

# First records of two *Triplax* species (Coleoptera, Erotylidae) from Kazakhstan. Report 2

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## Abstract

Pleasing fungus beetles (Erotylidae) *Triplax rufipes* (Fabricius, 1787) and *Triplax scutellaris* Charpentier, 1825 is firstly recorded from Kazakhstan. A new key to known species of the genus *Triplax* from Kazakhstan is given. The finds of *T. rufipes* from North Kazakhstan are currently new record for this species for Kazakhstan and Central Asia. Mealy oyster *Ossicaulis lignatilis* (Pers.) Redhead & Ginns mushroom were first recorded from Kazakhstan for *T. rufipes* and *T. scutellaris*.

## Keywords

*Triplax scutellaris*, *Triplax rufipes*, pleasing fungus beetles, new findings, key, North Kazakhstan

## Introduction

Pleasing fungus beetles (Erotylidae) 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, French Guiana, Mexico and USA. Seven genera and eighteen species were

known from Kazakhstan (Wegrzynowicz 2007, Temreshev 2017, Temreshev 2022, 2023, 2024). 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 *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 2023). Six species (*T. aenea* (Schaller, 1783), *T. melanocephala* (Latreille, 1804), *T. nikritini* Nikitsky & Kompantsev, 1997, *T. rubrica* Reitter, 1891, *T. subtilissima* Reitter, 1901 and *T. russica* (Linnaeus, 1758)) were known from Kazakhstan (Reitter 1901, Nikitsky and Kompantsev 1997, Wegrzynowicz 2007; Temreshev 2023, 2024). 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, Krivolutsкая 1992, Nikitsky et al 1996, Krasutsky 1996, Drogvalenko 1997, Mitter 2004, Krasutsky 2005, Robinson 2005, Nikitsky et al 2008).

*Triplax rufipes* (Fabricius, 1787) lives and develops in the fruiting bodies of fungi of the genus *Pleurotus*; pupates in the soil, in cracks in the bark, under the bark, in rotten wood of trees. Imagoes are found from spring to autumn. Beetles overwinter. According to literature data, *T. rufipes* found on fungi False chanterelle *Hygrophoropsis aurantiaca* (Wulfen) Maire, *Pleurotus calyptratus* (Lindblad ex Fr.) Sacc., Golden oyster Mushroom *Pleurotus citrinopileatus* Singer, Oyster mushroom *Pleurotus ostreatus* (Jacquin) P. Kummer, 1871, Pale oyster mushroom *Pleurotus pulmonarius* (Fr.) Quél., *Pleurotus* sp., *Polyporus* sp. Also found under rotten bark of Poplar and in straw (Khalidov 1984, Kompantsev 1984, Nikitsky and Kompantsev 1995, Nikitsky et al 1996, Krasutsky 1996, Drogvalenko 1997, Franc 2001, Tsinkevich 2004, Schiegel 2007, Möller 2009, Zamotajlov and Nikitsky 2010, Bekchiev Smets and Crevecoeur 2012). Is a very local and generally rare species and is considered to be threatened in some countries (Dodelin and Calmont 2021).

Lifestyle of *Triplax scutellaris* Charpentier, 1825 similar to the previous species. Beetles found on fungi False chanterelle *H. aurantiaca*, Honey fungus *Armillaria*

*mellea* (Vahl) P. Kumm., *P. calyptratus*, Golden oyster mushroom *P. citrinopileatus*, Oyster mushroom *P. ostreatus*, Pale oyster mushroom *P. pulmonarius*, Branched oyster mushroom *Pleurotus cornucopiae* (Paulet) Quél., *Pleurotus* sp. At the imago stage, it visits some soil and xilotrophic fungi, using them as an additional food resource (Khalidov 1984, Kompantsev 1984, Nikitsky and Kompantsev 1995, Nikitsky et al. 1996, Krasutsky 1996, Droghvalenko 1997, Franc 2001, Tsinkevich 2004, Möller 2009, Zamotajlov and Nikitsky 2010, Bekchiev Smets and Crevecoeur 2012, Sanchez and Chittaro 2016, Khaustov and Abramov 2018). A parasitic mite was found on the beetle *Paracarophenax triplaxophilus* Khaustov & Abramov, 2018 (Khaustov and Abramov 2018). Is a very local and generally rare species and is considered to be threatened in some countries (Dodelin and Calmont 2021).

