of the male genitalia (the medial lobes are of similar shape, bearing long basal apodemes, with a series of setae present on the apical half [absent only in *C. quisquilius*] and the phallobase is rather long). *Cercyon flavimarginatus* from Yunnan is very similar to these species in terms of structure of the male genitalia and in dorsal coloration.

Species from southern Asia (Nepal, northern India, Yunnan and Sichuan), i.e. *C. divisus*, *C. undulipennis*, *C. kabaki* and *C. kubani* differ in the structure of the male genitalia (especially presence of short basal apodemes, shorter phallobase, and absence of setae on the apex of the median lobe). These species, however, are quite different in external characters (structure of elytra, coloration, and ventral morphology) and do not seem to be closely related, except. *C. undulipennis* and *C. kubani* which are externally very similar and likely rather closely related.

The heterogeneity of the *C. unipunctatus* species group may indicate that it is not monophyletic. We propose the group for facilitating species-level identification which may be otherwise difficult due to the high number of *Cercyon* species and limited number of easy-to-use diagnostic characters. Further studies, supported by molecular characters are necessary to understand the phylogenetic position of the species treated here.

Similar Asian species. Several other *Cercyon* species currently classified in different species groups or subgenera are superficially similar to species of the *C. unipunctatus* group.

In northern Asia (proper Palaearctic Region), species of the *C. unipunctatus* group may be confused with some members of the *C. lateralis* group, which are very similar in many aspects such as: color of maxillary palpi, head and pronotum, absence of microsculpture on the pronotum and elytra, shape of the mesoventral plate, and absence of femoral lines. Especially *Cercyon ustus* Sharp, 1892 and pale specimens of *C. lateralis* (Marsham, 1802) which are the most similar to large pale specimens of *C. quisquilius*, *C. unipunctatus* and *C. verus*. Additionally, *C. ovillus* has slightly similar coloration to some species of the *C. unipunctatus* group. Species of these groups can be recognized from those treated by us in the *C. unipunctatus* group by the following characters:

Cercyon lateralis (Fig. 14A). The body is oval, the elytra usually darker than in the *C. unipunctatus* group (the ground color of the elytra is black, dark brown or yellowish-brown, the elytral suture dark, the lateral margin of the elytra is yellowish-brown, the elytral apex bearing large reddish-yellow to yellow-brown spot). Pale specimens have almost entirely pale (brownish-yellow) elytra with a dark suture. The species differs from all species of *C. unipunctatus* group by the male genitalia: the apices of the parameres are very narrow, the apex of the median lobe rather blunt and lacking a series of setae (see SMETANA 1978 and RYNDEVICH 2004b). The species is widespread in northern Asia.

Cercyon ustus Sharp, 1874 (Fig. 14B). Very similar to north-Asian species of the *C. unipunctatus* group, but in contrast the body is oval with maximum width anterior to the midlength of the elytra, the elytra are darker colored (reddish-brown or yellowish-brown). The species differs from all species of the *C. unipunctatus* group by the male genitalia: the parameres are longer than the phallobase and very wide apically, and the median lobe is short and wide (see RYNDEVICH 2004b). The species is known from Japan and Russian Far East.

Cercyon ovillus Motschulsky, 1860 (Fig. 14C) differs from species of the *C. unipunctatus* group in its small body size (1.6–2.0 mm); and is characterized by the dark head and pronotum, yellow or reddish elytra with a black triangular sutural spot on the base; and by having the body oval, being strongly narrowed posteriorly.

In southern Asia (Himalaya, Tibetan Plateau and central and southern China), several species have yellowish general coloration with some dark spots, and may be hence confused with the Chinese and Himalayan species treated here. They can be recognized by the following characters:

Cercyon alinae Ryndevich, 2004 (Fig. 14E): The body is wide and bumpy, the elytra yellowish to reddish with a basal triangular spot (sometimes partly obsolete) and large lateral spot; the elytra are not pubescent (in contrast to *C. undulipennis* and *C. kubani*) and have distinctly convex elytral intervals. The median lobe is wide basally and very narrow apically (see RYNDEVICH 2004a).

Cercyon berlovi Shatrovskiy, 1999 (Fig. 14F): The elytra are reddish with a large triangular dark spot reaching from the elytral base to elytral apex (may only resemble very dark specimens of *C. unipunctatus* and *C. unipustulatus*), and the dark maxillary palpi (always yellowish in the *C. unipunctatus* group). The species occurs in high altitudes of Himalaya, the Tibetan Plateau and mountains in Sichuan. It was redescribed and illustrated (including genitalia) by JIA et al. (2011).

Cercyon hanseni Jia, Fikáček & Ryndevich, 2011 (Fig. 14G): the elytra are yellow with a black sutural interval and largely black in the sublateral portion; and the mesoventral plate is very narrow (resembling only that of *C. undulipennis* and *C. kubani*, both of which have pubescent elytra). The apices of the parameres are flat, the median lobe has short apodemes and a large subapical gonopore. For detailed description and figures of genitalia, see JIA et al. (2011).

