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***Jordanita (Roccia) karatauensis* Efetov & Gorbunov, sp. nov. (Lepidoptera: Zygaenidae, Procridinae, Procridini) from Southern Kazakhstan**

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Received 11 October 2025 | Accepted by V. Pešić: 29 October 2025 | Published online 30 October 2025.

Abstract

A new species, *Jordanita (Roccia) karatauensis* Efetov & Gorbunov, sp. nov. (Lepidoptera: Zygaenidae, Procridinae, Procridini), is described from Southern Kazakhstan. The new species is closely related to *Jordanita (Roccia) paupera* (Christoph, 1887), with which it is sympatric, but flying at a later period.

Key words Lepidoptera, Zygaenidae, Procridinae, Procridini, *Jordanita (Roccia) karatauensis*, Kazakhstan.

Introduction

According to the latest revisions, the family Zygaenidae includes five subfamilies (Efetov *et al.* 2014; Efetov & Tarmann 2017a, 2024c), viz. Inouelinae Efetov & Tarmann, 2017; Zygaeninae Latreille, 1809; Callizygaeninae Alberti, 1954; Chalcosiinae Walker, 1865; and Procridinae Boisduval, 1828 (Drouet *et al.* 2021; Efetov 1996a, b, 1998, 2000, 2001, 2012a, b, 2018; Efetov *et al.* 2011, 2019b, c, 2020, 2023, 2024a, b, 2025; Efetov & Knyazev 2014; Efetov & Savchuk 2009, 2013; Efetov & Tarmann 1999, 2016a, b, 2017b, 2020, 2022b, 2024b; Efetov & Gorbunov, 2024; Efetov & Kucherenko 2021; Knyazev *et al.* 2015; Marianelli *et al.* 2020; Mirić *et al.* 2024; Yardım *et al.* 2024, 2025).

The subfamily Procridinae includes five tribes (Efetov & Tarmann 2024c), viz. Thyraasiini Efetov & Tarmann, 2024c; Pollanisini Efetov & Tarmann, 2024c; Artonini Tarmann, 1994; Cleleini Efetov & Tarmann, 2024c; and Procridini Boisduval, 1828. This paper deals with a new species of the tribe Procridini.

While investigating the material of the subfamily Procridinae in the collection of Dr Sergey F. Melyakh (Yekaterinburg, Russia), two males representing a new species of the subgenus *Roccia* Alberti, 1954, were found. The description of the new species is provided below.

***Jordanita (Roccia) karatauensis* Efetov & Gorbunov, sp. nov.** (Figures 1–6, 9)

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Material examined

Holotype ♂ (Figure 1) with printed pin-label on white paper: ‘S. KAZAKHSTAN, Syr Darya Karatau Mt. Range, 12 km NW of Aksumbe, 450 m, 44°31’ N, 67°25’ E, 16.05.2016, leg. P. Gorbunov’.

Paratype ♂ (Figure 2) with printed pin-label on white paper: ‘S. KAZAKHSTAN, Syr Darya Karatau Mt. Range, Koshkarata River, 880 m a.s.l., 43°41’ N, 68°49’ E, 26.06.2010, leg. P. Gorbunov’.

The holotype and paratype are deposited in the collection of Dr Sergey F. Melyakh (Yekaterinburg, Russia). The holotype will be deposited later in the collection of Zoological Institute of the Russian Academy of Sciences (St. Petersburg, Russia).

Description of the males (holotype and paratype).

Length of body: 8.0 mm (holotype), 8.3 mm (paratype); length of forewing: 10.5 mm (holotype), 11.5 mm (paratype); breadth of forewing: 4.0 mm (holotype), 4.4 mm (paratype); length of hindwing: 8.5 mm (holotype), 9.8 mm (paratype); breadth of hindwing: 4.0 mm (holotype), 4.5 mm (paratype); length of antenna: 4.5 mm (holotype), 4.8 mm (paratype). Head, thorax and abdomen green with submetallic sheen. Antenna covered with green shiny scales, bipectinate, tapering towards and pointed at apex. Proboscis dark brown, well developed. Forewing upperside green, semitransparent, covered with green shiny scales; underside grey; fringe grey. Hindwing upperside and underside grey, semitransparent, fringe grey. Legs dark brown, foreleg without tibial epiphysis, hind tibia with one pair of spurs (apical).



