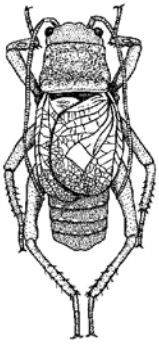

Far Eastern Entomologist

Дальневосточный энтомолог

Journal published by Far East Branch
of the Russian Entomological Society
and Laboratory of Entomology,
Institute of Biology and Soil Sciences,
Vladivostok

Number 100: 1-20 ISSN 1026-051X April 2001

REVIEW OF THE MYMARIDAE (HYMENOPTERA, CHALCIDOIDEA) OF PRIMORSKII KRAI: GENUS *MYMAR* CURTIS

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Introductory notes are made on the history of studying the family Mymaridae in Russian Far East; methods best suited for collecting mymarids are indicated. The review of eight world *Mymar* species including the key for females and males is given. Five species are firstly recorded from Primorskii krai, including *M. ermak* **sp. n.** and *M. maritimum* **sp. n.**, which are described and illustrated.

KEY WORDS: Hymenoptera, Mymaridae, *Mymar*, taxonomy.

С. В. Тряпицын, В.В. Березовский. Обзор семейства Mymaridae (Hymenoptera, Chalcidoidea) Приморского края: род *Mymar* Curtis // Дальневосточный энтомолог. 2001. N 100. С. 1-20.

Освещена история изучения семейства Mymaridae на Дальнем Востоке России. Указаны методы, наиболее подходящие для сбора мимарид. Дан обзор 8 видов рода *Mymar* мира, включая определительные таблицы по самкам и самцам. В Приморском крае впервые отмечается 5 видов этого рода, включая новые для науки *M. ermak* **sp. n.** Ё *M. maritimum* **sp. n.**

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INTRODUCTION

Members of the chalcidoid wasp family Mymaridae are often referred to as mymarids or, especially in older literature, as fairy-flies (Blackbourn 1935). Most recent diagnoses of the family were given by Schauff (1984) and Huber (1986, 1997). Mymaridae can be found in most biocenoses and often are one of the most abundant groups of Hymenoptera around. Because of their minute size mymarids are usually poorly represented in collections of insects.

The history of higher classification of the family was discussed by Huber (1986). In the first half of the 20th Century, numerous descriptions of new taxa from different zoogeographical zones appeared, but with a few exceptions (e.g., Debauche, 1948) those studies lacked systemic approach. Annecke & Doutt (1961) reviewed the described genera, and although outdated, their worldwide treatment of genera is still the only one available. Taxonomic interest in Mymaridae has increased substantially because many of its members are important for biological control (Huber, 1986).

Mymaridae still remain one of the least studied families of the Russian Hymenoptera. A small collection of the type and other point-mounted mymarid specimens is deposited at the Zoological Institute, St. Petersburg. Most other collected material is still unprocessed. The first mymarid species recorded from Primorskii krai was *Chaetomymar kusnezovi* Ogloblin, described from a single female collected by N. N. Kusnezov-Ugamskiy at Nikol'sk Ussuriyskiy [Ussuriysk] in 1928 (Ogloblin 1946). This species has never been recollected. Later, Shutova & Kuhtina (1955) listed *Gonatocerus* sp. and *Parvulinus aurantii* Mercet as reared from armored scale (Diaspididae) hosts in Primorskii krai. This host associations are undoubtedly erroneous as no confirmed host records from scale insects exist for any mymarid species. The probable host of the species identified by M. N. Nikol'skaya as *P. aurantii* [now *Alaptus aurantii* (Mercet)], whose identity needs confirmation, would be a bark-inhabiting psocid, because Psocoptera eggs are commonly parasitized by *Alaptus* spp. (Huber, 1986; Triapitsyn, in litt.).

Yoshimoto et al. (1972) described the genus *Stomarotrum* Yoshimoto, Kozlov et Trjapitzin based on the single female of the type species *S. prodigiosum* Yoshimoto, Kozlov et Trjapitzin, collected from near Vladivostok, and placed it into the newly created mymarid subfamily Eubroncinae together with the genus *Eubroncus* Yoshimoto, Kozlov et Trjapitzin, also described in that paper (from Malaysia). Later, *Stomarotrum* was synonymized under *Eubroncus* (Triapitsyn & Huber, 2000).

Recently, Storozheva (1989, 1990) discovered that eggs of the rice leaf beetle *Oulema oryzae* (Kuwayama) (Chrysomelidae) were parasitized in Primorskii krai by *Anaphes nipponicus* Kuwayama. Pintureau & Iglesias Calvin (1996) mentioned two *Mymar* species from Primorskii krai: *M. pulchellum* Curtis and *M. regale* Enock. An annotated key to the genera of Mymaridae of Russian Far East was prepared by Triapitsyn & Huber (2000); 19 out of 25 known Palaearctic genera were found in Primorskii krai, 9 of them are newly recorded for the Russian fauna (Triapitsyn & Huber, 2000).

MATERIAL AND METHODS

COLLECTING OF MATERIAL. Except for a few rarely collected genera with more or less strongly sclerotized bodies (e.g., *Caraphractus, Eustochus, Macrocamptoptera*, etc.), the integument of most mymarids collapses when air-dried, thus making such specimens generally unsuitable for taxonomic purposes. We carried our own experiments by point- and slide-mounting specimens from different mymarid genera, that had been collected by sweeping with a net, killed with ethyl acetate, and then stored for several years on cotton layers. We were able to point-mount and sort to genera most of specimens, but their condition and suitability for further identification (i.e., to species level) varied depending on the taxon. *Polynema* and related genera, such as *Stephanodes*, sometimes looked satisfactorily on points and often produced good quality slides if mounted properly. Specimens belonging to most of other genera (e.g., *Anagrus, Erythmelus, Gonatocerus*), however, had suffered permanent damage when air-dried, due to partial or complete collapse of body parts, and could not be re-inflated by soaking them in 10% KOH for 24-48 hours during the clearing stage of a normal Canada balsam slide preparation process.

Placing freshly collected specimens in 70-80% ethyl alcohol is the best way for preserving mymarids. Methods most suitable for collecting mymarids are generally the same as for other chalcidoid families, as outlined by Noyes (1982): Malaise traps, in which specimens fall directly into alcohol; yellow pan traps, which require more effort to maintain than Malaise traps but may produce a different spectrum of taxa when placed close by in the same locality; sweeping with a net, when its whole contents are emptied in the field into a plastic bag with70-80% ethyl alcohol and then mymarids, if any, are extracted in a laboratory. Using an aspirator for catching mymarids from a sweep net is possible, but usually only larger species are collected, while more than 80% (this is our conservative estimate) of the specimens remain in the debris in the bottom of the net. Rearing mymarids from the eggs of known hosts usually provides the most valuable material; upon emergence, specimens are also put in vials with 70-80% ethyl alcohol. In the past, collecting mymarids on windows with aspirators was very common; many mymarid types of A. A. Girault were collected this way.

We restrict the below review of *Mymar* species and the forthcoming publications on other mymarid genera found in Russian Far East to Primorskii krai, as mapped by Lelej (1998). All collecting from late May until early November 1999 was done by Dr. M. V. Michailovskaya (Mountain-Taiga Station, Gornotayozhnoye, Primorskii krai, Russia). A fine mesh Malaise trap (made by Sante Traps, Lexington, Kentucky, USA) was installed in Gornotayozhnoye (43.66°N, 132.25°E, elevation 200 m) at the foot of a small mountain, about half way to its top on the southern slope, in open space at the edge of a forest. Alcohol was changed, and samples were taken and labeled every 7-10 days. Yellow pan traps (Solo® brand yellow-

colored No. PSB2 plastic bowls, 355 ml capacity, made by Solo Cup Company, Urbana, Illinois, USA) were placed for 1-2 days in different sites in Gornotayozhnoye throughout the collecting season. Both collecting methods have proven to provide excellent catches of mymarids: we estimate that the total of about 2000-2500 specimens were captured during the 1999 season only. Pitfall traps (Model 65-4130 made by Carolina Biological Supply Company, Burlington, North Carolina, USA) were also used, but failed to provide any significant catch of mymarids although other groups of parasitic Hymenoptera, such as Ceraphronoidea, Platygastroidea, and Proctotrupoidea, were fairly represented. In late April of 2000, collecting was resumed by Dr. M. V. Michailovskaya at the same site for one more season.

