

## Review of species of the genus *Cercyon* Leach, 1817 of Russia and adjacent regions. V. Subgenus *Cercyon* Leach, 1817. *Cercyon nigriceps*-group (Coleoptera: Hydrophilidae)

Обзор видов рода *Cercyon* Leach, 1817 фауны России и сопредельных территорий. V. Подрод *Cercyon* Leach, 1817.  
Группа *Cercyon nigriceps* (Coleoptera: Hydrophilidae)

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Morphological diagnoses, distribution and environmental preferences of species of the *Cercyon nigriceps*-group (subgenus *Cercyon* Leach, 1817) from Russia and adjacent regions are presented. *Cercyon paranigriceps* sp. nov. from the Russian Far East and Myanmar is described. *Cercyon nigriceps* (Marsham, 1802) is recorded from Malta, Ukraine, Gambia and Nepal for the first time; *C. setiger* Wu & Pu, 1995 is for the first time recorded from Guizhou (China).

Приводятся морфологические диагнозы, данные о распространении и биотических предпочтениях видов группы *Cercyon nigriceps* (подрод *Cercyon* Leach, 1817) фауны России и сопредельных территорий. Описан *Cercyon paranigriceps* sp. nov. с Дальнего Востока России и из Мьянмы. *Cercyon nigriceps* (Marsham, 1802) впервые указан из Мальты, Украины, Гамбии и Непала, а *C. setiger* Wu & Pu, 1995 из провинции Гуйчжоу (Китай).

**Key words:** Hydrophilidae, *Cercyon*, taxonomy, distribution, new species

**Ключевые слова:** Hydrophilidae, *Cercyon*, систематика, распространение, новый вид

## INTRODUCTION

At present, the genus *Cercyon* Leach comprises 256 species (including the new species described here), has a world-wide distribution and is subdivided into 11 subgenera. This article is the third in the series of papers on the genus *Cercyon* of Russia and adjacent regions. The previous papers of this series deal with species of the *Clinocercyon* and *Conocercyon* (Ryndevich, 2007c), *Paracyreon* and *Dicyrtocercyon* (Ryndevich, 2008), species of the *C. dux* group (Ryndevich, 2001a), *C. lateralis* group (Ryndevich, 2004a), *C. olibrus* group and *C. rotundulus* group (Ryndevich, 2007b), all of the subgenus *Cercyon*.

The territory under study includes a significant part of Central and Eastern Palaearctic within the former Soviet Union and the adjacent countries of Europe and Asia.

Marsham (1802) described *Cercyon nigriceps* from Britain. It is distributed in the Palaearctic, Nearctic, Afrotropical, Oriental and Neotropical regions. Our research allowed to describe a new species, *C. paranigriceps* from the Russian Far East and Myanmar, very similar to *C. nigriceps*. The *Cercyon nigriceps* group includes, in addition to the two above-mentioned species, *C. setiger* Wu & Pu, 1995 (Oriental Region), *C. tachyorictidis* Jeannel & Paulian, 1945 (Afrotropical Region), *C. minax* Balfour-Browne, 1958, *C. subtilis* Knisch, 1922, *C.*

*wittei* d'Orchymont, 1950 and *C. deserticola* Fikáček, Gentili & Short, 2010.

## MATERIAL AND METHODS

The paper is based on the material from the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia (ZIN), of the Natural History Museum, London, U. K. (BMNH), Zoological Museum of Moscow State University, Moscow, Russia (ZMUM) and from Dr A.A. Prokin (CAP) and authors' collections: F. Hebauer's (CFH) and S. Ryndevich's (CSR).

Material was examined with a Leica MZ 12.5 stereomicroscope and MBS-10 stereomicroscope.

The possibility of identification of *Cercyon* species on the basis of habitus, colour, male genitalia, structure of mesoventrite and metaventrite has been studied. The criteria according to which the species were united into groups were discussed earlier (Ryndevich, 2004a).

### *Cercyon nigriceps*-group

The *Cercyon nigriceps*-group includes very small species (1–2 mm) with oval body, linear clypeus, black head, brown pronotum, pale maxillary palpi, elytra from yellow to brownish yellow (sometimes with dark spots) without microsculpture, flat anterior part of elytral intervals and convex posterior part, narrow or very narrow preepisternal elevation; metasternum with femoral lines. The species inhabit different kinds of decomposing organic matter.

