

New taxa of Acronictinae (Lepidoptera, Noctuidae) from the mountains of South Siberia

Новые таксоны совок подсемейства Acronictinae (Lepidoptera, Noctuidae) из гор Южной Сибири

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KEY WORDS: Lepidoptera, Noctuidae, Acronictinae, *Acronicta*, *Cryphia*, mountains of South Siberia, new species, new subspecies.

КЛЮЧЕВЫЕ СЛОВА: Lepidoptera, Noctuidae, Acronictinae, *Acronicta*, *Cryphia*, горы Южной Сибири, новый вид, новый подвид.

ABSTRACT. Two new noctuid taxa of subfamily Acronictinae are described. *Cryphia reservata* sp.n. was found in the Sokhondo Nature Reservation, by the wing pattern it resembles *C. literata* (Moore, 1881) from the North-Western Himalaya. *Acronicta major atritaigensa* ssp.n. is a subspecies inhabiting the "black" taiga in southern West Siberia, which is isolated from the main range of the species, being the Palaearctic subregion of the Palearctic [sensu Semenov-Tian-Shanskij, 1936]. The problem of the nature of range disjunction of some Lepidoptera species between Altai and the Palaearctic is discussed. The authors connect this problem with the presence of nemoral relic plant species in N. Altai.

РЕЗЮМЕ: В статье описываются два новых таксона совок подсемейства Acronictinae. *Cryphia reservata* sp.n. найдена в Сохондинском заповеднике (Забайкалье), по рисунку крыльев она напоминает *C. literata* (Moore, 1881) из Северо-Западных Гималаев. *Acronicta major atritaigensa* ssp.n. представляет собой изолированный от основного ареала в Палеарктике подвид из черневой тайги юга Западной Сибири. Поднимается проблема дизъюнкций ареалов некоторых чешуекрылых между Алтаем и Палеарктикой, которую авторы связывают с существованием на Алтае неморальных растительных реликтов.

During identification of the Noctuidae collection from Siberia, kept in the Zoological Museum of the Institute of Animal Systematics and Ecology, Novosibirsk, Russia (formerly — Biological Institute), two new Acronictinae taxa were found.

Cryphia reservata Zolotarevko et Dubatolov,
sp.n.

Figs 1a, 2.

MATERIAL. Holotype: 1 ♂, Transbaikalia, Chita region, Sokhondo Nature reservation, Agutsa [Aryya] river cordon, a border between mixed forest in the valley and bushy (*Abies*) steppe on a mountain slope, attracted by light, 24-26.VI.1991, Dubatolov. Paratypes: 2 ♂, 1 ♀, the same locality and date.

DESCRIPTION. Moths (Fig. 1a) of intermediate size, male fore wing length 14 mm, female — 13 mm. Eyes naked, palpi short, their third unit conical, twice shorter than the second one. Antennae of both sexes filiform, covered with short light hairs. Head clothed with dark and light scales and hairs, thorax and abdomen — with light hairs with few dark and light scales. Legs chequered, femora and tibiae without seti, tarsi with semirings of light and dark scales, claws simple.

Fore wing upperside motley with a pattern of dark and light spots and bands. Claviform spot not present. Orbicular spot black, rounded, fused with dark costa and, basally, with medial shadowing. Between orbicular and reniform spots there is a white quadrangular spot bordered with dark costal margin and dark mark on medial vein. Reniform spot black, concave distally. Wing base with light yellowish and whitish scales. Basal line wide, black, distally outlined with a white wavy transversal band. The second medial line dark, dentate, fused with medial shadowing. The first medial line dark, dentate, goes from costal to anal margin. Hind wing margin dark between first and second medial lines, almost up to cell. Submarginal line also dark and dentate, terminal one split into dark unfused longitudinal spots on veins. Fringe chequered. Hind wings greyish-white with two diffuse dark dentate transversal bands, a well expressed dark discal spot and a clear dark stripe along anal border. Fringe chequered. Underside wing pattern very diffuse. Fore wings with dark reniform and orbicular spots and slight darkening at wing base, in

