

Three new for the fauna of West Kazakhstan species of the orders Mantodea, Orthoptera and Embioptera

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Three species of orthopteroid insects (Insecta, Polyneoptera) are recorded from West Kazakhstan for the first time. The Asian giant mantis *Hierodula tenuidentata* Saussure, 1869 (Mantodea) and the Turkistan webspinner *Embia tartara* Saussure, 1896 (Embioptera) are found in Mangystau oblast. It is possible that this species was able to spread north due to climate warming. The ant-loving cricket *Myrmecophilus acervorum* (Panzer, 1799) (Orthoptera) is recorded from Atyrau oblast. Probably both species were imported in this region with planting material. Moreover, the order Embioptera and families Myrmecophilidae and Embiidae are recorded from West Kazakhstan for the first time.

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Keywords

Hierodula tenuidentata, *Myrmecophilus acervorum*, *Embia tartara*, praying mantis, orthopterans, webspinners, Central Asia, new records

Introduction

Totally, six orders, 27 families, 152 genera and 591 species of orthopteroid insects are currently known for the terrestrial fauna of Kazakhstan, namely, 3 families, 9 genera and 10 species of Mantodea (Temreshev et al. 2015; Temreshev 2018), 7 families, 14 genera and 24 species of Blattodea (Bey-Bienko 1950; Temreshev et al. 2015; Temreshev 2017), 3 families, 6 genera and 7 species Dermaptera (Bey-Bienko 1936), 1 family, 1 genus and 2 species of Phasmatodea (Temreshev et al. 2015), 11 families, 120 genera and 546 species of Orthoptera (Childebaev and Storozhenko 2001, 2004; Childebaev et al. 2014; Temreshev et al. 2015; Temreshev 2020) and 1 family, 1 genera and 1 species of Embioptera (Temreshev 2015). Five orders, three families, 61 genera and 198 species of orthopteroid insects were previously known from West Kazakhstan

(Diarov et al. 2008; Meldebekov et al. 2009) but fauna of this region is studied unsatisfactory. The new distribution data of three species, two families and one order in West Kazakhstan are given below.

Materials and methods

The material was collected manually in the Mangystau and Atyrau oblast of West Kazakhstan in 2022. Studied specimens are kept in the private collection I.I. Temreshev (Almaty, Kazakhstan). Photographs of the insects and habitats were taken by author with a camera Redmi 7.

Result

New records

Order Mantodea Burmeister, 1838

Family Mantidae Latreille, 1802

Hierodula tenuidentata Saussure, 1869

Figures 1, 2

Material examined. West Kazakhstan: 1 female – 11.03.2022, Mangystau oblast, Karakiya District, neighborhood of Zhanaozen city, shore of the sewage reservoir, dead under the skull of a camel, N 43°20'46.01" E 52°48'34.83", I.I. Temreshev; 12 exemplar of ootheca – 11.03.2022, Mangystau oblast, Karakiya district, neighborhood of Zhanaozen city, shore of the sewage reservoir, on the branches of the saltcedar *Tamarix ramosissima* Ledeb., N 43°20'38.33" E 52°48'44.67", I.I. Temreshev and S.V. Krutov.

Distribution. This species is widely distributed in Europe (Armenia, Azerbaijan, Albania, Bulgaria, Bosnia and Herzegovina, Georgia, Greece, Italy, Cyprus, Macedonia, Russia, Serbia, Turkey, Ukraine) and Asia (Afghanistan, India, Iran, Kazakhstan, Kyrgyzstan, Nepal, Pakistan, China, Sri Lanka, Tajikistan, Turkey, Turkmenistan, Uzbekistan) (Jacobson and Bianki 1905; Red Book of the Republic of Kazakhstan 2006; Temreshev and Esenbekova 2017; Temreshev 2018; Temreshev and Makezhanov 2020; Vujić et al. 2021; Kulijer et al. 2022; Langourov et al. 2022; Sevgil and Yilmaz 2022), (Fig. 2) but never recorded from West Kazakhstan (Red Book 2006; Diarov et al. 2008; Meldebekov et al. 2009). Here *H. tenuidentata* is recorded from Mangystau oblast for the first time.

