

New and interesting records of Lepidoptera from the southern Amur Region, Russia (Insecta: Lepidoptera)

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Abstract

The paper presents data about new records of 21 rare species of Lepidoptera from nine families in the Russian part of the Southern Amur Region (the Khabarovsk Krai and the Jewish Autonomous Oblast'). One genus and species (*Siglophora sanguinolenta* (Moore, 1888) was first discovered in Russia. In addition, *Pryeria sinica* Moore, 1877, *Stauropus basalis* Moore, 1877, *Catocala eminens* Staudinger, 1892, and *Acrodontis kotshubeji* Sheljuzhko, 1944 are provided for the Khabarovsk Krai for the first time. *Stauropus basalis* was also first found in the Jewish Autonomous Oblast'. The second locality of *Xylena formosa* (Butler, 1878) in Russia is given. The presence of *Rhodinia jankowskii* (Oberthür, 1880) on the territory of the Khabarovsk Krai was confirmed. The new localities of seven species are the northernmost in their ranges. A new record of *Marumba jankowskii* (Oberthür, 1880) from the vicinity of the Malmyzh village is the north-easternmost within the species range.

KEY WORDS: Insecta, Lepidoptera, new records, distribution, Amur, Russia.

Nuevos e interesantes registros de Lepidoptera del sur de la Región de Amur, Rusia (Insecta: Lepidoptera)

Resumen

El trabajo presenta los datos sobre los nuevos registros de 21 especies raras de Lepidoptera de nueve familias en el sur de la parte rusa de la región de Amur (el Krai de Jabárovsk y el Óblast Autónomo Judío). En Rusia se descubren, por primera vez, un género y una especie (*Siglophora sanguinolenta* (Moore, 1888)). En suma, *Pryeria sinica* Moore, 1877, *Stauropus basalis* Moore, 1877, *Catocala eminens* Staudinger, 1892 y *Acrodontis kotshubeji* Sheljuzhko, 1944 se presentan por primera vez para el Krai de Jabárovsk. *Stauropus basalis* también fue encontrado en el Óblast Autónomo Judío. En Rusia se da la segunda localidad de *Xylena formosa* (Butler, 1878). En el territorio del Krai de Jabárovsk, se confirma la presencia de *Rhodinia jankowskii* (Oberthür, 1880). Se alcanza su rango más septentrional de las localidades de siete especies. Un nuevo registro de *Marumba jankowskii* (Oberthür, 1880) en las cercanías del pueblo de Malmyzh, es el alcance más al norte de la especie.

PALABRAS CLAVE: Insecta, Lepidoptera, nuevos registros, distribución, Amur, Rusia.

Introduction

The Southern Amur Region is located in the south of the Russian Far East in the southern part of the Amur River basin on the territory of three administrative regions: the Amur Oblast', the Jewish Autonomous Oblast' and the Khabarovsk Krai. The study area is completely located in the zone of subboreal broad-leaved and coniferous broad-leaved mixed forests, characterized by a high level of biodiversity. Together with Primorye (the Primorsky Krai), the Southern Amur Region is the richest region for biota in the mainland of the Russian Far East (RICHTER, 1961).

Currently, the fauna of different groups of Macroheterocera in certain areas of the Southern Amur Region, especially in the vicinity of Khabarovsk, is well studied (DUBATOLOV & DOLGIKH, 2007, 2009, 2010; DUBATOLOV *et al.*, 2012, 2013, 2014; KOSHKIN & NOVOMODNYI, 2008; KOSHKIN, 2009, 2014; DUBATOLOV, 2015a; and so on). Later, these data were used in the preparation of the Catalogs of Lepidoptera of the Russian Far East and Russia (BELJAEV *et al.*, 2016; SINEV, 2019).

However, new data on the distribution of Lepidoptera have recently been obtained, which are explained as the insufficient knowledge of the fauna of certain areas of the Amur River basin, and the dynamics of ranges of some species, including those related to climate changes. This paper provides information on new records of some rare species from different families of Lepidoptera from some areas of the Southern Amur Region, especially from Bikin District (the Khabarovsk Krai).

Moth's specimens were collected mainly at night using light traps (including automatic) with 250-watt mercury-tungsten lamp and LepiLed UV lamp. All material presented in paper is collected by the author, unless otherwise indicated, and deposited in the collection of the author (Russia, Khabarovsk).