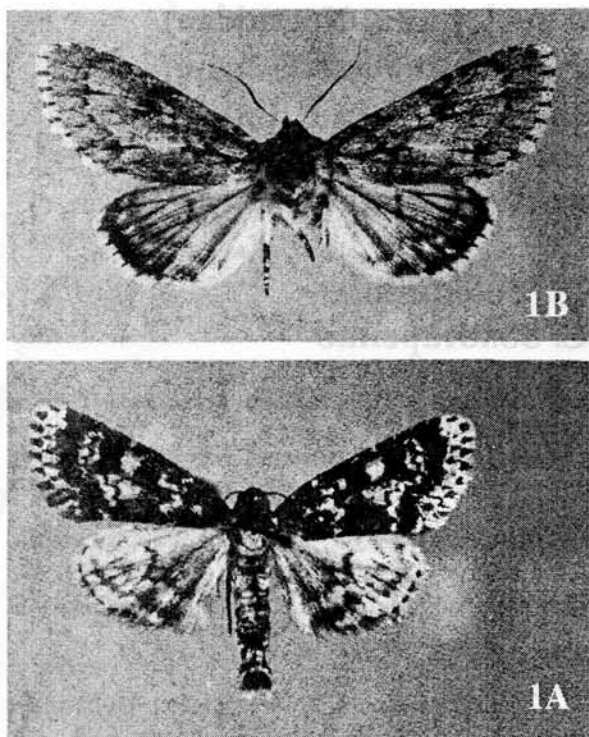


Fig. 1. a — *Cryphia reservata*, sp.n., holotype; b — *Acronicta major atritaigensa*, ssp.n., paratype, environs of Novosibirsk.

Рис. 1. а — *Cryphia reservata*, sp.n., голотип; б — *Acronicta major atritaigensa*, ssp.n., паратип, окрестности Новосибирска.

medial part under cell and in submarginal part. Hind wing with a dark crescent discal spot and a postdiscal band slightly darker than background.

Male genitalia (Fig. 2). Valva narrow, elongate, slightly curved with a shallow incision between apex and short sharp projection on external margin. At the base of the projection there is a small tooth, another one — at the apex; a small tooth rises in the middle of the incision. Valva apex with four small teeth and long thin hairs. Sacculus well chitinized, oval, swollen. Uncus short, narrow, flattened laterally, with a sharp sclerotized tooth on the apex. Aedeagus longer than valva length, vesica with one thick cornutus.

DEFINITION. By the wing pattern the new species much resembles *Cryphia literata* (Moore, 1881) [Warren, 1909: 22, t.4h] from Kashmir and North-Western Himalaya, differing by some wing pattern details: on the fore wing the basal band is wider; the submarginal band is evenly coloured, without medial lightening; the outer margin with darkened veins. In *C. literata* the fore wing outer margin is evenly light. In the new species the hind wing discal spot touches the dark band by its hind edge, while they are clearly divided in *C. literata*. By the male genital structure the new species slightly resembles *C. bryophasma* Boursin, 1951 [Sugi, 1980] easily differing from it by very unlike wing pattern. Unfortunately, we had no possibility to study the male genitalia of *C. literata*, however, the conspecificity of the new taxon from Transbaikalia with the West Himalayan one is extremely improbable.

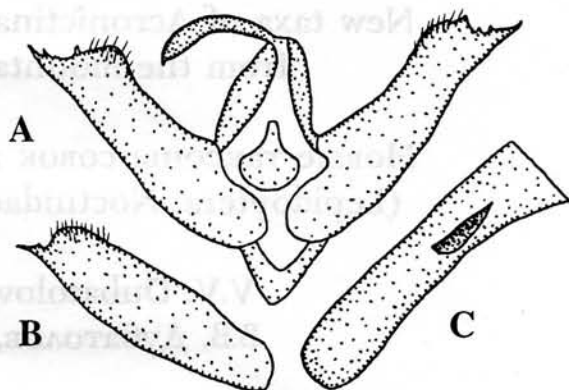


Fig. 2. Male genitalia of *Cryphia reservata*, sp.n.; a — paratype, b — left valva of holotype, c — aedeagus.

Рис. 2. Гениталии самца *Cryphia reservata*, sp.n., а — паратип; б — левая вальва голо типа, с — эдеагус.

Acronicta major (Bremer, 1861)

Fig. 3.

= *A. maxima* Moore, 1881

The species was found in West Siberia for the first time in 1961 [Zolotarenko, Bubnova, 1982]. Earlier it was known to range in the Middle Amur, Primorie, Korea, Japan, China, North India and Nepal [Kozhantshikov, 1950; Sugi, 1982; Yoshimoto, 1992]. Comparison of the West Siberian specimens of *A. major* with the Far Eastern ones have shown some differences between them. Taking into account these differences and geographical isolation of West Siberian part of the species range (Fig. 3), we describe the Siberian specimens as a distinct subspecies. The name of the subspecies is derived from "black taiga" [черная тайга], the main *A. major* biotope in West Siberia.

