A REVIEW OF THE FAMILY TRIGONALYIDAE
(HYMENOPTERA) OF THE PALAEARCTIC REGION

A. S. Lelej

Institute of Biology and Soil Science, Far East Branch of the Russian Academy of Sciences, Vladivostok-22, 690022, Russia

Check-list of twelve species in five genera of two subfamilies is given. The spelling of Orthogonalyinae is corrected. Genus Teranishia Tsuneki (type species T. nipponica Tsuneki, ♂ non ♀) transferred to subfamily Orthogonalyinae. Taeniogonalos mongolica (Popov, 1945), stat. resurr., comb. n. is proposed for T. flavocincta (Teranishi, 1929), nom. praecoc., non T. flavicincta (Bischoff, 1913) (secondary homonymy).

KEY WORDS: Hymenoptera, Trigonalyidae, taxonomy.

INTRODUCTION

Trigonalyidae is a small group of parasitic wasp (88 species in 16 genera) which has cosmopolitan distribution, with the exception of arctic and alpine zones (Carmean
They lay the eggs on foliage; for the hatching eggs must be consumed by herbivorous caterpillar or sawfly larva. The ultimate hosts of trigonalyids are the parasites or predators, which attack the caterpillar or sawfly larva, some species are direct parasites of sawflies. Yamane (1973) and Weinstein & Austin (1991) give the review of the biology. Trigonalyidae are most abundant in the tropics. Twenty-four species and twenty-three species correspondingly are known for Oriental and Neotropic region, twelve species in five genera are known for Palaearctic, one species found in Europe. There are two paper with review of Russian Trigonalyidae (Marshakov, 1981; Lelej, 1995) in which eight species in four genera are recorded and keyed. All these species are distributed in Russian Far East and only Pseudogonalos hahni is known in European part of Russia. Trigonalyid distribution on the Russian Far East is limited by southern part, which belong to Manzhurian Province of Palaearcheaeartic (Eastern Palaearctic) subregion. Such distribution patterns are good evidence of close relations of this subregion with Oriental region also. Recently the phylogeny and reclassification of the family based on world material has been made (Carmean & Kimsey, 1998). They have proposed many new synonyms for genera and species. Unfortunately in this basic work my paper (Lelej, 1995) with some important changes in taxonomy of Palaearctic taxa is overlooked. For current paper I study 115 specimens from the collections of Institute of Biology and Soil Science (Vladivostok) and Zoological Institute (St Petersburg).

LIST OF THE PALAEARCTIC TRIGONALYIDAE

Subfamily ORTHOGONALYINAE Carmean et Kimsey, 1998


REMARKS. The stem of Orthogonalys for the family-group name is orthogonaly-os, which would make Orthogonalyniae the correct spelling (I.M. Kerzhner, personal communication). According to article 35.4.1 of International Code of Zoological Nomenclature (1999) Orthogonalyniae Carmean et Kimsey must be used for this subfamily.

1. Genus Orthogonalys Schulz, 1905

Orthogonalys Schulz, 1905: 76 (type species Orthogonalys boliviana Schulz, 1905, Bolivia, by monotypy); Carmean & Kimsey, 1998: 52.

Orthogonalys elongata (Teranishi, 1929)

Orthogonalys elongata Teranishi, 1929: 144; Marshakov, 1981: 105.
MATERIAL. 11 specimens from Russia (Sakhalin) and Japan (Hokkaido, Honshu).
DISTRIBUTION. Russia (South Sakhalin, Kuril Islands: Kunashir, Shikotan); Japan (Hokkaido, Honshu) (Bennett & Lelej, 2003).

Orthogonalys fukuiensis (Tsuneki, 1991)

Orthogonalos fukuiensis Tsuneki, 1991: 28, ♂ 

DISTRIBUTION. Japan (Honshu). This species is known by holotype only.

Orthogonalys hagoromonis (Teranishi, 1929)


DISTRIBUTION. Russia (Primorskii krai); Japan (Honshu).

2. Genus Teranishia Tsuneki, 1991


REMARKS. Type species T. nipponica (male) has antennae without tyloids, supraantennal elevation highly prominent, propodeal foramen rounded, the characters which resemble Orthogonalys male. Based on original genitalia structure of T. nipponica I propose to conserve separate genus for this species. Probably undescribed female of Genus 1 from Japan (Carmean & Kimsey, 1998) which has some unique characters is the opposite sex of T. nipponica.

Teranishia nipponica Tsuneki, 1991

Teranisha nipponica Tsuneki, 1991: 15, ♂ non ♀.

DISTRIBUTION. Japan (Honshu). This species is known by male only.

Subfamily TRIGONALYINAE Cresson, 1887

Trigonalinae Cresson, 1887: 183; Carmean & Kimsey, 1998: 54.

REMARKS. The stem of Trigonalyos for the family-group name is trigonaly-os, which would make Trigonalyidae, Trigonalyinae or Trigonalyini the correct spelling (I.M. Kerzhner, personal communication). For last fifty years Trigonalidae and Trigonalyidae have been used approximately equal even former more often. According to the article 35.4.1 of International Code of Zoological Nomenclature (1999) Trigonalyidae Cresson, 1887, Trigonalyinae Cresson, 1887 and Trigonalyini Cresson, 1887 must be used.
3. Genus *Bareogonalos* Schulz, 1907


*Bareogonalos jezoensis* (Uchida, 1929)


**MATERIAL.** 7 specimens from the Russia (Primorski krai) and Japan (Hokkaido, Honshu).

**DISTRIBUTION.** Russia (Primorski krai); Japan (Hokkaido, Honshu); Indonesia (Java).

4. Genus *Pseudogonalos* Schulz, 1906


*Pseudogonalos hahnii* (Spinola, 1840)


**MATERIAL.** 25 specimens from Ukraine, Kazakhstan and Russia (Smolensk, Amurskaya oblast, Primorski krai).

**DISTRIBUTION.** Russia (European part, Altai, Irkutskaya oblast, Chitinskaya oblast, Amurskaya oblast, Primorski krai); Western Europe; Ukraine; Kazakhstan; Mongolia; North-East China.

