

About the taxonomic status of *Rhyacia junonia schistochroa* VARGA, 1973

(Lepidoptera, Noctuidae)

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Abstract: *Rhyacia junonia junonia* (STAUDINGER, 1881) and *Rh. junonia schistochroa* VARGA, 1973 are flying subsympatrically in the Russian Altai. Both subspecies are well distinguished in genitalia morphology and have no significant variability of distinguishing characters in the intergradation area. According to this and to the stability of external characters and different ecology, *Rhyacia schistochroa* VARGA, 1973 **stat. nov.** is raised to specific level.

The infraspecific structure of *Rhyacia junonia* (STAUDINGER, 1881) from Central Asia was studied by Z. VARGA (1973). The taxon *schistochroa* VARGA, 1973 was described as the subspecies of *Rh. junonia* (STGR.) from Mongolia. In later works (GYULAI & RONKAY, 1999; KONONENKO, 2005) all specimens of *Rh. junonia* (STGR.) have been recorded from Mongolia and Southern Siberia as well as the given subspecies. However, considerable distinguishing characters in ♂ genitalia of *Rh. junonia schistochroa* VRG. and *Rh. junonia junonia* (STGR.), and the fact that both taxa inhabit the Altai Mountain Country [the nominative subspecies is described from Zaisan - foothills of the Saur Mountains, Eastern Kazakhstan) (STAUDINGER, 1881), while *schistochroa* VRG. is known from many parts of the Russian and Mongolian Altai), made it necessary to study the populations of *Rh. junonia* (STGR.) s.l. of the Russian Altai more thoroughly.

The research of genitalia morphology in a number of specimens from different localities proves that *Rh. junonia junonia* (STGR.) is widely distributed in western and central areas of the Russian Altai, and *Rh. junonia schistochroa* VRG. occurs in its central and south-eastern areas. The both taxa occur within the same mountain ranges (the Kuraisky range), with the distance between their known collecting sites no less than 60 km. Absence of isolation, as well as the absence of distinguishing characters in genitalia structure in the intergradation zone proves the species rank of *schistochroa* VRG. Distinctions in their ecology also proves that *Rh. junonia* (STGR.) and *Rh. schistochroa* VRG. **stat. nov.** are different biological species: *Rh. schistochroa* VRG. occurs in more arid biotopes than *Rh. junonia* (STGR.) does. *Rhyacia schistochroa* VRG. inhabits various highland steppes (the Chuya Steppe, the southern macro-slope of the Kuraisky Range, the Sailugem Range, a series of mountain-steppe localities of the Mongolian Altai) and tundra-steppes (crests of the Sailugem Range, a number of tundra-steppe localities in highlands of the Mongolian Altai). *Rhyacia junonia* (STGR.), except for steppe slopes in the median mountain belt (the Kuraisky Range), is common in mesophilous and hygromesophilous alpine meadows and tundras (crests of the Kuraisky and the Katunsky Ranges).

Collections, from which specimens have been examined, are abbreviated as follows:

AVB - Coll. ANTON VOLYNKIN, Barnaul, Russia;

SZMN - Zoological Museum of the Institute of Systematics and Ecology of Animals Siberian Branch of RAS Novosibirsk, Russia.

ZISP - Zoological Institute of RAS, St.-Petersburg, Russia.

Rhyacia junonia (STAUDINGER, 1881) (figs. 1, 3; col. pl. 1: 7-12)

Agrotis junonia STAUDINGER, 1881, Stettin. Ent. Z. 42: 415 (Type locality: "Saisan-Gebiet").

Material from Altai mountain country examined: 1 ♂, Saisan. Coll. N. FILIPJEV (coll. ZISP); 6 ♂♂, 2 ♀♀, 12.-15.VII.2009, Russia, Altai Republic, Ulagan distr., Kuraisky Range, 7 km NE Aktash vill., tundra/talus border, 2600 m, 50°29'N, 87°36'E. By light-trap. VOLYNKIN A.V., ČERNILA M. & NAKONECHNY A.N. leg. (coll. A. VOLYNKIN); 1 ♀, 12.-21.VIII.2010, Russia, Altai Republic, Ulagan distr., Aktash vill., southern steppe stony slope, 1350 m. By light. 50°19'N, 87°35'E, VOLYNKIN A.V. leg. (coll. A. VOLYNKIN); 1 ♂, 14.VII.[19]83, Katunsky Range, 15 km SE Katanda vill., 2300 m, tundra. V. V. DUBATOLV leg. (coll. SZMN). Slides AV0409 ♂, AV0414 ♂, AV0411 ♀, AV0413 ♀.

Distribution: Siberian-Central Asian species. SE Europe, Kazakhstan, Turkmenistan, Kyrgyzstan, NW China. (FIBIGER, 1997; KONONENKO, 2005; LEHMANN & BERGMANN, 2005).

Note: Genitals of this species have been incorrectly illustrated by FIBIGER (1997) - preparations of specimens from Mongolia, belonging to *Rh. schistochroa* VRG. have been used.