Species of the *C. pygmaeus*, *C. terminatus*, *C. impressus* and *C. melanocephalus* groups come close to the *C. nigriceps* group in the presence of femoral lines, but differ in some features. Species of the *C. impressus* and *C. melanocephalus* groups have larger size (2–3.5 mm) and differ in colour and other characteristics; species of the *C. pygmaeus* and *C. terminatus* groups (size 1–2 mm) differ in disposition of femoral lines, form of preepisternal elevation and colour. They have base of pronotum without fine border.

In Russian and adjacent territories, two species of this group can be encountered, their morphological diagnoses, distribution and environmental preferences are given below.

#### *Cercyon (Cercyon) nigriceps*

(Marsham, 1802)

- Dermestes nigriceps* Marsham, 1802: 72.
- Sphaeridium melanocephalus* var. *nigriceps* Marsham, 1802: 103.
- Dermestes atricapillus* Marsham, 1802: 72.
- Dermestes melanocephalus* var. *atricapillus* (Marsham, 1802).
- Cercyon atricapillum* (Marsham, 1802).
- Cercyon nigriceps* var. *atricapillum* (Marsham, 1802).
- Dermestes laevis* Marsham, 1802: 73.
- Cercyon laeve* (Marsham, 1802): Stephens, 1829.
- Dermestes inustus* Marsham, 1802: 76.
- Cercyon inustum* (Marsham, 1802): Stephens, 1829.
- Sphaeridium centrimaculatum* Sturm, 1807: 23.
- Cercyon centrimaculatum* (Sturm, 1807).
- Cambrus centromaculatus* Sturm, 1807.
- Cercyon* (s. str.) *nigriceps* var. *centrimaculatum* (Sturm, 1807).
- Cercyon nigriceps* ab. *centromaculatus* (Sturm, 1807).
- Cercyon atriceps* Stephens, 1829: 151.
- Cercyon nigriceps* var. *atriceps* Stephens, 1839.
- Cercyon ustulatum* Stephens, 1829: 152.
- Cercyon bimaculatum* Stephens, 1829: 152.
- Cercyon testaceum* Stephens, 1829: 152 (partim).
- Cercyon nubilipenne* Stephens, 1835: 401.
- Cercyon troglodytes* Dejean, 1836: 149.
- Cercyon pulchellum* Heer, 1841: 492.
- Cercyon mundum* Melsheimer, 1844: 102.
- Cercyon vicinale* Walker, 1859: 258.
- Cercyon nigriceps* Motschulsky, 1863: 445.
- Cercyon nigriceps* ab. *simplex* Delahon, 1913: 530.
- Cercyon atricapillus* (Marsham, 1802): Stephens, 1829; Vogt, 1968, 1971; Smetana, 1978, 1988; Baranowski, 1985; Bellstedt & Merkl, 1987; Hebauer, 1988, 1995a, 1995b; Krause & Zinke, 1989; Kubisz & Szwalko 1991; Roughley, 1991; Alexandrovich et al., 1996; Telnov et al., 1997; Prokin et al., 2002.
- Cercyon nigriceps* (Marsham, 1802): Stephens, 1829; Zaitsev, 1908; Knish, 1924; Winkler, 1926; d'Orchymont, 1928; Silfverberg, 1992, 2004; Jia, 1996; Romero-Alcaraz, Sánchez-Piñero, Áliva, 1997; Hansen, 1999, 2004;

Ryndovich, 2004b, 2005, 2007a; Ryndovich & Zemoglyadchuk, 2003; Ryndovich & Tsinkevich, 2004; Hebauer & Ryndovich, 2005; Hebauer, 2006.

**Type material.** Holotype. Sri Lanka; female, "Type H.T.", "6352", "*Cercyon vicinale* W." (Walker's writing), "*Cercyon nigriceps* (Marsham)", det. Ryndovich S.K., 2008".

