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First record of *Cerylon impressum* Erichson, 1845 (Coleoptera, Cerylonidae) from Kazakhstan

Первая находка *Cerylon impressum* Erichson, 1845 (Coleoptera, Cerylonidae) в Казахстане

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Key words: *Cerylon impressum*, minute bark beetles, West, North and Central Kazakhstan, new record.

Ключевые слова: *Cerylon impressum*, шароусы, Западный, Северный и Центральный Казахстан, новая находка.

Abstract. The minute bark beetle *Cerylon impressum* Erichson, 1845 from the family Cerylonidae is newly recorded from Kazakhstan, in the western, northern and central parts of the country. This is a first registration of the beetle under bark of white willow *Salix alba* L.

Резюме. Церилон вдавленный *Cerylon impressum* Erichson, 1845 из семейства Шароусы (Cerylonidae) впервые обнаружен в Казахстане (на западе, севере и в центре страны). Жуки найдены под корой белой ивы *Salix alba* L., что является новым фактом для биологии этого вида.

Introduction

Cerylonidae (minute bark beetles) belongs to the superfamily Cucujoidea of the suborder Polyphaga. It includes about 52 genera and above 450 species in the world fauna, mostly tropical and subtropical [Ślipiński et al., 2011; Jałoszyński, Ślipiński, 2021]. One genera and one species, *Cerylon histeroides* Fabricius, 1792, were known from Kazakhstan [Ślipiński, 2007]. Most adults are collected from leaf litter, rotten wood and under bark, in the mycelial layer of many mushrooms, but can also occur in compost and other decaying plant material. Little is known about the feeding habits of the larvae although some are known to feed on fungal hyphae or spores and some species feed on a plasmodium of slime molds. Adults are thought to be either predators that feed on other small animals, or fungus eating. A few species of Ceryloninae and Euxestinae are associated with ants and termites. The beetles were probably feeding upon the fungus provided for immature termites. The subcylindrical adults of African *Metacerylon* Grouvelle, 1906 are associated with tunnels of wood-boring insects. The larva may live in tunnels of ambrosia beetles or other groups [Lawrence, Stephan, 1975; Nikitsky, 1991; Ślipiński, 1991, 2003; Nikitsky et al., 1996; Krasutsky, 2005]. Previously several families, Alexiidae, Euxestidae, and Murmidiidae, were included within Cerylonidae. Some species were listed as pests of food supplies and/or invasive species [Nikitsky, 1991; Mordkovich, Sokolov, 1999; Robinson, 2005; Ślipiński, 2007; Drake, 2009; Hagstrum, Subramanyam, 2009; Denux, Zagatti, 2010; Temreshev, 2017]. The genus *Cerylon* Latreille, 1802 includes 12 species in ver the world [GBIF Secretariat, 2021]. The species live under loose bark or in decomposing wood, in mushrooms. Adults visit the fruiting bodies of many xylotrophic and soil fungi, using them as an additional food resource. The larvae often inhabit areas where the plasmodium of the slime molds from genus *Physarum* Persoon, 1794 and *Trichia* Haller, 1768 is found, as well as some ascomycetes and deuteromycetes and the mucoid mycelium of some other fungi [Ślipiński, 1991; Nikitsky et al., 1996; Krasutsky, 2005].

Material and methods

The material was collected from 2007 to 2022 in West Kazakhstan, Akmola and Kostanai 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, 1980, 1991; Koch, 1989; Ślipiński, 1991, 2003, 2007; Ślipiński, Merkl, 1993; Nikitsky et al., 1996; Krasutsky, 2005; Pettersson, 2013; Sawoniewicz, 2013; García-Díaz et al., 2014] 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 of I.I. Temreshev (Almaty, Kazakhstan).

The present work is registered in ZooBank (www.zoobank.org) under LSID urn:lsid:zoobank.org:pub:591D9BB4-5DCB-4CDC-B339-0A45E384CDFF.