*Pseudogonalos marujamae* (Tsuneki, 1991)

*Jezonogonalos marujamae* Tsuneki, 1991: 3, ♀ non ♂ as in description.


**DISTRIBUTION.** Russia (Kuril Islands: Kunashir); Japan (Hokkaido, Honshu).
REMARKS. The female of this species has been described by K. Tsuneki (1991) twice in different genera: as Jezogonalos marujamae and Teranishia nipponica. For the more the type specimens (females) has been collected in Maruyama (Sapporo) by C. Teranishi 2.VIII 1922 (1♀ marujamae) and VII 1922 (4♀ nipponica). The true male of P. marujamae has tyloids on flagellomere 8-13 (total 21 flagellomeres) and genitalia structure similar to P. hahnii. I have not seen the reason for the erection of this species in the separate genus Jezogonalos.

5. Genus Taeniogonalos Schulz, 1906


Taeniogonalos fasciata (Strand, 1913)


MATERIAL. 15 specimens from Russia (Primorski krai), Korea and Japan (Honshu).

DISTRIBUTION. Russia (Primorski krai); Korea; China (Anhui, Zhejiang, Taiwan); Japan (Honshu, Kyushu); Malaysia; Indonesia.

Taeniogonalos maga (Teranishi, 1929)


MATERIAL. 69 specimens from Russia (Amurskaya oblast, Primorski krai, Sakhalin, Kuril Islands) and Japan (Hokkaido, Honshu).

DISTRIBUTION. Russia (Amurskaya oblast, Primorski krai, South Sakhalin, Kuril Islands: Kunashir, Shikotan); Japan (Hokkaido, Honshu); China (Taiwan).
**Taeniogonalos mongolica** (Popov, 1945), stat. resurr., comb. n.


*Nanogonalos flavocincta* Teranishi, 1929: 144.


**MATERIAL.** 2 specimens from Russia (Amurskaya oblast, Primorskii krai).

**DISTRIBUTION.** Russia (Amurskaya oblast, Primorskii krai); Mongolia; Korea; China (Inner Mongolia).

**REMARKS.** After transferring *flavicincta* Bischoff, 1913 from genus *Lycogonalos* Bischoff, 1913 and *flavocincta* Teranishi, 1929 from genus *Nanogonalos* Schulz, 1906 to genus *Taeniogonalos* Schulz, 1906 (Carmean & Kimsey, 1998) they are became the secondary homonyms in spite that differ in one letter [articles 57.3.1, 58.12 of ICZN (1999)]. Carmean & Kimsey (1998) have not mentioned this homonymy. The junior synonym *mongolica* is used for Teranishi's name and new combination is proposed here.

**Taeniogonalos sauteri** (Bischoff, 1913)


**DISTRIBUTION.** Japan (Honshu, Kyushu, Ryukyu); China (Taiwan, Shangdong); Philippines.

**Taeniogonalos tricolor** (Chen, 1949)

*Poecilogonalos tricolor* Chen, 1949: 16.

*Taeniogonalos tricolour* (!): Carmean & Kimsey, 1998: 68.

**MATERIAL.** No specimens examined.

**DISTRIBUTION.** Korea; China (Zhejiang); Thailand.

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SHORT COMMUNICATION


Up to now, only one trigonalid wasp lacking locality data, *Taeniogonalos maga*, has been known to occur on Sakhalin [1]. Recent collecting during International Sakhalin Island Project (ISIP) in the summer of 2003 has resulted in the capture of four trigonalid specimens of another genus and species. We enumerate below two species in two genera known to occur on Sakhalin. The genus *Orthogonalys* Schulz, 1905 is new for Sakhalin fauna. The northern border for the distribution of the Trigonalyidae on Sakhalin is moved northwards to 49°N. ISIP-2003 was supported in part by the Biological Sciences Directorate (Biodiversity Surveys and Inventories Program) and the International Program Division of the U.S. National Science Foundation, grants numbers DEB-0071655 and DEB-0202175 (Theodore W. Pietsch, principal investigator), and by the Far East Branch of Russian Academy of Sciences, grant number 03-3-E-06-017 (E.A. Makarchenko, principal investigator).

1. *Orthogonalys elongata* (Teranishi, 1929)

   MATERIAL. Sakhalin: SK-03-DJB-070, 5 km E Sokol, 47°14.56' N, 142°46.56' E, Malaise trap in mixed conifer and deciduous forest, 25.VIII 2003, 3 ♂ (D. Bennett); SK-03-DJB-009, 20 km NNE of Ainskoye village, Starodinskaya River, sweeping on the herbs and bushes, 22.VII 2003, 1 ♂ (D. Bennett).

   DISTRIBUTION. Russia (South Sakhalin [new record], Kuril Islands: Kunashir, Shikotan); Japan (Hokkaido, Honshu).

2. *Taeniogonalos maga* (Teranishi, 1929)

   MATERIAL. Sakhalin: Konuma [currently Novoaleksandrovsk], VIII 1942, 1 ♀ (K. Tamanuki).

   DISTRIBUTION. Russia (Amurskaya oblast, Primorski Krai; South Sakhalin, Kuril Islands: Kunashir, Shikotan); Japan (Hokkaido, Honshu); China (Taiwan).


Author's addresses:
1) Division of Entomology, University of Kansas, Lawrence, 66045-7523,USA
2) Institute of Biology and Soil Science, Vladivostok-22, 690022, Russia

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