

First record of the genus *Combocerus* Bedel, 1868 (Coleoptera, Erotylidae) for the fauna of Kazakhstan

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Abstract

Pleasing fungus beetle *Combocerus* Bedel, 1868 with species *C. glaber* (Schaller, 1783) of the family Erotylidae is firstly recorded from Kazakhstan. The finds of *C. glaber* from Akmola Oblast of North Kazakhstan are currently the eastmost localities for this species and first record for Central Asia. Beetles found under the bark of dead *Salix alba* L., on the fungi – wood mushroom *Agaricus silvicola* (Vittad.) Peck, 1872, scaly sawgill *Neolentinus lepideus* (Fr.) Redhead & Ginns, 1985 and violet-toothed polypore *Trichaptum biforme* (Fr.) Ryvarden, 1972, which is new data on the biology of this species. Now there are eight genera and twenty one species of the Erotylidae in Kazakhstan.

Keywords

Combocerus glaber, pleasing fungus beetles, West and North Kazakhstan, new records

Introduction

The family Erotylidae (pleasing fungus beetles) includes about 283 genera and over 3500 species in the world fauna (Wegrzynowicz 2007, Ślipiński et al. 2011, Drilling et al. 2013, Liu et al. 2021, Skelley 2023, Yang et al. 2024). Some new genera and species of this family were described (Tang, Skelley and Pérez-Farrera 2018, Skelley and Gasca-Álvarez 2020, Skelley, Leschen and Liu 2021, Skelley 2023, Yang et al.

2024) from Australia, North and South America. Seven genera and twenty species were known from Kazakhstan (Wegrzynowichz 2007, Temreshev 2017, 2022, 2023, 2024, 2025). Their imagoes and larvae feed on plant and fungal matter, are found on fungi, especially tinder fungi, pupate in the soil; some are important pollinators (e.g. of the ancient cycads) (Krivolutskaya 1992, Krasutsky 2005, Robinson 2005, Drake 2009, Tang, Skelley and Pérez-Farrera 2018, Skelley and Gasca-Álvarez 2020). Representatives of the subfamily Languriinae are associated primarily with herbaceous plants. Some species are xylobionts (Robinson 2005, Drake 2009, Tang, Skelley and Pérez-Farrera 2018, Skelley and Gasca-Álvarez 2020). Several species were listed as pests of food supplies and / or invasive species (Mordkovich and Sokolov 1999, Krasutsky 2005, Robinson 2005, Drake 2009, Hagstrum and Subramanyam 2009, Denux and Zagatti 2010, Temreshev 2017).

The genus *Combocerus* Bedel, 1868 included only one species, *Combocerus glaber* (Schaller, 1783), around the world (GBIF Secretariat 2022). Beetle 3.3–4.3 mm in length, is glossy black, pronotum, one large patch on shoulder and tip of each elytra, red legs, antennae rusty red. Pronotum sides parallel in the base half, pronotum base in front of the cap drawn flat backwards and with broader margins, here with a transverse furrow. The elytra with eighth fine rows of punctures, in between very finely and sparsely dotted rows (Kryzhanovsky 1965, Krasutsky 2005). Pronotal glands are represented by a single pore in each anterior and posterior corner, anterior ones not visible from dorsal. One pair each of periocular pores and subgenal pores (Drilling et al. 2013). Knowledge of biology and development of the species remains at least fragmentary, and the larva is not known. It occurs under stones, dry manure, under rotting plant residues and vegetables, moldy boards, in fox burrows, usually in open biotopes, throughout the area, but sporadically, rarely to very rarely (Nikitsky et al. 1996; Franc 2001; Mitter 2004). It is believed that biologically it occupies a special position among erotilids, since it is not a mycetophage species, at least it has nothing to do with tree fungi (Franc 2001, Mitter 2004, Hartmann and Schmidl 2012, Callot 2015). There is information about the collection of the species by mowing with a net on the grass around 1,250 m (Callot 2015) and its location infrom xerothermic grasslands (Ruta et al. 2011). There is evidence of a find of the species "in the dust of a birch stump with honey agarics" (Egorov 2004). There is also information that *C. glaber* is an obligate mycetophage (Krasutsky 2005). Representatives of this genus were not been previously recorded from Kazakhstan.