Acronicta major atritaigensa Dubatolov et Zolotarenko, **ssp.n.**

Fig. 1b.

MATERIAL. Holotype: 1 ♂, Altai, Artybash [Артыбаш], by light, 16.VII.1992, Dubatolov. It is labelled with a gold ring and red label "Holotypus *Acronicta major atritaigensa* Zol. et Dubat.". Paratypes: 1 ♀, Altai, Yailyu [Яйлю], a glade in mixed forest, by UV-light, 9.VIII.1961, Zolotarenko; 1 ♂, 1 ♀, Altai, Iogach [Иорач], 25-26.VII.1967, Zolotarenko, ♂ genitalia N 2008; 2 ♂♂ (with the holotype), 5 ♀♀, 16-20.VII.1992, Dubatolov; 1 ♀, 40 km E from Novosibirsk, 5 km NE of the Shelkovichikha [Шелковичиха] railway station, near a village, in a *Pinus silvestris*/*Populus tremula*/*Betula verrucosa* forest (the specimen rested on a pine tree), 27.VI.1980, Ivonin, genitalia N 2010.

DESCRIPTION. Fore wing length 22-24 mm in males, 26-28 mm in females. The main wing pattern as in the nominotypical subspecies (Fig. 1b). Fore wing coloration light ash-grey with whitish tint. Reniform spot diffuse, triangular, slightly darker than wing coloration. Fringe white, at the base with dark spots between veins; rarely in females these spots reach fringe external margin. Male and female genitalia as in the nominotypical subspecies, but male uncus diameter noticeably thinner, only 0.4 mm in the widest part.

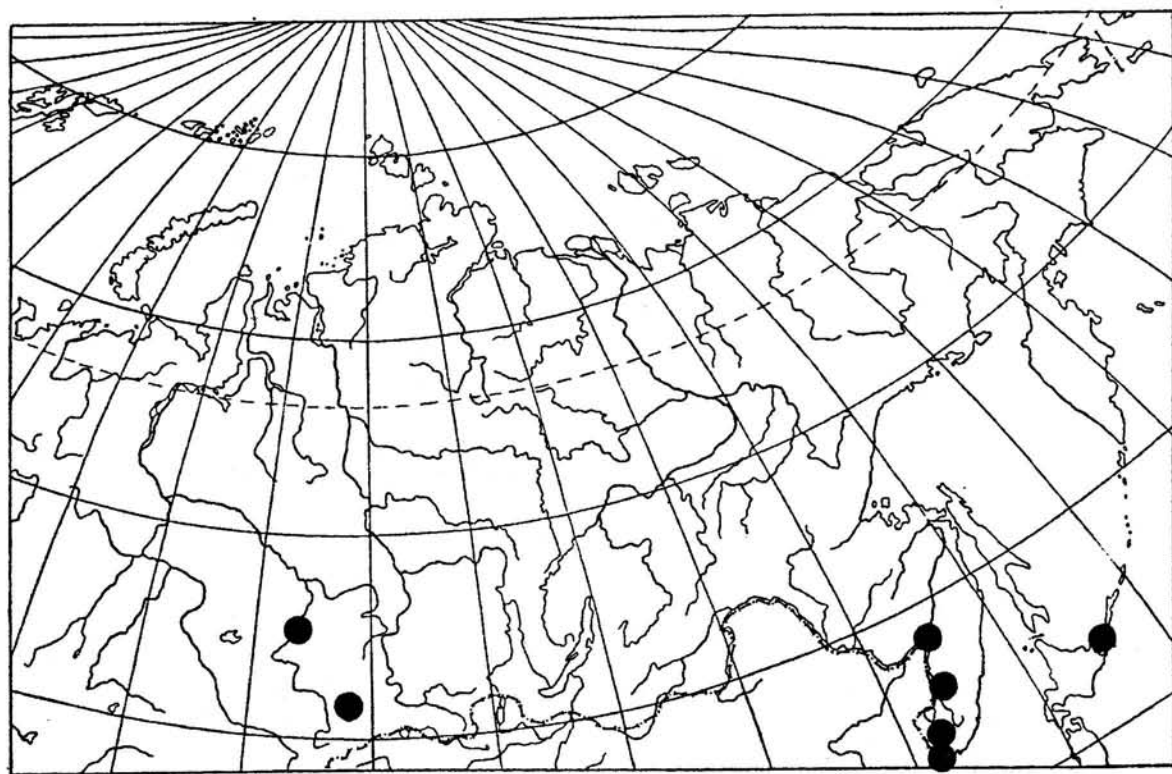


Fig. 3. Localities of *Acronicta major* in Russia.

