

NEW BUTTERFLIES OF THE TRIBE THECLINI (LEPIDOPTERA, LYCAENIDAE) IN THE FAUNA OF THE USSR

V.V. Dubatolov and M.G. Sergeev (Sergeev)

In processing the materials collected by us in the Priamur'ye and Primor'ye in 1977 and 1979, butterflies of the tribe Theclini new to the fauna of the USSR were noted. At the same time, deficiencies were found in the diagnostic key of Kurentsov (1970), as regards the group known as "green zephyrs", which we attributed after Niculescu (1973) to the single genus *Neozephyrus*. Descriptions of the new species *Neozephyrus favonius korshunovi* sp.n. and the new subspecies *Neozephyrus (Favonius) ussuriensis* n. ssp.n. are represented below. The holotypes are preserved in the Biological Institute of the Siberian Branch of the USSR Academy of Sciences in Novosibirsk.

The author is most grateful to Yu.P. Korshunov for this constant help and support in the work.

Neozephyrus Favonius korshunovi Dubatolov et Sergeev, sp.n.

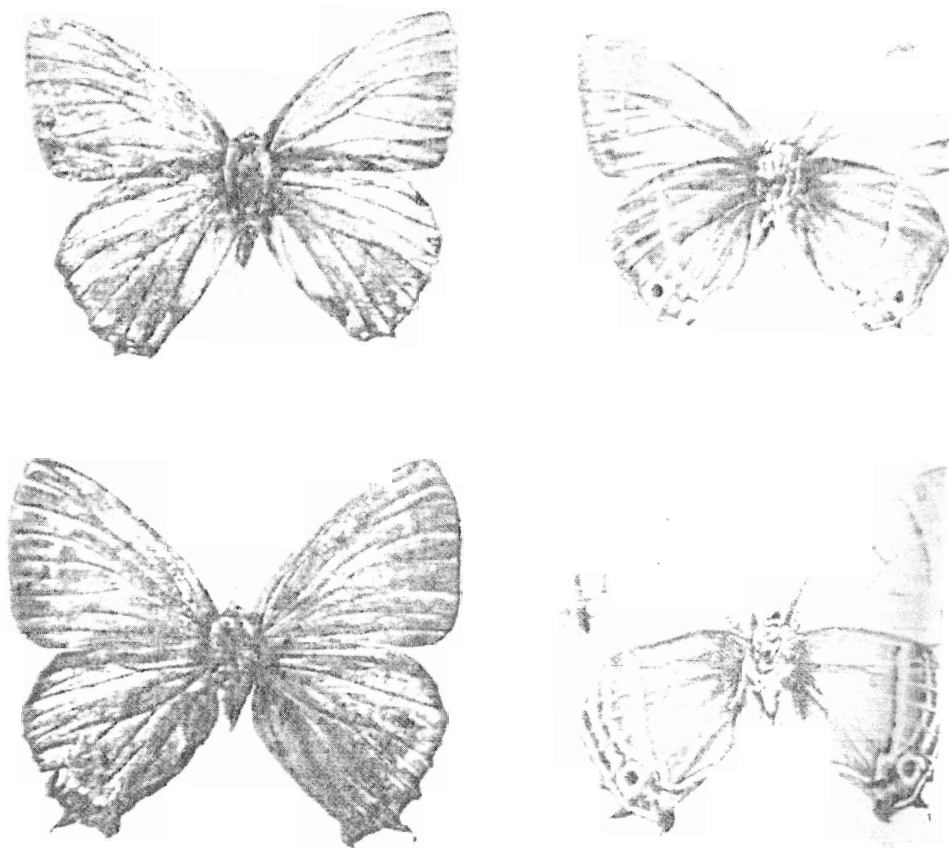
Male. Length of forewing 19.5 mm, in paratypes 18-20 mm. Background color of wings above bluish green with very strong metallic sheen. When upper surface of wings is moistened with alcohol, the background color turns to violet*. Marginal fringe (Fig. 1) on forewing and inner part of hindwing black and very thin - up to 0.5 mm in breadth. On hindwing, it dilates sharply towards anterior margin and anal angle (up to 1-1.5 mm). On this fringe at anal angle between veins Cu_1 , Cu_2 , and A_2 , thin bluish streaks usually visible. Anal lobe brown. Tail long and thin (4 mm in length).

