

On recently described Procridinae taxa from the Volga Region (Lepidoptera: Zygaenidae)

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Abstract

The systematic position of the recently described taxa: *Jordanita (Roccia) scintillosa* Zolotuhin, 2020, *J. (R.) smaragdonna* Zolotuhin, 2020, and *Adscita (Adscita) albanica accola* Zolotuhin & Nedoshivina, 2020, are discussed. *J. scintillosa* and *J. smaragdonna* are considered to be synonyms of *Jordanita (Roccia) paupera* (Christoph, 1887) and *A. albanica accola* is synonymised with the nominotypical *Adscita albanica* (Naufock, 1926). Moreover, some notes on the book “*Zygaenoid moths (Lepidoptera, Zygaenoidea) of the Middle and Lower Volga Region*” are presented.

Keywords: Lepidoptera, Zygaenidae, Procridinae, new synonymies, Volga Region, Russia.

Sobre los taxones de Procridinae recientemente descritos de la región del Volga (Lepidoptera: Zygaenidae)

Resumen

Se discute la posición sistemática de los taxones recientemente descritos: *Jordanita (Roccia) scintillosa* Zolotuhin, 2020, *J. (R.) smaragdonna* Zolotuhin, 2020 y *Adscita (Adscita) albanica accola* Zolotuhin & Nedoshivina, 2020. *J. scintillosa* y *J. smaragdonna* se consideran sinónimos de *Jordanita (Roccia) paupera* (Christoph, 1887) y *A. albanica accola* se sinonimiza con la nominotípica *Adscita albanica* (Naufock, 1926). Además, se presentan algunas notas sobre el libro “*Zygaenoid moths (Lepidoptera, Zygaenoidea) of the Middle and Lower Volga Region*”.

Palabras clave: Lepidoptera, Zygaenidae, Procridinae, nuevas sinonimias, Región del Volga, Rusia.

Introduction

It is well known that Zygaenidae show an exceptional variability in characters that exceeds most of that of others Lepidoptera (Efetov, 1999, 2018; Efetov et al. 2011; Efetov & Savchuk, 2013; Efetov & Tarmann, 2017a; Hofmann & Tremewan, 2017). We find famous examples in the subfamily Chalcosiinae with striking habitus forms in many species and in Zygaeninae with the variability in habitus of the adults and larvae. However, the Procridinae are an example of almost unbelievable character variability (Can et al. 2019; Can Cengiz et al. 2018; Efetov, 2001b, 2004; Efetov et al. 2004, 2006, 2014a, 2014c, 2015a, 2015b, 2016, 2018, 2019a, 2019b; Efetov & Hayashi, 2008; Razov et al. 2012; Subchev et al. 2016; Vrenozzi et al. 2019). In habitus, the size, the wing shape, the colour, the sheen and brilliance of the external surface are often variable characters, but anatomical characters are also not at all constant, such as the wing venation and genitalia structures. The tricky situation in this subfamily is that one group can have very constant characters throughout a whole genus but in a related

genus these characters are completely variable. Good examples are the genera *Harrisina* Packard, 1864 and *Pampa* Walker, 1854 in America, both with externally uniform and similar looking species, where the first genus shows only little difference in genitalia structures but the second shows constant and therefore good differences between species. Moreover, Zygaenidae are also exceptional in genetic character analyses and there are several groups where DNA barcoding does not give satisfactory resolutions (e. g. genera *Jordanita* Verity, 1946 in the Palaearctic and *Pollanisus* Walker, 1854 in Australia) (Efetov et al. 2019b). To be able to estimate the value of characters for taxonomic decisions correctly a very good overview over the world's complex genera, species, subspecies and individual forms and their character variability is essential.

