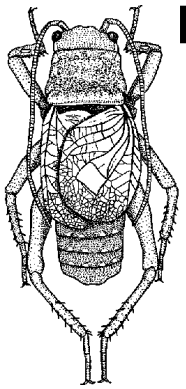

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NEW DATA ON TAXONOMY OF LYCAENIDAE, NYMPHALIDAE AND SATYRIDAE (LEPIDOPTERA, RHOPALOCERA) OF THE ASIAN PART OF RUSSIA

V.V.Dubatolov

Siberian Zoological Museum, Institute of Animal Systematics and Ecology, Frunze street, 11, Novosibirsk, 630091, Russia

Three new subspecies *Mellicta plotina standeli* **ssp. n.** from West Siberia, *M. athalia hyperborea* **ssp. n**. from North-East Siberia and *Coenonympha glycerion beljaevi* **ssp. n**. from Primorye territory are described. A specific status of *Celastrina phellodendroni*, *C. argiolus heringi*, *Neptis ilos*, *N. tshetverikovi* is discussed.

KEY WORDS: Lycaenidae, Nymphalidae, Satyridae, taxonomy, new subspecies, Primorye territory, West Siberia.

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Описаны новые подвиды: *Mellicta plotina standeli* **ssp. n.** из Западной Сибири, *M. athalia hyperborea* **ssp. n**. из Северо-Восточной Сибири и *Coenonympha glycerion beljaevi* **ssp. n**. из Приморского края. Обсуждается видовой статус *Celastrina phellodendroni*, *C. argiolus heringi*, *Neptis ilos*, *N. tshetverikovi*.

Сибирский зоологический музей Института систематики и экологии животных, Сибирское отделение Российской Академии наук, ул. Фрунзе, 11, Новосибирск 91, 630091, Россия.

INTRODUCTION

While preparing a key to butterfly species of the Russian Far East a necessity appeared to specify the status of some taxa from genera *Celastrina* Tutt. (Lycaenidae) and *Neptis* F. (Nymphalidae). Furthermore, some new subspecies of genera *Mellicta* Billb. (Nymphalidae) and *Coenonympha* Hb. (Satyridae) were found. The holotypes of new subspecies are deposited in the Siberian Zoological Museum at the Institute of Animal Systematics and Ecology (formerly - Zoological Museum of the Biological Institute), the Siberian Branch of the Russian Academy of Sciences, Novosibirsk.

TAXONOMIC NOTES

***Celastrina phellodendroni* M.M.Omelko, 1987, stat. resurr.**
(Figs 2, 3)

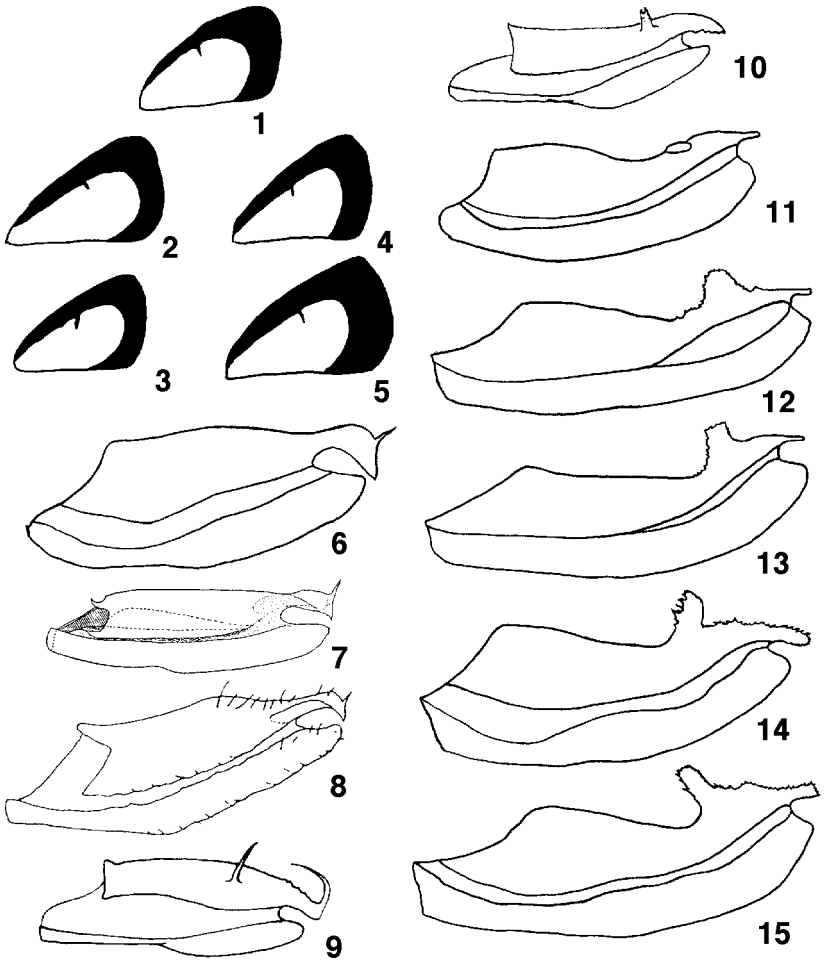
Celastrina phellodendroni M.M.Omelko in M.M.Omelko & M.A.Omelko, 1987: 116-119 [holotype - ♂, Primorskii krai, Gornotaezhnoe, 20.II 1982 (M. M.Omelko)].

