

# A New Species of the Genus *Cymindis* Latreille, 1805 (Coleoptera, Carabidae: Lebiini) from the Lower Volga Region

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Received July 25, 2021; revised July 25, 2021; accepted July 25, 2021

**Abstract**—A new species of the genus *Cymindis* Latreille, 1805, *Cymindis* (s. str.) *olgae* sp. n., is described from the vicinity of Volgograd City, Russia, related to *C.* (s. str.) *angularis* Gyllenhal, 1810 and *C.* (s. str.) *vagemaculata* Breit, 1914.

**Keywords:** taxonomy, Coleoptera, Carabidae, Lebiini, *Cymindis*, new species, Lower Volga Region, Russia

**DOI:** 10.1134/S0013873821070137

This paper contains the description of a new species of the genus *Cymindis* Latreille, 1805, from the environs of Volgograd City.

## MATERIALS AND METHODS

The holotype and part of the paratypes are preserved in the collection of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg (ZIN; B.M. Kataev). The other paratypes are housed in the following collections: Moscow State Pedagogical University, Moscow, Russia (MPU, K.V. Makarov); cBK, Coll. I.A. Belousov and I.I. Kabak, St. Petersburg, Russia; cEK, Coll. E.V. Komarov, Volgograd, Russia.

The specimens were examined and measured with an MBS-10 stereomicroscope and an ocular micrometer. The male genitalia were extracted and prepared using a conventional technique and preserved in euparal on pieces of transparent plastic board pinned under the specimen. In the list of the material, the number of the preparations of the aedeagi (the first cipher) and endophalli (the second cipher) examined are given in parentheses after the number of the specimens.

All the specimens are measured. Measurements were taken as follows: body length from anterior margin of labrum to elytral apex; head width across eyes; pronotal length along its median line; elytral length from tip of

scutellum to sutural angle of elytra; width of both pronotum and elytra at their widest part; pronotal base at the hind angles; length of antennae from base of scape to tip of ultimate segment; length of eye in dorsal view.

Photographs were taken with a Canon EOS 40D DSLR digital camera, using stacking and subsequently processed with Zerene stacker software version 1.04 (<http://zerenesystems.com/stacker>).

Abbreviations. AL—length of antennae; EL—length of elytra; EW—width of elytra; EyL—length of eye in dorsal view; HW—width of head across eyes; 3AL—length of antennomere 3; PB—width of pronotum at level of hind angles; PL—length of pronotum; PW—maximum width of pronotum.

## TAXONOMY

Genus *CYMINDIS* Latreille, 1805

*Cymindis* (s. str.) *olgae* Kabak et Komarov, sp. n.  
(Figs. 1–4)

Holotype, ♂: **Russia**, *Volgograd* env., Otrada Gully, 108 m a.s.l., 48°34'33"N, 44°20'57"E, 14.III.2020, E.V. Komarov leg. Paratypes: 5 (5, 2) ♂, 2 ♀, collected with holotype (ZIN, MPU, cBK, cEK); 1 (1) ♂, same data, but 21.III.2020 (cEK); 1 (1) ♂, *Volgograd* env., 6.IV.2019, E.V. Komarov leg. (cEK); 1 ♂, *Volgograd*

env., 3 km NNE of Gornyi Vill., 118 m a.s.l., 48°36'16"N, 44°14'39"E, pitfall trap in the forest shelter belt, 20–29.X.2019, O.P. Komarova leg. (cEK).

**Description.** Small-sized species, 6.6–7.7 mm long (males, on average, smaller, 7.1 mm vs. 7.6 mm in females), apterous, body flat and subparallel-sided, appendages rather long (Fig. 1, Fig. 2). Color of forebody reddish to brown, mandibles, labrum and often lateral margins of pronotum paler; elytra dark brown, each elytron with yellow pattern as follows: narrow lateral margin, one humeral spot reaching anterior 1/4–1/3 of elytra length, and a small, oval, vaguely delimited preapical spot on interspaces 3–5; interspace 1 sometimes yellowish. Appendages one-colored brownish yellow. Lower surface of body reddish brown, abdomen and sides of head often dark, medial part of metasternum and elytral epipleura yellowish.