List of collecting localities in the Southern Amur Region (Fig. 16)

Durmin: Russia, Khabarovsk Krai, Imeni Lazo District, 25 km SE Durmin village, upper reach of Durmin River, 47°54' N, 136°02' E, 205 m, coniferous broad-leaved mixed forest.

Ekaterino-Nikol'skoe: Russia, Jewish Autonomous Oblast, Oktyabr'sky District, 2 km N Ekaterino-Nikol'skoe village, 47°47' N, 130°58' E, 70 m, broad-leaved forest.

Malmyzh: Russia, Khabarovsk Krai, Nanaisky District, 19 km NE Malmyzh village, 49°55'56.1" N, 136°59'33.5" E, 110 m, coniferous broad-leaved mixed forest.

Podkhorenok Chetvertyy: Russia, Khabarovsk Krai, Vyazemsky District, 30 km SE Vyazemsky city, Podkhorenok Chetvertyy River, 47°15'29" N, 134°50'8" E, 400 m, cedar broad-leaved forest.

Shivki: Russia, Khabarovsk Krai, Bikin District, 8 km SE Boitsovo village, upper reach of Shivki River, vicinity of Shivki science station (Institute of Water and Ecology problems FEB RAS), 46°55' N, 134°23' E, 165 - 205 m, coniferous broad-leaved mixed forest.

Solntsepek: Russia, Khabarovsk Krai, Bikin District, 4,3 km SE Boitsovo village, vicinity of Mount Bolshoi Solntsepe, 46°57'06.5" N, 134°22'11.2" E, 154 m, oak forest.

Soyuznoe: Russia, Jewish Autonomous Oblast, Oktyabrsky District, 1 km N Soyuznoe village, 47°54'56.34" N, 130°54'27.36" E, 77 m, broad-leaved forest.

New records of some rare species of the moths in the Russian part of the Southern Amur Region

ZYGAENIDAE

Pryeria sinica Moore, 1877 (Fig. 1)

Material: 1 ♂, 20-IX-2020, Shivki, collected during day.

Distribution: Russia: Khabarovsk Krai (Bikin District, new record), Primorsky Krai; Japan; Korea; China (including Taiwan) (BELJAEV *et al.*, 2016; SINEV, 2019).

Remarks: The first record for the Khabarovsk Krai and the northernmost locality within the species range.

LASIOCAMPIDAE

Syrastrenopsis moltrechtii Grünberg, 1914

Material: 45 ♂♂, 27 ♀♀, 18-24-IX-2020, Shivki.

Distribution: Russia: southern part of the Khabarovsk Krai, Primorsky Krai; Korea; Northeast China (BELJAEV *et al.*, 2016; SINEV, 2019).

Remarks: Previously in the Khabarovsk Krai this species was found near Khabarovsk (DUBATOLOV & DOLGIKH, 2007).

SATURNIIDAE

Rhodinia fugax (Butler, 1877)

Material: 1 ♂, ex pupa 24-IX-2011, Shivki (leg. A. I. Korobitsyna & M. V. Kryukova); 2 ♀♀, 23-24-IX-2020, Shivki, 1 empty cocoon on tree branch, 13-XII-2020, Podkhorenok Chetvertyy (leg. A. Yu. Oleynikov).

Distribution: Russia: southwestern part of the Khabarovsk Krai, Primorsky Krai; Japan; Korea; Northeast China (BELJAEV *et al.*, 2016; SINEV, 2019).

Remarks: Previously in the Khabarovsk Krai the species was provided with winter photos of empty cocoons from the Shivki River basin and a single female from the vicinity of Khabarovsk (DUBATOLOV & KURENSHCHIKOV, 2005; DUBATOLOV & DOLGIKH, 2010). The Russian Far East is inhabited by the subspecies *Rh. fugax diana* (Oberthür, 1886).

Rhodinia jankowskii (Oberthür, 1880)

Material: 10 ♂♂, 16-17-IX-2017, Shivki; 17 ♂♂, 7 ♀♀, 18-24-IX-2020, Shivki; 7 ♂♂, Solntsepek, 21-IX-2020.

Distribution: Russia: Khabarovsk Krai (Bikin District, confirmed records), Primorsky Krai; Japan; Korea (BELJAEV *et al.*, 2016; SINEV, 2019).