Celastrina heringi (nec Kardakoff, 1928): Korshunov & Ivonin, 1990: 75, fig.4 a, б; Korshunov & Gorbunov, 1995: 168; Korshunov, 1996: 44, 66, fig. 15a.

MATERIAL. Primorskii krai: 1♂, 1♀ (paratypes), Gornotaezhnoe, 5.V 1981 (M.M.Omelko); 1♂, 1♀, "Ussuriiskii" Nature Reserve, 14.V 1970 (M.Kashcheev); 6♂, 3♀, the same locality, 5-25.V 1983-1994 (Sasova); 3♂, 1♀, Kaimanovka, 26.IV-11.V 1991-1994 (Sasova); 1♂, 20 km NNW of Mnogoudobnoye, valley of rivulet Suvorovka, Peishula, 18.V 1984 (Sasova); 3♂, near Partizansk, 4, 20.V 1985 (Ivonin); 3♂, 1♀, Sinii Mountain Range, 13-22 km N from Chernyshevka, 3-5.VI 1984 (Dubatolov); 6♂, 2♀, Vladivostok, 16, 18, 19.V 1994 (Dubatolov).

DISTRIBUTION. Southern Primorye territory.

REMARKS. Soon after description *C. phellodendroni* was synonymized with *C. heringi* (Kardakoff, 1928) described from the Ussuri Territory, mainly from vicinity of Vladivostok. The original description is as follows: "*Cyaniris argiolus* L. *heringi* (gen. aest. nov.) (Taf. 7, Fig. 20 u. 21). Die Fruhlingeform du einheimischen *argiolus* L. Die Mannchen schillern mehr ins Violette, bei dem ♀♀ ist der Grundton hellblau, der dunkle Rand breitet sich aus. Bei beiden Geschlechtern ist von unten der graue Grund etwas dunkler, als bei den Sommerexemplaren. Man trifft den Schmetterling uberall im Gebiete an, ich sammelte ihn hauptsachlich in der Umgegend von Wladivostok im 2/3 V. Zu Ehren Dr. M. Herings benannt" (Kardakoff, 1928). According to this description it is impossible to understand which species occuring in Southern Primorye (*Celastrina ladonides* de l'Orza, 1867 [= C. *argiolus* auct.] or *C. phellodendroni*) was described by N. Kardakoff. There are two figures of *C. argiolus heringi* in the original description (male and female), but they show only the upper side of wing. The male figure is indistinguishable. The female figure shows some reliable species characters. Ratio of the wing length at the middle of the fore wing (between veins $M_3 - CuA$) to the dark marginal border width at the same space is about 5 in the figured