In *Adscita* Retzius, 1783 and *Jordanita*, the two genera discussed in this paper, characters such as size, wing shape and the colour of the specimens are so variable in single populations that for some species only genitalia characters can guarantee a certain identification. In *Jordanita* especially even size can vary within one and the same population as many species of this genus have larvae that live at least a part of their life endophagous in leaves and stems and the size of the adults also depends on the fitness and size of the larvae before pupation.

If entomologists do not know the variability of characters in the studied groups, sometimes they can describe new taxa based on insufficient knowledge and false arguments.

Recently, two publications appeared (Zolotuhin, 2020; Zolotuhin & Nedoshivina, 2020) with information about three new nominal taxa of Procrarinae from the Volga Region, viz. *Jordanita (Roccia) scintillosa* Zolotuhin, 2020, *J. (R.) smaragdonna* Zolotuhin, 2020, and *Adscita (Adscita) albanica accola* Zolotuhin & Nedoshivina, 2020. As we are currently preparing a World Catalogue of Procrarinae verification of the systematic position of these taxa is required.

***Adscita albanica accola* Zolotuhin & Nedoshivina, 2020**

The nominal taxon *Procris albanica* was described by Naufock in 1926 from Pashtrik, Albania (“Gefangen wurden die Stücke von H. Zerny und K. Predota auf dem Pashtrik in Albanien in der Zeit vom 4.-14. VII. 1918”). The contemporary status of this species is *Adscita albanica* (Naufock, 1926) (Efetov & Tarmann, 1995, 1999b, 2012, 2014b). The closely related species *Adscita dujardini* was described on the base of morphology and DNA data by Efetov & Tarmann (2014b) (type locality: Italy, Marche, Prov. Macerata, Monte San Vicino W, ca 3 km SW Pian dell’Elmo). The latter species is distributed in southern France (Alpes Maritimes, Aveyron, Herault), Switzerland (Wallis/Valais, Graubünden), Italy (southern and south-western Alps and Apennines southwards to Calabria), and Slovenia. *Adscita albanica* is known from Serbia, Albania, Republic of North Macedonia, Bulgaria, Greece, northern and central Ukraine, as well as in Crimea, Northern Caucasus and the Volga Basin in Russia (Efetov & Tarmann, 2014b; Nahirnic et al. 2016, 2019).

Zolotuhin & Nedoshivina (2020) described the Volga population as a new subspecies, viz. *Adscita albanica accola*. In the description and diagnosis, they write: “External characters of the new subspecies are identical to those of representatives of other populations”. The only difference from specimens from other regions is that in some male specimens the process at the apex of sacculus is curved. However, this character is not found in all specimens from the Volga Region. Moreover, as we know, there is significant variability in this character in specimens from other territories. The so-called dentations on the ventral margin of sacculus mentioned by Zolotuhin & Nedoshivina (2020) in some specimens from the Volga Region as well as from the Northern Caucasus is also a variable character and often can be found in the Crimean population. We consider that the above mentioned unstable characters are insufficient for the description of a new subspecies. *Adscita albanica accola* is therefore here synonymised (**syn. n.**) with *Adscita albanica albanica* (Naufock, 1926).

***Jordanita scintillosa* Zolotuhin, 2020, and *Jordanita smaragdonna* Zolotuhin, 2020**

The vast majority of species in Palaearctic Procrarinae have good genitalia differences (Efetov,

1996a, 1996b, 1997a, 1997b, 1998, 2001a, 2006, 2010; Efetov et al. 2014b, 2019a; Efetov & Tarmann, 1999a, 2013a, 2013b, 2014a, 2016a, 2016b, 2017a, 2017b).

However, Zolotuhin erected two “valid” species of the genus *Jordanita* Verity, 1946, which have the same genitalia structure as *Jordanita (Roccia) paupera* (Christoph, 1887). *Jordanita scintillosa* Zolotuhin, 2020, was proposed as nomen novum for *Procris hamifera* f. (ssp.?) *minor* Alberti, 1937 (Zolotuhin, 2020). *Jordanita smaragdonna* was described as a new species and includes populations of *Jordanita paupera* (Christoph, 1887) from the Volga Region and western Kazakhstan. Both, *J. scintillosa* and *J. smaragdonna*, have no stable genitalia differences from *J. paupera* and only weakly differ by habitus from the latter.