Remarks: Species was indicated for Bikin District (Khabarovsk Krai) by IZERSKII (1999). In later articles and books (e.g., BELJAEV *et al.*, 2016; SINEV, 2019) this species was never mentioned for the Khabarovsk Krai. New records are the northernmost ones within the species range and confirm the habitation of *Rh. jankowskii* in this region.

SPHINGIDAE

Marumba jankowskii (Oberthür, 1880)

Material: 3 ♂♂, 23-25-VI-2017, Durmin; 1 ♂, 3-VI-2020, Malmyzh.

Distribution: Russia: southeastern part of Amur Oblast', Jewish Autonomous Oblast', southern part of the Khabarovsk Krai, the Primorsky Krai; Japan; Korea; North-Eastern China (BELJAEV *et al.*, 2016; SINEV, 2019).

Remarks: A new record from the vicinity of the Malmyzh village is the north-easternmost one within the species range. Previously in the Khabarovsk Krai species was found near Khabarovsk only (DUBATOLOV & DOLGIKH, 2007).

NOTODONTIDAE

Stauropus basalis Moore, 1877 (Figs 10, 11)

Material: 1 ♂, 7-VI-2010, Ekaterino-Nikol'skoe; 2 ♂♂, 8-9-VI-2010, Soyuznoe; 3 last instar larvae on *Lespedeza bicolor* Turcz. (Fabaceae), 22-IX-2020, Solntsepek.

Distribution: Russia: southern parts of the Jewish Autonomous Oblast' and the Khabarovsk Krai (new records), southern part of the Primorsky Krai, South Sakhalin; Japan; Korea; China (including Taiwan); Vietnam (SCHINTLMEISTER, 2008; BELJAEV *et al.*, 2016; SINEV, 2019).

Remarks: This species is first recorded in the Khabarovsk Krai and the Jewish Autonomous Oblast'. New finds are the northernmost within the species range. The appearance of larva and pupa is shown in figures 10-11. The pupa is the overwintering stage.

Hupodonta corticalis Butler, 1877

Material: 3 ♂♂, 1 ♀, 27-31-VII-2011, Durmin.

Distribution: Russia: southern part of the Khabarovsk Krai, the Primorsky Krai; Japan; Korea; China; Myanmar; Thailand; Vietnam (SCHINTLMEISTER, 2008).

Remarks: Earlier in the Khabarovsk Krai species was found near Khabarovsk only (DUBATOLOV & DOLGIKH, 2007; DUBATOLOV *et al.*, 2012).

Phalerodonta bombycina (Oberthür, 1880)

Material: 2 ♂♂, 19-23-IX-2020, Shivki; 1 ♂, 1 ♀, 21-IX-2020, Solntsepek.

Distribution: Russia: southern part of the Khabarovsk Krai, Primorsky Krai; Korea; East China (SCHINTLMEISTER, 2008).

Remarks: Previously in the Khabarovsk Krai this species was provided with a single male from the vicinity of Khabarovsk (DUBATOLOV *et al.*, 2013).

Phalera flavescens (Bremer & Grey, 1853)

Material: 1 ♀, 4-VIII-2020, Shivki.

Distribution: Russia: Bikin District of the Khabarovsk Krai (DUBATOLOV *et al.*, 2013), Primorsky Krai, Sakhalin Island; Japan; Korea; China; Taiwan; Myanmar; Thailand; Laos; Vietnam (SCHINTLMEISTER, 2008).

Remarks: The new record is the second in the Khabarovsk Krai and the northernmost in the species range. Earlier this species was found near Lesopil'noe village (southernmost part of Bikin District). The indication of *Ph. flavescens* for the Amur Oblast' (Blagoveshchensk) (SCHINTLMEISTER, 2008) is questioned (DUBATOLOV *et al.*, 2013).

EREBIDAE
LYMANTRIINAE

Numenes disparilis Staudinger, 1887

Material: 1 ♀, 5-VIII-2020, Shivki.

Distribution: Russia: southern part of the Khabarovsk Krai, Primorsky Krai; Japan; Korea; China (BELJAEV *et al.*, 2016).

Remarks: Earlier in the Khabarovsk Krai this species was found in the upper reaches of the Durmin River only (KOSHKIN, 2011).