PROCESSING OF MATERIAL. All collected material was stored in a freezer at -20°C either in glass vials of various sizes, equipped with leak-proof caps, or in 18 oz. Nasco WHIRL-PAK® plastic bags. Before separating mymarids from the rest of the insect groups, for convenience each sample was divided into two fractions -"large" and "small" - using a sieve with 2 mm openings. Almost all mymarids would fall into the "small" fraction, from where they were transferred into separate vials filled with 70-80% alcohol.

Special drying techniques are required for taking preserved soft-bodied specimens from alcohol (Heraty & Hawks 1998) before they are card- or point-mounted. All our mymarid specimens were critical-point dried using Autosamdri®-814B automatic critical point drying apparatus and then point- or card-mounted following Noyes (1982), but instead of a water soluble glue we used shellac glue, which is easily soluble in 100% ethyl alcohol, in anticipation that further slide-mounting would usually be imminent. After labeling all specimens were sorted to genera under a dissecting microscope. Also, representatives from each morpho-species, both females and males, were slide-mounted into Canada balsam using the technique described by Noyes (1982) and modified for the Mymaridae by Dr. J. T. Huber (pers. communication). We also used shortcuts during certain steps, based on our own experience of slide-mounting minute parasitic Hymenoptera, and by adopting some elements of the technique described by Platner et al. (1999).

TERMINOLOGY AND DEPOSITORIES OF SPECIMENS. Terminology used in the key and the new species descriptions, as well as the choice of morphological features measured (in microns, as length or length/width, where necessary), follow Annecke (1961) and Schauff (1984). Unless stated otherwise, all measurements are given as the average, followed by the range in parentheses (if applicable). Abbreviations used are: F - funicular (flagellar in males) segment; MT - Malaise trap; YPT - yellow pan trap. New records in the distribution are asterisked (*).

All primary types and part of other material resulting from this study are deposited in the collection of Zoological Institute, St. Petersburg, Russia [ZIN]. Acronyms for the depositories of other specimens examined are as follows: Canadian National Collection of Insects, Ottawa, Canada [CNCI]; Institute of Biology and Soil Sciences,

Vladivostok, Russia [IBPV]; Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium [ISNB]; University of California at Riverside, USA [UCRC]; National Museum of Natural History, Washington, D.C., USA [USNM].

Genus *Mymar* Curtis, 1829

Mymar Curtis, 1829: 586. Type species: *Mymar pulchellum* Curtis, 1832: 411; designated by ICZN Opinion 729 (1965).

Pterolinononyktera Malác, 1943: 51. Type species: *Pterolinononyktera obenbergeri* Malác, 1943; by original designation.

Oglobliniella Soyka, 1946: 180. Unnecessary replacement name.

Mymarilla auct., nec Westwood, 1879.

COMMENTS. The long and controversial history of the nomenclature of *Mymar* was discussed in detail by Annecke & Doutt (1961) and Doutt & Annecke (1963). Species of *Mymar*, being perhaps some of the most easily recognizable mymarids, were occasionally referred to as "battledore-wing flies" (Blackbourn 1935); this common name, however, has not been often used in the more recent literature. Hosts are known only for one species, *M. taprobanicum*; biology of *Mymar* is otherwise unknown.

The diagnoses of the genus were given by both Debauche (1948) and Schauff (1984). We can add the following to the latter diagnosis: toruli almost touching vertex (Fig. 1); female antenna (Figs. 4, 10) with 6-segmented funicle and 1-segmented clava, male antenna (Fig. 13) with 11-segmented flagellum; forewing oar-like (Fig. 8), with dark spot at apex in the majority of species; hindwing abbreviated (Fig. 6, 7) or filamentous, without visible membrane (Fig. 9), or membrane greatly reduced and at most with a few marginal cilia (Figs. 12, 15, 18, 21).

Annecke (1961) revised the genus and provided a key to the world species (females only). Below we provide an updated key to the eight presently recognized species of *Mymar* in the world, both for females and males. Although *Mymar* appears not to be as speciose as some other mymarid genera, finding of a new, undescribed, species is not impossible, as we learned from studying the material from Primorskii krai. Besides of two new species described here from Primorskii krai there is at least one new, undescribed, species of *Mymar* from Kyrgyzstan. This extra-limital species is not included in the key.

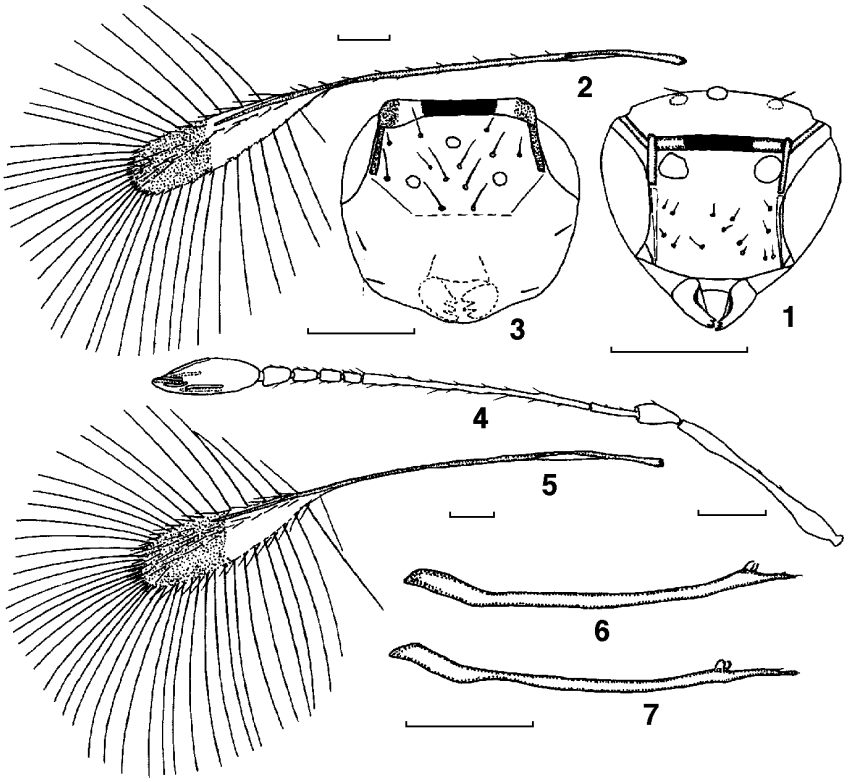
Key to species of *Mymar* of the world

1. ♀: flagellum clavate, consisting of 6-segmented funicle and 1-segmented clava (Figs. 4, 10) 2

– ♂: flagellum filiform, 11-segmented (Fig. 13) 8

2. Hindwing abbreviated just beyond the hamuli (Figs. 6, 7) 3

– Hindwing either filamentous (Fig. 9) or with a narrow expansion of membrane beyond hamuli (as in Fig. 11) 5



Figs. 1-7. *Mymar*. 1) *M. taprobanicum*, ♀, head, front view; 2) *M. pulchellum*, ♀, forewing; 3-7) *M. maritimum* sp. n., ♀: 3) head, rear view; 4) antenna; 5) forewing; 6) hindwing with a short stub (paratype), 7) hindwing with a long stub (holotype). Scale bars 0.1 mm.