Figure 1. Male holotype of *Jordanita (Roccia) karatauensis* Efetov & Gorbunov, sp. nov. Photo: S.F. Melyakh.



Figure 2. Male paratype of *Jordanita (Roccia) karatauensis* Efetov & Gorbunov, sp. nov. Photo: S.F. Melyakh.

Genitalia male (Figures 3–5, 9).

Uncus heavily sclerotized, short, two times shorter than tegumen. Valva with characteristic straight ovoid process at apex of sacculus, apex of process rounded, length of process two times shorter than uncus; pulvinus with hair-like setae. Aedeagus more than two times longer than uncus. Vesica with two straight, pointed cornuti of different lengths, long cornutus as long as uncus, short cornutus is about $\frac{2}{3}$ length of long one.

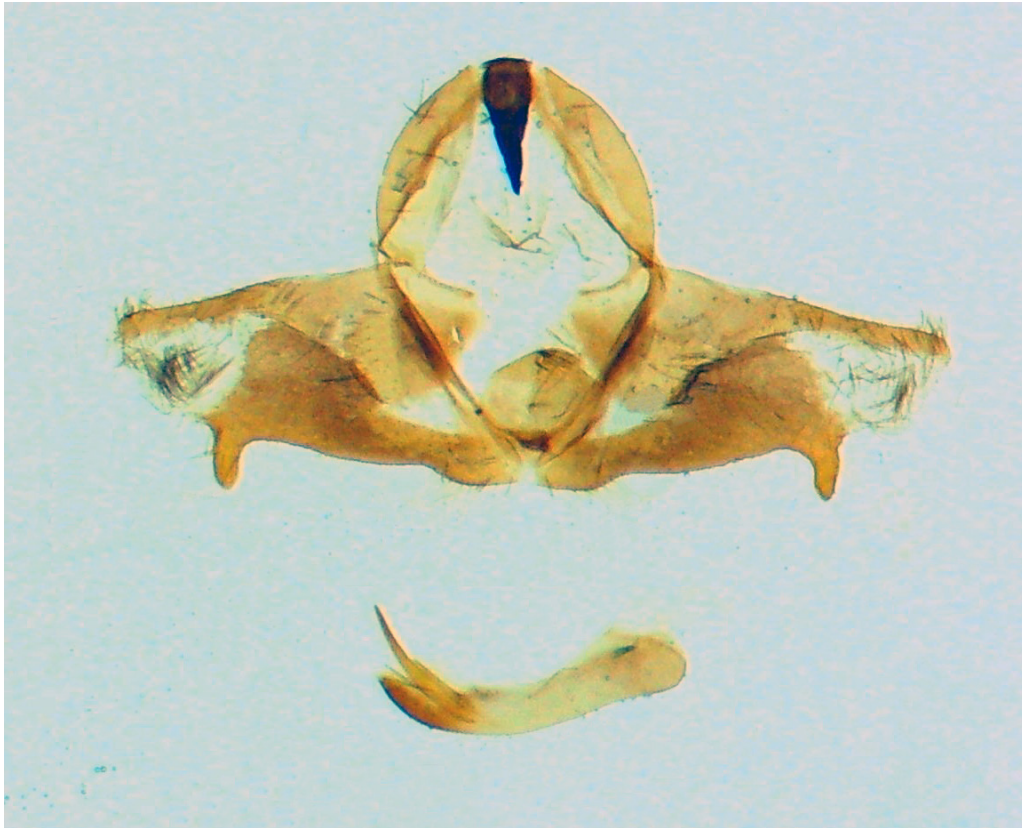


Figure 3. Male genitalia of holotype of *Jordanita (Roccia) karatauensis* Efetov & Gorbunov, sp. nov. Photo: S.F. Melyakh.