EREBINAE

Catocala eminens Staudinger, 1892

Material: 1 ♀, 6-VIII-2020, Shivki.

Distribution: Russia: Khabarovsk Krai (Bikin District, new record), Primorsky Krai; Korea; China (KONONENKO, 2010).

Remarks: A first record for the Khabarovsk Krai and the northernmost locality within the species range. It is probably mistakenly written in Kononenko's book (KONONENKO, 2010) that *C. eminens* inhabits the south of the Khabarovsk Krai and the Primorsky Krai in Russia. At the same time, map 235 in the same book shows the distribution of this species only in the south of Primorsky Krai (northward to Khanka Lake). In later books, where the sections about Noctuoidea were written by Kononenko, only the south of Primorsky Krai is included in the range of *C. eminens* in Russia (BELJAEV *et al.*, 2016; SINEV, 2019).

Catocala actaea Felder & Rogenhofer, 1874

Material: 2 ♂♂, 1 ♀, 7-VIII-2020, Shivki.

Distribution: Russia: southern part of the Khabarovsk Krai, Primorsky Krai; Japan; Korea; China (KONONENKO, 2010).

Remarks: Previously in the Khabarovsk Krai this species was provided with three specimens from the Bolshekhkhtsirsky and Botchinsky Nature Reserves (DUBATOLOV & DOLGIKH, 2009, 2010; DUBATOLOV, 2015b).

Catocala nivea Butler, 1877

Material: 1 ♂, 8-VIII-2013, Durmin; 4 ♂♂, 4 ♀♀, 26-28-VIII-2017, 2 ♂♂, 4-6-VIII-2020, 3 ♂♂, 18-20-IX-2020, Shivki.

Distribution: Russia: southern part of the Khabarovsk Krai, Primorsky Krai; Japan; Korea; China (including Taiwan); North India (Sikkim); Nepal (KONONENKO, 2010).

Remarks: Previously in the Khabarovsk Krai this rare species was provided with single specimens from the vicinities of Khabarovsk and Bikin (DUBATOLOV & DOLGIKH, 2009).

TOXOCAMPINAE

Lygephila lupina (Graeser, 1890) (Fig. 2)

Material: 1 ♂, 3-VIII-2020, Shivki.

Distribution. Russia: southern part of the Khabarovsk Krai (DUBATOLOV *et al.*, 2012), Primorsky Krai; China (PEKARSKY, 2016).

Remarks: Previously in the Khabarovsk Krai this species was indicated as *L. mirabilis* (Bryk, 1948) from the vicinity of Khabarovsk (DUBATOLOV *et al.*, 2012). *L. mirabilis* was synonymized with *L. lupina* by PEKARSKY (2016).

NOCTUIDAE

Mimeusemia persimilis Butler, 1875 (Figs 12, 13)

Material: 1 ♂, ex pupa: 12-I-2012, Durmin.

Distribution: Russia: southern parts of the Amur Oblast' (KOSHKIN & BEZBORODOV, 2009) and the Khabarovsk Krai, Primorsky Krai, South Kuriles (Kunashir); Japan; Korea; China (including Taiwan) (KONONENKO, 2010; BELJAEV *et al.*, 2016).

Remarks: Previously in the Khabarovsk Krai this species was provided with two males from the vicinities of Khabarovsk (NOVOMODNY, 2000; DUBATOLOV *et al.*, 2014). According to my observations in the basin of the upper reaches of the Durmin River, host plant of larvae is *Vitis amurensis* Rupr. (Vitaceae). The appearance of larva and pupa is shown in figures 12-13. Pupation takes place on the ground. The pupa is the overwintering stage.

Teratoglaea pacifica Sugi, 1958 (Fig. 3)

Material: 1 ♂, 17-IX-2017, Shivki.

Distribution: Russia: southern part of the Khabarovsk Krai, Primorsky Krai, South Sakhalin; Japan; Korea; China (KONONENKO, 2016; TITOVA, 2018).

Remarks: Previously in the Khabarovsk Krai this rare species was found in the Bolshekhkhtsirsky and Botchinsky Nature Reserves (DUBATOLOV & DOLGIKH, 2009; DUBATOLOV, 2015b).

Xylena formosa (Butler, 1878) (Figs 4, 14)

Material: 1 ♂, 18-IX-2020, Shivki.