3. Apical dark spot on forewing covering more than half length of the expansion . . . . . 1. ***M. schwanni***
– Apical dark spot on forewing covering at most half length of the expansion . . . 4
4. Apical dark spot on forewing covering less than half length of the expansion (Fig. 2); forewing membrane length/width ratio 4.1-4.7:1; pedicel slightly longer than F1 . . . . . 2. ***M. pulchellum***
– Apical dark spot on forewing covering about half length of the expansion (Fig. 5); forewing membrane length/width ratio 3.3-3.5:1; pedicel slightly shorter than F1 . . . . . 3. ***M. maritimum* sp. n.**
5. Hindwing filamentous beyond the hamuli, without apparent membrane and with one long apical seta (Fig. 9) . . . . . 4. ***M. taprobanicum***

– Hindwing with a narrow, but distinct, expansion of membrane beyond hamuli (Fig. 12), with several (sometimes only one in *M. regale*) long marginal setae 6
6. Forewing blade without dark apical spot . . . . . 5. ***M. africanum***
– Forewing blade with a distinct dark apical spot 7
7. Most of dark spot on forewing blade setose (Fig. 11) . . . . . 6. ***M. ermak* sp. n.**
– Only anterior half of dark spot on forewing blade setose (Fig. 17). . 7. ***M. regale***
8. Hindwing abbreviated just beyond the hamuli (as in Fig. 7). Apical dark spot on forewing covering less than half length of the expansion . . . . . 2. ***M. pulchellum***
– Hindwing either filamentous (Fig. 9) or with a narrow expansion of membrane beyond hamuli (Figs. 15, 18, 21) 9
9. Hindwing filamentous beyond the hamuli, without apparent membrane and with one long apical seta (Fig. 9), or very rarely with two apical setae . . . . . 4. ***M. taprobanicum***
– Hindwing with a narrow, but distinct, expansion of membrane beyond hamuli, with several long marginal setae (Figs. 15, 18, 21). 10
10. Forewing blade without dark apical spot . . . . . 5. ***M. africanum***
– Forewing blade with a distinct dark apical spot 11
11. Most of apical dark spot on forewing blade setose (Figs. 14, 20) 12
– Only anterior half of apical dark spot on forewing blade setose (Fig. 17) . . . . . 7. ***M. regale***
12. Apical dark spot on forewing blade densely setose (Fig. 14) . . . . . 6. ***M. ermak* sp. n.**
– Apical dark spot on forewing blade sparsely setose (Fig. 20) . . 8. ***M. cincinnati***

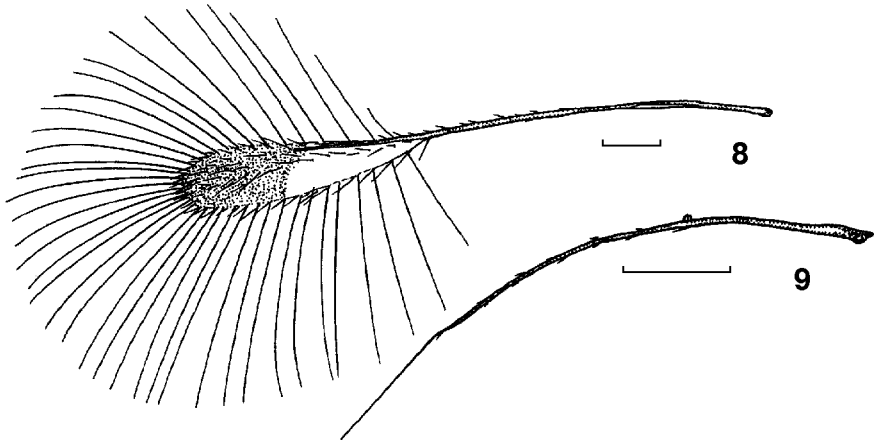
1. *Mymar schwanni* Girault, 1912

Mymar schwanni Girault, 1912: 166.
Mymar schwanni: Blackbourn, 1935: 214.
Mymar schwanni: Annecke, 1961: 551.
Mymar schwanni: New, 1973: 119.
Mymar pulchellum: Noyes & Valentine, 1989: 40, 80 (Figs. 106-108), misidentification.
Mymar schwanni: Hayat, 1992: 87.

MATERIAL. **Thailand**, Chiang Mai, Toong Huay Kho, S. Sonthichai: 10.V 1997, 1♀; 1-10.XI 1997, 1♀; 1-10.XII 1998, 1♀ [UCRC]. **Australia.** Victoria, Ormond, W. S. Anderson, 1♀ [USNM].

DISTRIBUTION. Southeast Asia, Australia, New Zealand, Oceania.

COMMENTS. The species that was illustrated by Noyes &Valentine (1989) as *M. pulchellum* is almost certain *M. schwanni*, that is native to the Australasian region. Indeed, the hindwing (Fig. 107b - Noyes & Valentine 1989) is greatly reduced like in both *M. pulchellum* and *M. schwanni*, but the dark spot on the forewing (their Fig. 107a) occupies much more than half length of the blade, the character which is characteristic of *M. schwanni*.



Figs. 8, 9. *Mymar taprobanicum*, ♀: 8) forewing; 9) hindwing. Scale bars 0.1 mm.

There are no reports that would mention the existence of the males of *M. schwanni*, and the few specimens available to us were all females. Therefore, we do not include *M. schwanni* in our key to the males of *Mymar*. However, we do not exclude the possibility that examination of collections from Australia and adjacent countries may reveal existence of males in this species.

2. *Mymar pulchellum* Curtis, 1832

Fig. 2

Mymar pulchellus Curtis, 1829: 586, nom. nud.
Mymar pulchellus Curtis, 1832: 411.
Mymar spectabilis Foerster, 1856: 120.
?*Mymar venustum* Girault, 1911: 92 [holotype - ♀ (on slide), *Mymar venustum* Girault ♀ Type *Mymar venustus* Type No. 13820 U.S.N.M. // *Mymar* female U.S.N.M. Greensburg, Pa. July, 3-05] [USNM], examined].
Pterolinononyktera obenbergeri Malác, 1943: 51.
Mymar pulchellum: Debauche, 1948: 234, pl. 5, Fig. 41; pl. 24, Figs. 299-301.
Mymar pulchellum: Annecke, 1961: 550.
Mymar pulchellus: Viggiani, 1973: 274.
Mymar pulchellum: Taguchi, 1975: 22.
Mymar pulchellus: Graham, 1982: 225.
Mymar pulchellum: Pintureau & Iglesias Calvin, 1996: 115.

MATERIAL. **Russia**, Primorskii krai, 30 km NE of Vladivostok, 29.VII-5.VIII 1992, B. D. Gill, 2♀, 1♂ [CNCI]. **Japan**, Ibaraki, Tsukuba,10-17.VII 1989, M. Sharkey, 9♀, 9♂ [CNCI]. **Belgium**, Antheit, VII-XI 1989, R.Detry, 4♀, 6♂ [ISNB]. **Denmark,** Sealand, Dyrehaven, 1.VIII 1911, J. P. Kryger, 1♀. **France**, Departement Gironde, St. Colombe, 9.VII 1999, M. van Helden, 1♀ [UCRC]. **England,** Bristol:

Kings Weston, 20.VII 1926, B.N. Blood, 1♂; New Forest, 15.VII 1928, J.P. Kryger, 1♀; Hallen Wood, 13.VII 1928. J. P. Kryger, 2♀, 2♂ [USNM]. **Canada,** Ontario, Spencerville, Hood Forest, 17.VIII 1979, L. Masner, H. Goulet, 1♀. **USA:** Virginia, Louisa Co., 4 mi. S of Cuckoo, 14.VII 1985, J. Kloke & D. R. Smith, 2 ♀; Wisconsin, Columbia Co., 17.X 1984, W. Gould, 1♀ [USNM].