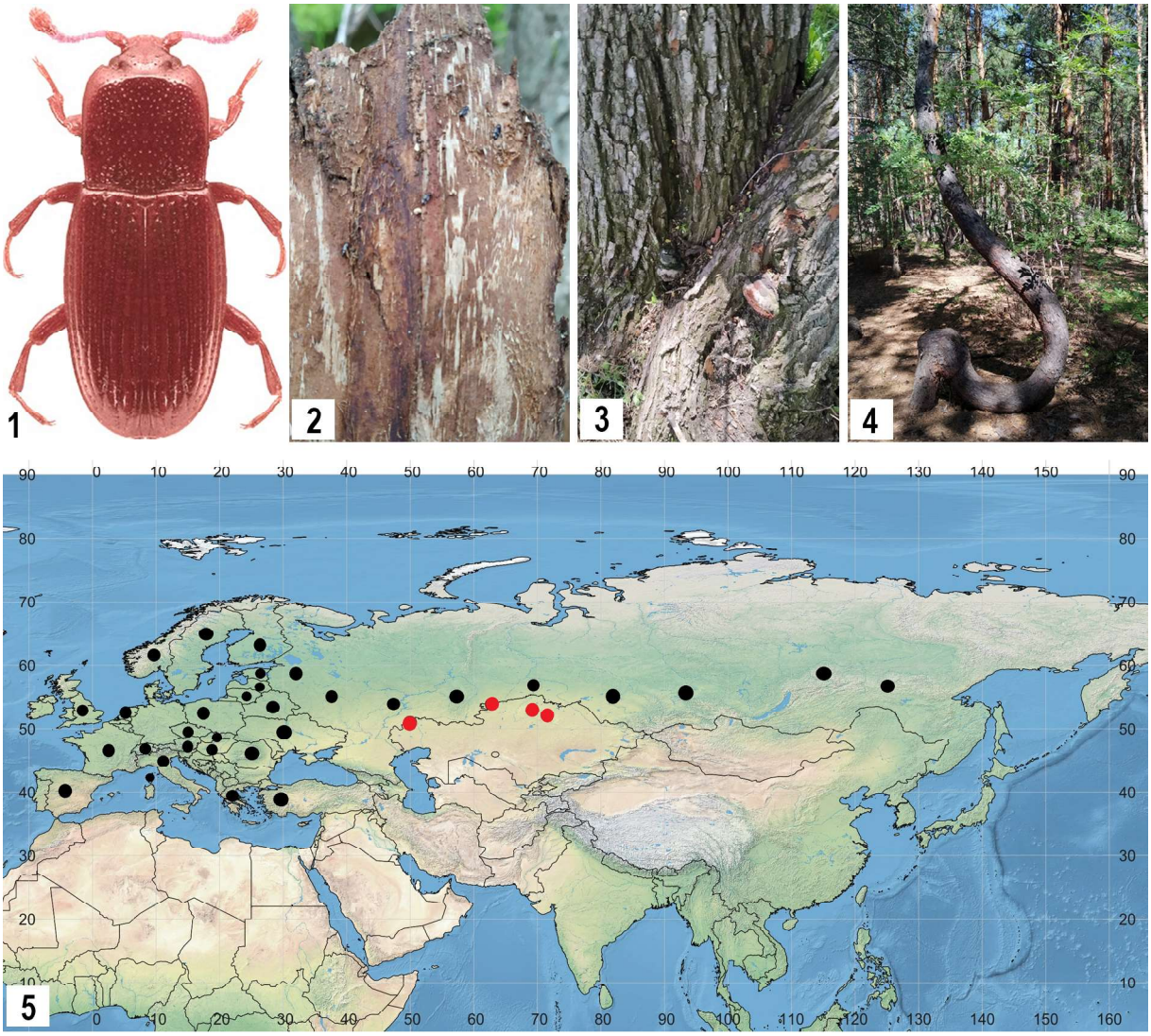
Results

Cerylon impressum Erichson, 1845

Figs 1–5.