Rhyacia schistochroa VARGA, 1973 **stat. nov.** (figs. 2, 4; col. pl. 1: 13-18)

Rhyacia junonia schistochroa VARGA, 1973, Mitt. Münch. Ent. Ges. 63: 208 (Type locality: Mongolia, "Uvs aimak: 4 km OSO vom Pass Ulaan davaa zwischen dem See Örög nuur und der Stadt Ulaangom, 1700 m").

Material from Altai mountain country examined: 2 ♂♂, 7.-8.VII.2008, Russia, Altai Republic, Kosh-Agach distr., Kuraisky Range, 5 km E. Chagan-Uzun vill., 2130 m, VOLYNKIN A. V. & NAKONECHNY A. N. leg.; 1 ♂, 12.VII.2009, Russia, Altai Republic, Kosh-Agach district, Chuya steppe, 6 km SE of Chagan-Uzun village, steppe, 1800 m, 50°04'N, 88°24'E. By light. VOLYNKIN A.V., ČERNILA M., & NAKONECHNY A. N. leg.; 1 ♀, 13.VII.2009, Russia, Altai Republic, Kosh-Agach distr., 15 km NE of Tashanta vill., Chuya steppe, Zhalpakoboy hole, Yustyt river valley, steppe, 2300 m, VOLYNKIN A.V., ČERNILA M. & NAKONECHNY A. N. leg.; 1 ♂, 14.VII.2008, Russia, Altai Republic, Kosh-Agach district, Sailugem Range, 8 km ESE of Tashanta village, tundra-steppe, 2650 m. 49°42'N, 89°16'E. By light., VOLYNKIN A.V. & NAKONECHNY A. N. leg.; 2 ♂♂, 15.VII.2009, Russia, Altai Republic, Kosh-Agach district, 10 km WSW of Tashanta village, Bol. Shibety valley, Artemisia steppe. 2200 m, 49°40'N, 89°04'E. By light. VOLYNKIN A.V., ČERNILA M. & NAKONECHNY A. N. leg.; 3 ♂♂, 15.-16.VII.2010, W. Mongolia, Govi-Altai aimak, Hara-Adzragyn-Nurruu Range, Najivaryn-Sair river valley (under stream), 1700-2000 m, 45°52'N, 95°30'E, YAKOVLEV R.V. & GUSKOVA E. V. leg.; 1 ♀, 21.VII.2007, W. Mongolia, Bayan-Ulgij aimak, Kobdo-gol river valley 20 km SW Tsengel somon, 1800 m, Larix light forest on a steppe slope, YAKOVLEV R.V. & GUSKOVA E. V. leg. (coll. A. VOLYNKIN). Slides AV0410 ♂, AV0441 ♂, AV0442 ♂, AV0443 ♂, AV0449 ♂, AV0452 ♂, AV0453 ♂, AV0412 ♀.

Diagnosis: *Rhyacia schistochroa* VRG. (col. pl. 1: 13-18) is externally different from *Rh. junonia* (STGR.) (col. pl. 1: 7-12) by narrower and more parti-colored wings: medial and sometimes submarginal areas are rust-brown, when basal, marginal and, in some

specimens, submarginal ones are iron grey (the colouration of forewings in *Rh. junonia* (STGR.) is more monochroic - basal, medial and submarginal areas are generally one-coloured). ♂ genitalia of *Rh. schistochroa* VRG. (fig. 2) are different from those of *Rh. junonia* (STGR.) (fig. 3) with the shorter valve distally, the larger clasper, the shorter ventral spur, wide and massive basally, on the aedeagus [ventral spur of *Rh. junonia* (STGR.) is three times longer, narrow basally], the curved dorsal spur on the aedeagus [*Rh. junonia* (STGR.) has an almost straight dorsal spur] and the larger subbasal diverticulum. ♀ genitalia of *Rh. schistochroa* VRG. (fig. 4) are different from those of *Rh. junonia* (STGR.) (fig. 3) by a more strongly folded U-like antevaginal plate [the antevaginal plate is less folded, v-like in *Rh. junonia* (STGR.)], the wider ductus bursae posteriorly with much larger lateral diverticulum and larger signa in the corpus bursae.

Distribution: Siberian-Central Asian species. S. Siberia (Altai, Sayans), Mongolia, and, probably, NW China (Xinjiang).

Note: *Rhyacia schistochroa* VRG. among other taxa, considered as subspecies *Rh. junonia* (STGR.), is the closest in its genitalia morphology to *calamochroa* VARGA, 1973, described from Northern Afganistan (VARGA, 1973). Unfortunately, materials on the given taxa is not at our disposal, however, pictures, attached to the description „*Rh. junonia calamochroa* VRG.“ (VARGA, 1973), allow to designate its subspecific rank under the species *Rh. schistochroa* VRG.