Distribution: Russia: Khabarovsk Krai; Japan; Korea; China (DUBATOLOV & DOLGIKH, 2009; KONONENKO, 2016).

Remarks: The second record on the territory of Russia and the Khabarovsk Krai. Previously this very rare species was found in vicinity of Khabarovsk only (DUBATOLOV & DOLGIKH, 2009). The

appearance of *X. formosa* is extremely similar to *X. confusa* Kononenko & Ronkay, 1998, but differs well from it by the structure of the male genitalia (Fig. 14).

Amphipyra jankowskii Oberthür, 1884 (Fig. 5)

Material: 2 ♂♂, 3-7-VIII-2020, Shivki.

Distribution: Russia: southern part of the Khabarovsk Krai, Primorsky Krai; Korea; China (KONONENKO, 2016).

Remarks: Previously in the Khabarovsk Krai this species was found near Khabarovsk only (DUBATOLOV *et al.*, 2013).

Diarsia ruficauda (Warren, 1909) (Fig. 6)

Material: 1 ♂, 6-VIII-2020, Shivki.

Distribution: Russia: southern part of the Khabarovsk Krai, Primorsky Krai, Kuril Islands (Kunashir); Japan; Korea; China (BELJAEV *et al.*, 2016; RYBALKIN, 2020).

Remarks: Previously in the Khabarovsk Krai this species was found near Khabarovsk only (DUBATOLOV, 2015a).

NOLIDAE

Siglophora sanguinolenta (Moore, 1888) (Figs 7, 8, 15)

Material: 2 ♂♂, 1 ♀, 5-7-VIII-2020, Shivki.

Distribution: North India, Nepal, Korea (North and South), China (including Taiwan), Philippines (KONONENKO *et al.*, 1998).

Remarks: Genus and species provided for the territory of Russia for the first time. Previously the northernmost location in the species range was known to be in the vicinity of Wonsan City (southern part of North Korea) (NATIONAL INSTITUTE OF BIOLOGICAL RESOURCES OF KOREA, 2020). The identification of the species was confirmed by the appearance and genitalic structures (Figs 7, 8, 15) (KONONENKO & HAN, 2007). The number of collected specimens, their good condition, and the growth of the host plant (*Quercus mongolica* Fisch. ex Ledeb.) (SOHN *et al.*, 2017: 498) suggest the naturalization of *S. sanguinolenta* in the south of the Russian Far East.

GEOMETRIDAE

Acrodontis kotshubeji Sheljuzhko, 1944 (Fig. 9)

Material: 2 ♂♂, 18-IX-2020, 9-X-2020, Shivki; 1 ♂, 21-IX-2020, Solntsepek.

Distribution: Russia: Khabarovsk Krai (Bikin District, new record), southern part of the Primorsky Krai; Japan, Korea (BELJAEV *et al.*, 2016; SINEV, 2019).

Remarks: The first record for the Khabarovsk Krai and the northernmost locality within the species range.

Agradecimientos

I am sincerely grateful to Dr. M. V. Kryukova, Dr. A. Yu. Oleynikov and A. I. Korobitsyna (Institute of Water and Ecology Problems of the Far Eastern Branch of the Russian Academy of Sciences, Khabarovsk, Russia) for providing samples of *Rhodinia fugax* for study.