Material and methods

The material was collected by manual method from 2022 to 2024 in West Kazakhstan and Akmola oblast. Standard techniques (Fasulati 1971) used in entomology were used during the collection of the material. The following sources (Jacobson 1905–1915, Kryzhanovsky 1965, Nikitsky et al. 1996, Franc 2001, Egorov 2004, Mitter 2004, Krasutsky 2005, Wegrzynowichz 2007, Ruta et al. 2011, Hartmann and

Schmidl 2012, Callot 2015) were used for species determination of the beetles, clarification of their taxonomic position, biology and the distribution. Studied specimens are kept in the private collection I.I. Temreshev (Almaty, Kazakhstan). Photographs of *C. glaber* were taken with a camera Canon EOS 50 D by author (Fig. 1). Photographs of the mushrooms were taken with a camera Redmi 7 by I.I. Temreshev (Figs 2, 3). Descriptions and body measuring were performed using a Micromed MC var 1-C dissecting stereomicroscope and microscope Levenhuk DTX RC. The mushrooms that the material was collected were determined using special literature (Samgina 1981, 1985) and the materials from the site "Mushrooms of Kazakhstan" ("Mushroom classification", n.d.). For convenience as well as some geographical and administrative terms: d. – district, ex. – exemplar, nei. - neighborhoods, v. - village.

Results and discussion

As a result of the research, three species of this genus, are determinates as new for Kazakhstan, and the list of mushrooms on which they are found is clarified.

Family Erotylidae Latreille, 1802

Subfamily Erotylinae Latreille, 1802

Tribe Dacnini Crotch, 1876

Genus *Combocerus* Bedel, 1868

Combocerus glaber (Schaller, 1783)

Figs 1, 2

Material examined. 1 ex. – 18.05.2022, West Kazakhstan oblast, Taskala d., nei. Chizha 1 v., 50°55'59.38"N 50°2'3.12"E, grove white willow, under the bark of dead *Salix alba* L., IT; 3 ex. – 25.05.2022, West Kazakhstan oblast, Taskala d., nei. Amangeldi v., 50°55'39.17"N 49°59'16.75"E, white willow grove, under the bark of dead *S. alba* L., I.I. Temreshev; 1 ex. – 25.05.2022, West Kazakhstan oblast, Taskala d., nei. Amangeldi v., 50°46'1.44"N 49°50'27.98"E, on the scaly wood mushroom *Agaricus silvicola* (Vittad.) Peck, 1872, I.I. Temreshev; 1 ex. – 25.05.2022, West Kazakhstan oblast, Taskala d., nei. Amangeldi v., 50°52'15.33"N 49°54'26.64"E, on the scaly sawgill *Neolentinus lepideus* (Fr.) Redhead & Ginns, 1985, I.I. Temreshev; 1 ex. – 14.08.2024, Akmola oblast, Burabay d., neighborhoods of Shchuchinsk v., mixed pine-birch forest, 52°58'10.02"N 70°15'28.69"E, on violet-toothed polypore *Trichaptum biforme* (Fr.) Ryvarden, 1972, on dead European white birch *B. pendula*, I.I. Temreshev.

Remarks. In contrast to the cases mentioned in the literary sources (Nikitsky et al. 1996, Franc 2001, Mitter 2004, Hartmann and Schmidl 2012), almost all the

collected beetles *C. glaber* were found under the the bark of the dead trees. Except for the exemplars, collected on the mushroom *A. silvicola*, *N. lepideus* and *T. biforme*. All examined trees, infected by the tinder fungus *Fomes fomentarius* (L.) Fr. (Fig. 3A–E). Beetles were under the bark of white willow along with woodlouse and caterpillars of owl moths (Fig. 2).

Distribution. *C. glaber* is distributed in Europe (Azerbaijan, Austria, Belgium, Belarus, Bosnia Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Great Britain, Greece, Hungary, Italy, Lithuania, Netherlands, Norway, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Sweden, Switzerland, Ukraine) (Jacobson 1905–1915, Kryzhanovsky 1965, Telnov 2004, Krasutsky 2005, Wegrzynowicz 2007) (Fig. 4). The records of *C. glaber* were absent for Kazakhstan (Wegrzynowicz 2007). West Kazakhstan oblast – this is the easternmost find of this species.