## Materials and methods

The material was collected in North Kazakhstan, Akmola 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, Kryzhanovskiy 1965, Krivolutskaya 1992, Nikitsky and Kompantsev 1995, Nikitsky et al. 1996, Droghvalenko 1997, Nikitsky and Kompantsev 1997, Franc 2001, Merkl 2004, Mitter 2004, Krasutsky 2005, Schiegel 2007, Wegrzynowicz 2007, Nikitsky et al. 2008, Möller 2009, Zamotajlov and Nikitsky 2010, Ruta et al. 2011, Bekchiev Smets and Crevecoeur 2012, Sanchez and Chittaro 2016, Khaustov and Abramov 2018, Dodelin and Calmont 2021, Sürgüt 2022) 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 *T. scutellaris* and *T. rufipes* 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 (Fig. 4). 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.).

## Results

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

***Triplax rufipes* (Fabricius, 1787)**

Fig. 1A–B

**Material examined.** 1 ex. – 10.08.2022, North Kazakhstan, Kostanai oblast, Fyodorov d., nei. Koskol lake, 53°55'0.58"N 62°46'26.21"E, birch forest, under the bark of the dead European white birch *B. pendula*, I.I. Temreshev; 1 ex. – 12.08.2024, Akmola oblast, Burabay district, neighborhoods of Shchuchinsk village, mixed pine-birch forest, 52°58'10.02"N 70°15'28.69"E, on Pale oyster mushroom *Pleurotus pulmonarius* (Fr.) Quél., on dead European white birch *B. pendula*, I.I. Temreshev; 1 ex. – 13.08.2024, in the same place, on Mealy oyster *Ossicaulis lignatilis* (Pers.) Redhead & Ginns, on dead European white birch *B. pendula*, I.I. Temreshev.

**Remarks.** *T. rufipes* is distributed in Europe (Armenia, Azerbaijan, Austria, Belarus, Bosnia Herzegovina, Corsica Island, Croatia, Czech Republic, Estonia, Finland, France, Georgia, Germany, Hungary, Italy, Latvia, Lithuania, Luxemburg, Moldova, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine) and Asia (Siberia) (Reitter 1901, Jacobson 1905–1915, Kryzhanovsky 1965, Drozvalenko 1997, Franc 2001, Merkl 2004, Krasutsky 2005, Schiegel 2007, Wegrzynowicz 2007, Zamotajlov and Nikitsky 2010, Ruta et al. 2011, Bekchiev Smets and Crevecoeur 2012) (Fig. 3). The records of *T. rufipes* were absent for Kazakhstan (Wegrzynowicz 2007; Temreshev 2023, 2024). The beetles were on the mushroom (Fig. 4).