For example, Zolotuhin (2020) mentions the following characters for *J. scintillosa*: “proboscis pale (yellow to brownish), short and only reaches a medial part of prothorax, sometimes not spiralled”. We examined this character in the lectotype (see below, this specimen is figured by Zolotuhin in his publication as “holotype” on Figure 5) and found (Figure 3) that the proboscis is brown and forms a spiral. In addition, we checked a series of specimens of *Jordanita paupera* from Kopet-Dag in Turkmenistan (from where *Ino paupera* Christoph, 1887, was described) and found that the length and colour of the proboscis is a variable character even in these populations.

All other diagnostic characters of *Jordanita scintillosa* and *J. smaragdonna* mentioned by Zolotuhin (2020) are also very variable within intraspecific variability. These two above mentioned taxa have been already synonymised with *Jordanita paupera* (Christoph, 1887) (Efetov et al. 2022).

It is necessary to discuss here the type series of *Procris hamifera* f. (ssp.?) *minor* Alberti, 1937. Alberti mentions four specimens without a designation of a holotype. It means that all four specimens are syntypes. However, Zolotuhin (2020) on page 8 writes: “Holotype ♂ (ZSM)” (Zoologische Staatssammlung München). Moreover, later, on page 9 Zolotuhin suddenly writes that the male holotype [second holotype!] and two male paratypes are in “ZMHUB” (Zoologisches Museum der A. Humboldt Universität, Berlin) and one male paratype [sic] is in “ZSM”. We examined the male specimen in Munich (Figure 1) and found that it had the following 6 labels (Figure 2): 1. “Inter Sar-dirja / et Mont. Mugol / Eversmann” (handwritten by Alberti on white paper); 2. “Holotypus” (printed on red paper); 3. “Holotype ♂ / Procris paupera / f. minor” (printed with handwritten inscription “♂” on pink paper); 4. “6858” (handwritten on yellowish white paper); 5. “Abgebildet d.Berlin. / Zoolog.Museum / 1939. B.Alberti” (printed on white paper); 6. “↑. minor Alb.” (handwritten by Alberti with black printed frame on white paper).

According to the International Code of Zoological Nomenclature (Code) the pin-label “holotype” under the specimen is not a designation of the holotype. The Code (1999) in article 73.1.3. states: “The holotype of a new nominal species-group taxon can only be fixed in the original publication and by the original author”. As Alberti (1937) did not designate a holotype in the original publication, it is necessary for the correct fixation of the nominal taxon *Procris paupera minor* to designate a lectotype. As **Lectotype** we designate here the above mentioned male specimen (Figure 1) with the pin-label “Holotypus” deposited in the ZSM (now ZSBS Zoologische Sammlungen des Bayerischen Staates, München). Moreover, this is the same specimen that is figured in Alberti (1954: 477, plate LX, Figure 4d). This specimen has no right forewing now. As now is visible from label 5, Alberti planned to publish the photo of this specimen in 1939, but in fact it was published later in 1954.

Some mistakes and misprints in the book of Zolotuhin & Nedoshivina (2020)

It is also necessary to mention some mistakes in Zolotuhin & Nedoshivina (2020).

Page 29. It is written that Phaudinae is a subfamily of Zygaenidae. However, it is now generally accepted that Phaudidae is a separate family within Zygaenoidea (Niehuis et al. 2006; Efetov et al. 2014a).

Page 64. Zolotuhin & Nedoshivina (2020) mentioned *Jordanita* Agenjo, 1940 as a title of the chapter. This name is unavailable according to the Code (designation of a type-species missing). The correct name is *Jordanita* Verity, 1946.