Figs 1-15. Scheme of fore wing upperside pattern of *Celastrina* spp., females (1-5) and male genitalia (valva) of *Neptis spp.* (6-15). 1) "*C. argiolus heringi*" (from: Kardakoff, 1928: T. 7, f. 21); 2, 3) *C. phellodendroni*: 2) Gornotaezhnoe, paratype, 3) Nature Reserve "Ussuriiskii"; 4, 5) C. *ladonides*: 4) Novokachalinsk, 5) Vladivostok; 6) *N. ilos*, Sinii Mts., 7) *N. i. nirei* (from: Shirozu, 1960: 224, Fig. 248A), 8) *N. i. nise* (from: Koiwaya, 1996: 254, fig. 1371), 9) *N. th. themis* (from: Eliot, 1969: 146, fig. 86); 10) *N. yunnana* (from: Eliot, 1969: 146, fig. 83), 11-13) *N. tshetverikovi*: 11) Pobeda (valva is slightly damaged), 12) Chita, 13) Kedrovaya Pad', 14, 15) *N. thisbe*: 14) Gamova peninsula, 15) Amurskaya oblast', Natal'ino.

female (Fig. 1) [in females of *C. phellodendroni* it is always more than 6.5 (Fig. 2, 3), in females of *C. ladonides* from Primorye (including spring specimens) less than 5.4 (Fig. 4, 5)]. So, I restore the specific name *C. phellodendroni* M.M. Omelko, 1987.

***Neptis ilos* Fruhstorfer, 1909**

(Figs 6-8)

Neptis themis ilos Fruhstorfer, 1909: 42 (type locality: Amur); Kurentzov, 1936: 186, fig. 1; Eliot, 1969: 111; Kurentzov, 1970: 93, fig. 86-6, T. VI, fig. 5; Tuzov, 1993: 45; Korshunov & Gorbunov, 1995: 80.

Neptis yunnana (nec Oberthur, 1906): Korshunov, 1972: 352.

Neptis ilos nise: Koiwaya, 1996: 254.

N. ilos nirei: Koiwaya, 1996: 185.

MATERIAL (specimens with genitalia examined). Amurskaya oblast': 1♂, Blagoveshchensk, suburbs, 15.VII 1986 (Streltzov); Primorskii krai: 1♂, Sinii Mts, 30 km from Chernyshevka village, 14.VII 1982 (Bakurov); 1♂, 18-22 km NNW of Chernyshevka village, 8.VII 1983 (Dubatolov, Zintshenko); 1♂, Vladivostok, 16.VIII 1986 (Dubatolov, Zintshenko); 1♂, Khasan district, Gamov Peninsula, Vityaz Bay, 17.VII 1979 (Dubatolov).

DISTRIBUTION. Amur basin (southern part of Amurskaya oblast' and Khabarovskii krai, from Blagoveshchensk to Komsomol'sk-na-Amure), Primorskii krai; NE, N, E China, Korea. W China (*N. i. nise* Sugiyama, 1993). Taiwan (*N. i. nirei* Nomura, 1935).

REMARKS. *N. ilos* was considered as a subspecies of *N. themis* Leech, 1890. According to the male genitalia structure (Eliot, 1969: fig. 86, 88), the nominative *N. th. themis* from Central China (the type locality: Chang Yang - now, most probably, Zhicheng in Hubei) and *N. th. theodora* Oberthur, 1906 from the Yunnan-Sichuan border (the type locality: Tse-Kou - now, most probably, Derong in SW Sichuan) have the apical valva processus with a narrow saber-shape tooth directed upwards; at the base of the processus there is another narrow saber-shape tooth (Fig. 9). The valva apex structure in *N. ilos* (Fig. 6) (the type locality: Amur), *N. i. nirei* Nomura, 1935 (Fig. 7) from Taiwan (Shirozu, 1960) and *N. i. nise* Sugiyama, 1993 (Fig. 8) from W China is almost identical and differs considerably from that of *N. themis* (Fig. 9). Following S. Koiwaya (1996) I consider *N. ilos* as a good species.