Рис. 3. Местонахождения *Acronicta major* в России.

BIOLOGY. The moths mainly inhabit damp black taiga, occurring from the end of June to the middle of August.

DEFINITION. From the first glance the new subspecies is characterized by its whitish ash-grey fore wing colouration. The moths of the nominotypical subspecies are darker, the fore wings have a yellowish or red-brownish tint. The reniform spot in the nominotypical subspecies is darker and less diffuse than in the new one. The fringe in the Far Eastern moths is yellowish, always cut through by black quadrangular spots. The subspecies also well differ by the uncus diameter, being in the widest place 0.4 mm in the new subspecies and 0.5 mm in the nominotypical one.

DISCUSSION. The West Siberian population of *Acronicta major* inhabits a territory from the North-East Altai to the eastern suburbs of Novosibirsk – the Sokur elevation, belonging to the Kuznetsk upland. The species most probably occurs also in other parts of this mountain region, namely in Gornaya Shoriya [Горная Шория], and the Salair Range. The absence of *A. major* in Transbaikalia and the East Sayan Mts. was confirmed by Dr. V.S. Kononenko (personal communication), so, there is a disjunction between the Altai Mountains and the Palaeoarctic subregion of the Palearctic [sensu Semenov-Tian-Shanskij, 1936]. This circumstance, together with the mentioned morphological differences, allows to separate West Siberian population into a distinct subspecies.

Acronicta major is not the only species exhibiting a range disjunction between Altai and the Palaeoarctic subregion of the Palearctic. Thus, the nominotypical

subspecies of *Limenitis helmanni* Lederer, 1853 (Nymphalidae) inhabits only the West Altai, while the main range of the species (ssp. *latefasciatus* Ménétrières, 1859) occupies the whole Palaeoarctic, westwards to East Transbaikalia in the North and the Ningxia-Huizu autonomous region of China in the South [Tang, 1989]. Another species, *Parasiccia altaica* (Lederer, 1855) (Arctiidae, Lithosiinae), was described from the West Altai and newly found by the authors in the North Altai (Manzherok [Манжерок]) and the North-East Altai (Artybash [Артыбаш]). Formerly this species was also recorded for the Sayan in Khakasia [Koshantschikov, 1923]. Its main range occupies the Palaeoarctic, from the Middle Amur and North-Eastern China to Primorie, Korea and Japan [Dubatolov et al., 1993]. The same distribution pattern is shown by *Sarcopolia illoba* (Butler, 1878) (Noctuidae, Hadeninae), ranging in the Palaeoarctic (Primorie, North China, Korea, Japan) and in Siberia: West Altai only [Bubnova, 1982]. In their main ranges all these species inhabit nemoral forests, at least in the Far East. Although the disappearance of a contiguous belt of broad-leaved forests in the Palearctic is attributed to Pleistocene, in the Altai broad-leaved trees disappeared much later, in the Middle Holocene [Derevyanko, 1993], while Gornaya Shoriya retains a well-known refugium of the lime forests – the so-called “Lipovyi Ostrov” [Lime-tree Island]. According to T.E. Teplyakova’s communication [1988], the paleobotanical data leave room for a preservation of a Paleogene-Neogene broad-leaved relic tree species as an admixture to the dark-needle coniferous forests during the Pleistocene. The flora of Altai retains a large amount

of nemoral plant species [Kuminova, 1957, 1963; Ogureeva, 1980; Teplyakova, 1988]. They concentrate mainly in the dark-needle coniferous forests of North-Eastern Altai (where *A. major* occurs) and, to a less extent, in West Altai (where *L. sydyi* and *S. illoba* occur). So, the opinion of A.V. Kuminova on a relic nature of some Altai biocenoses is confirmed by the Lepidoptera fauna. Such relic biocenoses are the former nemoral forests after vanishing of broad-leaved tree species which happened not long ago. They preserve many nemoral species of plants and, as it was found now, some insect species.

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