**Additional material.** Palearctic Region. Austria. 1 specimen, Vorarlberg, 3630, Lauteracher Ried 405 Soren-Lustenau Schw. Ried 12 June 1996, Autokässcher, 21 00 Uhr, leg. Ing. Kapp (CFH); 1 specimen, Austria-VLBG 11529, Nenzing Tschalenga 520–540 m, 13 May 1992, Autokässcher, leg. C.M. Brandstetter (CFH). Belarus. 1 specimen, Brest Prov., Baranovichi Distr., 16 July 1999, horse dung, leg. S.K. Ryndovich (CSR); 1 specimen, Brest Prov., Pruzhany Distr., Ruzhany, at light, 3 Aug. 2002, leg. Lundychev D.S. (CSR). Estonia. 1 specimen, Yuriev [now Tartu], 7 June 1903 (ZIN). Italy. 3 specimens, Italia, 356 (ZIN). Malta. 1 specimen, Malta, coll. Raffroy (ZIN). Russia. 1 specimen, Yarosl. [avl] gub. [ernia], coll. Yakovlev, 8 July 1894, at flight (ZIN); 3 specimens, coll. F. Zaitzev (ZIN); 1 specimen, [Lipetsk Prov.] 30 km E of Elets, Morozova gora locality, 14 June 1996; estate, light trap, leg. Tsurikov (CAP). 1 specimen, 30 km E of Elets, Morozova gora locality, 25 July 1998; at UV light, leg. Tsurikov (CAP); 1 specimen, 50 km W of Lipetsk, "Galich'ya Gora" nature Reserve, leg. Prokin, 8–9 July 1999, leg. Prokin (CAP); 2 specimens, Kursk Prov., Tsentral'nno-Chernozyomnyi Nature Reserve, Streletskaya Step' Division, cow dung, 21 July 2001, leg. Prokin (CAP); 4 specimens, "UdSSR, Primorskij Kraj, Tschernye Gory, Lux., Venedivnovo, 1–3 Aug. 1990, leg. A. Pütz" (CFH). Ukraine. 2 specimens, near Kiev (ZMUM); 1 specimen, [Crimea] Al'ma, 29 May 1920 (ZIN).

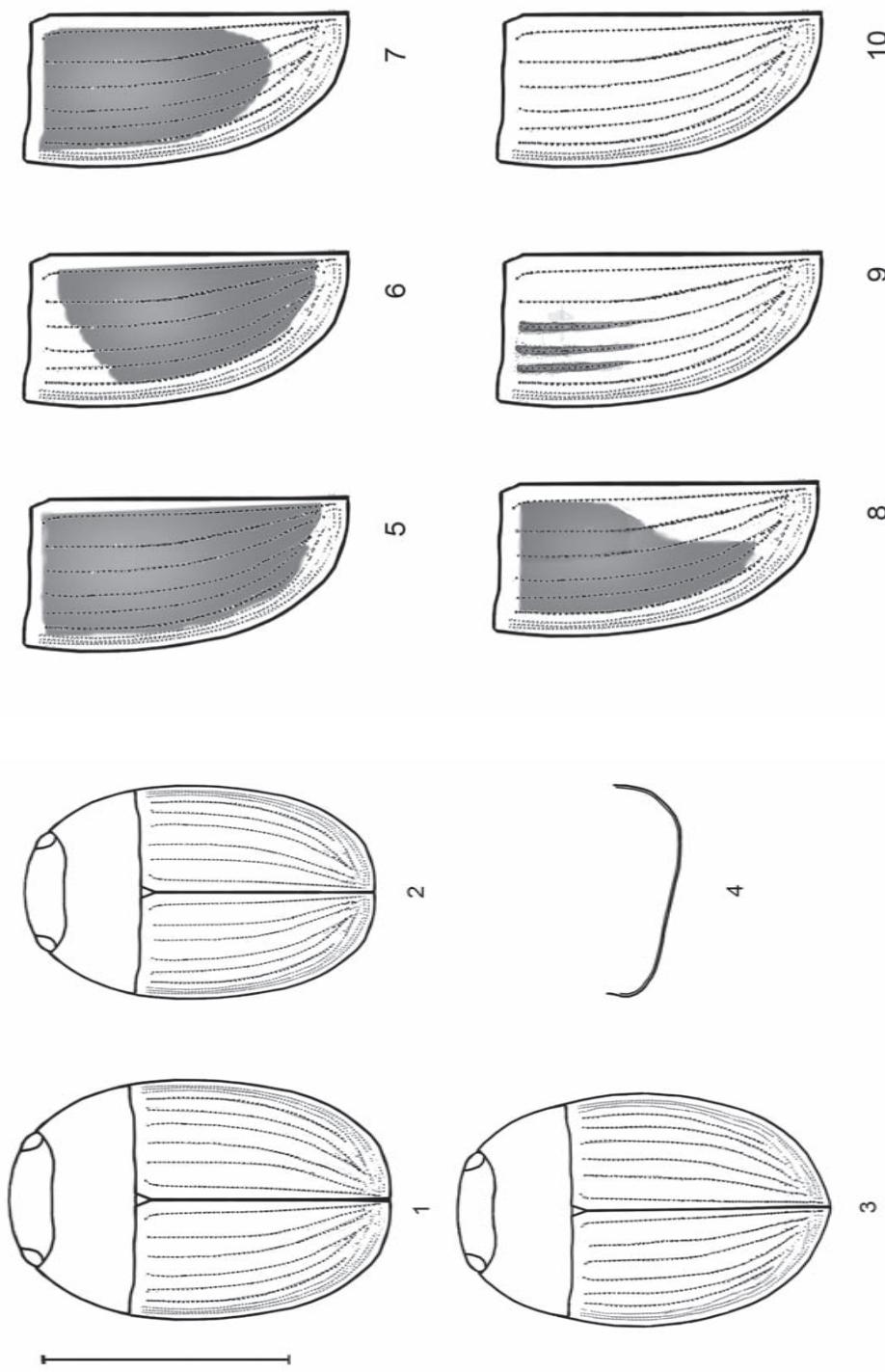
**Afrotropical Region.** Botswana. 1 specimen, Botswana, 11 March 1993, 18°33'55"S/24°03'53"E, Chobe NP Savuti-Camp, lux, leg. M. Uhlig (CFH). Gambia. 1 specimen, W. Afr. Gambia, Yundum, 17 Jan. 1968, leg. Leier (CFH). Namibia. 1 specimen, South West Africa, Okahandja, 1249 m, 14 March 1979, leg. H. Roer (CFH); 1 specimen, SWA/Namibia, Döbra bei Windhoek, 27 March 1988, leg. H. Roer (CFH). Rwanda. Rwanda, Gyangugu Nyakabuye, 28 Oct. – 2 Nov. 1983, leg. Mühlé, 1 specimen (CFH). Saudi Arabia. Saudi Arabia, c.

