

First record of *Triplax russica* (Linnaeus, 1758) (Coleoptera, Erotylidae) from Kazakhstan

Izbasar I. Temreshev

LLP "Agro Consult", 21 Kanysh Satbaev st., Almaty district, Astana, 010010, Republic Kazakhstan; LLP Kazakh Scientific Research Institute of Plant Protection and Quarantine named after Zh. Zhiembayev, Almaty, Republic Kazakhstan

Pleasing fungus beetle *Triplax russica* (Linnaeus, 1758) from the family Erotylidae is firstly recorded from Kazakhstan. A key to known species of the genus *Triplax* from Kazakhstan is given. Birch brittlegill *Russula betularum* Hora, stinking russula *Russula foetens* Pers., 1796, are recorded from Kazakhstan for *T. russica*.

Corresponding author: Izbasar I. Temreshev (temreshev76@mail.ru)

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Keywords

Triplax russica, pleasing fungus beetles, new findings, key, North and Central Kazakhstan.

Introduction

Pleasing fungus beetles (Erotylidae) includes about 280 genera and above 3500 species in the world fauna (Wegrzynowicz 2007, Ślipiński et al. 2011, Drilling et al. 2013). 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) from Australia, French Guiana, Mexico and USA. Seven genera and sixteen species were known from Kazakhstan (Wegrzynowicz 2007, Temreshev 2017a, Temreshev 2022). 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 200, Robinson 2005, Drake 2009, Hagstrum and Subramanyam 2009, Denux and Zagatti 2010, Temreshev 2017a).

The genus *Triplax* Herbst, 1793 includes 93 species from the world (Goodrich and Skelley 1997) and is comprised of 67 species in the Palaearctic region (Wegrzynowicz, 2007). Beetles from this genus are widespread in the Palaearctic, Nearctic and extends into the Oriental region (GBIF Secretariat 2022). Tree species (*T. nikritini* Nikitsky & Kompanzev, 1997, *T. rubrica* Reitter, 1891 and *T. subtilissima* Reitter, 1901) were known from Kazakhstan (Reitter 1901, Nikitsky and Kompantsev 1997, Wegrzynowicz 2007). Beetles of this genus are obligate mycetophages that eat various fungi. The larva develops in the fruiting bodies of tree mushrooms, pupates in the soil, in cracks in the bark, under the bark, in rotten wood of trees where mushrooms grew. At the adult stage, it visits some ground and xylotrophic fungi, using them as an additional food resource. Are carriers of their spores (Kryzhanovsky 1965, Khalidov 1984, Krivolutskaya 1992, Nikitsky et al. 1996, Krasutsky 1996, Drogvalenko 1997, Mitter 2004, Krasutsky 2005, Robinson 2005).

Material and methods

The material was collected by manual method from 2022 in North and Central Kazakhstan, Kostanai, Akmla and Karaganda oblast. Standard techniques (Fasulati 1971) used in entomology were used during the collection of the material. The following sources (Reitter 1901, Jacobson 1905-1915, Khalidov 1984, Kryzhanovsky 1965, Krivolutskaya 1992, Nikitsky et al. 1996, Drogvalenko 1997, Nikitsky and Kompantsev 1997, Mitter 2004, Krasutsky 2005, Wegrzynowicz 2007, Bekchiev Smets and Crevecoeur 2012, Lyubarsky and Ghahari 2020) 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).

Photographs of *Triplax russica* were taken with a camera Canon EOS 50 D by author (Figs 1, 4). Photographs of the mushrooms were taken with a camera Redmi 7 by I.I. Temreshev (Figs 3). Descriptions and body measuring were performed using a Micromed MC var 1-C dissecting stereomicroscope.

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: AkO – Akmla oblast, KgO – Karaganda oblast, KO – Kostanai oblast, d. – district, ex. – exemplar, nei. – neighborhoods, v. – village.

Result

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.

***Triplax russica* (Linnaeus, 1758)**

Figs 1, 2.

Material examined. 7 ex. – 30.07.2007, North Kazakhstan, AkO, Zerendinsky d., Zerenda village, 52°53'24.55"N 69°9'46.72"E, birch brittlegill *Russula betularum* Hora, I.I. Temreshev; 7 ex. – 6.07.2018, North Kazakhstan, AkO, Akkol district, Azat village, 52°5'14.35"N 71°31'23.85"E, stinking russula *Russula foetens* Pers., 1796, I.I. Temreshev; 16 ex. – 6.05.2022, AkO, Stepnogorsk city, 52°29'31.49"N 72°1'18.97"E, grove birch, under the bark of the dead European white birch *Betula pendula* L., I.I. Temreshev; 9 ex. – 13.07.2022, Central Kazakhstan, KgO, Karaganda city, 49°45'29.98"N 73°2'25.69"E, pheasant's back mushroom *Cerioporus squamosus* (Hudson) Quélet, 1886, I.I. Temreshev; 11 ex. – 10.08.2022, North Kazakhstan, KO, Fyodorov d., nei. Koskol lake, 53°55'0.58"N 62°46'26.21"E, birch forest, under the bark of the dead *B. pendula*, I.I. Temreshev.