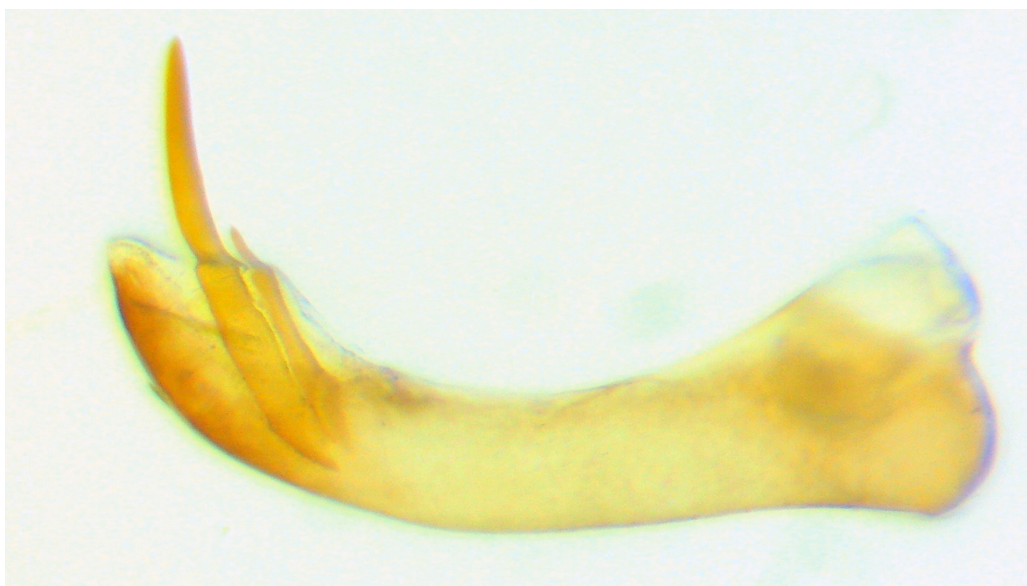


Figure 4. Aedeagus of holotype of *Jordanita (Roccia) karatauensis* Efetov & Gorbunov, sp. nov., higher magnification. Photo: S.F. Melyakh.