Holzschuh, Fifa 1240 m, nr. Gixan, 27–31 March 1983, 1 specimen (CFH).

**Oriental Region. China.** 1 specimen, Foochow, 28 May 1957, leg. M.S. Yang (CSR). Laos. 1 specimen, Laos centr., 70 km NE Vientiane, Ban Phabat env., 150 m, N18°16.1', E103°10.9', 27 Apr. – 1 May 1997, leg. E. Jendek & Sausa (CFH); 11 specimens, Laos NE, Hua Phan Prov., 25 km SE Vieng Xai, Ban Kangpabong env., N20°19', E104°25', 14–18 May 2001, leg. J. Bezdek (CFH). Nepal. 1 specimen, Nepal, Prov. Narayani, Sauraha, Rapti River Ufer, 180 m NN, 27°34'80"N, 84 29'49"E, LF, 18 Apr. 2000, leg. A. Weigel (CFH). Thailand. 3 specimens, Mae Hong Son Prov., N19°27', E18°20', 25 May – 2 June 1999, leg. Hauck (CFH). Vietnam. 4 specimens, 180 km SSW of Hanoi, 40 km SW of Than Hoa, Ben En Natn. Park, 5–8 July 1997, leg. Napolov (CFH).

**Note.** A large number of synonyms reveal not only wide distribution and an extensive variability, but also difficult identification of the species. Of course it was not possible to verify all listed synonyms, but in consideration that most of them have been described from Western Europe (except *C. mundum* Melsheimer (U.S.A.) and *C. vicinale* Walker (Sri Lanka)) it is improbable that the species under description are conspecific with any of the listed synonyms. We examined holotype of *C. vicinale* Walker, 1859 only. This specimen (female) has all the characteristics of *C. nigriceps*.

**Description.** Body oval (index length/width 1.6), widest at base of elytra (Fig. 1). Dorsal side slightly convex, shiny, without microsculpture. Head black. Clypeus linear, truncate anteriorly. Punctuation of head fine and dense. Maxillary palpi yellowish to brownish yellow, ultimate segment darker. Antennae yellow to brownish. Pronotum transverse, brown with brownish yellow or yellow anterior side and lateral margins. Sides of pronotum weakly rounded, arcuately diverging just before posterior angles, then converging anteriad. Lateral rim continued around hind angles. Punctuation



Figs 1–10. *Cercyon*, 1, 4, *C. nigriceps* (1, habitus; 4, side of pronotum); 2 *C. paraniceps* sp. nov., habitus; 3 *C. setiger*, habitus. 5–10, *C. nigriceps*, colouration of elytra. Scale bare: 0.5 mm (1–3).