***Neptis tshetverikovi* Kurentzov, 1936**

(Figs 11-13)

Neptis tshetverikovi Kurentzov, 1936: 185-190 (type locality: Russia from Primorskii krai to Transbaikalia); 1970: 93, fig. 86-8, 87, T. VI, f. 4; Plyushch, 1992: 68; Korshunov & Gorbunov, 1995: 79.

Neptis yunnana tshetverikovi: Eliot, 1969: 110-111, fig. 83; Korshunov, 1972: 352.

Neptis tschetverikovi (sic.): Tuzov, 1993: 45.

Neptis thisbe: Sviridov, 1981: 66-67; Chikolovets, 1994: 76.

Neptis thisbe forma *deliquata* Stichel, 1908: 179.

TYPE MATERIAL. *N. tshetverikovi* was described from "de la region Ussuriense: dans la chaine du Sichote-Alin, pres des sources des rivieres Sutshan, Ulache, Kamenka, Vangou et Sitza; dans les montagnes Tzamo-Dynsa, Loone-Laza, chaines Daden-Shanj, Sutshan, dans les vallees des rivieres Kolumbe, Botcha et Munj-Sha, au cap Olempiada... de Sretensk (region Transbaicalienne)". I have examined one syntype from the collection of the Institute of Biology and Pedology (Vladivostok) with labels: "*N. tshetver*. typica ♂ / *Neptis* 29 VII 31 Победа" [Primorskii krai, the headwater of the Ussuri River, Pobeda settlement] listed by N.A. Azarova (1986). It is impossible to designate this specimen as a lectotype, because A.I. Kurentzov (1936) wrote that the types are preserved in the collection of Zoological Institute, Academy of Sciences (Leningrad), and only cotypes are in the Filial of the Academy in Vladivostok (now Institute of Biology and Pedology, Vladivostok). Unfortunately, I have not studied specimens from the Zoological Institute collection.

MATERIAL (specimens with genitalia examined). Transbaikalia, Chitinskaya oblast': 1♂, Sretensk district, near Dunaevo, 27.V 1957 (anonym); 1♂, near Chita, right side of the Ingoda River, rock Sokhatino, 20.VI 1962 (Legotin); 1♂, near Kyra village, 28.VI 1991 (Zintshenko); Primorskii krai: 1♂, 18-22 km NNW of Chernyshevka village, 18.VII 1993 (Dubatolov, Zintshenko); 1♂, "Kedrovaya Pad'" Nature Reserve, 4.VII 1968 (Naumov).

DISTRIBUTION. Russia: Chitinskaya oblast', valleys of Ingoda, Shilka, Onon Rivers and their tributaries; most probably also in the Argun River basin; the southern part of Amurskaya oblast' and Khabarovskii krai, north to Sofiisk (Korshunov, 1996)), Primorskii krai; Korea.

REMARKS. Although this taxon was described as a species, it was reduced later to a subspecies of *N. yunnana* Oberthur, 1906 (the type locality: Tse-Kou) (Eliot, 1969) without any specimen revision, a substantial difference in male genitalia structure (Fig. 10-13) being overlooked. Taking into account these differences, I consider *N. tshetverikovi* and *N. yunnana* as different species.

Besides, *N. tshetverikovi* was synonymized with a similar species *N. thisbe* Menetries, 1859 (Sviridov, 1981). The latter species was described from Middle Amur (type localities: the Khingan mountains and Ussuri delta). Really, these species are very similar in both wing pattern and male genitalia structure. Although it is sometimes difficult to identify some specimens of this group, in *N. thisbe* the apical valva processus is usually longer than the valva apex, and is widening at apex (Fig. 14-15). In *N. tshetverikovi* the apical valva processus is shorter, usually not reaching the valva apex, and is tapering apically (Fig. 11-13). Larvae of these species have different host plants: *Betula platyphylla* - for *N. tshetverikovi* (Korshunov, 1996: 50) and *Quercus mongolica* - for *N. thisbe*. So, I consider *N. tshetverikovi* to be a species different from *N. thisbe*.