DISTRIBUTION. Europe including Ukraine, Caucasus (Georgia) (Pintureau & Iglesias Calvin, 1996), Russia (Moscow region, *Primorskii krai), Japan, ?North America.

COMMENTS. We have examined the holotype of *M. venustum* and for now keep this species in synonymy with *M. pulchellum* as proposed by Annecke (1961). However, it is quite likely that careful examination of the additional material from Canada and northern USA in the future may prove that the North American species with an abbreviated hindwing is separate from the Palaearctic *M. pulchellum*, and thus resurrection of *M. venustum* would be necessary. We have found at least one morphological character that differs in these two closely related forms: in *M. pulchellum*, antennal scape is markedly shorter than F2 in the female, whereas in the holotype of *M. venustum*, these two antennal segments are subequal in length. At this point, we are not sure whether this feature is of a specific value or, otherwise, it is subject to intraspecific variability.

3. *Mymar maritimum* S. Triapitsyn et Berezovskiy, sp. n.
Figs 3-7

MATERIAL. Holotype - ♀ (on slide), RUSSIA: Primorskii krai, Ussuriysk district, Gornotayozhnoye, 200 m, 25-26.IX 1999, M. V. Michailovskaya, YPT. Mounted by V. Berezovskiy 2000 Canada balsam // *Mymar maritimum* S. Triapitsyn et Berezovskiy HOLOTYPE ♀. det. S. V. Triapitsyn & V. V. Berezovskiy 2000 [ZIN]. Paratypes (same locality and collector as the holotype): 27-29.V 1999, YPT, 1♀ on point; 6.VI 1999, YPT, 1♀ on point; 23-24.VI 1999, YPT, 1♀ on point; 28.VI-4.VII 1999, MT, 1♀ on slide; 21-22.VII 1999, YPT, 1♀ on point; 12-17.VIII 1999, MT, 1♀ on point; 22-28.VIII1999, YPT, 1♀ on slide; VIII 1999, MT and YPT, 2♀on points; 6-14.IX 1999, MT, 1♀ on slide; 10-15.IX 1999, YPT, 1♀ on point; 25-26.IX 1999, YPT, 1♀ on point; 11-21.VI 2000, MT, 2♀ on points; 13-15.VI 2000, YPT, 3♀ on points [CNCI, IBPV, UCRC, ZIN].

DESCRIPTION. FEMALE (holotype). Body brown, with following parts differently colored: pronotum, legs (except distal tarsomeres) and petiole light brown; F1-F3 and clava dark brown; eyes and ocelli pinkish brown.

Head. Vertex (Fig. 3) flat, trapezoidal, with several setae; ocelli in an obtuse triangle, a placoid sensillum anterior to each posterior ocellus; eyes height greater than malar space; frons with a few minute setae; mandible 3-dentate. Antenna (Fig. 4). Scape with a narrow constriction in the middle and fused with radicle as typical for the genus; pedicel slightly shorter than F1; F2 longest of funicle segments,

considerably longer than combined length of F3-F6 and clava; remaining funicle segments progressively slightly longer than preceding segment (F3 the shortest); all funicle segments without longitudinal sensilla; clava with 7 subapical sensory ridges.

Mesosoma. Pronotum entire, with 10 setae (4 and 4 in rows); prosternum anteriorly almost "closed" by propleura; mesoscutum short, with narrow notauli; scutellum trapezoidal, wider than long, longer than mesoscutum, scutellar placoid sensilla close to its posterior margin and relatively close to each other; each axilla with one weak seta, dorsellum stripe-shaped; propodeum large, smooth, only slightly shorter than scutellum, with a pair of strong distal setae. Foretarsus about as long as hindtarsus.

Wings. Forewing (Fig. 5) with blade occupying 0.38 of the total length of wing, with 45 fringe cilia (variation among paratypes 38-50); venation reaching the level of the 6th long fringe seta on anterior margin; apical dark spot occupying about 1/2 length of blade; basal (hyaline) half of blade with 1 row of discal setae closer to anterior margin; anterior part of dark spot densely setose, posterior part bare. Hindwing (Fig. 7) about 0.26 of forewing length, greatly abbreviated beyond hamuli to a short stub, which varies in length in different specimens (Figs. 6, 7), ranging 0.2-0.26 of forewing length.

Metasoma. Petiole smooth, about 6.3 x as long as wide; gaster slightly longer than mesosoma; ovipositor occupying about 0.75 length of gaster (range in paratypes 0.66-0.75), barely exserted beyond its apex.

Measurements (*n*=4, holotype and paratypes on slides): Body: total length (paratypes on points): 914 (826-1057); mesosoma: 362 (351-369); petiole: 188 (166-207); gaster: 456 (418-495); ovipositor: 302 (292-315). Antenna: scape: 306 (292-325); pedicel: 66 (62-73); F1: 72 (69-80); F2: 362 (347-387); F3: 33 (29-37); F4: 34 (31-37); F5: 38 (33-40); F6: 48 (44-55); clava: 166 (153-182). Forewing: total length: 1298 (1260-1377); length/width of blade: 497 (459-567)/146 (135-164); longest fringe seta: 447 (423-459). Hindwing length: 307 (263-336). Legs (given as coxa, femur, tibia, tarsus): fore: 83 (77-88), 232 (207-261), 315 (306-333), 363(333-418); middle: 76 (73-82), 236 (225-261), 425 (405-468), 365 (349-387); hind: 100 (91-117), 312 (297-328), 528 (504-585), 370 (351-405).

MALE**.** Unknown.

DIAGNOSIS. The new species belongs to the group of closely related species with greatly abbreviated hindwing that also includes *M. pulchellum* and *M. schwanni*. *M. maritimum* differs from both of these species by the size of the apical dark spot on the forewing that occupies about half length of the blade. Additionally, it can be separated from *M. schwanni* by the different proportions of segments of the female antenna and from *M. pulchellum*, to which it is the closest, by the characters indicated in the key.

DISTRIBUTION. Russia: Primorskii krai.

ETYMOLOGY. The specific name is adjective with reference to the region where the type series was collected - Maritime Province (Primorskii krai).

4. *Mymar taprobanicum* Ward, 1875
Figs 1, 8, 9

Mymar taprobanicus Ward, 1875: 197.
Mymar taprobanicus: Westwood, 1879: 583.
Mymar tyndalli Girault, 1912: 168.
Mymar antillanum Dozier, 1937: 130 (holotype - ♀ (on slide), *Mymar antillanum* Dozier ♀ Type No. 51684 U.S.N.M. // *Mymar antillanum* Doz. sweeping grass and sedges at roadside pond Bogueron P.R. [Puerto Rico], Sept.5-1935 H. L. Dozier [USNM], examined).
Mymar indica Mani, 1942: 158.
Oglobliniella aegyptiaca Soyka, 1950: 131.
Mymar taprobanicum: Annecke, 1961: 545.
Mymar taprobanicum: Viggiani, 1966: 114.
Mymar taprobanicum: Taguchi, 1971: 54.
Mymar tyndalli: New, 1973: 122 (redescription of the holotype).
Mymar taprobanicum: Taguchi, 1975: 22.
Mymar taprobanicum: Subba Rao, 1976: 89.
Mymar sp.: Chandra, 1980: 121.
Mymar taprobanicum: Subba Rao, 1983: 391.
Mymar taprobanicum: Hayat, 1992: 87.
Mymar taprobanicum: Pintureau & Iglesias Calvin, 1996:115.