Material. **Akmola oblast,** ***Zerendinsky district:*** 3 spm. — neighborhoods of Zerenda vill., 52°53'24.55" N, 69°9'46.72" E, under the bark of Scots pine *Pinus sylvestris* L., 29.VII.2007, I.I. Temreshev leg.; ***Akkol district:*** 4 spm. — neighborhoods of Azat vill., 52°5'14.35" N 71°31'23.85" E, under the bark of Scots pine *P. sylvestris*, 6.VII.2018, I.I. Temreshev leg. **West Kazakhstan oblast**, ***Taskala district:*** 6 spm. — near Chizha 1 vill., 50°55'59.38" N, 50°2'3.12" E, grove white willow, under the bark of dead white willow *Salix alba* L., 18.V.2022, I.I. Temreshev leg.; 4 spm. — near Amangeldi vill., 50°56'37.55" N, 49°55'8.27" E, white willow grove, under the bark of dead white willow *S. alba*, 25.V.2022, I.I. Temreshev leg.; 5 spm. — idem, 50°56'37.55" N, 49°55'8.27" E, under the bark of white willow *S. alba*, 25.V.2022, I.I. Temreshev leg. **Kostanai oblast,** ***Fyodorov district:*** 9 spm. — near Koskol lake, 53°55'0.58" N, 62°46'26.21" E, mixed pine and birch forest, under the bark of Scots pine *Pinus sylvestris* L. and European white birch *Betula pendula* L., 10.VIII.2022, I.I. Temreshev, M. Tolykbaev leg.

Remarks. Some specimens of *Cerylon impressum* Erichson have been found under the bark of white willow *S. alba* L. In Europe, the larvae develop under the bark of pine, spruce, aspen, oak, and beech [Koch, 1989], sometimes in the litter found in anthills [Ślipiński, Merkl, 1993]. There is information about a find in decaying birch wood [Sawoniewicz, 2013]. They are also found in the passages of bark beetles after they emerge, where they apparently feed on decay products of the bark or fungi [Nikitsky, 1980; 1991]. Almost all records in Northern Europe are made under the bark of standing pines in pine-dominated natural forests [Pettersson, 2013]. Thus, the discovery under the bark of a white willow is a new fact for



Figs 1–5. Habitat and distribution of *Cerylon impressum* Erichson. 1 — external appearance of beetle from North Kazakhstan; 2 — adult beetles under the bark of dead white willow *Salix alba* L. in West Kazakhstan; 3 — white willow trees infected by the tinder fungus *Fomes fomentarius* (L.) Fr. as suitable habitat for the beetle in West Kazakhstan; 4 — grove with Scots pine *Pinus sylvestris* L., typical habitat of the beetle in North Kazakhstan; 5 — distribution map of the species in Palearctic, new localities are marked with red circles, literature data with black circles.

Рис. 1–5. Распространение и местообитания *Cerylon impressum* Erichson. 1 — общий вид жука из Северного Казахстана; 2 — взрослые жуки под отмершей корой белой ивы *Salix alba* L. в Западном Казахстане; 3 — дерево белой ивы, заражённое трутовым грибом *Fomes fomentarius* (L.) Fr. как подходящее местообитание для жука в Северном Казахстане; 5 — карта распространения вида в Палеарктике, новые локалитеты показаны красными кружками, известные по литературным данным — чёрными кружками.

biology *C. impressum* Erichson. All examined trees of white willow, infected by the tinder fungus *Fomes fomentarius* (L.) Fr. (Fig. 3). The pines were infected with blue wood fungus (*Ophiostoma* sp.) and did not grow quite normally (Fig. 4).

Distribution. The species is distributed in Palearctic and known from Europe (Austria, Belarus, Corsica island, Czech Republic, Estonia, Finland, France, Great Britain, Greece, Hungary, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Romania, Russia, Slovakia, Spain, Sweden, Switzerland, Ukraine) and Asia (Siberia, Far East, Turkey) [Jacobson, 1905–1915; Nikitsky, 1980; 1991; Ślipiński, Merkl, 1993; Telnov, 2004; Krasutsky, 2005; Ślipiński, 2007; Pettersson, 2013; García-Díaz et al, 2014] (Fig. 5). The registration for Kazakhstan were previously absent [Ślipiński, 2007].

Conclusion

The discovery under the bark of a white willow is a new fact for biology *Cerylon impressum* Erichson. In total, one species of minute bark beetles from the genus *Cerylon* Latreille are additionally recorded for Kazakhstan.