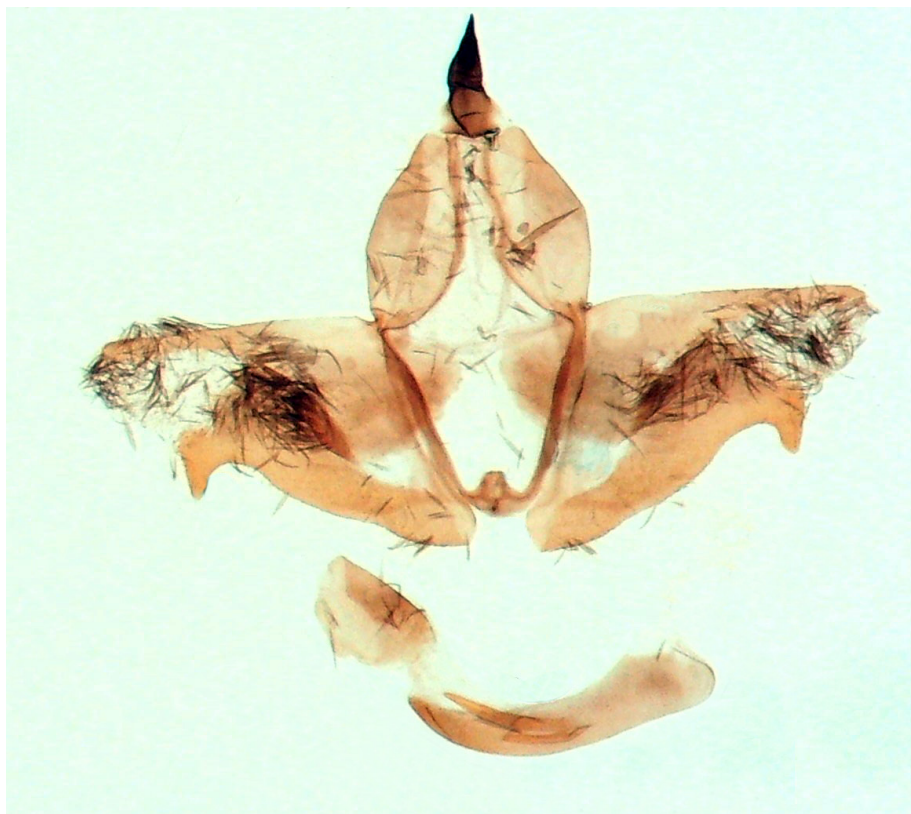


Figure 5. Male genitalia of paratype of *Jordanita (Roccia) karatauensis* Efetov & Gorbunov, sp. nov. Photo: S.F. Melyakh.

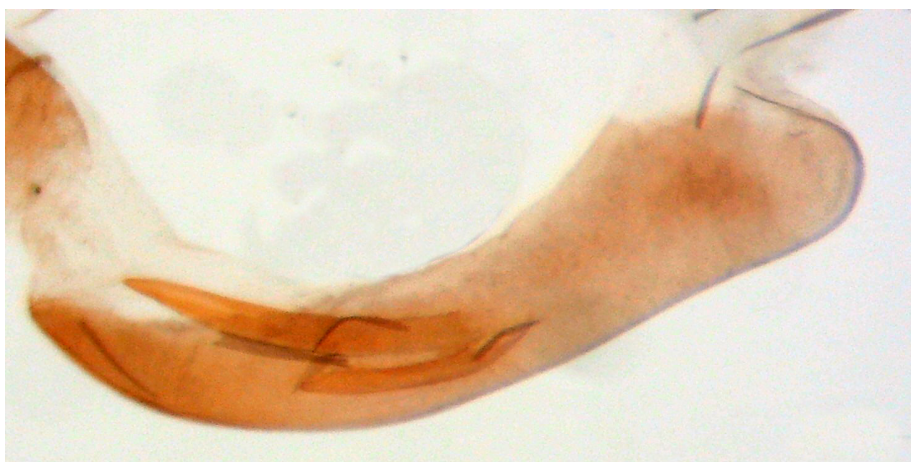


Figure 6. Aedeagus of paratype of *Jordanita (Roccia) karatauensis* Efetov & Gorbunov, sp. nov., higher magnification. Photo: S.F. Melyakh.

A check list of *budensis*-group of the subgenus *Roccia* Alberti, 1954, of the genus *Jordanita* Verity, 1946

Jordanita (Roccia) budensis (Speyer & Speyer, 1858: 466) (*Ino*)
cuprea (Rambur, 1866: 186) (*Procris*)

Jordanita (Roccia) budensis budensis (Speyer & Speyer, 1858: 466) (*Ino*)
Jordanita (Roccia) budensis centralasiae (Alberti, 1937: 87) (*Procris*)

Distribution: Spain, France, Austria, Italy, Slovenia, Croatia, Bosnia and Herzegovina, Serbia, Montenegro, Albania, Macedonia, Greece, Slovakia, Hungary, Romania, Bulgaria, Russia (south of European part, Northern Caucasus), Georgia, Armenia, Azerbaijan, Turkey (subsp. *budensis*); Russia (Southern Siberia, Far East (Amur Region)), Kazakhstan, Mongolia (subsp. *centralasiae*).