of pronotum similar to that of head. Posterior angles of pronotum widely rounded (Fig. 4). Base of pronotum with fine border. Scutellum brown, very finely and sparsely punctate. Elytra yellow or brownish yellow with nine complete deep and one short punctate stria. Colouration of elytra varied (Figs 5–10). Some specimens have brownish central spot as in Figs 5–8, but some do not (see Figs 9, 10). Striae distinctly impressed apically, not reaching apex. Intervals of elytra with shallow and regular punctuation, finer than that of head and pronotum. Anterior part of elytral intervals flat, posterior part convex, but intervals at apex flat. Second interval a bit wider than the 3rd and 4th. Ventral side dark brown or black. The majority of specimens have metasternal pentagon, preepisternal elevation, and apex of abdominal segments from brown to yellowish brown. Proventrite tectiform, finely carinate medially. Preepisternal elevation parallel-sided, very narrow (length : width ratio 8.2–8.7), contacting elevated middle portion of metasternum at single point (Fig. 11). Epipleura flat, horizontal. Metasternum forming no ridge and not delimiting small anterolateral portion of metasternum. Metasternal pentagon flat, shiny, with very dense shallow punctuation and two small deepenings in posterior part (Fig. 11). Length of preepisternal elevation : length of metasternal pentagon ratio – 1.2. Metasternum with complete clear femoral lines, attaining anterior margin of metasternum. First segment of abdomen with median carina, as long as 2nd and 3rd segments combined. Male genitalia as in Figs 14–18. Apices of parameres membranous. Inner side of paramere near apex with thick bundle of long dark hairs; in addition, short hairs present on apex of paramere (Figs 14–16). Median lobe gradually narrowed to very sharp apex (Fig. 18). Base of genital segment straight (Fig. 17) Sclerotization of genital segment not complete. Apex of genital segment with sparse hairs. Legs yellowish or brownish yellow with paler tarsi. Length 1–2 mm.

**Comments.** The structure of the apex of the paramere is clearly visible only when enlarged. In normal state the apices of parameres are directed outside (everted), and a thick bundle of long hairs is directed upwards. However the apex can be directed inside during preparation, thus being glued to the bundle of long hairs and looking like an entire structure and hairs become practically indistinguishable as in Fig. 16. With dry preparations of male genitalia of this species the structure of the paramere apex is difficult to observe due to its malformation upon drying. These facts can explain the differences in the figures of *C. nigriceps* parameres apices by different authors (Vogt, 1968, 1971; Smetana, 1978, 1988; Hebauer, 1995b (as *Cercyon* sp. 2); Ryndevich, 2004b; Ryndevich & Tsinkevich, 2004).

**Comparison.** The species is very similar to *C. (Cercyon) setiger* Wu & Pu, 1995. *Cercyon setiger* is distributed in the Oriental Region: China (Guangdong, Guizhou (new record)) and Myanmar (Jia, 1996; Hebauer & Ryndevich, 2005). We examined material of *C. setiger*: **China**, 9 specimens, China: B.M. 1980-491, P.M. Hammond, Guizhou: 20 m. S. Guinn, 22 Sept. 1980, cow dung (BMNH); 4 specimens, China: B.M. 1980-491, P.M. Hammond, Guangdong: Guangzhou, Baiyunshan, 27 Sept. 1980 (BMNH). **Myanmar**, 2 specimens, Burma, Kinda-Stausee, Einzugzgeb. d. Palaung-Flusses, Lichtfang, 23–25 Nov. 1989, Tobias (CFH, CSR).

*Cercyon setiger* differs in the shape of preepisternal elevation, structure of the male genitalia, length of the 1st segment of abdomen. Body oval (index length/width 1.6), widest in middle of elytra, more abruptly narrowed than in *C. nigriceps* (Fig. 3). Elytra yellow or brownish yellow. The majority of the examined specimens have no brownish central spot, but some do (Fig. 5). The 2nd elytral interval is much wider than the 3rd and a bit wider than the 4th (Fig. 3). Preepisternal elevation is not parallel-sided, spear-shaped, narrow (length : width ratio 5.6–6), contacting elevated middle portion of metasternum at single point (Fig. 13).

First segment of abdomen with medial carina, has length vividly more than the length of the second and third segments combined. Male genitalia shown in Figs 22–24. Apex of parameres membranous. The inner side of paramere near apex has a thick bundle of dark hairs, the outer sides are more rounded than those with *C. nigriceps* (Fig. 22). Medial lobe is abruptly narrowed to the apex (Fig. 23). Base of genital segment angular (Fig. 24). Length 1.3–1.9 mm.