Key to species of the genus *Cerylon* Latreille known from Kazakhstan

1. Upper side mostly pitch black, rarely rusty red. Elytra slightly rounded behind front third, length / width ratio 1.53–1.62. Elytra stripe weakened towards tip. Red-brown pieces best recognized by elytra shape and indicated elytra index. Pronotum base dimple faint and short. The pronotum shape varies. As with the other species, ♀ have, on average, slightly wider pronotum than ♂. 1.8–2.3 mm. ....*C. histeroides* Fabricius

— Upper side almost always rusty red, very rarely black, only the antennal club and tarsi are red. Elytra with deeply incised stripes, in front of middle with flat transverse depression, seam somewhat raised. Elytra length / width ratio 1.55-1.68, not extended and rounded. Pronotum broader, quadrate, clearly narrowed at the base with strikingly deep basal fossae that extend far forward, in which the puncture is strikingly stronger than on the rest of the pronotum. 2.0–2.4 mm.... ..... *C. impressum* Erichson

This shows that the fauna of Cerylonidae in Kazakhstan needs further study. In the future, other species of this family may be found on the territory of the country and the distribution of already noted representatives may be clarified.

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References

Cerylon Latreille, 1802 in GBIF Secretariat. 2021. GBIF Backbone Taxonomy. Checklist dataset https://doi.org/10.15468/39omei. Accessed 15.11.2022.

Denux O., Zagatti P. 2010. Coleoptera families other than Cerambycidae, Curculionidae sensu lato, Chrysomelidae sensu lato and Coccinelidae. Chapter 8.5 // Alien terrestrial arthropods of Europe. BioRisk. Vol.4. No.1. P.315–406. https://doi.org/10.3897/biorisk.4.61.

Drake J.A. 2009. Handbook of Alien Species in Europe // Invanding nature Springer series in invasion ecology. Vol.3. Springer Science+ Business Media B.V. 399 p.

Fasulati K.K. 1971. Polevoe izuchenie nazemnyh bespozvonochnyh. Moskva: Vysshaya Shkola. 424 p. [In Russian].

García-Diaz A.M., De la Rosa J.J., Otero J.C. 2014. *Cerylon impressum* Erichson, 1845 (Col.: Cucujoidea: Cerylonidae): Primera cita en la Península Ibérica // Arquivos Entomolóxicos. Vol.12. P.11–14.

Hagstrum D.W., Subramanyam B. 2009. Stored-product insect resource. AACC International, Inc. 509 p.

Jacobson G.G. 1905–1915. Beetles of Russia and Western Europe. Saint Petersburg: Publisher A.F. Devrien. 1024 p. [In Russian].

Jałoszyński P., Ślipiński A. 2021. Revision of the subfamily Ostomopsinae (Coleoptera: Cerylonidae) // Zootaxa. Vol.4985. No.4. P.459–481. https://doi.org/10.11646/zootaxa.4985.4.2.

Koch K. 1989. Die Käfer Mitteleuropas. Ekologie. Bd.2. Krefeld: Goecke & Evers. 382 p.

Krasutsky B.V. 2005. Micetofil'nye zhuki Urala i Zaural'ya. Vol.2. System «Mushrooms–insects». Chelyabinsk. 213 p. [In Russian].

Lawrence J.F., Stephan K.H. 1975. The North American Cerylonidae (Coleoptera: Clavicornia) // Psyche. Vol.82. P.131–166.

Mordkovich Ya.B., Sokolov E.A. 1999. Opredelitel' karantinnyh i drugih opasnyh vreditelej syr'ya, produktov zapasa i posevnogo materiala. Moskva: Kolos. 384 p. [In Russian].

Nikitsky N.B. 1980. Nasekomye-hishchniki koroedov i ih ekologiya. Moskva: Nauka. 232 p. [In Russian].

Nikitsky N.B. 1991. Sem. Cerylonidae // Ler P.A. (Ed.): Opredelitel' nasekomyih Dal'nego Vostoka SSSR. Vol.3. No.2. Saint Petersburg: Nauka. P.303–310. [In Russian].