Cercyon sericatus Hebauer, 2002 (Fig. 14D): resembles *C. undulipennis* sp. nov. and *C. kubani* sp. nov. in dorsal coloration and the presence of pubescence on the elytra, differing by the presence of distinct mesh-like microsculpture on the head, pronotum and elytra, with a relatively wide mesoventral plate (2.6× as long as wide) and metaventrite with femoral lines (even though weakly developed in some specimens). The species is known from Himalaya (Nepal).

Similar European species. *Cercyon emarginatus* from northern Europe is very similar to species of the *C. unipunctatus* group (*C. kabaki*, *C. unipunctatus* and *C. unipustulatus*). It has pale maxillary palpomeres, a dark head and pronotum, and a characteristic elytral pattern (see BARANOWSKI 1985, Fig. 7), but differs from members of the *C. unipunctatus* group by

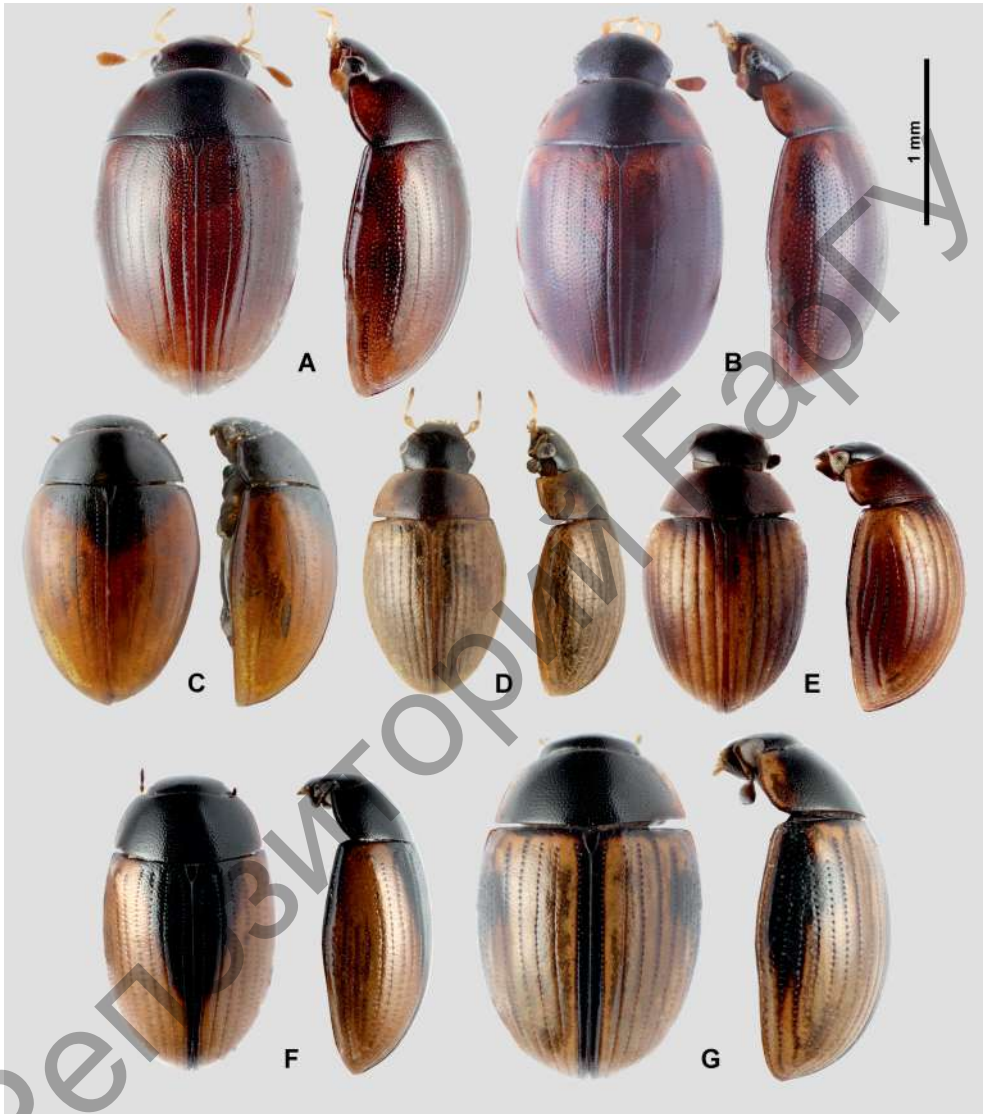


Fig. 14. East Palaearctic and Oriental *Cercyon* species which may be confused with members of *C. unipunctatus* group (dorsal and lateral view of pronotum and elytra, thorax and legs omitted). A – *C. lateralis* (Marsham, 1802); B – *C. ustus* Sharp, 1874 (paralectotype from Nagasaki); C – *C. ovillus* Motschulsky, 1860; D – *C. sericatus* Hebauer, 2002 (paratype from Nepal: Gopte near Tharepati); E – *C. alinae* Ryndevich, 2004; F – *C. berlovi* Shatrovskiy, 1999; G – *C. hanseni* Jia, Fikáček & Ryndevich, 2011.

the presence of a distinct elytral microsculpture, absent in all species of the *C. unipunctatus* group. *Cercyon kabaki* is very similar to *C. emarginatus* in terms of the elytral color pattern.

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