Head rather large, PW/HW = 1.10–1.22 (1.19); eyes large, EyL/3AL = 1.33–1.47 (on average, 1.39 in males vs. 1.44 in females), moderately protruding, longer than tempora, the latter slightly convex. Antero-lateral margins of frons markedly and evenly curved, slightly reflexed. Upper side of head subconvex, frontal foveae small, not deep, reaching the level of anterior margins of eyes; lateral parts of frons near eyes moderately longitudinally rugulose. Frons and vertex not densely and almost evenly punctate (punctures slightly sparser only medially). Pubescence of head dorsal surface short, sparse; hairs semi-erect, proclinate. Two pairs of short supraorbital setae. Antennae comparatively short, in males longer, EL/AL = 0.94–1.01 (0.97) vs. 1.06–1.09 (1.08) in females. Scape subcylindrical, slightly swollen basally, not or feebly constricted at mid-length, sparsely pubescent, its preapical seta long. Genae sparsely pubescent. Labial tooth long, broadly rounded at apex, near mid-length with transverse border and a pair of setae. Submentum bisetose. Apical segment of labial palpi sparsely pubescent, in female slightly dilated distally and obliquely truncate at apex, in male triangular. Penultimate segment of labial palpi with four long setae on anterior margin. Apical segment of maxillary palpi fusiform, glabrous, penultimate segment sparsely pubescent.

Pronotum narrow, PW/PL = 1.16–1.26 (1.21), moderately constricted toward base, PW/PB = 1.44–1.55 (1.50), broadest at level of anterior one-third or one-fourth. Sides moderately rounded anteriorly, feebly sin-

uate before hind angles; the latter broadly rounded. Basal margin of pronotum subrectilinear medially or arched throughout, basal border complete. Anterior margin deeply concave, its border developed only laterally; anterior angles rounded, markedly protruding. Marginal bead of pronotum narrow, slightly dilated toward base, margins moderately reflexed. Basal foveae not large, shallow and vague. Basal transverse impression superficial. Apical transverse impression hardly perceptible. Disc subconvex, narrowly depressed along median line, the latter markedly shortened anteriorly and posteriorly. Punctures of pronotum not rough, moderately dense. Pubescence semi-erect, hairs as long as those on head. Only one lateral seta in anterior half of pronotum, that in hind angles absent. Scutellum glabrous, sparsely punctate. Sides of thorax, including prothorax, with short and sparse hairs. Prosternal process without border, shortly and sparsely pubescent. Metacoxae, in addition to short pubescence, with three long setae.

Elytra narrow-oval, broadest near mid-length or slightly behind latter, EL/EW = 1.41–1.49 (1.46); elytral disk flat, suture often slightly roof-shaped. In females, elytra proportionally larger, EL/PL = 2.52–2.75 (average 2.73 in female vs. 2.61 in males), EW/PW = 1.42–1.61 (average 1.54 in female vs. 1.48 in males). Lateral margins evenly rounded throughout, shoulders widely rounded. Apices markedly oblique, rectilinear to slightly incised, both external and sutural apical angles of each elytron broadly rounded. Marginal gutter not wide, narrowed near humeri, lateral margins slightly reflexed. Basal border complete, sinuate. Elytral striae not deep, densely and feebly punctate. Intervals subconvex, evenly punctate, punctures arranged in two or three irregular longitudinal rows; interval 3 with 2 or 3 small discal setiferous pores, of which the anterior one attached to stria 3, posterior one placed on interval 3. Pubescence of elytra dense, adpressed, as short as that on pronotum. Umbilicate series consisting of 14–16 pores. One apical pore in stria 7 at the level of interval 3.

Microsculpture indistinct on head and pronotum, hardly perceptible on elytra, consisting of fragments of isodiametric meshes.

Abdomen, except for medial portion, with short sparse adpressed hairs, ventrites with a pair of paramedian setae, anal ventrite bisetose in males, quadrisetose in females.



Fig. 1. *Cymindis* (s. str.) *olgae* sp. n. paratype male, habitus.