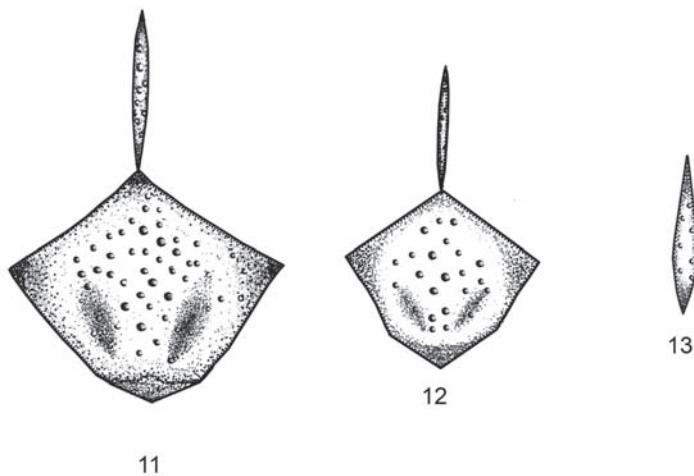
*Cercyon nigriceps* is similar to *C. (Cercyon) deserticola* Fikáček, Gentili & Short. This species differs in the shape of preepisternal elevation (length : width ratio 2.2–3.8) and structure of the male genitalia.

**Distribution. Palaearctic Region:** Austria, Azores, Belarus, Britain, Canary Is., Croatia, "Czechoslovakia", Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Japan, Latvia, Lithuania, Madeira, Malta (new record), the Netherlands, Norway, Poland, Portugal, Romania, Russia (European part, Far East), Sweden, Switzerland, Tunisia, Ukraine (new record).

**Nearctic Region:** Canada (Alberta, Nova Scotia, Quebec), USA (Alabama, California, District of Columbia, Florida, Georgia, Idaho, Illinois, Indiana, Kansas, Louisiana, Maryland, Massachusetts, Michigan, Mississippi, Missouri, New Hampshire, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Tennessee, Texas). Records from the Nearctic need confirmation.

**Neotropical Region:** Jamaica, Lesser Antilles (Tobago), Panama, Paraguay, Argentina.

**Afrotropical Region:** Botswana, Gambia (new record), Madagascar, Mascarene



Figs 11–13. *Cercyon*. 11, *C. nigriceps*, preepisternal elevation and metasternal pentagon; 12, *C. paranigriceps*, preepisternal elevation and metasternal pentagon; 13, *C. setiger*, preepisternal elevation.

Is., Namibia, Rwanda, Saudi Arabia (south), Seychelles, Tanzania, Zaire.

**Oriental Region:** Bhutan, Nepal (new record), China (Fujian), Taiwan, India, Sri Lanka, Vietnam, Laos, Thailand, Indonesia, Philippines.