MATERIAL. **Russia**, Primorskii krai, Gornotayozhnoye, M. V. Michailovskaya: V-X 1999, 49♀, 13♂; 11-21.VI 2000, 2♀, 3♂ [IBPV, UCRC, ZIN]. **France**, Département Gironde, St. Colombe, 9.VII 1999, M. van Helden, 1♀ [UCRC]. **Madagascar**, Prov. Fianarantsoa, 7 km W of Ranomafana, 22-31.X 1988, W. E. Steiner, 2♀ [USNM].**Kenya**, Isecheno, 1-9.X 1999, R. Snelling, 2♀ [UCRC]. **Ivory Coast**, Lamto, XI 1988, J. Noyes, 2♀, 1 ♂[CNCI]. **South Africa,** Pretoria, XII 1958, D. P. Annecke, 2♀ [USNM]. **USA**. Georgia, Liberty Co., St. Catherines Il., A.Sharkov: 6-10.IV 1995, 1♀, 2♂; 22-27.VII 1995, 2♂; 23-28.VII 1996, 1♂ [UCRC]. Maryland, Prince George's Co., Patuxent Research Station, M. E. Schauff: 25.V-11.VI 1979, 20♀; V-VIII 1980, 26♀ [USNM]. Missouri, Greene Co., Spring Field, 19.VIII 1983, J. D. Pinto, 1♀ [UCRC]. Puerto Rico: Lake Guanica,13.VII 1936, H. L. Dozier, 1♀ (paratype of *M. antillanum*); Mayaguez, 28.II 1936, H. L. Dozier, 1♀. Virginia: Essex Co., 1 mi. SE of Dunnsville,12-29.IV 1991, D. R. Smith, 1♀; Fairfax Co., nr. Annandale, 22.VIII-5.IX 1987, D. R. Smith, 3♀; Louisa Co., 4 mi. S of Cuckoo, 1985-1988 (V-XI), J. Kloke & D. R.Smith, 11♀ [USNM]. **Costa Rica**, San José, Zurquí de Moravia,VI 1995, P. Hanson, 1♀. **Colombia**, Boyac, Villa de Leyva, 5.63°N, 73.57°W, 22-27.VI 2000, E. Bremer, G. Kung, 1♂. **New Zealand**, Mangamuka Walkway, 30.III-5.V 1999, R. A. Leschen, 1♀ [UCRC].

DISTRIBUTION. *Russia (Primorskii krai), southern Europe, Japan, Asia (southeast mainly), Africa, Australasia, North and Central America, *Colombia.

HOSTS. *Laodelphax striatella* Fallén (Delphacidae) (Taguchi, 1975), *Nephotettix cincticeps* (Uhler) (Cicadellidae) (Subba Rao, 1983), and *Nilaparvata lugens* (Stel) (Delphacidae) (Chandra 1980).

COMMENTS. Chandra's (1980) drawing of what he called a "*Mymar* sp." undoubtedly is that of *M. taprobanicum*. This species is almost cosmopolitan in distribution and is restricted mainly to warmer climates. In Gornotayozhnoye, *M. taprobanicum* was the most common species of the genus in our samples.

5. *Mymar africanum* Annecke, 1961

Mymar africanum Annecke, 1961: 544.

DISTRIBUTION. South Africa.

COMMENTS. This is the only known species of *Mymar* that has no dark spot on the forewing and F2 of female antenna not greatly elongate, but about as long as F3.

6. *Mymar ermak* S. Triapitsyn et Berezovskiy, sp. n.

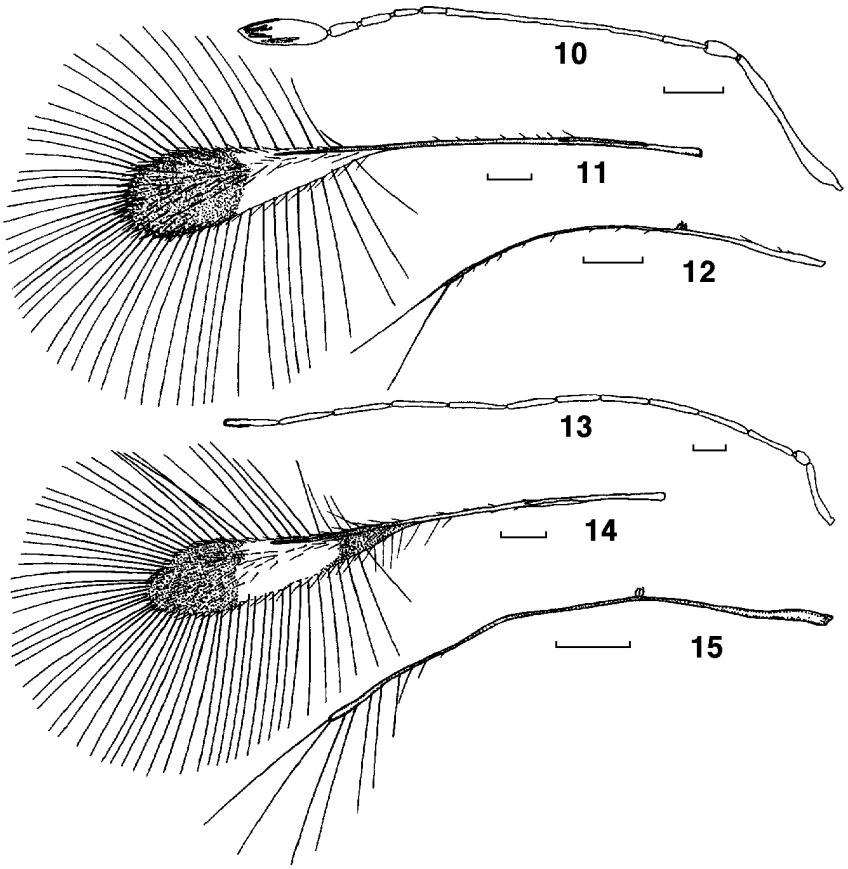
Figs 10-16

MATERIAL. Holotype - ♀ (on slide), RUSSIA: Primorskii krai, Ussuriysk district, Gornotayozhnoye, 200 m, 18-19.IX 1999, M. V. Michailovskaya, YPT. Mounted by V. Berezovskiy 2000 Canada balsam // *Mymar ermak* S. Triapitsyn & Berezovskiy HOLOTYPE ♀. det. S. V. Triapitsyn & V. V. Berezovskiy 2000 [ZIN]. Paratypes (same locality and collector as the holotype): 19-20.VI 1999, YPT, 1♂ on slide and 1♂ on point [UCRC]; 23-24.VI 1999, YPT, 1♂ on point [ZIN]; 11-21.VI 2000, MT, 1♀ on point [UCRC].

DESCRIPTION. FEMALE (holotype). Body yellowish brown, with following parts darker: trabeculae on the head, F1-F3 and F4 (partly), edges of mesoscutum, scutellum, metanotum and metapleura, tip of ovipositor sheaths, and all distal tarsomeres brown. Clava dark brown; eyes and ocelli pinkish brown.

Head. Vertex flat, almost trapezoidal, with scattered setae; ocelli on an obtuse triangle (like in *M. maritimum* sp. n., Fig. 3); eyes small, about as high as malar space; frons with a few minute setae; mandible 3-dentate,with a small denticle at base. Antenna (Fig. 10). As typical for the genus, radicle fused with scape and scape with constriction in the middle; pedicel slightly shorter than F1; F2 longest of funicle segments, slightly longer than combined length of F3-F6 and clava; remaining funicle segments short; all funicle segments without longitudinal sensilla; clava with 7 subapical sensory ridges.