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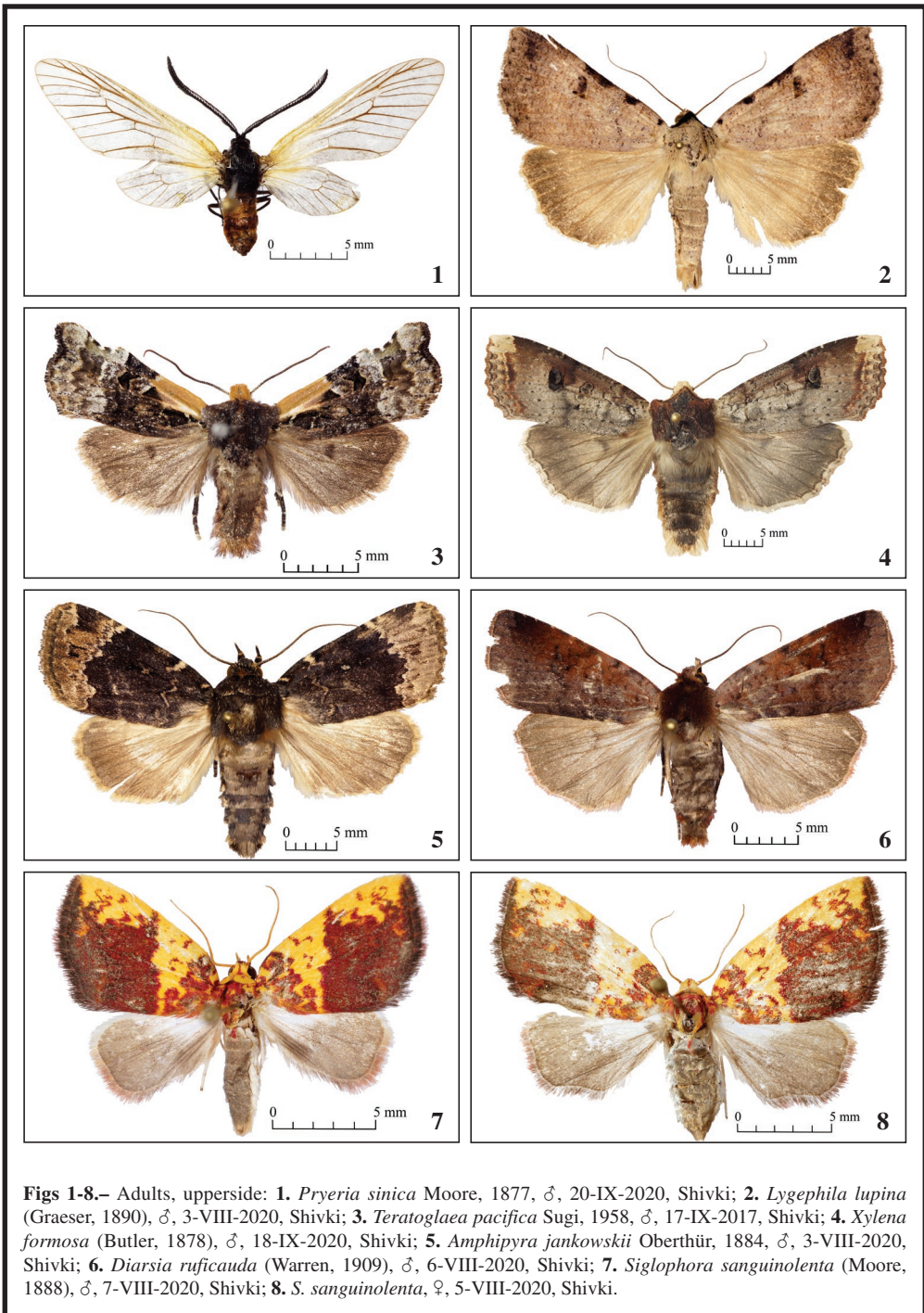
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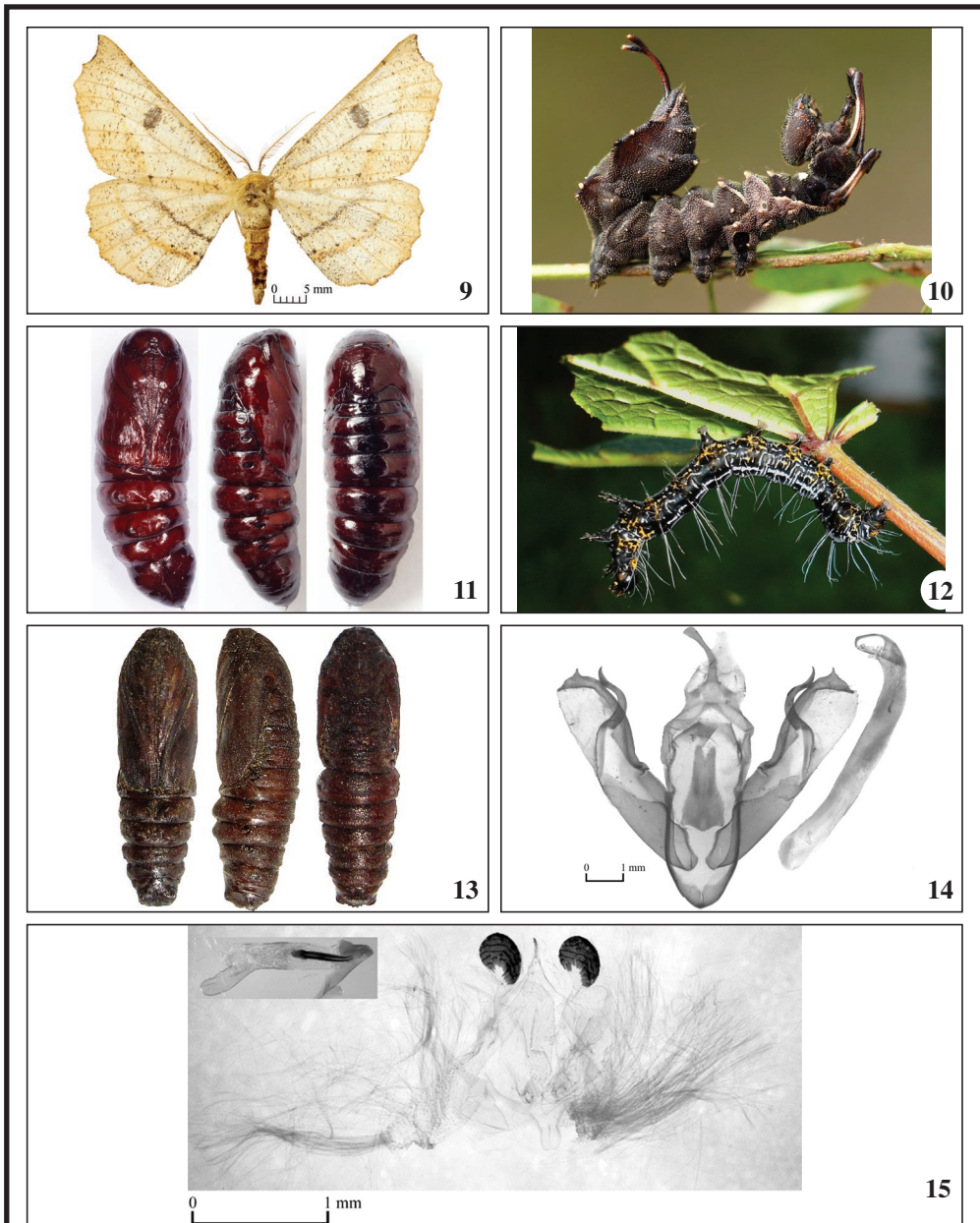
(Recibido para publicación / *Received for publication* 30-X-2020)