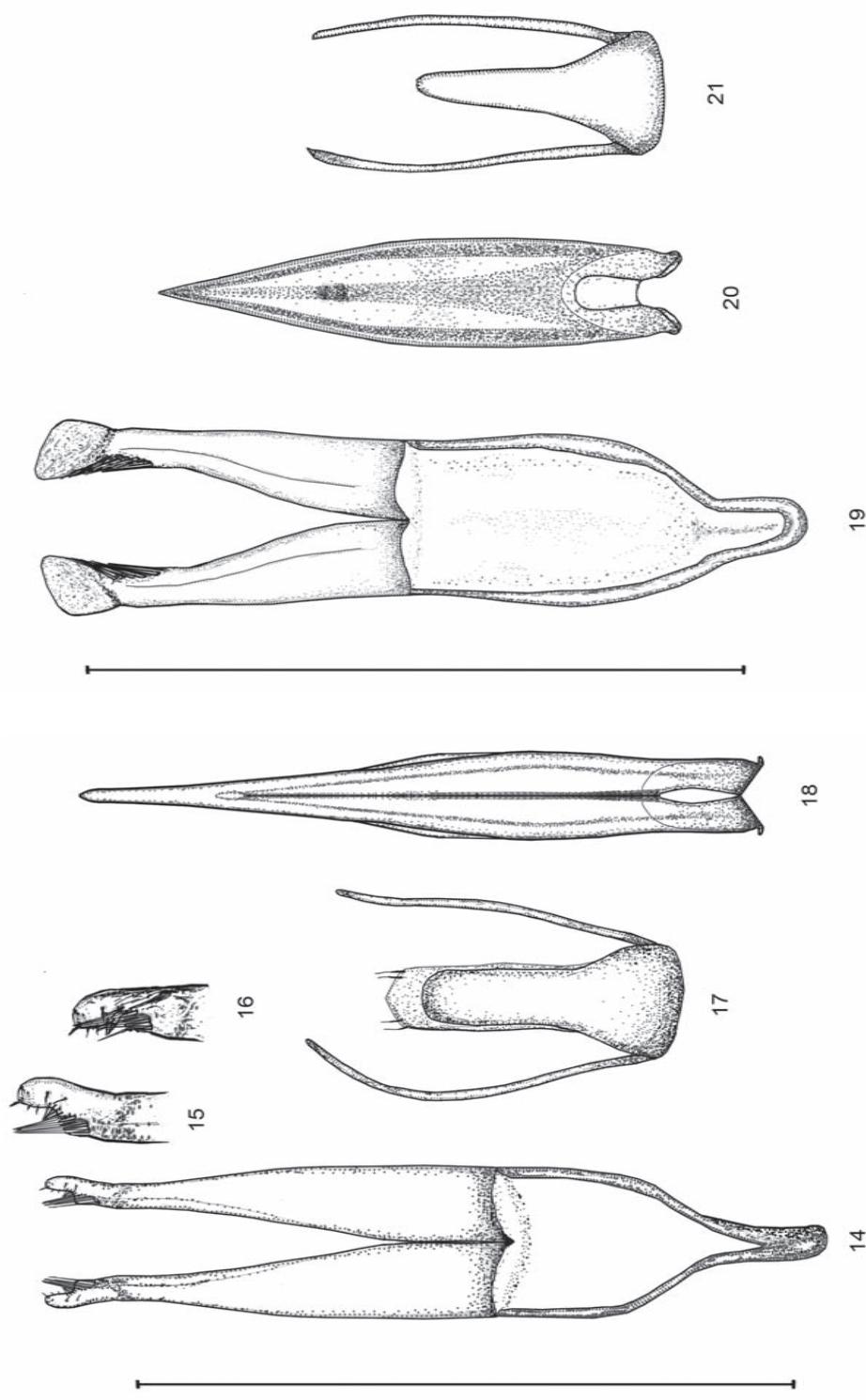
**Environmental preferences.** The species occurs in dung of horse, cow and other mammals, and in rotting plants. It comes frequently to light.

#### *Cercyon (Cercyon) paranigriceps* sp. nov.

**Type material. Holotype:** male; Russia, "Primorskiy Kray/PrK.: Tshernye Gory, Venedivnovo, 1–3.8.1990, leg. A. Putz" (CFH).

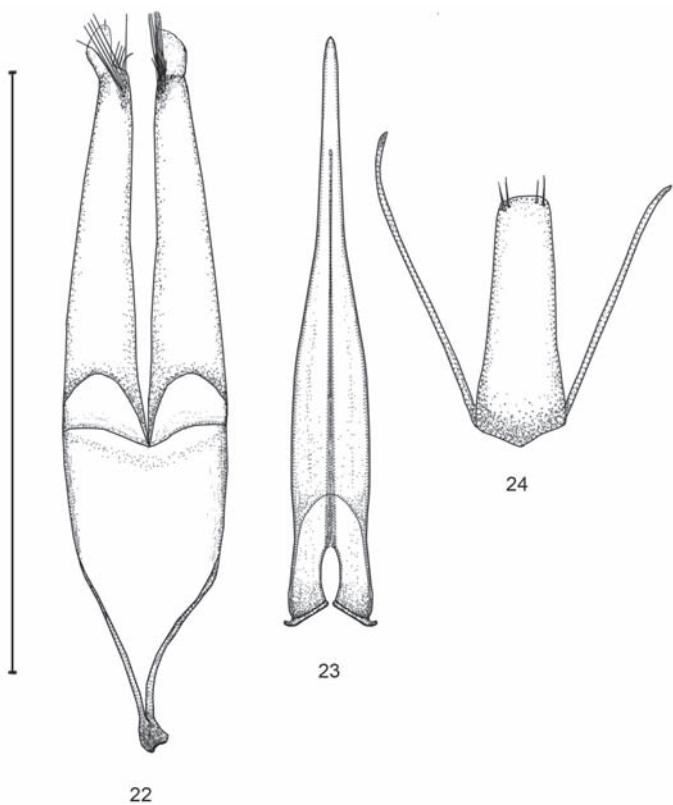
**Paratypes:** Russia, 1 female, same data as holotype (CSR). Myanmar, 2 males, 1 female, Burma, Kinda-Stausse, Einzugsgeb., d. Palaung-Flussses, 23–25 Feb. 1989, Lichtfang, leg. Tobias (CFH); 1 female, Burma, Kinda-Damm, 23–25 Feb. 1989, Lichtfang, leg. Tobias (CFH).