Mesosoma. Pronotum entire, with 10 setae (4 and 4 in rows); prosternum anteriorly "closed" by propleura; mesoscutum with narrow notauli, lateral lobes of mesoscutum each with one seta; scutellum subrectangular, wider than long, slightly longer than mesoscutum, placoid sensilla set in its middle, far apart from each other; each axilla with one strong seta, its length about1/3 length of scutellum;



Figs. 10-15. *Mymar ermak* sp. n.: 10) antenna, ♀; 11) forewing, ♀; 12) hindwing, ♀; 13) antenna, ♂; 14) forewing, ♂; 15) hindwing, ♂. Scale bars 0.1 mm.

dorsellum about 0.17 x as long as scutellum; propodeum smooth, about 2/3 x as long as scutellum, with a pair of distal setae. Foretarsus slightly longer than hindtarsus.

Wings. Forewing (Fig. 11) with blade occupying about 0.4 of the total length of wing, its length/width ratio 3.5:1, with 54 marginal cilia; venation reaching the level of the 5th long fringe seta on anterior margin; apical dark spot occupying about 1/2 length of blade; basal (hyaline) part of blade with 2 rows of discal setae closer to the anterior margin; almost the entire distal (dark) half of forewing densely setose, except for a small bare spot near posterior margin. Hindwing (Fig. 12) about half length of forewing; hamuli placed 274 from base of the wing; followed by a very narrow, but distinct, expansion; the latter with 2 long apical fringe cilia and a few shorter setae along posterior margin.

Metasoma. Petiole smooth, about 6.5 x as long as wide, slightly wider at middle than at apices, about 2 x as long as hindcoxa; gaster slightly longer than mesosoma; ovipositor occupying about 0.6 length of gaster, barely exserted beyond its apex.

Measurements (*n*=1, holotype): Body: total length (1 paratype on point): 925; mesosoma: 360; petiole: 180; gaster: 405; ovipositor: 248. Antenna: scape: 292; pedicel: 66; F1: 77; F2: 394; F3: 44; F4: 47; F5: 58; F6: 55; clava: 161. Forewing: total length: 1296; length/width of blade: 540/153; longest fringe seta: 468. Hindwing: length/width: 675/8; longest fringe seta: 230. Legs (given as coxa, femur, tibia, tarsus): fore: 80, 270, 315, 405; middle: 73, 248, 432, 378; hind: 110, 288, 522, 378.

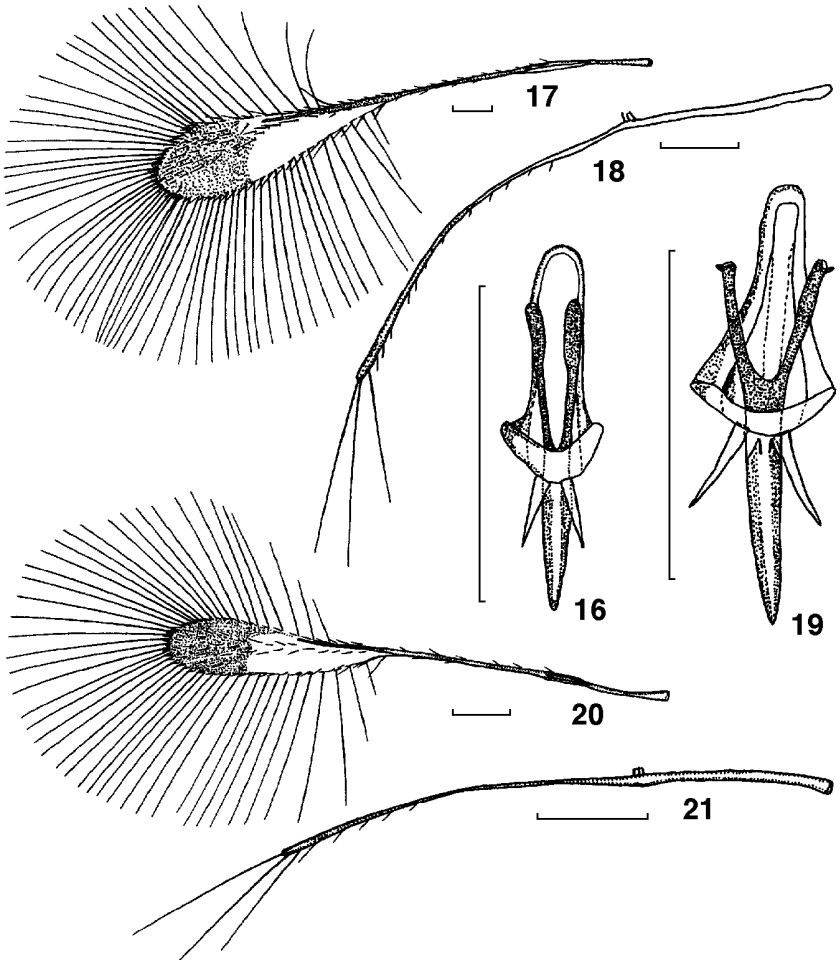
MALE. Most non-sexually dimorphic morphological features similar to female except as follows. Color: body brown, with following parts differently colored: frons, gena, scape, pedicel, pronotum, legs (except distal tarsomeres) and petiole light brown; vertex, flagellum anddistal tarsomeres dark brown. Antenna (Fig. 13): all flagellar segments subequal in length, F5 the shortest and F9 the longest. Legs: foretarsus much longer than hindtarsus. Forewing (Fig. 14): length/width of blade ratio 4.2:1; blade occupying slightly more than half of the total length of wing; a small faint dark spot at base of blade; apical dark spot occupying about 3/7 of the total length of blade and completely covered with setae; marginal cilia 65-69 in number. Hindwing (Fig. 15): expansion more prominent than in female, with 6 long, 2 medium-size, and several shorter setae along posterior margin. Genitalia as in Fig. 16.

Measurements (*n*=1, paratype on slide): Body: total length (2 paratypes on points): 891-925; petiole: 135. Antenna: scape: 219; pedicel: 55; F1: 182; F2: 179; F3: 171; F4: 164; F5: 150; F6: 172; F7: 189; F8: 186; F9: 197; F10: 186; F11: 190. Forewing: total length: 1,242; length/width of blade: 648/153. Genitalia: 113.

DIAGNOSIS. The new species is easily distinguishable from other *Mymar* species of with an apical dark spot on the forewing blade by having this spot almost completely and densely covered with discal setae (Figs. 11, 14). The most closely related species to *M. ermak* are *M. regale* and *M. cincinnati*. *M. regale* has only the anterior half of apical dark spot on the forewing blade setose (Fig. 17), and hindwing usually with fewer number of long fringe cilia (Fig. 18). The number of fringe cilia on the forewing is much greater in the new species (54-58 in ♀, 63-69 in the ♂) compared with *M. regale* (40-47 in ♀, 51-53 in the ♂). *M. cincinnati*, which is known from male, also has almost the entire apical dark spot on the forewing blade setose, but unlike in *M. ermak*, very sparsely (Fig. 20); the number of fringe cilia is 44-49.

DISTRIBUTION. Russia: Primorskii krai.

ETYMOLOGY. The specific name *ermak* is a noun, the name of a famous Russian conqueror of Siberia, thus referring to our efforts to study the mymarid fauna of Siberia and Russian Far East.



Figs. 16-21. *Mymar*. 16) *M. ermak* sp. n. genitalia, ♂, dorso-ventral view; 17-19) *M. regale*, ♂: 17) forewing; 18) hindwing; 19) genitalia, dorso-ventral view; 20, 21) *M. cincinnati*, ♂: 29) forewing; 21) hindwing. Scale bars 0.1 mm.