Note. The finds of *C. glaber* from Akmola oblast of North Kazakhstan are currently the eastmost localities for this species and first record for Central Asia. The species was found along with lined flat bark beetles (Laemophloeidae) – *Laemophloeus muticus* (Fabricius, 1781), pleasing fungus beetles (Erotylidae) – *Dacne bipustulata* (Thunberg, 1781), *Triplax aenea* (Schaller, 1783), *T. rufipes* (Fabricius, 1787) and *T. scutellaris* Charpentier, 1825, cerylonid beetles (Cerylonidae) – *Cerylon impressum* Erichson, 1845, and hairy fungus beetles (Mycetophagidae) – *Mycetophagus quadripustulatus* (Linnaeus, 1761), *M. multipunctatus* Fabricius, 1792, for which the Akmola and West Kazakhstan oblast is also a new distribution records in Kazakhstan (Temreshev 2019, 2022, 2024 a, b, c, 2025).



Figure 1. *Combocerus glaber*, habitus, dorsal view. West Kazakhstan.



Figure 2. *Combocerus glaber* under the bark of dead white willow *Salix alba* with woodlouse and caterpillars of owlet moths, West Kazakhstan.

Conclusions

The finds of *C. glaber* from Akmola oblast of North Kazakhstan are currently the eastmost localities for this species and first record for Central Asia. *C. glaber* found under the bark of the dead *Salix alba*, on the fungi – wood mushroom *A. silvicola*, scaly sawgill *N. lepideus* and violet-toothed polypore *T. biforme*, which is new data on the biology of this species. Beetles were found under the bark along with numerous woodlouse. It is possible, a mixture of wood dust with mycelium of tinder fungus *F. fomentarius*, recycled by these invertebrates may be a suitable substrate for development of beetle. There is data on the finding of *C. glaber* in similar conditions (Egorov 2004). The finding of the species on mushrooms *A. silvicola* and *N. lepideus* can be explained by an accidental entry during migration. However, since the case is not isolated, and was noted on different species of fungi, we believe that additional studies are needed. In total, one genera and one species of pleasing fungus beetles are additionally recorded for Kazakhstan. Previously known seven genera and twenty species (Wegrzynowicz 2007, Temreshev 2017, 2022, 2023, 2024, 2025). Now there are eight genera and twenty one species.



Figure 3. Habitat of *Combocerus glaber*: white willow *Salix alba* (A, B) trees, infected by the tinder fungus *Fomes fomentarius*, wood mushroom *Agaricus silvicola* (C), scaly sawgill *Neolentinus lepideus* (D) and violet-toothed polypore *Trichaptum biforme* (E). West and North Kazakhstan.

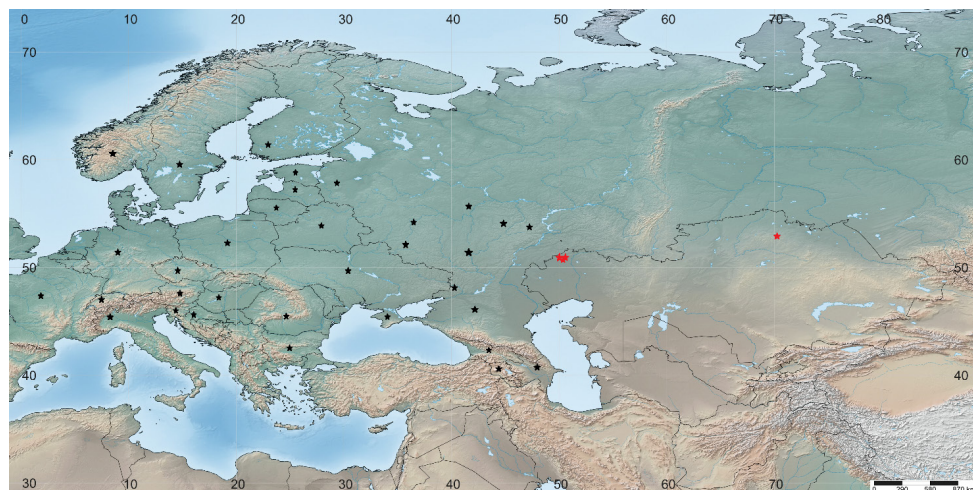


Figure 4. Distribution of *Combocerus glaber* in world and in Kazakhstan. New records are indicated with red stars. Known indicated in black stars.

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