H. Stichel (1908) described a pale form *N. thisbe* f. *deliquata* from "Ust-Strielka", at the confluence of rivers Shilka and Argun. *Neptis thisbe* occurs only in south and south-east of Amurskaya oblast'. In the Shilka River valley (Chitinskaya oblast') only *N. tshetverikovi* is distributed. The name *N. deliquata* Stichel, 1908 is older than *N. tshetverikovi*, but according to International Code of

Zoological Nomenclature (1985, art. 45g-[II]-[1]) is not valid, because in the original description its infrasubspecific status, as a color form olny, was clearly stated. Nobody till 1985 as well as A. Kurentzov (1970) used this name as specific or subspecific and I propose here to use common name *N. tshetverikovi* for this species.

DESCRIPTION OF NEW TAXA

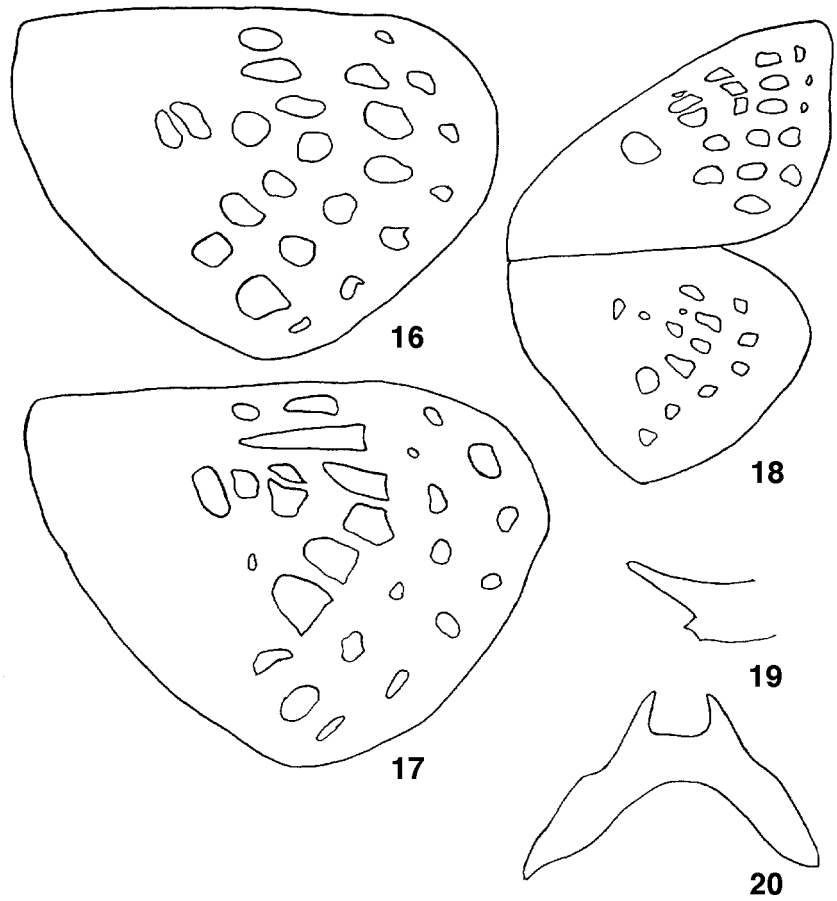
Mellicta plotina standeli **Dubatolov, ssp. n.**
(Fig. 16)

MATERIAL. Holotype: 1♂, SE environs of Novosibirsk, 5-6 km SE of Academgorodok, the valley of the Shadrikha rivulet, 1.5 km upstream of the village Mel'nichikha (=Shadrikha), 12.VII 1992 (Dubatolov). Paratypes: 1♂, the same locality, 11.VII 1992 (Kosterin); 4♂, 1♀, the same locality, 29.VI 1994 (Dubatolov, Zintshenko); 2♂, 3♀, Novosibirskaya oblast', Iskitim region, near Elbashi village, a valley of the rivulet, being a right tributary of the Bolshoi Elbash River, 11.VII 1992 (Zintshenko); 1♂, the same locality, 11.VII 1993 (Kosterin).