Remarks. *T. russica* is distributed in Europe (Albania, Armenia, Austria, Belgium, Belarus, Bosnia Herzegovina, Bulgaria, Croatia, Czech, Denmark, Estonia, Finland, France, Georgia, Germany, Great Britain, Hungary, Italy, Latvia, Liechtenstein, Lithuania, Moldova, Montenegro, Netherlands, Norway, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine), North Africa (Algeria), Asia (India, Iran, West Siberia), North America (introduced) (Jacobson 1905-1915, Kryzhanovsky 1965, Krivolutskaya 1992, Franc 2001, Krasutsky 2005, Wegrzynowicz 2007, Bekchiev Smets and Crevecoeur 2012, Lyubarsky and Ghahari 2020) (Fig. 3). The records of *T. russica* were absent for Kazakhstan (Wegrzynowicz 2007). Examined trees of European white birch *B. pendula*, infected by the tinder fungus *Fomes fomentarius* (L.) Fr. (Figure 4 A, B). The beetles were on the bark (Figure 2).

Discussion

In total, fourth species of pleasing fungus beetles from genus *Triplax* are additionally recorded for Kazakhstan.

Key to known species of the genus *Triplax* from Kazakhstan

1 Head, anterior part and base of pronotum black or darkened. 3-3,8 mm.

.....*T. subtilissima*

- Head and pronotum are single-colored, light..... 2

2 Elytra red or brown-red. The whole body brownish-red, only the eyes black. 3 mm.....*T. rubrica*

- Elytra black..... 3

3 Scutellum black. Body and legs orange, antennae, mesothorax and metathorax black. 4,5-6,5 mm..... *T. russica*

4 Scutellum light. Body, antennae, and legs rufous-brown or red-brown, mesothorax, metathorax, and abdomen somewhat darkened. 2,5-3 mm.

.....*T. nikritini*

One species of Erotylidae *T. russica* are recorded for Kazakhstan. Seven genera and sixteen species pleasing fungus beetles were known from Kazakhstan (Wegrzynowicz 2007, Temreshev 2017a, Temreshev 2022). This shows that the fauna of saproxylic Coleoptera in Kazakhstan needs further study. As in the case of representatives of the families Melandryidae (Temreshev 2017b), Mycetophagidae (Temreshev 2019), Endomychidae (Temreshev 2021) and Erotylidae (Temreshev 2022) it is possible to find other species of fungus beetles in the country.