Nikitsky N.B., Bibin A.R., Dolgin M.M. 2008. [Xylophilous beetles (Coleoptera) of the Caucasian State Biospheric Natural Reserve and adjacent territories.] Syktyvkar: Institute of Biology of Komi centre of science. Ural branch of the Russian Academy of sciences. 452 p. [In Russian].

Nikitsky N.B., Osipov I.N., Chemeris M.V., Semenov V.B., Gusakov A.A. 1996. Zhestkokrylye — ksilobionty, micetobionty i plastinchatousye Prioksko-Terrasnogo biosfernogo zapovednika (s obzorom fauny etih grupp po Moskovskoj oblasti). (Issledovaniya po faune). Moskva: Moscow State University. 197 p. [In Russian].

Pettersson R.B. 2013. Åtgärdsprogram för skalbaggar på nyligen död tall, 2014–2018. Kantad kulhalsbock (*Acmaeops marginatus*) starkt hotad (EN) Cholodkovskys bastborre (*Carphoborus cholodkovskyi*) nära hotad (NT) Tolvtandad barkborre (*Ips sexdentatus*) starkt hotad (EN) Avlång barkborre (*Orthotomicus longicollis*) sårbar (VU) Smal skuggbagge (*Boros schneideri*) starkt hotad (EN) Tallgångbagge (*Cerylon impressum*) sårbar (VU) Tallbarksvartbagge (*Corticeus fraxini*) sårbar (VU) Avlång barksvartbagge (*Corticeus longulus*) starkt hotad (EN) Linjerad plattstumpbagge (*Platysoma lineare*) nära hotad (NT) // Rapport 6599. Stockholm: Naturvårdsverket. 108 p. [In Sweden].

Robinson W.H. 2005. Handbook of Urban Insects and Arachnids. Cambridge: Cambridge University Press. 456 p. https://doi.org/10.1017/CBO9780511542718.

Sawoniewicz M. 2013. Beetles (Coleoptera) occurring in decaying birch (*Betula* spp.) wood in the Kampinos National Park // Forest Research Papers. Vol.74. No.1. P.71–85. https://doi.org/10.2478/frp-2013-0008.

Ślipiński S.A. 1991. A monograph of the world Cerylonidae (Coleoptera; Cucujoidea). Part 1. Introduction and higher classification // Annali del Museo civico di storia naturale Giacomo Doria. Vol.88. P.1–273.

Ślipiński S.A. 2003. A monograph of the world Cerylonidae (Coleoptera, Cucujoidea). Part II. Subfamily Loeblioryloninae // Cuccodoro G., Leschen R.A.B. (Eds): Systematics of Coleoptera: papers celebrating the retirement of Ivan Löbl. Memoirs on entomology international. Vol.17. P.921–941.

Ślipiński A. 2007. Cerylonidae // Löbl I., Smetana A. (Eds): Catalogue of Palaearctic Coleoptera. Vol.4: Elateroidea-Derodontoidea-

Bostrichoidea-Lymexyloidea-Cleroidea-Cucujoidea. Stenstrup: Apollo Books. P.552–554.
Ślipiński S.A., Merkl O. 1993. Különböző Csápú Bogarak VI. — Diversicornia VI. Bunkóscsápú Bogarak VIII. Clavicornia VIII // Magyararezag Állatvilága (Fauna Hungariae). Vol.170. Budapest. 74 p.
Ślipiński S.A., Leschen R.A.B., Lawrence J.F. 2011. Order Coleoptera Linnaeus, 1758 // Zootaxa. Vol.3148. P.203–208.
Telnov D. 2004. Check-list of Latvian Beetles (Insecta: Coleoptera). Riga: The Entomological Society of Latvia. 115 p.
Temreshev I.I. 2017. Vrediteli zapasov i syr'ya, rasprostranennye na territorii Respubliki Kazahstan, i nekotorye karantinnye i soputstvuyushchie vidy (vidovoj sostav i kratkaya tekhnologiya provedeniya zashchitnyh meropriyatij). Izdanie vtoroe, pererabotannoe i dopolnennoe. Almaty: Nur-Print. 419 p. [In Russian].

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