Basic tone of the color underneath ash-grey. Forewings with very slightly noticeable dark discal stria (Fig. 2). White postdiscal streak narrow (0.4 mm), bordered outside by dark one. Dark submarginal streak extending from posterior angle of forewing to apex parallel to margin, constricting markedly, separated from the background by lighter lines. On hindwing, postdiscal streak also narrow. Orange macula with dark ocellus between veins Cu_1 and Cu_2 , not combining with anal orange fleck, which extends along anal margin of hindwing along white postdiscal streak. On hindwing, submarginal streak also separated from background by lighter lines.

Fimbria of fore- and hindwings bicolored - inside grey and outside white,

Male genitalia (Fig. 5). Tegumen at rear somewhat convex. Valva (from side) flattened, slightly compressed above middle and gradually dilating towards upper and lower ends, more markedly towards lower one. Upper half of inner part of valva flattened from rear), bearing small denticles, concave and terminating below well behind dens. Upper ends of juxta broad. Penis on posterior end on ventral side bearing several denticles.

Kursh (1957), to obtain greater precision in the identification of some "green zephyrs", employed the color change of the upperside of the wings after moistening them with alcohol. Differences according to this character also apply to the Lycaenids of the subgenus *Favonius*.



Figs. 1-4. *Neozephyrus* Sibatanti et Ito.

1-2 - *N. korshunovi* sp.n., male, holotype (1 - from above, 2 - from below)
 3-4 - *N. orientalis* Murr., male, southern Primor'ye, Vitvaz' Bay (3 - from above, 4 - from below).

Holotype: -, Primor'ye, 35 km SW Vladivostok, Camova Peninsula, Vitya on oak tree, 13.VII.1979 (V.V. Dubatolov). **Paratypes:** 5 ♂, loc. cit., 15, 18, 25, and 27.VII.1979 (V.V. Dubatolov); 8 ♂, Maritime Territory, right bank Paritzanskaya River at mouth of Tigrovoy River, crest of range, 9.VIII.1977 (Sergeyev).

The new species is most closely similar to *N. (Favonius) orientalis* Murr. (Fig. 3, 4, and 6), differing from it in the structure of the genitalia. *N. orientalis* Murr., unlike *N. korshunovi* sp.n., the valva (viewed from the side) is broader, constricting sharply towards the anterior and posterior ends; on the anterior part of the valve only on the upper convex third occur small denticles; the middle part of the valva there is no large dens oriented inwards; the upper part of the juxta are much narrower than in *N. korshunovi* sp.n., and the penis posterior end bears a whole row of small denticles. From the other representatives of the genus, *N. korshunovi* sp.n. differs in the very narrow dark fringe of

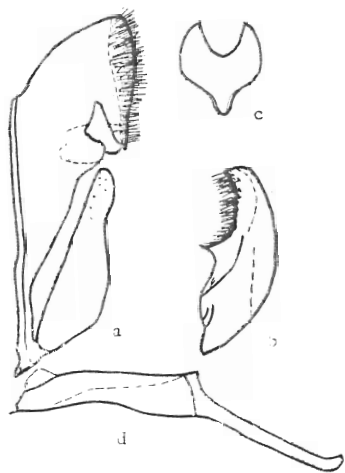


Fig. 5. *Neozephyrus korshunovi* sp.n.
a - general view from the side; b -
valva from rear; c - juxta; d - penis
from side.

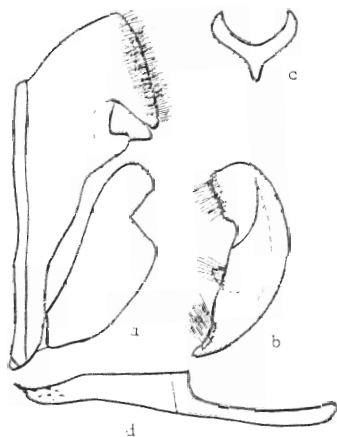


Fig. 6. *Neozephyrus orientalis* Burr.,
male genitalia, southern Primor'ie,
Vityaz' Bay.

Symbols as in Fig. 5.

upper side of the hind wings and narrow postdiscal streaks on underside of the wings. In the structure of the genitalia, the species described is most similar to *N. ultramarinus* Fiks.

The species is named after Yu. P. Korshunov.