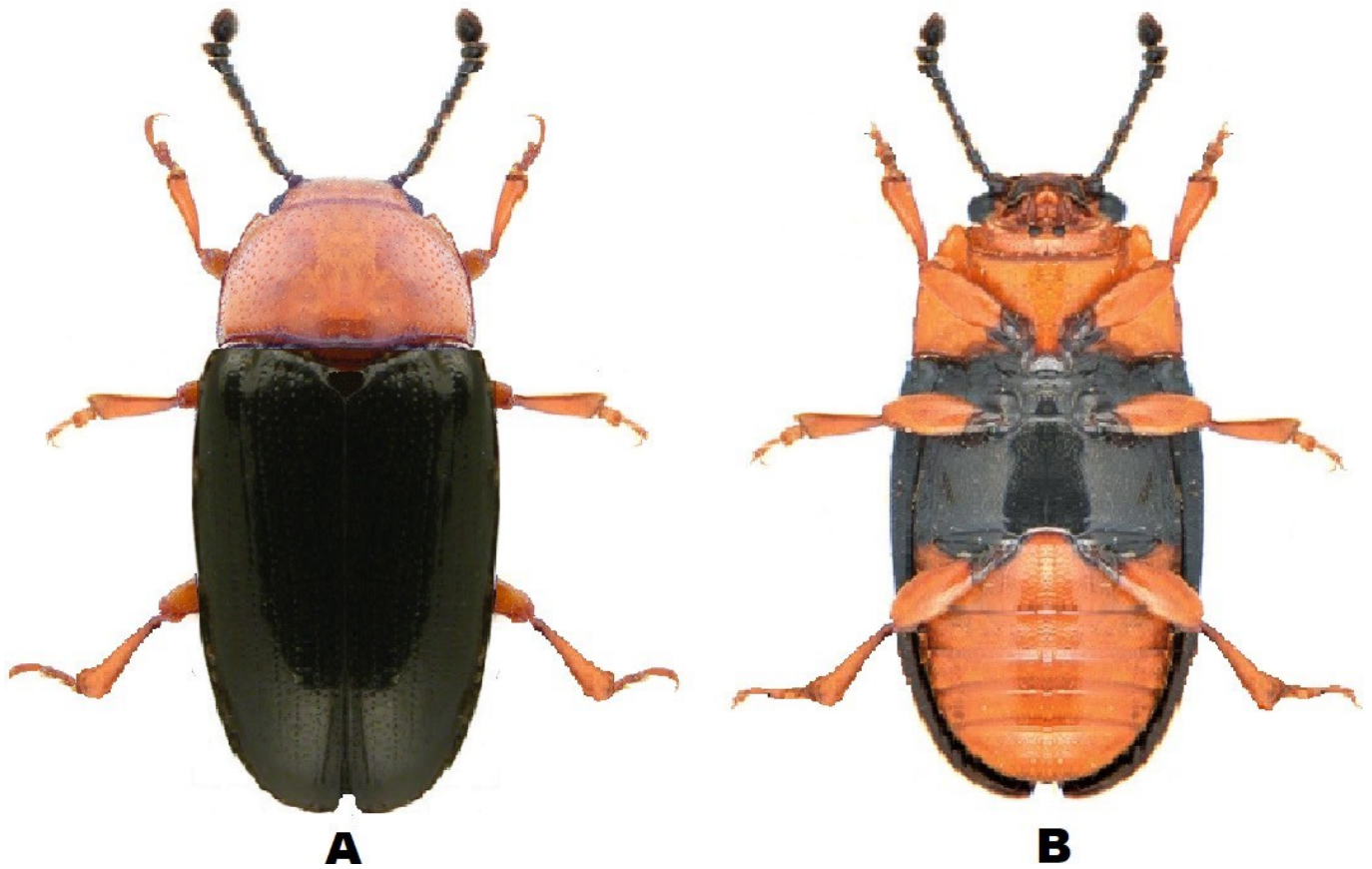


Figure 1. *Triplax russica*, habitus, dorsal (**A**) and ventral (**B**) view. North Kazakhstan.



Figure 2. *Triplax russica* in copula on the bark of dead European white birch *Betula pendula*, North Kazakhstan.

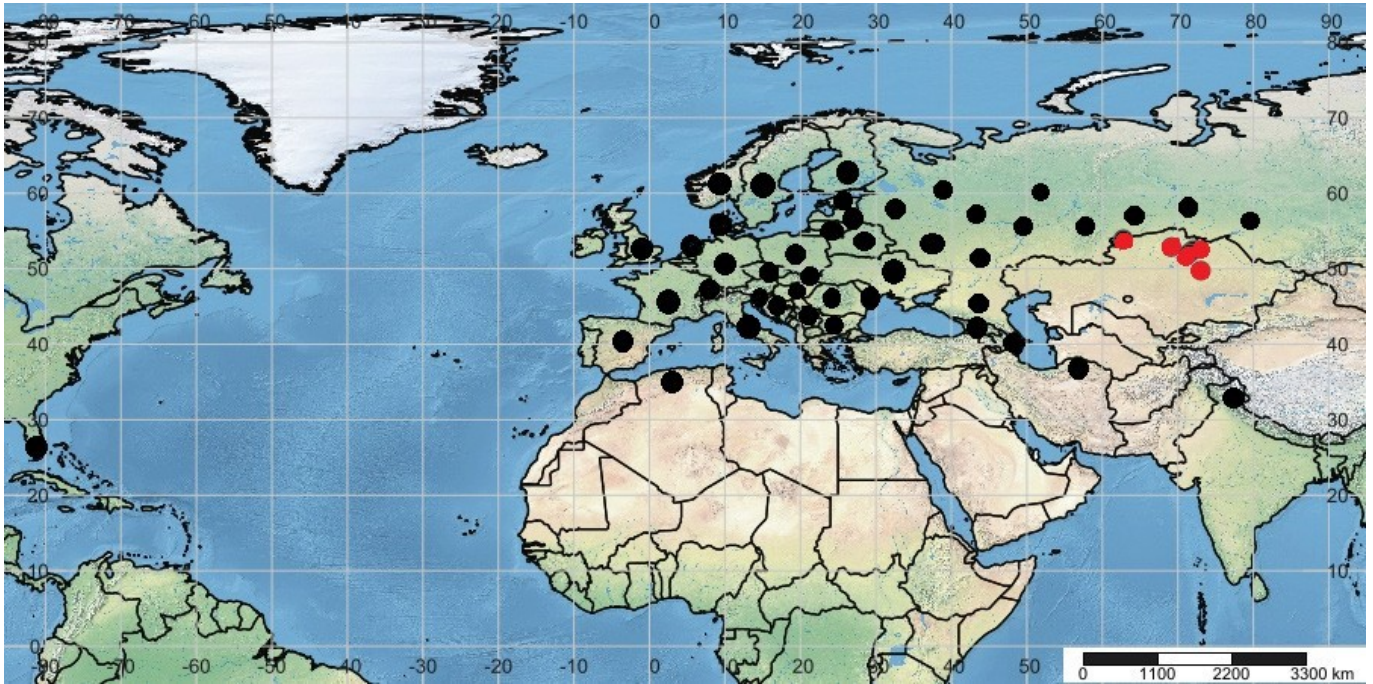


Figure 3. Distribution of *Triplax russica* in world and in Kazakhstan. New records are indicated with red circles. Known indicated in black circles.



A



B

Figure 4. Habitat of *Triplax russica*: European white birch grove (A) and trees, infected by the tinder fungus *Fomes fomentarius* (B). North Kazakhstan.

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