Jordanita (Roccia) paupera (Christoph, 1887: 162) (*Ino*)

hamifera (Jordan, 1907: 8) (*Procris*)

tamerlana (Alberti, 1937: 86) (*Procris hamifera* subsp.)

minor (Alberti, 1937: 87) (*Procris hamifera* “f. (ssp. ?)”) (a junior primary homonym of *Atychia statices* var. *minor* Eversmann, 1844: 91)

scintillosa Zolotuhin, 2020: 8 (replacement name for *Procris hamifera minor* Alberti, 1937) (see Efetov *et al.* 2022; Efetov & Tarmann 2022b, 2024c)

smaragdonna Zolotuhin, 2020: 9 (see Efetov *et al.* 2022; Efetov & Tarmann 2022b, 2024c)

Distribution: Russia (Lower Volga, Northern Caucasus), Azerbaijan (including Nakhichevan), Turkey, Jordan, Northern Iran, Turkmenistan, Uzbekistan, Tajikistan, Kyrgyzstan, Western and Southern Kazakhstan (where it is sympatric with *Jordanita karatauensis*), and Northwestern China.

Jordanita (Roccia) mollis (Grum-Grshimailo, 1893: 385) (*Ino budensis* var.)

Distribution: Eastern Russia (Southern Siberia and Far East), China, Korea (Efetov *et al.* 2019a).

Jordanita (Roccia) karatauensis Efetov & Gorbunov, sp. nov.

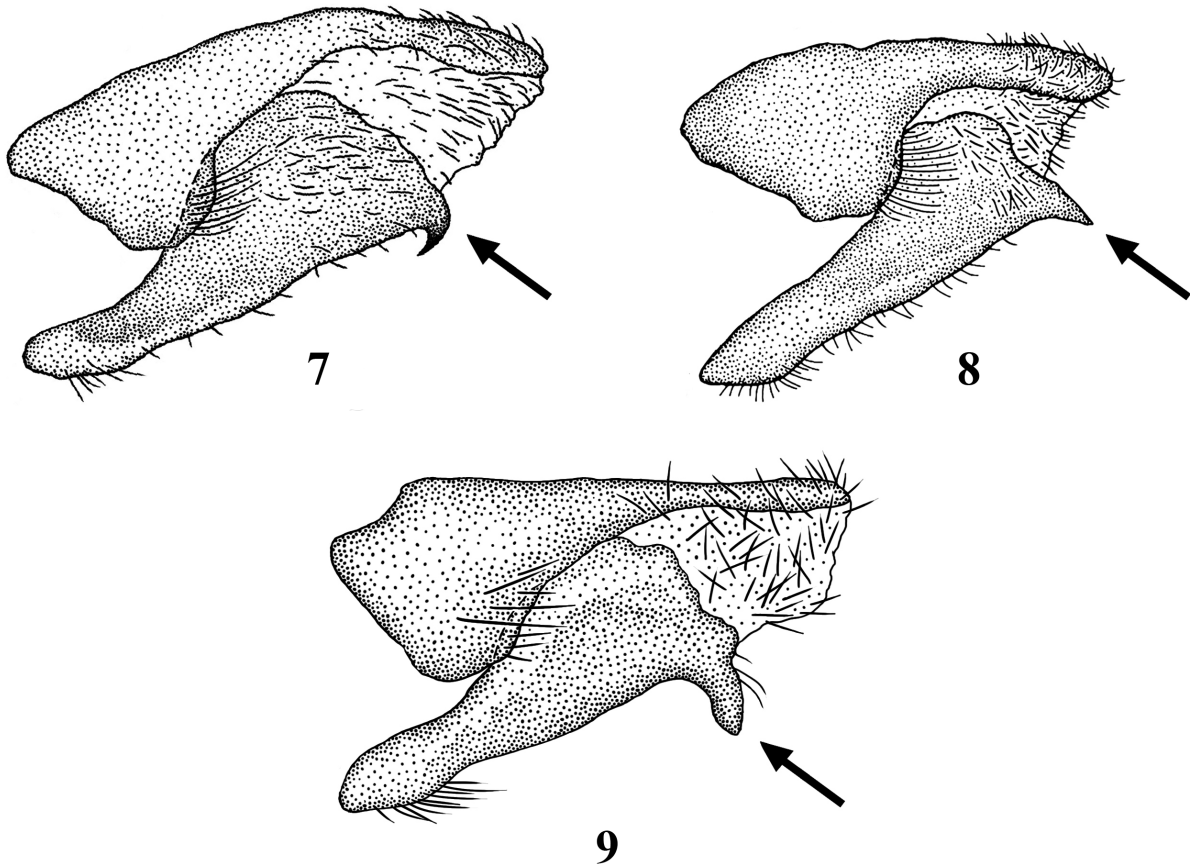
Distribution: Southern Kazakhstan (Syr Darya Karatau Mountain Range).