DESCRIPTION. Fore wing length: ♂ – 13-15 mm, ♀ – 14.5-16 mm. Fore wing of the holotype is blackish-brown with 3 rows of dark-red spots external part. The external row consists of small spots, the second and third ones consist of spots in several times larger. Proximal to these rows, near the discal vein and behind it, there are several dark-red spots, as in a nominative subspecies. There are no spots at the base of the cell (a small spot is visible in some paratypes). Hind wing upperside with 3 rows of dark-red spots, the external one consists of small spots, two others have the spots several times larger. Distal half of the cell with 3 dark-red spots arranged in a row. Underside of both wings has a pattern similar to that of the nominative subspecies. Female wing pattern consists of a wider dark-red spots. The black crescent spots between marginal and submarginal dark-red spots are narrow, noticeably narrower than the adjoining dark-red spots.

DISTRIBUTION. Russia: the eastern part of Novosibirskaya oblast' and Altaiskii krai (Soldatovo on Ob' River, 100 km of Barnaul).

REMARKS. The new subspecies differs from Far Eastern *M. p. plotina* (Bremer, 1861)(= *M. ussurica* Verity, 1932) by smaller size (fore wing length in *M. p. plotina* ♂ – 15-17.5 mm, ♀ – 16-18 mm). Hind wing upperside of the male *M. p. standeli* has the second and the third (starting from the margin) rows of dark-red spots similar in size and relatively large, sometimes the spots of the second one are even larger than those of the third, the external one consists of small spots (Fig. 16). Sometimes the spots of the second row are larger than those of the third one. In *M. p. plotina* hind wing upperside has two external rows consisting of small spots, and only the third one - of large spots (Fig. 17). This character is distinctly visible on the colour table (Bremer, 1864: t. 3, fig. 2) as well as in specimens studied by me from Primorskii krai. Hind wing upperside of female *M. p. standeli* has the black crescent spots between the marginal and submarginal dark-red spots narrow, noticeably narrower than the adjoining spots; in females of *M. p. plotina* these crescent spots are wide, equal or wider than the adjoining dark-red spots.



Figs 16-20. Scheme of wing upperside pattern (16-18) and male genitalia (19-20) of *Mellicta* spp., males. 16) *M. plotina standeli* ssp. n., holotype, 17) *M. p. plotina*, Primorye; 18-20) *M. athalia hyperborea* ssp. n., holotype: 18) wing, 19) apical valva processes, 20 - uncus and tegumen.

Unfortunately, I have not possibility to compare specimens of *M. plotina* from Novosibirsk with those from Troitskosavsk (now Kyakhta, Transbaicalia), type locality of *M. pacifica* Verity, 1932. I have not found Transbaicalian specimens in any available collection. Nevertheless, isolation of the Upper Obian population (*M. p. standeli*) from the Transbaicalian (*M. p. pacifica*) and the Far Eastern ones (*M. p. plotina*) is the main reason to describe a new subspecies. Isolation of Far Eastern, Transbaicalian and West Siberian populations of some palaearchaearctic species have been discussed earlier and was connected with a presence of relict nemoral elements in flora and fauna of these territories (Dubatolov & Zolotarenko, 1996).

New subspecies were observed on damp meadows with tussocks, the reed (*Phragmites australis*), and sparse willow bushes in swampy valleys of small rivulets, and on adjacent forb meadows. The males fly above vegetation under sunny weather, and disappear when the sun hides. Feeding butterfly on an inflorescence of *Leucanthemum vulgare* was observed by Dr. O.E. Kosterin.

ETYMOLOGY. The subspecies is dedicated to Mr. A.E. Standel, who has firstly found this East Asian species in the east part of Novosibirskaya oblast' (Standel, 1960) on the Salairskii Kryazh elevation near village Ust'-Travyanka between villages Maslyanino and Suenga.