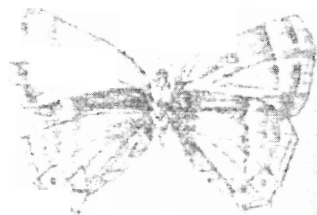
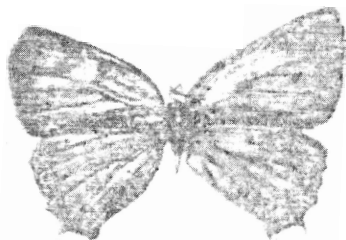
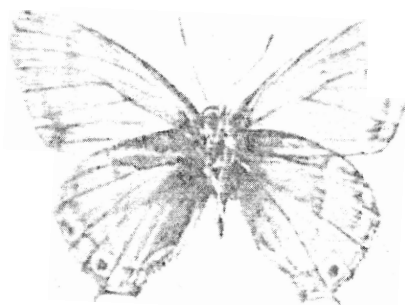
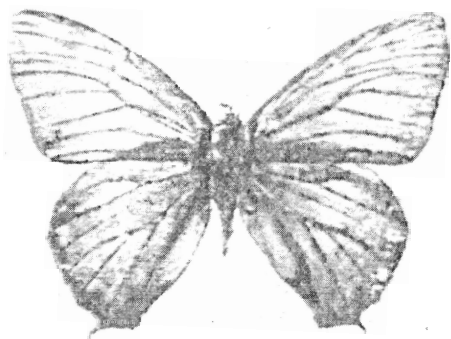
Neozephyrus sp. nov. *korshunovi* Dubatolov et Sergeev, subsp. n.

Male. Length of forewing 20 mm, in paratypes 17.5-20 mm. Forewing convex towards apex (Fig. 7). Basic tone of wings above bluish green, with very strong metallic sheen. Among paratypes are represented specimens both with predominance of blue and also with predominance of green coloration. When upper side of wings is moistened with alcohol, tone turns to brown, sometimes with slight violet hue. Marginal fringe on forewing black, thin, up to 0.4 mm in breadth; on outer part of hindwing broader - up to 0.8 mm, and dilating towards anterior margin and anal angle attaining 1.5-2 mm. Anal lobe brown. Tail very short - 2.5 mm in length, somewhat dilating towards base, bearing white fimbria on inner side.

Basic tone of underside coloration silvery white (Fig. 8). Forewings with noticeable dark discal stria. White postdiscal streak 0.6 mm, on hindwing in some individuals dilating to 1 mm, often on outer side coalescing with background. On inner side bordered by light brown fringe. Brown submarginal streak extending from posterior angle of forewing to apex parallel to margin, constricting markedly, sharply delimited from background by light lines. On hindwing, submarginal streak also separated from background by light lines. Light orange (sometimes yellow) macula between veins Cu_1 and Cu_2 bearing black cellus; in anal angle between veins Cu_2 and A_2 more often persisting along veins, only sometimes occupying whole space between them. Anal orange fleck, as in other species of *Neozephyrus*, extends along anal margin next to white postdiscal streak (Fig. 12, b).

Fimbria on fore- and hindwings bicolored - inside grey, outside white.

Male genitalia (Fig. 11). Tegumen rearwards convex. Valva (see from side) compressed, slightly compressed at upper end. Viewed from rear, valva below midline bearing large tooth oriented inwards, upper inner side bearing denticles decreasing in size towards top. Penis on lateral-ventral side bearing some denticles on inner side only.



Figs. 7-10. *Neceptynyus ussuriensis* *novus* subsp.n.

7-8 - Male, holotype (7 - from above, 8 - from below); 9-10 - female, paratype (9 - from above, 10 - from below).

Female. Length of forewing 14.7 mm, in paratypes 14.7-17 mm. Background wings above dark brown (Fig. 9). On forewing on outer side of discal vein light diffuse macula extending to outer wing margin between veins M_2 and Cu_1 . Tail longer than in male, in one specimen 1.5 mm, in large individuals up to 3 mm. Color of underside (Fig. 10) similar to that in male, only background silvery brown, and white postdiscal streak on hindwing very broad: in small specimens anterior margin of hindwing up to 1 mm in breadth, in large specimens up to 1.2 mm.