7. *Mymar regale* Enock, 1912

Figs 17-19

Mymar regalis Enock, 1912: CVIII, pl. A.
Mymar regale: Debauche, 1948: 237, pl. 5, Fig. 42; pl. 24, Figs 295-298.
Mymar regale: Annecke, 1961: 554.
Mymar regale: Pintureau & Iglesias Calvin, 1996: 115.

MATERIAL. **Russia**, Primorskii krai, Gornotayozhnoye, M. V. Michailovskaya: 18.VI 1999, YPT, 1♂ [IBPV]; 21-22.VII 1999, YPT, 1♂ [UCRC]. **Belgium**: Antheit, R. Detry: VII-XI 1989, 15♀, 8♂; V-XII 1990, 4♀, 2♂. Waterloo, 4-11.X 1992, P. Dessart, 1♀, 1♂ [ISNB, UCRC].

DISTRIBUTION. Europe (Pintureau & Iglesias Calvin, 1996), Russia: Primorskii krai. *M. regale* appears to be a northern species; it is likely to occur also in other parts of Russia.

COMMENTS. The material of *M. regale* from Belgium was collected mainly during July-October, a few specimens were taken as early as 25 May and as late as 2 December. The only two males from Gornotayozhnoye were collected during summer months. Pintureau & Iglesias Calvin (1996) also mentioned this species from Primorskii krai, but without details about the collecting locality.

Debauche (1948) provided an adequate redescription of the female of this species including the illustrations, later complimented by Pintureau & Iglesias Calvin (1996). Both studies were based just on a few individuals: 1♀ and 1♀, 2♂, respectively; therefore, intraspecific variability of the morphological characters could not be effectively analyzed. According to Pintureau & Iglesias Calvin (1996), the single female from Monsols, France, had only one long fringe seta on the hindwing, and all the males from the same series had five such setae. In the larger series from Antheit, Belgium, that we examined, females have either one fringe seta or, less often, two setae on the hindwing. The males of *M. regale* from Belgium have from three to six fringe setae on the hindwing (five usually). One of the males from Gornotayoznoye has three such setae (Fig. 18).

8. *Mymar cincinnati* Girault, 1917

Figs 20-21

Mymar cincinnati Girault, 1917: 99 [holotype -♂ (on slide), *Mymar cincinnati* Girault. ♂ Type No. 20468 U.S.N.M. [USNM], examined].

Mymar cincinnati: Annecke, 1961:551.

MATERIAL. **USA,** Illinois, Elizabethtown, 5.VIII 1932, H. L. Dozier, 1♂ [USNM].

DISTRIBUTION. USA.

COMMENTS. The type specimen of this species was collected in Glenndale, Maryland, USA, in August (no year indicated), "by sweeping grass in an open wooded bog" (Girault, 1917). *M. cincinnati* seems to represent a good species, closely related to both *M. regale* and *M. ermak* sp. n. The true identity of this species would be revealed only after examination of more, fresh, specimens from North America, including the females. In the two males of *M. cincinnati* examined, the number of fringe cilia on the forewing is 44-49. On the hindwing, the narrow membrane has 2 or 3 long apical cilia, one medium-size seta, and several short marginal setae.

SPECIES INCORRECTLY PLACED IN *MYMAR*

***Telenomus crinisacri* (Quail, 1901), comb. n.**

Mymar crinisacri Quail, 1901: 153, pl. 8, part. (type locality - New Zealand).

Prosacantha crimitaeri [sic] Quail: Hutton, 1904: 99 (as Proctotrupidae: Mymarinae).

Mymar crinasacri [sic] Quail: Annecke, 1961: 552.

Mymar crinisacri Quail: Valentine,1967: 1145, 1182 (as ?*Telenomus phalaenarum* Nees).

COMMENTS. This species, the type material of which is lost (Valentine, 1967), was reared from the eggs of *Vanessa gonerilla* Fabricius, 1775 (Nymphalidae) in New Zealand (Quail, 1901). Both Annecke (1961) and Valentine (1967) noted the incorrect placement of this species in *Mymar*, but a formal combination to the correct genus has never been proposed.

DISCUSSION

In the Holarctic region, species of *Mymar* appear to be rather common in the forested zones with temperate climate. Because mymarids have been generally rarely collected using the appropriate methods, *Mymar* is usually equally poorly represented in most collections. In our material from southern Primorskii krai, *Mymar* was not uncommon in yellow pan traps and also was relatively well represented in the Malaise trap samples. Mymaridae, in general, was one of the most, if not the most, specimen-abundant family of the Chalcidoidea in the samples collected in Gornotayozhnoye during 1999 season using both these methods.

Primorskii krai is home to five different species of *Mymar*; four species are recorded here from the same locality (Gornotayozhnoye). No information, however, exists about *Mymar* species diversity in China and the Korea, or, in fact, in other parts of Russian Far East. The maximum of two species of *Mymar* have been previously known to co-exist in other parts of the world, e.g., *M. pulchellum* and *M. regale* in Belgium (Debauche 1948) and France (Pintureau & Iglesias Calvin 1996), *M. schwanni* and *M. taprobanicum* in Australia, *M. pulchellum* and *M. taprobanicum* in Shikoku, Japan (Taguchi 1975).

ACKNOWLEDGMENT

We would like to express our appreciation and thanks to Dr. Marina V. Michailovskaya (Mountain-Taiga Station, Gornotayozhnoye, Primorskii krai, Russia) for collecting the material, thus making this study possible.

REFERENCES

Annecke, D. P. 1961. The genus *Mymar* Curtis (Hymenoptera, Mymaridae). - South African Journal of Agricultural Science 4(4): 543-552.

Annecke, D. P. & Doutt, R. L. 1961. The genera of the Mymaridae Hymenoptera: Chalcidoidea. - Entomological Memoirs (Department of Agricultural Technical Services, Republic of South Africa) 5:1-71.
Blackbourn, B. 1935. "Fairy-flies". - The Victorian Naturalist 51: 213-216.
Chandra, G. (1979) 1980. Taxonomy and bionomics of the insect parasites of rice leafhoppers and planthoppers in the Philippines and their importance in natural biological control. - The Philippine Entomologist 4(3): 119-139.
Curtis, J. 1829. A guide to an arrangement of British insects. London. 256 pp.
Curtis, J. 1832. British Entomology 9. Plates 386-433 (with text). London.
Debauche, H. R. 1948. Etude sur les Mymarommidae et les Mymaridae de la Belgique (Hymenoptera Chalcidoidea). - Mémoires du Musée Royal d'Histoire Naturelle de Belgique 108: 1-248.
Doutt, R. L. & Annecke, D. P. 1963. *Mymar* Curtis, 1829 (Insecta, Hymenoptera): proposed designation of a type-species under the plenary powers. Z.N.(S.) 479. - The Bulletin of Zoological Nomenclature 20(2): 134-136.
Dozier, H. L. 1937. Descriptions of miscellaneous chalcidoid parasites from Puerto Rico (Hymenoptera). - The Journal of Agriculture of the University of Puerto Rico 21: 121-135.
Enock, F. (1911) 1912. Description of a new species of the Hymenopterous genus *Mymar*. - The Transactions and Proceedings of the Entomological Society of London: CVIII-CIX (pl. A).
Foerster, A. 1856. Hymenopterologische Studien. II Heft. Chalcidiae und Proctotrupii. Aachen. 156 p.
Girault, A. A. 1911. The occurrence of the mymarid genus *Mymar* Haliday in North America. - Journal of the New York Entomological Society 19: 92-95.
Girault, A. A. 1912. Australian Hymenoptera Chalcidoidea. II. The family Mymaridae with descriptions of new species. - Memoirs of the Queensland Museum 1: 117-175.
Girault, A. A. 1917. A new species of the genus *Mymar* from the woods of Maryland with an important descriptive note. - Psyche 24:99-100.
Graham, M. W. R. de V. 1982. The Haliday collection of Mymaridae (Insecta, Hymenoptera, Chalcidoidea) with taxonomic notes on some material in other collections. - Proceedings of the Royal Irish Academy, B 82(12): 189-243.
Hayat, M. 1992. Records of some Mymaridae from India, with notes (Hymenoptera: Chalcidoidea). - Hexapoda 4(1): 83-89.
Heraty, J. & Hawks, D. 1998. Hexamethyldisilazane - a chemical alternative for drying insects. - Entomological News 10(5): 369-374.
Huber, J. T. 1986. Systematics, biology, and hosts of the Mymaridae and Mymarommatidae (Insecta: Hymenoptera): 1758-1984. - Entomography 4:185-243.
Huber, J. T. 1997. Chapter 14. Mymaridae. *In:* Gibson G. A. P., Huber J. T., Woolley J. B. (Eds.). Annotated keys to the genera of Nearctic Chalcidoidea (Hymenoptera). - Ottawa: NRC Research Press: 499-530.
Hutton, F. W. 1904. Index faunae Novae Zealandiae. - London: Dulau & Co., 372 p.
Lelej, A. S. 1998. [Preamble]. *In*: [Key to the insects of Russian Far East]. Vol. IV. Pt 3. Vladivostok: Dal'nauka: 3-5. [In Russian.]
Malác, A. 1943. *Pterolinononyktera* nov. gen. *Obenbergeri* nov. sp. - Entomologické Listy (Folia Entomologica) 6:51.
Mani, M. S. 1942. Studies of Indian parasitic Hymenoptera - II. - Indian Journal of Entomology 4: 153-162.