Mellicta athalia hyperborea **Dubatolov, ssp. n.**
(Figs 18-20)

MATERIAL. Holotype: 1♂, Magadanskaya oblast', Verkhnii settlement Seimchan [Upper Seimchan], 19.VI 1966 (Polyakova). Paratypes: 2♂, the same locality, 22.VI 1966 (Polyakova); 2♀, Magadanskaya oblast', the upper flow of the Kolyma River, the Bol'shoi Annachag [Great Annachag] Mountain Range, near the Aborigen peak, 11.VIII 1986 (Dubatolov); 1♀, Kamchatka, Kozyrevsk, 2.VII 1971 (Efremova).

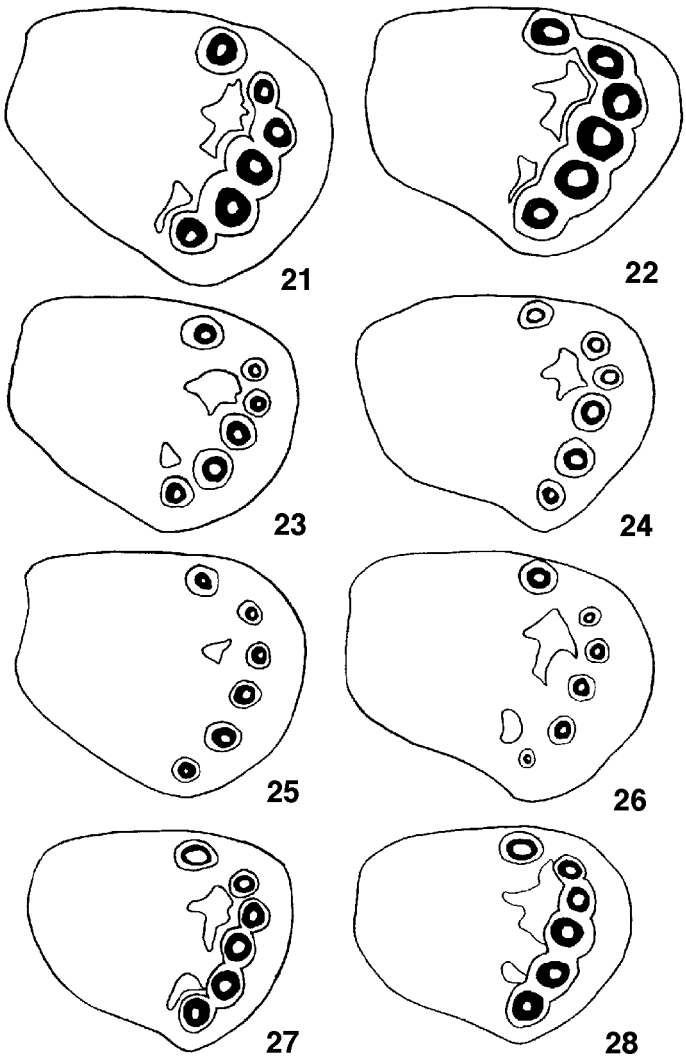
DESCRIPTION. Fore wing length: ♂ – 14-15 mm, ♀ – 15-19 mm, so butterflies are considerably smaller than the Siberian *M. a. reticulata* Higgins, 1955 (fore wing length: ♂ – 16.5-20 mm, ♀ – 19-22 mm). Wing upperside is relatively dark, especially in the holotype (Fig. 18). Fore wing has only one distinct dark-red spot in the cell apex. Distally from it there are 4 rows of dark-red spots: 2 proximal rows are separated between *R* stem and vein M_3, and are joint below the vein M_3 to the vein *CuP*. Submarginal row of spots is complete, the marginal one is developed to vein *A*. Hind wing upperside with a small dark-red spot in the cell apex and only with 2 rows of dark-red spots in the external part of the wing. Two spots of the proximal row between veins M_1 and M_3 are accompanied by obscure dark-red spots; the marginal row is not expressed in holotype, but visible in some paratypes. The pattern of wing underside is as in *M. a. reticulata*. Genitalia are similar to *M. a. reticulata* (Figs 19-20).

DISTRIBUTION. Russia: Magadanskya oblast', Kamchatka.