Holotype: ♂, Primor'ye, 35 km SW Vladivostok, Gamova Peninsula, Vityaz' on oak tree 17.VII.1979 (V.V. Dubatolov). Paratypes: loc. cir., 17.VII, 1 ♂, 18.VII, 1 ♂, 2 ♀, 20.VII, 1 ♀, 27.VII, 1 ♂, 10.VIII, 2 ♂, all in 1979 (V.V. Dubatolov).

Neceptynyus ussuriensis Murayama was described in 1958 (Murayama, 1958) without a name. Apparently because of this it was not included in the key of Kurosov (1970) and is not given in the catalogue of Korshunov (1972). Later, Murayama (1976) presented this species for the Amur Basin under the name *N. ussuriensis* Murayama. The subspecies described differs from the nominate one in the silver color of the underside of the wings in the male. In the nominate subspecies light cinnamon brown (Murayama, 1958). On the whole, *N. ussuriensis* Murayama, especially the nominate subspecies, is very close to the Japanese *N. latefasciatus* Shirozu et Hayashi. The basic differences consist in the fact that the male *N. latefasciatus* Shirozu et Hayashi (Yokoyama and Wakabayashi, 1967; Takahashi, 1973; Kawazoe and Wakabayashi, 1977) is green above, while *N. ussuriensis* Murayama is bluish green; also different in these species is the distribution of the orange maculae in the anal angle of the underside of the forewing.

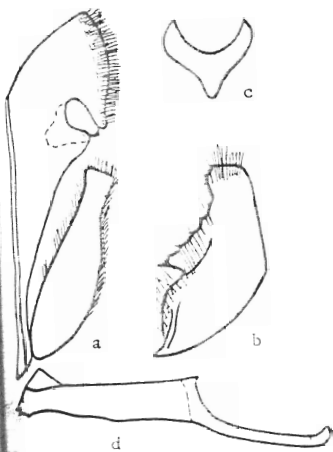


Fig. 11

Fig. 11. *Neozephyrus ussuriensis* sp. nov. subsp. n., male genitalia holotype.

Symbols as in Fig. 5.

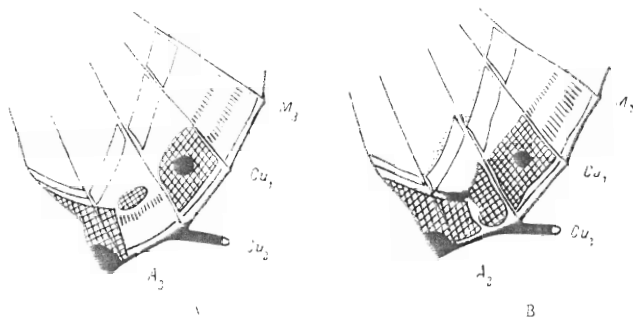


Fig. 12

Fig. 12. *Neozephyrus* sp. *ussuriensis* et *murayamae* (see diagrammatic drawing of underside of wings).

A - *N. ussuriensis* Shirouzu et Hayashi (acc. Takahashi et al.); B - *N. murayamae* Murayama.

Fig. 12, 1, b). The genitalia of *N. ussuriensis* Murayama in structure hardly differ from the genitalia in *N. ussuriensis* Shirouzu et Hayashi, to judge from the drawings presented in the work of Kawazoe and Wakabayashi (1977), only in *N. ussuriensis* Murayama is the lower end of the juxta more defined.

A part of the diagnostic key of Kurentsov (1970) relating to the group of so-called "green zephyrs", i.e. the genus *Neozephyrus* in our interpretation, is very unsuitable for use. Furthermore, two names given by him - *Zephyrus brilliantus* and *Zephyrus rorissicans jankowskii* Seitz - are synonyms of *Neozephyrus rorissicans* (Howarth, 1957). Bearing this in mind, we think it expedient to provide a new key for the identification of the representatives of the genus *Neozephyrus* in the fauna of the USSR according to the males. Unfortunately we do not possess adequate material that would enable us also to identify females of the species of the genus *Neozephyrus*.