Differential diagnosis

Jordanita karatauensis sp.nov. is similar to *Jordanita paupera* and *Jordanita mollis*, but can be easily distinguished from these two species by male genitalia. In the male genitalia of *Jordanita paupera* (Figure 7) the process at the apex of sacculus is triangular, pointed, strongly curved, and forming an acute angle with the ventral margin of the valva. In *Jordanita mollis* (Figure 8) the process at the apex of sacculus is triangular, pointed, slightly curved, and forming an obtuse angle with the ventral margin of the valva. In *Jordanita karatauensis* (Figure 9) the process at the apex of sacculus is ovoid, rounded, and forming right angle with the ventral margin of the valva. *Jordanita mollis* is distributed in Central and Eastern China, Southern Siberia, Far East of Russia and Korea, where *Jordanita karatauensis* is absent. *Jordanita paupera* is widespread (see above) including Southern Kazakhstan, where it is sympatric with *Jordanita karatauensis*.

Key to the species of the *budensis*-group of the subgenus *Roccia* Alberti, 1954

- | | | |
|---|---|---|
| 1 | Apex of sacculus with trapezoid process (Efetov 2005, pl. 4, fig. 6) | <i>J. (R.) budensis</i> |
| – | Apex of sacculus forming triangular or ovoid process | 2 |
| 2 | Process of sacculus ovoid (with rounded apex), forming right angle with ventral margin of valva (Figures 3, 5, 9) | <i>J. (R.) karatauensis</i> sp. n. |
| – | Process of sacculus triangular (with pointed apex), forming acute or obtuse angle with ventral margin of valva | 3 |
| 3 | Process of sacculus strongly curved, forming acute angle with ventral margin of valva (Figure 7) | <i>J. (R.) paupera</i> |
| – | Process of sacculus slightly curved, forming obtuse angle with ventral margin of valva (Figure 8) | <i>J. (R.) mollis</i> |



Figures 7–9. Valvae of *Jordanita* (*Roccia*) spp. 7. *Jordanita* (*Roccia*) *paupera* (Christoph, 1887) (Azerbaijan, Shemakha District, vic. Maraza) (line drawing: K.A. Efetov & V.L. Saenko); 8. *Jordanita* (*Roccia*) *mollis* (Grum-Grshimailo, 1893) (Russia, Chita Region, Baley District, vic. Sarannoye) (line drawing: K.A. Efetov & P.V. Ruchko); 9. *Jordanita* (*Roccia*) *karatauensis* Efetov & Gorbunov, sp. nov., holotype (Southern Kazakhstan, Syr Darya Karatau Mountain Range, vic. Aksumbe) (line drawing: K.A. Efetov & P.V. Ruchko).

Distribution. At present, *Jordanita karatauensis* is only known from Southern Kazakhstan, Syr Darya Karatau Mountain Range. *Jordanita paupera* is widespread from Eastern Europe to Western and Central Asia (see above), in Southern Kazakhstan it is sympatric with *Jordanita karatauensis*. *Jordanita mollis* is distributed in Central and Eastern China, Southern Siberia, Far East of Russia and Korea.