**Note.** There are the first records these species on the fungi from family Agaricaceae – Mealy oyster *O. lignatilis*.

***Triplax scutellaris* Charpentier, 1825**

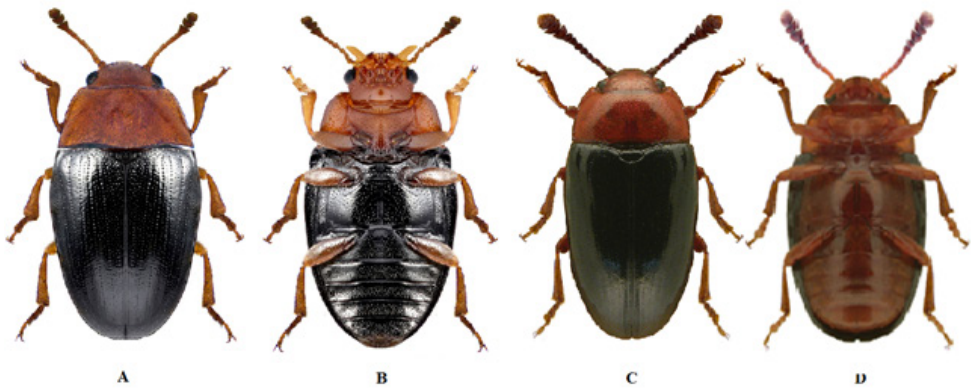
Fig. 1C–D

**Material examined.** 2 ex. – 6.05.2022, Akmola oblast, 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., infected by the tinder fungus *Fomes fomentarius* (L.) Fr., I.I. Temreshev; 1 ex. – 12.08.2024, Akmola oblast, Burabay district, neighborhoods of Shchuchinsk village, mixed pine-birch forest, 52°58'10.02"N 70°15'28.69"E, on Pale oyster mushroom *P. pulmonarius*, on dead European white birch *Betula pendula* Roth., I.I. Temreshev; 1 ex. – 13.08.2024, in the same place, on Mealy oyster *O. lignatilis*, on dead European white birch *B. pendula*, I.I. Temreshev; 4 ex. – 14.08.2024, in the same place, on Pale oyster mushroom *P. pulmonarius*, on dead European white birch *B. pendula*, I.I. Temreshev.

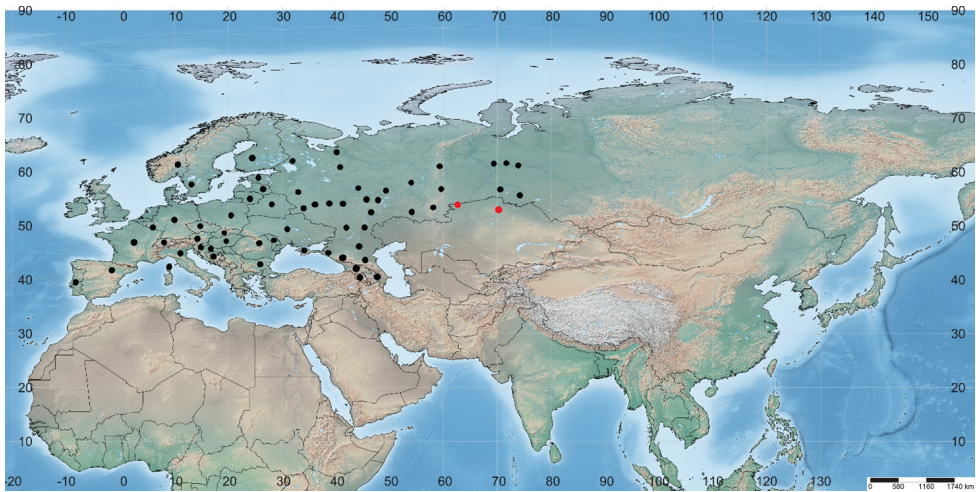
**Remarks.** *T. scutellaris* is distributed in Europe (Austria, Belarus, Bosnia Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Great Britain, Hungary, Italy, Latvia, Lithuania, Moldova, Norway, Poland, Romania, Russia, Sardinia Island, Slovakia, Spain, Sweden, Switzerland, Ukraine, "Caucasus") and Asia (Far East, "Middle Asia", Siberia, Turkey) (Reitter

1901, Jacobson 1905-1915, Kryzhanovsky 1965, Krivolutsкая 1992, Droghvalenko 1997, Franc 2001, Merkl 2004, Krasutsky 2005, Wegrzynowicz 2007, Zamotajlov and Nikitsky 2010, Ruta et al. 2011, Sanchez and Chittaro 2016, Bekchiev Smets and Crevecoeur 2012, Khaustov and Abramov 2018, Sürgüt 2022) (Fig. 2). The records of *T. scutellaris* were absent for Kazakhstan (Wegrzynowicz 2007; Temreshev 2023, 2024).