Remarks. This species was recorded from South and South-East Kazakhstan (Kyzylorda, Zhambyl and Almaty oblasts) (Temreshev and Esenbekova 2017; Temreshev 2018; Temreshev and Makezhanov 2020). The species could have been introduced to the West Kazakhstan with plant material relatively recently. This assumption is confirmed by the fact that the Giant asian mantis was found in the Mangystau oblast only in one synanthropic point (the shore of the sewage reservoir in the city of Zhanaozen), although we also examined other similar habitats in nature. Apparently, *H. tenuidentata* is currently dispersing on the territory of Kazakhstan. The climate warming allows many orthopteroid insects, including this species of praying mantis, to expand their areas and gain a foothold in new habitats.

Order Orthoptera Latreille, 1793

Family Myrmecophildae Saussure, 1874

Myrmecophilus acervorum (Panzer, 1799)

Figures 3, 4

Material examined. West Kazakhstan: 2 female – 8.04.2022, Atyrau oblast, Kurmangazy district, neighborhood of Akkol village, neglected apple orchard, in the nest of the ant *Formica subpilosa* Ruzsky, 1902, N 46°38'58.78" E 49°1'38.68", I.I. Temreshev.

Distribution. *M. acervorum* is known from Europe (Armenia, Austria, Belarus, Bulgaria, Czech Republic, Denmark, France, Germany, Hungary, Italy, Lithuania, Luxembourg, Macedonia, Netherlands, Poland, Romania, Russia, Slovakia, Spain, Sweden, Ukraine) and Asia (Kazakhstan, Siberia, Uzbekistan) (Jacobson and Bianki 1905; Temreshev and Kolov 2013; Childebaev et al. 2014; Lebedeva 2017; Temreshev 2018, 2020; Żurawlew et al. 2022; Zalutsky et al. 2023) (Fig. 4). It is new for the fauna of Atyrau oblast in West Kazakhstan.

Remarks. This species was found only in South-East Kazakhstan, in Almaty oblast (Temreshev and Kolov 2013; Childebaev et al. 2014; Temreshev 2018, 2020). Possibly ant-loving cricket imported in the West Kazakhstan with planting material when planting an apple orchard. This assumption is confirmed by the fact that *M. acervorum* was found in the Atyrau oblast only in one synanthropic locality (neglected apple orchard), although we also examined other similar habitats in nature (nest of different species of ants, included *F. subpilosa*).

**A****B****C****D**

Figure 1. *Hierodula tenuidentata* in West Kazakhstan: **A** – exemplar of female; **B, C** – ootheca on the hand and on the saltcedar *Tamarix ramosissima*; **D** – habitat, shore of the sewage reservoir of Zhanaozen city.