REMARKS. The wing upperside of *M. a. hyperborea* is strongly darkened and not evenly chequered, all dark-red spots in males and often in females are diminished. *M. a. reticulata* from South Siberian mountains and North Transbaicalia has dark-red spots well expressed, so the wing upperside is almost evenly chequered.

Coenonympha glycerion beljaevi **Dubatolov, ssp. n.**
(Figs 21-22)

MATERIAL. Holotype: 1♂, Southern Primorye, Spassk District, Novovladimirovka village, 27.VI 1978 (Barkalov). Paratypes: 1♀, the same locality, 27.VI 1978 (Barkalov); 3♂, 3♀, Southern Primorye, Anuchino District, 13-21 km NNW



Figs 21-28. Scheme of hind wing underside pattern of *Coenonympha glycerion*. 21, 22) *C. g. belaevi*, ssp. n.: 21) holotype, male, 22) paratype, female; 23, 24) *C. g. iphiclides,* Nature Reserve "Sokhondinskii", Chitinskaya oblast': 23) male, 24) female; 25, 26) *C. g. glycerion*: 25) male, Hungary, Balaton, 26) female, Bohemia, Zlatice; 27, 28) *C. g. heroides*: 27) male, Yakutsk, Khaptagai, 28) female, river Nyuya, Zakharovka.

of Chernyshevka village, 12-17.VII 1993 (Dubatolov, Zintshenko); 1♀, 2-3 km N of Chernyshevka village, 5.VII 1995 (Dubatolov, Dudko).

DESCRIPTION. MALE. Fore wing length 17-19 mm. Wing upperside is evenly dark brown with a narrow reddish margin, usually without any visible-through dark spots along the hind wing margin. The wing base of the same colour as the main part of the wing. Underside of the same colour, but slightly lighter. Fore wing with a small apical ocellus and reduced white postdiscal band between the veins M_1 and M_2 (most paratypes without such band). Hind wing has a row of very large ocelli with wide black and orange rings, so that the orange rims fuse and form an orange band. Proximally to the row of ocelli there are remainders of the white postdiscal band, consisting of 2 spots: irregular one between veins M_2 and *CuA* with proximal tooth on vein M_3, and small one placed between the veins *CuP* and A_2. There is a narrow silvery band along hind wing margin.

FEMALE. Fore wing length 16-19 mm. Wing upperside is brown with light-orange margin, a visible-through apical ocellus on fore wing and orange ocelli along the hind wing margin. The pattern on the hind wing underside as in males, but the white nuclei in black ocelli are very wide, up to 1 mm in diameter. Fore wing underside has an apical ocellus and 2-3 ocelli in the spaces 2, 3 and 4 and well-developed postdiscal band between the stem *R* and the vein *CuP*.

DISTRIBUTION. Russia: Primorskii krai (Sinii Range).

REMARKS. A new subspecies differs from the South Siberian *C. g. iphicles* Staudinger, 1892 by usual absence of visible-through ocellus on the male hind wing upperside (Figs 21-22), which is well visible in *C. g. iphicles* (Figs 23-24); the black rings of the hind wing underside ocelli in *C. g. beljaevi* are wide, their width is considerably greater than the distance between the rings, while the width of these rings in *C. g. iphicles* is considerably less than the distance between them. Orange rims of ocelli of *C. g. iphicles* not fused, but well separated from each other. The nominative subspecies *C. g. glycerion* (Borkhausen, 1788) from Europe and West Siberia has very small ocelli on the hind wing underside, their diameter often being less than the distance between them (Figs 25-26). In appearance the new subspecies is most similar to the Yakutian *C. g. heroides* Christoph, 1893 (described from "Witim" and "Wilui"). Hind wing underside ocelli of the latter subspecies are also large, with large white centers, but the centers are smaller and orange rings of ocelli are more narrow (Figs 27-28) and not fused into a band (at least in males), as in the new subspecies. The fore wing length of Yakutian *C. g. heroides* is much smaller (14-15.5 mm).

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Address: Institute of Biology and Pedology, Far East Branch of Russian Academy of Sciences, 690022, Vladivostok-22, Russia.
FAX: (4232) 310 193 E-mail: entomol@stv.iasnet.ru