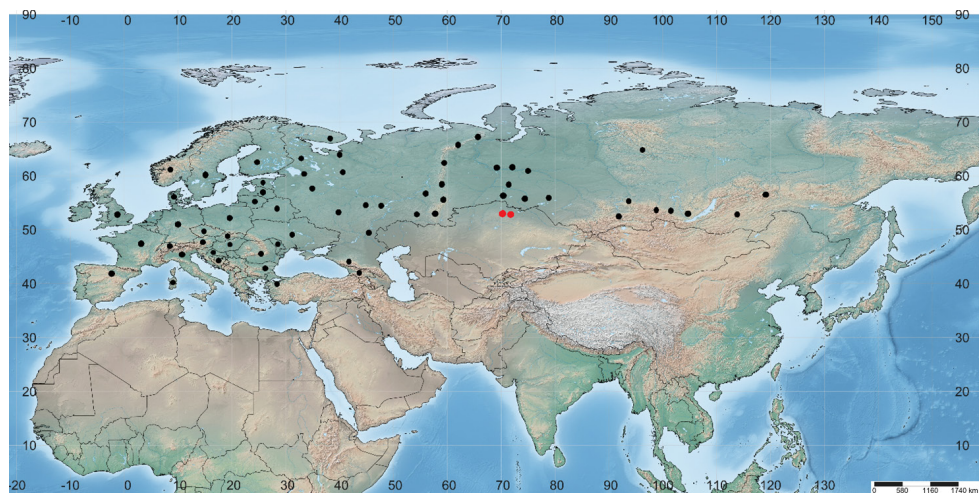
**Note.** There are the first records these species on the Mealy oyster *O. lignatilis* (Fig. 4).



**Figure 1.** *Triplax rufipes*, habitus, dorsal (A) and ventral (B) view, Central Kazakhstan; *Triplax scutellaris*, habitus, dorsal (C) and ventral (D) view, South-East Kazakhstan.



**Figure 2.** Distribution of *Triplax rufipes* in world and in Kazakhstan. New records are indicated with red circles. Known indicated in black circles.



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



**Figure 4.** Habitat and mushrooms species with *Triplax rufipes* and *Triplax scutellaris*: **A** – mixed pine-birch forest; **B** – Mealy oyster *Ossicaulis lignatilis*; **C** – *Triplax scutellaris* on Pale oyster mushroom *Pleurotus pulmonarius*. North Kazakhstan.

## Discussion

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

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

- 1 Elytra red or brown-red. The whole body brownish-red, only the eyes black. 3 mm. .... ***T. rubrica***
- Elytra metallic blue or green ..... 2
- 2 Head, scutellum and the rest of the body, legs orange, antennae black. 3,3–4,3 mm ..... ***T. aenea***
- Elytra black ..... 3
- 3 Scutellum black. Head, abdomen, legs orange, antennae, mesothorax and metathorax, coxae black. 4.5–6.5 mm ..... ***T. russica***
- Head, abdomen and legs black, antennae and coxae reddish-brown ..... 4
- 4 Prothorax is red. 3.5–4.8 mm ..... ***T. melanocephala***
- Head, except for the reddish front part, darkened. Antennae and legs reddish-brown ..... 5
- 5 Anterior part and base of pronotum black or darkened. 3–3.8 mm ..... ***T. subtilissima***
- Scutellum light. Head and pronotum single-colored, reddish-brown or red-brown ..... 6
- 6 Body, antennae, and legs rufous-brown or red-brown, mesothorax, metathorax, and abdomen somewhat darkened. 2.5–3 mm ..... ***T. nikritini***
- Pronotum is very finely edged at the base. Body is less elongated ..... 7
7. Base of elytra not edged. The underparts and scutellum are red, sometimes the scutellum is darkened or black. Antennae yellow-red only at base, dark towards tip. 3rd antennal segment twice as long as 2nd and 4th. Body oval. 4.5–5.5 mm ..... ***T. scutellaris***
- Base of elytra finely edged by a very fine dotted line ..... 8
- 8 Thorax, abdomen and scutellum black. Antennae with darkened club, their 3rd segment at least twice as long as the 2nd. Body ovoid. 3.3–5 mm ..... ***T. rufipes***

Seven genera and eighteen species pleasing fungus beetles were known from Kazakhstan (Wegrzynowicz 2007, Temreshev 2017, 2023, 2024). Taking into consideration *Triplax scutellaris* and *Triplax rufipes* seven genera and twenty species of Erotylidae are recorded for Kazakhstan. In the future, it is possible to find in the forests of Kostanay, North Kazakhstan, East Kazakhstan, Abai and Pavlodar oblast.

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