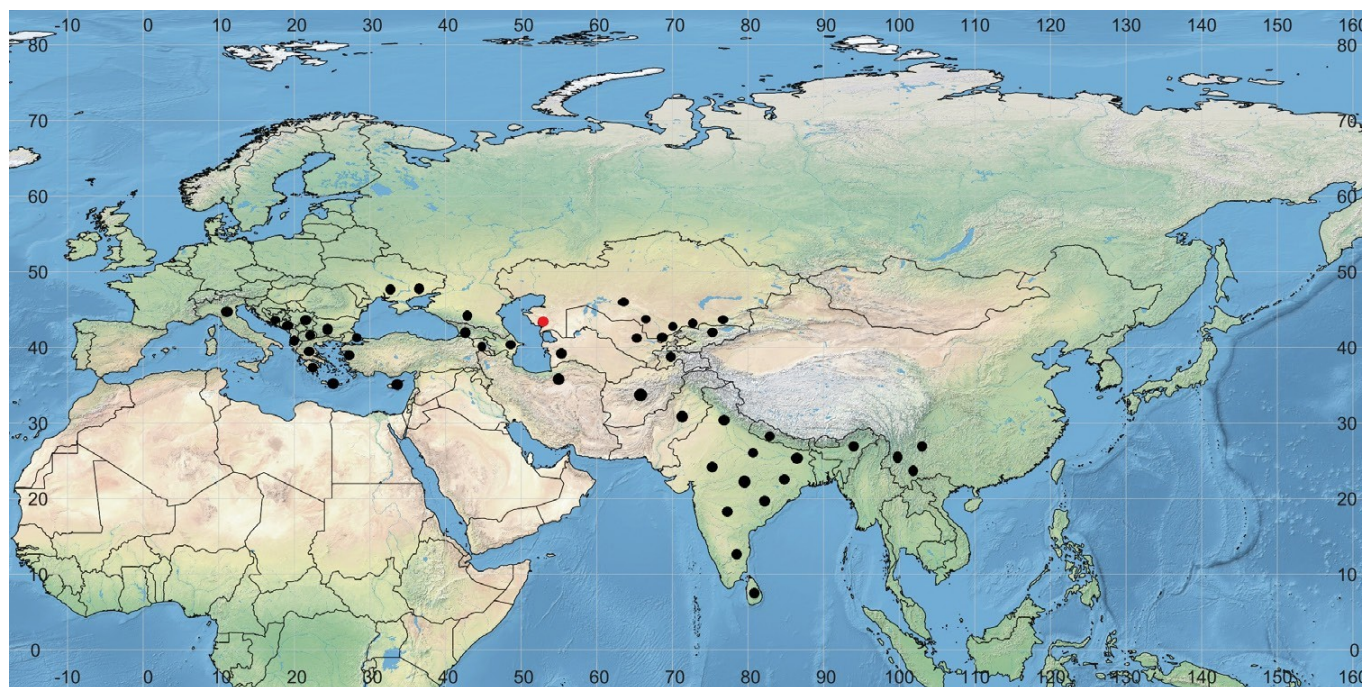


Figure 2. Distribution of *Hierodula tenuidentata* in world and Kazakhstan. Black circles – known records. Red circles – new records.

Order Embioptera Lameere, 1900

Family Embiidae Burmeister, 1839

Embia tartara Saussure, 1896

Figures 5, 6

Material examined. West Kazakhstan: 1 male – 16.03.2022, Mangystau oblast, Aktau city, coast of the Caspian Sea, dead under stoun, in net of spider *Steatoda paykulliana* (Walckenaer, 1806), N 43°37'41.85" E 51°10'4.14", I.I. Temreshev.

Distribution. This species is distributed in Central Asia (Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan and South Kazakhstan) (Jacobson and Bianki 1905; Krauss 1911; Ross 2000; Temreshev 2015), (Fig. 6). Here it is recorded from West Kazakhstan for the first time.

Remarks. *E. tartara* previously was known only from Turkistan oblast in South Kazakhstan (Temreshev 2015). The city of Aktau is the northernmost point of this species of webspinners. The closest known locality of this species is Turkmenistan (Jacobson and Bianki 1905). According to the information we received from professor V.L. Kazenas, in this country *E. tartara* is found in large numbers (the city of Türkmenabat, formerly Chardzhou). It is possible that the turkistan webspinner was able to spread north due to climate warming, like other orthopteroid insects (Lachininsky et al. 2015).

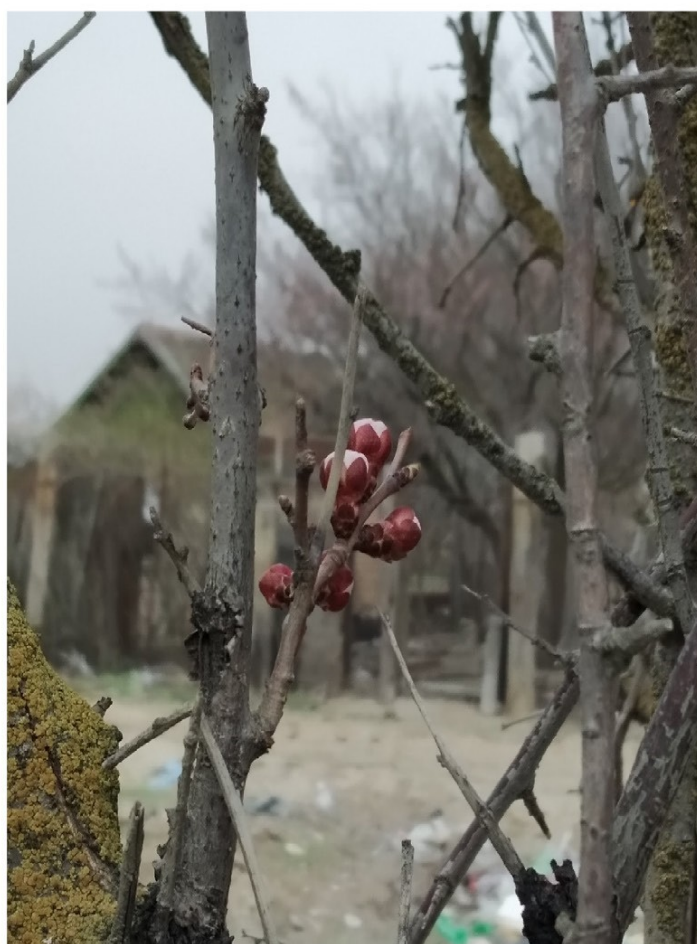
**A****B****C****D**

Figure 3. *Myrmecophilus acervorum* in West Kazakhstan. **A** – exemplar of female; **B** – nest of the ant *Formica subpilosa* Ruzsky; **C**, **D** – habitat, neglected apple orchard in neighborhood of Akkol village.