KEY TO MALES OF USSR SPECIES OF NEZEPHYRUS

1. Upper side of forewings with black fringe, broad, 1-2 mm. Color of upper side of wings golden-green or dark blue.

2. Color of wings on upper side golden-green. Discal striae on underside noticeable or not present.

- 3 (4). No discal striae present on underside of wings. When moistened with alcohol, color of upperside of wings turning violet *N. Neosephyrus variabilis*
- 4 (3). Discal striae present only on underside of fore or fore- and hindwings. When upperside of wings moistened with alcohol, color turning bronze-violet or bronze.
- 5 (6). Discal striae on fore- and hindwings below dark, broad, separated from background by light streaks. On hindwing below at anterior margin a radial stria. When upperside of wing moistened with alcohol, color turning bronze-violet. *N. (Chrysoscephyrus) amarepallidus*
- 6 (5). Discal striae, separated from background by light streaks, occurring on underside of forewings. On hindwing below at anterior margin no radial stria. When upperside of wing moistened with alcohol, color turning bronze *N. (Chrysoscephyrus) ruforivinus*
- 7 (2). Color of wings on upperside dark blue. Discal striae not present on underside of wings *N. (Chrysoscephyrus) merula*
- 8 (1). On upperside of forewings, black fringe very narrow, less than 0.8 mm. Color of upperside of wings bluish green*.
- 9 (12). Black fringe on hind wings on upperside very narrow (up to 0.5 mm) dilating only at tail. Tail long and thin, up to 7 mm in length.
- 10 (11). When viewed from side, valva broadest in middle part, sharply constricting towards upper and lower ends. No large tooth on valva oriented inward. Penis on lateral side with numerous denticles *N. (Favonius) orientalis*
- 11 (10). Valva (from side) slightly compressed above middle and dilating towards upper and lower ends forming large tooth oriented inwards. Penis with smallish denticles on apex on ventral side *N. (Favonius) formosensis* Dubat. e
- 12 (9). Fringe on hindwings broader than on forewings. Tail shorter and thicker.

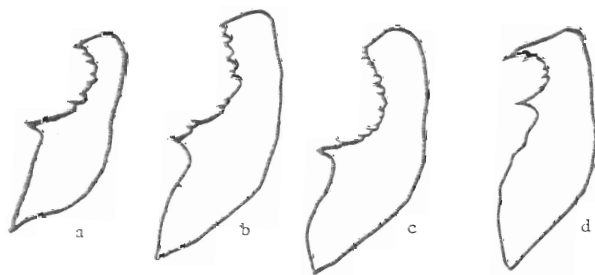


Fig. 13. *Neosephyrus* Sibatani et Ito, valva from rear.

a - *N. jessoensis* Mats.; b - *N. ussuriensis* Murayama;
c - *N. ultramarinus* Fixs.; d - *N. cognatus* Stgr.

*Subgenus *Favonius*. For a reliable identification of the species, the structure of the genital apparatus is necessary.

- 13 (20). Discal striae on underside of wings indistinct or completely absent. Forewings usually not rounded.
- 14 (15). Forewings elongated towards apex. When moistened with alcohol, upper-side of wings turning brown, sometimes with slight violet hue. Penis on lateral-ventral side with several small denticles only on apex *H. (Favonius) arundinaria* Muayama.
- 15 (14). Forewings not elongated towards apex. When moistened with alcohol, upper-side of wings turning bright violet. Different arrangement of denticles on penis.
- 16 (17). White postdiscal streaks on underside of wings narrow. Valva in upper part forming 2 large teeth oriented inwards (Fig. 13). Tegumen when viewed from side straight. Penis with several small denticles on dorsal side at beginning of upper quarter *H. (Favonius) japonicus* Stgr.
- 17 (16). White streaks on underside of wings broad. Valva with large tooth in middle part (Fig. 13). Tegumen when viewed from side convex. Different arrangement of denticles on penis.
- 18 (19). On upper-side of forewing, black fringe in anterior angle not dilated. Tegumen when viewed from side slightly convex. Penis on lateral-ventral side with numerous denticles in apical quarter forming straight row *H. (Favonius) japonicus* Mats.
- 19 (18). On upper-side of forewing, black fringe in anterior angle forming small dilation. Tegumen when viewed from side markedly convex. Penis with several small denticles on ventral side only in apical part *H. (Favonius) japonicus* Mats.
- 20 (13). Dark discal striae clearly distinguishable on silver-white background of underside both on fore- and hindwings. Forewings at apex rounded *H. (Favonius) amphilepis* Stgr.

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Novosibirsk State University.
Biological Institute,
Siberian Branch of the USSR Academy of Sciences,
Novosibirsk