Page 64. *Solaniterna* Efetov, 2004 is not a synonym of the genus *Jordanita* but a valid subgenus of

this genus in which it was originally described (Efetov, 2004). Zolotuhin & Nedoshivina (2020) writes that *Solaniterna* was described as a subgenus of *Procris* Fabricius, 1807. This is incorrect.

Page 69. Distribution map of *Jordanita volgensis* (Möschler, 1862). It is not shown that this species also occurs in the Crimea (Efetov & Savchuk, 2009; Efetov & Knyazev, 2014; Knyazev et al. 2015), but in the text on the same page it is mentioned for the Crimea.

Page 74. *Jordanita (Roccia) notata* (Zeller, 1847) is mentioned. However, this species belongs to the subgenus *Tremewania* Efetov & Tarmann (1999b). The correct combination is: *Jordanita (Tremewania) notata* (Zeller, 1847).

Page 79. The photo (taken in the Crimea by V. Savchuk) of the larva is figured as *Jordanita (Jordanita) graeca* (Figure 4). However, this is the larva of another species, viz. *J. (J.) chloros* (Hübner, 1813).

Page 87. In the distribution of *Adscita albanica* (map and text) southern France and Italy are included (Figure 5). However, this is the distribution of another species, viz. *Adscita dujardini* Efetov & Tarmann, 2014.

Page 88. In the chapter about *Adscita geryon* the male genitalia of *Adscita stances* are figured as those of *A. geryon* (Figure 6).

Page 109. In the chapter about *Zygaena (Mesembrynus) minos* ([Denis & Schiffermüller], 1775) it is written that the host-plants of this species are *Pimpinella* and *Eryngium*. However, on the same page there is a photo of the larva feeding on *Falcaria vulgaris*, a well-known host-plant from the Crimea (Efetov, 2005).

Page 109. On the distribution map of *Zygaena (Mesembrynus) minos* Turkey is included in the distribution of this species. However, according to Nahirić (2019) this species is absent from Turkey. In Turkey the related species *Z. (M.) diaphana* Staudinger, 1887, occurs.

Some misprints from the above mentioned book are listed below.

Page 29. *Preyeria* (the correct name is *Pryeria*).

Page 29. Callyzygaeninae (the correct name is Callizygaeninae).

Page 30. *Pollanistis* (the correct name is *Pollanisus*).

Page 30. *Harrisona* (the correct name is *Harrisina*).

Page 30. Inuelinae (the correct name is Inouelinae).

Page 95. *Z. centaureae* (the correct name is *Z. centaureae*).

Page 96. *Z. brazae* (the correct name is *Z. brizae*).

We also found correct citations missing in some cases.

Page 29. Figure 8 of *Inouela* is taken from the papers of Efetov (1999) and Efetov & Tarmann (2017a) without citations.

Page 56. Figures 38.4 and 38.5 are taken from Efetov & Tarmann (1999) without citation.

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Figures 1-6. 1. Lectotype male of *Procris hamifera minor* Alberti, 1937 (ZSM, Munich). 2. Pin-labels of lectotype male of *Procris hamifera minor*. 3. The head of lectotype male of *Procris hamifera minor*. 4. The larva of *Jordanita chloros* (Hübner, 1813) figured in Zolotuhin & Nedoshivina (2020, p. 81) as the larva of *Jordanita graeca* (Jordan, 1907). 5. Distribution of *Adscita dujardini* Efetov & Tarmann, 2014 (southern France, Switzerland, Italy and Slovenia) and *Adscita albanica* (Naufock, 1926) (Balkans, Ukraine, Russia) figured in Zolotuhin & Nedoshivina (2020, p. 87) as the distribution of *Adscita albanica* only. 6. Male genitalia of *Adscita statices* (Linnaeus, 1758) figured in Zolotuhin & Nedoshivina (2020, p. 88) as those of *A. geryon* (Hübner, 1813).