Fig. 2. *Cymindis* (s. str.) *olgae* sp. n. paratype female, habitus.

Legs comparatively long, meso- and metatibiae approximately as long as corresponding tarsi. Dorsal surface of tarsi with long hairs; claws pectinate. Three basal segments of male protarsus weakly dilated, segment 2 clearly longer than wide.

Median lobe of aedeagus (Fig. 3, 1, 2) thin, evenly arched, its ventral margin not sinuate, apical lamella long, straight, not modified at apex. Copulatory piece large, narrow, C-shaped. Right paramere (Fig. 3, 3)

rounded apically. Endophallus (Fig. 3, 4–6) short and robust.

**Comparative diagnosis.** The new species belongs to the subgenus *Cymindis* Latreille, 1806 having a triangular apical labial palpomere, complete basal border of the elytra, pectinate claws and trisetose metacoxae. Judging by the structure of the male genitalia, it is closely related to *C. angularis* Gyllenhal, 1810 and *C. vagemaculata* Breit, 1914. The first one is a Euro-Si-





**Fig. 3.** *Cymindis (s. str.) olgae* sp. n., male genitalia, holotype (1) and paratype (2–6): (1) median lobe of aedeagus, right lateral view; (2) median lobe of aedeagus, left lateral view; (3) right paramere, lateral view; (4–6) endophallus [(4) posterior view, (5) front view, (6) right lateral view].

berian species, widespread from Western Europe to East Siberia (Kryzhanovskij et al., 1995; Kabak, 2017), including the Lower Volga region (Kalyuzhnaya et al., 2000). *C. vagemaculata* is endemic to the mountains of Crimea (Putchkov, 2012; Kabak, 2017). All the three taxa are characterized by the thin, slightly arched median lobe of aedeagus, long and narrow, not modified at tip apical lamella, and large, narrow, C-shaped sclerite of the endophallus (copulatory piece) with distal portion freely projecting beyond internal sac. The mentioned

species are comparatively small-sized, with upperside of body rather densely punctate and pubescent, the lateral seta in hind angles of the pronotum is absent. Additionally, *C. olgae* sp. n. is similar to *C. vagemaculata* in the endophallus structure with large right dorsolateral process and short lobe before the copulatory piece; the latter is similarly shaped, its dorsal end is long and free. The new species is easily distinguished from *C. angularis* and *C. vagemaculata* in wide and flat body, more slender antennae and legs, more widely depressed lat-





1



2

**Fig. 4.** *Cymindis* (s. str.) *olgae* sp. n.: (1) biotope in the type locality, (2) individual in natural conditions.

eral margins of the pronotum, completely rounded hind angles of the latter, less roughly punctate body surface, less markedly and more gradually sinuate elytral basal border, thin and finely punctate striae of the elytra, and less swollen basally median lobe of the aedeagus, the ventral margin of which is not sinuate, evenly concave. The endophallus in the new species is short and bulky. Additionally, the new species differs from *C. angularis* in a paler color of the upper side with a less contrasting elytral pattern, and from *C. vagemaculata*, in the clearly bicolored elytra.

**Distribution.** The new species is known only from the type locality.

**Bionomics.** The species was found in early spring at the an elevation of about 100–120 m a.s.l. on crests of steppe hills (Fig. 4, 1), under isolated stones and dry muck. An individual of *C. olgae* sp. n. under natural conditions is shown in Fig. 4, 2. One specimen was collected in the forest shelter belt, close to the steppe biotopes. The dates of the species' collecting imply its imaginal hibernation and short period of adult activity in early spring.

**Etymology.** The new species is named after the wife of the second author, Olga Komarova (Volgograd), who took part in the collection of the type series.

## ACKNOWLEDGMENTS

We are very grateful to B.M. Kataev (ZIN) for his help in the preparation of the paper and V.N. Sergienko (Volgograd) for assistance in collecting specimens of the new species.

## COMPLIANCE WITH ETHICAL STANDARDS

The authors declare that they have no conflict of interest. All the applicable international, national, and institutional guidelines for the care and use of animals were followed. All the procedures performed in studies involving animals were in accordance with the ethical standards of the institution or practice at which the studies were conducted.

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