Figure 4. Distribution of *Myrmecophilus acervorum* in world and Kazakhstan. Black circles – known records. Red circles – new records.

**A****B****C**

Figure 5. *Embia tartara* in West Kazakhstan: **A** - exemplar of male; **B, C** - habitat, coast of the Caspian Sea.

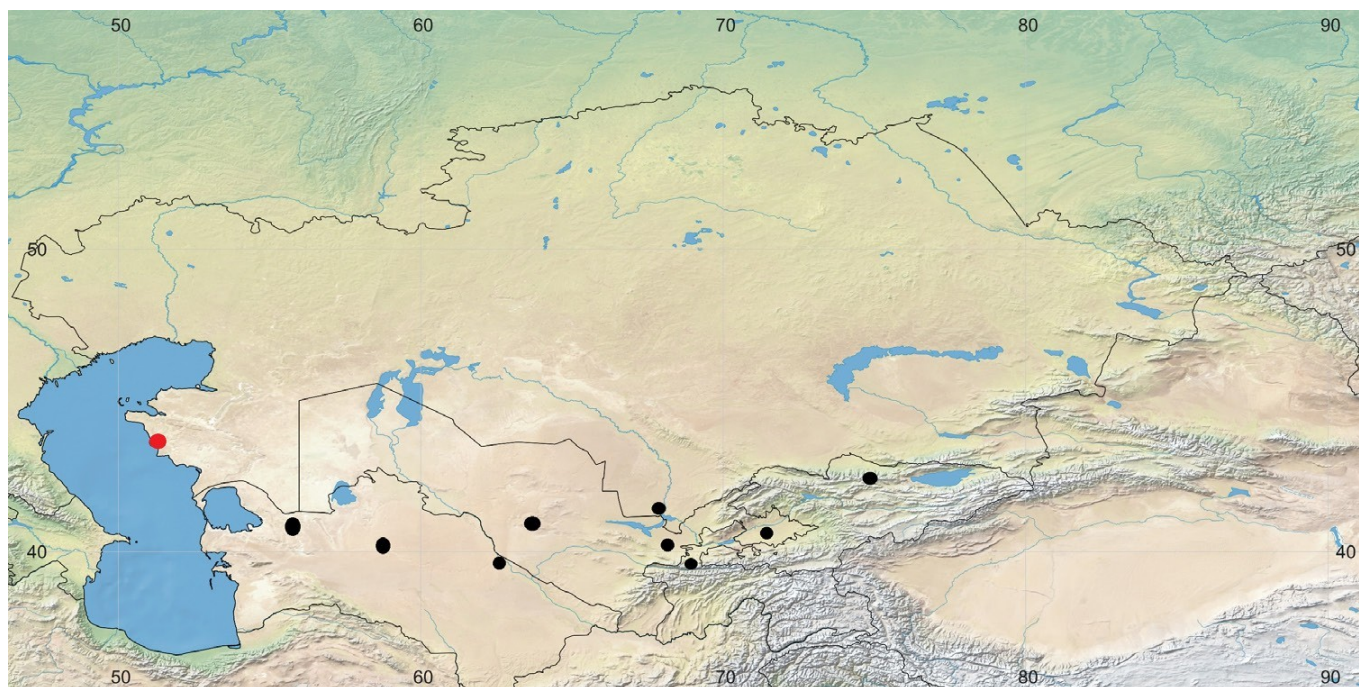


Figure 6. Distribution of *Embia tartara* in world and Kazakhstan. Black circles – known records. Red circles – new records.

Conclusion

Three genera (*Hierodula*, *Myrmecophilus* and *Embia*), the families Myrmecophilidae and Embiidae, and order Embioptera are recorded from West Kazakhstan for the first time.

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