Thus, the infraspecific structure of these sister species is as follows:

Rhyacia junonia

- ssp. *junonia* (STAUDINGER, 1881)
- ssp. *alaina* (STAUDINGER, 1888)
- ssp. *alexandrina* CORTI & DRAUDT, 1933

Rhyacia schistochroa **stat. nov.**

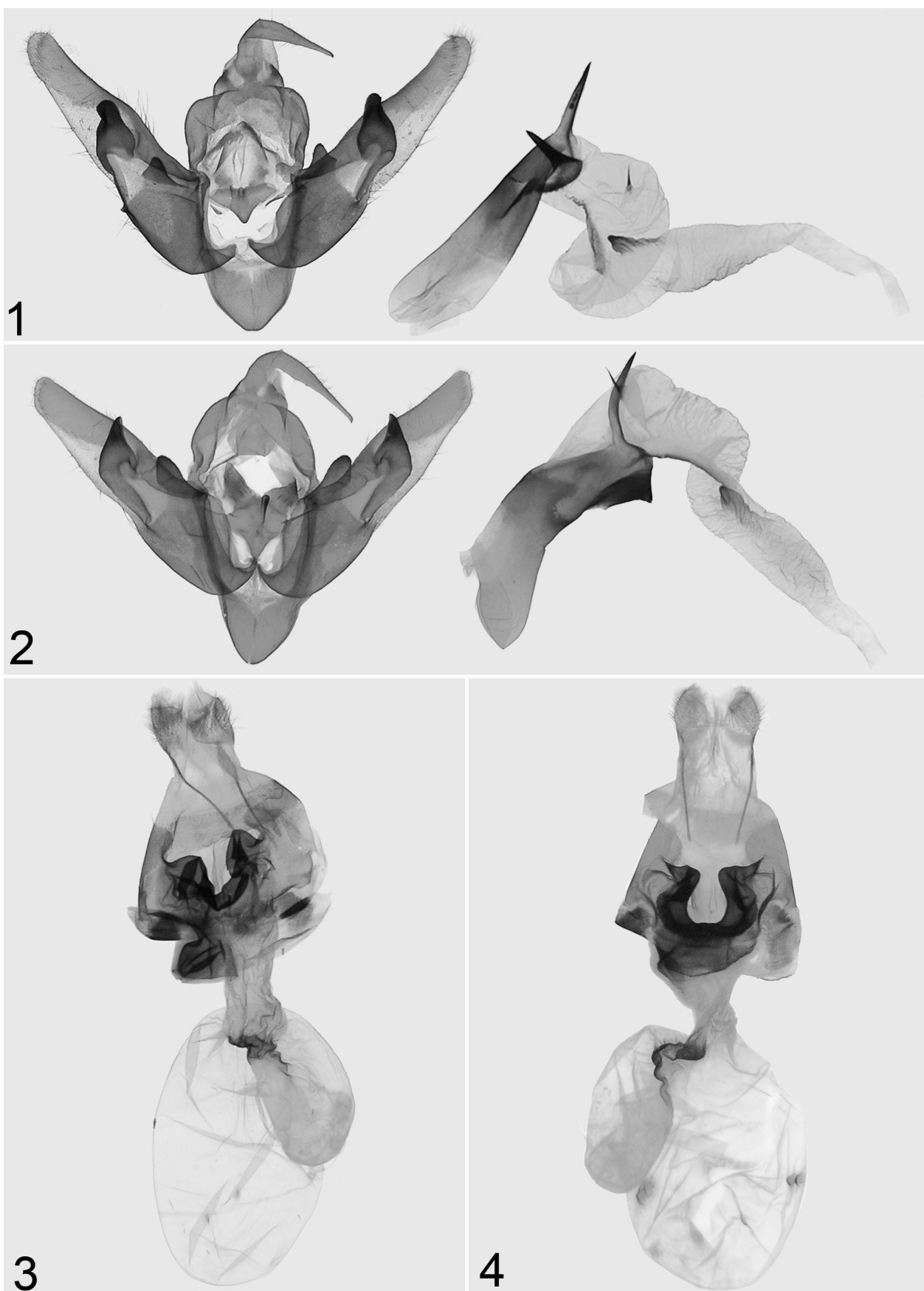
- ssp. *schistochroa* VARGA, 1973
- ssp. *calamochroa* VARGA, 1973 **comb. et stat. nov.**

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Figs.1-4: Genitalia of *Rhyacia* spp. 1: *Rhyacia junonia* (STAUDINGER, 1881), ♂, Altai Mts., Kuraisky Range, 7 km NE Aktash vill., Slide AV0409 VOLYNKIN. 2: *Rhyacia schistochroa* VARGA, 1973 **stat. nov.**, ♂, Altai Mts., Sailyugem Range, 8 km ESE Tashanta vill. env., Slide AV0441 VOLYNKIN; 3: *Rhyacia junonia* (STAUDINGER, 1881), ♀, Altai Mts., Kuraisky Range, 7 km NE Aktash vill., Slide AV0411 VOLYNKIN. 4: *Rhyacia schistochroa* VARGA, 1973 **stat. nov.**, ♀, Altai Mts., Chuya steppe, Yustyt riv. valley, Slide AV0412 VOLYNKIN.

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