(Revisado y aceptado / *Revised and accepted* 7-I-2021)

(Publicado / *Published* 30-XII-2021)



Figs 1-8.— Adults, upperside: **1.** *Pryeria sinica* Moore, 1877, ♂, 20-IX-2020, Shivki; **2.** *Lygephila lupina* (Graeser, 1890), ♂, 3-VIII-2020, Shivki; **3.** *Teratoglaea pacifica* Sugi, 1958, ♂, 17-IX-2017, Shivki; **4.** *Xylena formosa* (Butler, 1878), ♂, 18-IX-2020, Shivki; **5.** *Amphipyra jankowskii* Oberthür, 1884, ♂, 3-VIII-2020, Shivki; **6.** *Diarsia ruficauda* (Warren, 1909), ♂, 6-VIII-2020, Shivki; **7.** *Siglophora sanguinolenta* (Moore, 1888), ♂, 7-VIII-2020, Shivki; **8.** *S. sanguinolenta*, ♀, 5-VIII-2020, Shivki.



Figs 9-15.– 9. *Acrodontis kotshubeji*, ♂, 18-IX-2020, Shivki. Preimaginal stages: 10-11. *Stauropus basalis* Moore, 1877, 22-26-IX-2020, Solntsepek (10 - last instar larva on *Lespedeza bicolor*, 11 - pupa in different projections); 12-13. *Mimeusemia persimilis* Butler, 1875, 5-VIII-2011, Durmin (12 - last instar larva on *Vitis amurensis*, 13 - pupa in different projections). 14-15. Male genitalia: 14. *Xylena formosa* (Butler, 1878), 18-IX-2020, Shivki; 15. *Siglophora sanguinolenta* (Moore, 1888), 7-VIII-2020, Shivki.