Habitat. Two males of *Jordanita karatauensis* were collected in two low-mountain localities of the Syr Darya Karatau Mountain Range (Southern Kazakhstan), viz. 12 km NW of Aksumbe, 450 m a.s.l. (type locality) (Figures 10, 11) and Koshkarata River, 880 m a.s.l. (Figures 12, 13). The type locality is in the westernmost part of the Syr Darya Karatau Mountain Range, the biotope is a rocky sagebrush (with *Artemisia sublessingiana* Krash. ex Poljak.) semi-desert at an altitude of 450 m above sea level. The holotype was collected in a meadow depression. In the central part of the Syr Darya Karatau Mountain Range, the paratype was collected in the valley of an unnamed right tributary of the Koshkarata River, surrounded by slopes of varying steepness, at an altitude of approximately 900 m above sea level. On the gentle slopes of the southeastern exposure, grass communities with *Artemisia* are developed. In the stream valley and on the rocky slopes of the northwestern exposure, a diverse variety of trees and shrubs is abundant.

Biology. The larval host plants of *Jordanita paupera* are species of *Artemisia* (Asteraceae) (Efetov & Daricheva 1992: 24). The larval host plants of *Jordanita karatauensis* are not known so far, but it is clear that they belong to the family Asteraceae as in all other species of the genus *Jordanita* Verity, 1946. Most probably, the larval host plant of *Jordanita karatauensis* is *Artemisia sublessingiana* Krash.

ex Poljak., which is abundant in the type locality. *Artemisia* sp. is also present in the second biotope (valley near Koshkarata River).

Jordanita paupera is on the wing in the Syr Darya Karatau Mountain Range from the end of April to the beginning of May, whereas *Jordanita karatauensis* flies later, from the mid of May to the end of June.



Figures 10 -11. Habitat (type locality) of *Jordanita (Roccia) karatauensis* Efetov & Gorbunov, sp. nov., holotype (Southern Kazakhstan, Syr Darya Karatau Mountain Range, vic. Aksumbe), 16.V.2016. Photos: P.Y. Gorbunov.



Figures 12-13. Habitat of *Jordanita (Roccia) karatauensis* Efetov & Gorbunov, sp. nov., paratype (Southern Kazakhstan, Syr Darya Karatau Mountain Range, vic. Koshkarata River), 26.VI.2010. Photos: P.Y. Gorbunov.

Ethymology. The name of this new species is derived from the Karatau Mountain Range (Southern Kazakhstan) where the holotype and paratype were collected.

Discussion

Biogeographically, the isolated occurrence (in the Syr Darya Karatau Mountain Range) of *Jordanita karatauensis*, closely related to the widespread *Jordanita paupera*, can be seen as a parallel example to the case of *Adscita antoniovivesi* Efetov & Tarmann, 2024a (Spain, Cuenca, Huélamo) and *Adscita mannii* (Lederer, 1853) (widespread Adriatic-Mediterranean species) as well as to the case of *Jordanita vartianae* (Malicky, 1961) (endemic in central and southern Spain) and *Jordanita globulariae* (Hübner, 1793) (widespread in Europe from central and northern Spain eastwards). At this moment, we have no knowledge about the range of *Jordanita karatauensis* outside of the Syr Darya Karatau Mountain Range. To stimulate further investigations in the field and on possibly already existing material of *Jordanita karatauensis* in collections, we have decided to describe this new species now.

Hitherto, 26 Zygaenidae species were known from Kazakhstan (Efetov *et al.* 2022). With *Jordanita karatauensis* sp. n. this list includes now 27 species.

Acknowledgements

The authors express thanks to Dr Sergey F. Melyakh (Yekateriburg, Russia) for the permission to study Zygaenidae specimens in his collection, to Mr Pavel V. Ruchko (Kerch, Crimea) for his help in preparing the genitalia drawings, to Hon. Prof. Dr Gerhard M. Tarmann (Innsbruck, Austria) for reviewing the manuscript of this paper. Last but not least the authors thank Mr Vladislav M. Nagaev (Simferopol, Crimea) for editing the English text.

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