New, T. R. 1973. The Australian species of *Mymar* Curtis described by A. A. Girault [Hymenoptera, Mymaridae]. - Entomophaga 18(2):119-123.
Noyes, J. S. 1982. Collecting and preserving chalcid wasps (Hymenoptera:Chalcidoidea). - Journal of Natural History 16: 315-334.
Noyes, J. S. & Valentine, E. W. 1989. Mymaridae (Insecta: Hymenoptera) - introduction, and review of genera. - Fauna of New Zealand 17: 1-95.
Ogloblin, A. A. 1946. Description of new genera and species of Mymaridae (Hymenoptera: Chalcidoidea). - Iowa State College Journal of Science 20(3): 277-295.
Opinion 729. 1965. *Mymar* Curtis, 1829 (Insecta, Hymenoptera): designation of a type-species under the plenary powers. - The Bulletin of Zoological Nomenclature 22(2): 82-83.
Pintureau, B. & Iglesias Calvin, M. del Pilar. 1996. Review of the European species of *Mymar* Curtis (Hymenoptera: Mymaridae: Mymarini). - The Entomologist 115(2): 114-123.
Platner, G. R., Velten, R. K., Planoutene, M. & Pinto, J. D. 1999. Slide-mounting techniques for *Trichogramma* (Trichogrammatidae) and other minute parasitic Hymenoptera. - Entomological News 110(1): 56-64.
Quail, A. (1900) 1901. Art. XIII. - Hymenopterous parasite of ovum of *Vanessa gonerilla*. - Transactions and Proceedings of the New Zealand Institute 33: 153-154, pl. 8.
Schauff M. E. 1984. The Holarctic genera of Mymaridae (Hymenoptera: Chalcidoidea). - Memoirs of the Entomological Society of Washington 12: 1- 67.
Soyka, W. 1946. Beiträge zur Klärung der europäischen Arten und Gattungen der Mymariden (Hym. Chalcidoid.). - Zentralblatt für das Gesamtgebiet der Entomologie 1(5-6): 177-185.
Soyka, W. 1950. New and known Alaptids and Mymarids from Egypt (Hymenoptera-Chalcidoidea). - Bulletin de la Societé Fouad 1er d'Entomologie 34: 121-131.
Shutova, N. N. & Kuhtina, A. V. 1955. [Parasites and predators of quarantine and some other pests of agricultural crops]. - Entomologicheskoe Obozrenie 34: 210-217. [In Russian.]
Storozheva, N. A. 1989. [Discovery of an oophage of the rice leaf beetle (*Oulema oryzae*) - *Anaphes nipponicus* Kuw. in Primorskii krai]. - [The experience of biological plant protection]. Vladivostok: 14-16. [In Russian.]
Storozheva, N. A. 1990. [The oophage *Anaphes nipponicus* Kuw. and other parasites of the rice leaf beetle *Oulema oryzae* Kuw. in Primorskii krai]. - Materials of X Congress of All-Union Entomological Society, Leningrad, 11-15 September 1989. Leningrad: 113. [In Russian.]
Subba Rao, B. R. 1976. *Narayana*, gen. nov. from Burma and some synonyms (Hymenoptera: Mymaridae). - Oriental Insects 10(1): 87-91.
Subba Rao, B. R. 1983. A catalogue of enemies of some important planthoppers and leafhoppers. *In*: Knight, W. J., Pant, N. C., Robertson, T. S. & Wilson, M. R. (eds.). Proceedings of the 1st International Workshop on biotaxonomy, classification and biology of leafhoppers and planthoppers (Auchenorrhyncha) of economic importance, London, 4-7 October 1982. Commonwealth Institute of Entomology, London: 385-403.
Taguchi, H. 1971. Mymaridae of Japan, I (Hymenoptera: Chalcidoidea). - Transactions of the Shikoku Entomological Society 11(2): 49-59.
Taguchi, H. (1974) 1975. Records of two *Mymar* species from Japan and Taiwan (Hymenoptera: Mymaridae). - Transactions of the Shikoku Entomological Society 12(1-2): 22.

Triapitsyn, S. V. In litt. [Species of the genus *Alaptus* Westwood (Hymenoptera, Mymaridae) reared from psocid eggs (Psocoptera) by V. N. Vishnyakova (Gorlova) in Russia and Belorussia]. - Entomologicheskoe Obozrenie. [In Russian.]

Triapitsyn, S. V. & Huber, J. T. 2000. 51. [Fam. Mymaridae - mymarids]. *In*: [Key to the insects of Russian Far East. Vol. IV. Pt 4. Vladivostok, Dal'nauka: 603-614. [In Russian.]

Valentine, E. W. 1967. A list of the hosts of entomophagous insects of New Zealand. - New Zealand Journal of Science 10(4): 1100-1209.

Viggiani, G. 1966. Una specie di *Mymar* Curtis (*M. taprobanicum* Ward) nuova per l'Europa. - Bolletino della Societá Entomologica Italiana 96(7-8): 113-117.

Viggiani, G. 1973. Ricerche sugli Hymenoptera Chalcidoidea. XXXIX. Notizie preliminari sulla struttura e sul significato dell'armatura esterna dei Mimaridi. - Bollettino del Laboratorio di Entomologia Agraria "Filippo Silvestri" di Portici 30: 269-281.

Ward, A. O. 1875. Description of a new species of Proctotrupidae from Ceylon. - The Entomologist's Monthly Magazine 11:197.

Westwood, J. O. 1879. Descriptions of some minute hymenopterous insects. - The Transactions of the Linnean Society of London, Zoology (2nd series) 1: 583-593.

Yoshimoto, K. M., Kozlov, M. A. & Trjapitzin, V. A. 1972. [A new subfamily of Mymaridae (Hymenoptera, Chalcidoidea)]. - Entomologicheskoe Obozrenie 51(4): 878-885. [In Russian]. English translation: Entomological Review 51:521-525.

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