**Description.** Body oval (length/width 1.6), widest at base of elytra (Fig. 2). Dorsal side slightly convex, shiny, without microsculpture. Head black. Clypeus linear, truncate anteriorly. Punctuation of head fine and dense. Maxillary palpi yellowish to brownish yellow, ultimate segment darker.



Figs 14–21. *Ceryyon nigricens*, male genitalia. 14, tegmen with parameres (dorsal view); 15, 16, apex of paramere; 17, genital segment (ventral view); 18, median lobe (dorsal view); 19, tegmen with parameres (dorsal view); 20, median lobe (dorsal view); 21, genital segment (ventral view). Scale: 0.5 mm.

Antennae yellow to brownish. Pronotum transverse, brown with brownish yellow or yellow anterior and lateral margins. Sides of pronotum weakly rounded, arcuately diverging just before posterior angles, then converging toward anterior margin. Lateral rim continued around hind angles. Punctuation of pronotum similar to that of head. Posterior angles of pronotum widely rounded. Base of pronotum with fine border. Scutellum brown, very finely and sparsely punctate. Elytra yellow or yellowish brown with nine complete deep and one short punctate stria. Central spot in available specimens absent. Striae distinctly impressed apically, not reaching apex. Intervals of elytra with shallow and regular punctuation finer than that on head and pronotum. Anterior part of elytral intervals flat, posterior part convex, but intervals at apex flat. Second interval somewhat wider than 3rd and 4th. Ventral side brownish yellow. Mesosternum and metasternum brown, apex of abdominal segments yellowish. Proventrite tectiform, finely carinate medially. Preepisternal elevation parallel-sided, very narrow (length : width ratio 9.2), contacting elevated middle portion of metasternum at single point (Fig. 12). Epipleura flat, horizontal. Metasternum forming no ridge and not delimiting small anterolateral portion of metasternum. Metasternal pentagon flat, shiny, with very dense shallow punctuation, with two small deepenings in posterior part (Fig. 12). Length of preepisternal elevation : length of metasternal pentagon ratio 1.5. Metasternum with complete clear femoral



Figs 22–24. *Cercyon setiger*, male genitalia. 22, tegmen with parameres (dorsal view); 23, median lobe (dorsal view); 24, genital segment (ventral view). Scale: 0.5 mm.

lines, attaining anterior margin of metasternum. First segment of abdomen with medial carina, as long as 2nd and 3rd segments combined. Male genitalia as in Figs 19–21. Apex of paramere widened, not everted. Inner side of paramere near apex with thick glued dark hairs (Fig. 19). Median lobe wide (Fig. 20). Base of genital segment straight (Fig. 21). Legs yellowish or brownish yellow with paler tarsi. Length 1.3–1.5 mm.

*Comparison.* The new species is very similar to *C. nigriceps*, differing from it in the shape and in the sparser punctuation of the preepisternal elevation and metasternal pentagon. Length : width ratio of preepisternal elevation in *C. paranigriceps* is 9.2, in *C. nigriceps*, 8.2–8.7. Length of preepisternal elevation : length of metasternal pentagon ratio in *C. paranigriceps* equals

1.5, that in *C. nigriceps*, 1.2. Ventral side of *C. paranigriceps* is paler. Apical portions of the parameres of *C. paranigriceps* are not everted, and the median lobe is wide.

The *C. nigriceps* group includes African species *C. tachyorientidis* Jeannel & Paulian, 1945 and *C. minax* Balfour-Browne, 1958. These species as well as *C. paranigriceps* have wide median lobe but their genital segment is widened at the apex, and apical portions of the parameres are directed inside unlike *C. nigriceps*, *C. setiger* and *C. deserticola*. In addition, apices of parameres are not widened in *C. tachyorientidis* and *C. minax*.

*Comments.* Record of *Cercion* sp. pr. *atricapillus* (Hebauer, 1995b) refers actually to *C. paranigriceps* sp. nov.

*Distribution.* Palaearctic Region: Russia (Far East: Primorskiy Territory); Oriental Region: Myanmar.

*Environmental preferences.* Similar to those of *C. nigriceps*.

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