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New and interesting Hydroptilidae (Insecta: Trichoptera) from the Russian Far East

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Abstract

A new species of micro-caddisflies, *Stactobia tshistjakovi* sp. n., is described based on a male from Eastern Asia. *Stactobia sujansanica* KUMANSKI, 1990, *Hydroptila coreana* KUMANSKI, 1990, and *H. pbenianica* BOTOSANEANU, 1970, are recorded for the Russian fauna for the first time. *Stactobiella biramosa* MARTYNOV, 1929, and *Orthotrichia costalis* CURTIS, 1834, are recorded for the first time for the Russian Far East. The female genitalia of *Hydroptila chinensis* XUE & YANG, 1990, *Hydroptila* sp. aff. *coreana* KUMANSKI, 1990, and *Stactobiella biramosa* are described and illustrated.

Key words: Insecta, Trichoptera, Hydroptilidae, Russian Far East, *Stactobia tshistjakovi* sp. n.

Introduction

The micro-caddisfly fauna of the Russian Far East is still poorly known. In 1934, A.V. MARTYNOV described the first Far East Russian hydroptilid species, *Hydroptilina angustipennis*, based on a female from the Bikin River (Ussuri River Basin). LEVANIDOVA (1975, 1976) first recorded the genus *Agraylea* for the Far East as *A. cognatella* MCLACHLAN, 1880, from Kamchatka Territory (1975) and as *A. multipunctata* CURTIS, 1834, from Chukotka (1976). BOTOSANEANU & LEVANIDOVA (1987, 1988) and BOTOSANEANU (1990) later described *Palaeagapetus finisorientis* (Primorye Territory) and *Stactobia makartschenkoi* (Kunashir Is.) and gave new hydroptilid records of the species *Oxyethira ecornuta* MORTON, 1893, and *Orthotrichia tragetti* MOSELY, 1930. The first Far Eastern representative of the genus *Stactobiella*, *S. alassignata*, was described by BOTOSANEANU (1993) from the Primorye Territory. Later, the following species were recorded for the Russian Far East: *Palaeagapetus flexus* ITO, 1991 (AREFINA 1997), *Hydroptila asymmetrica* KUMANSKI, 1990, *H. botosaneanui* KUMANSKI, 1990 and *Oxyethira josifovi* KUMANSKI, 1990 (VSHIVKOVA 1999), and *Hydroptila chinensis* XUE & YANG, 1990 (MORSE et al., in press).

The most recent information was given by LEVANIDOVA et al. (1995) and AREFINA (1997). More intensive investigations since 1997 provided new records and information about the biology of several species. Studies in 1998-1999 in the southern territories of the Russian Far East, especially in Khabarovsk Territory and South Primorye, revealed additional species and distributional data (ITO & VSHIVKOVA 1999, VSHIVKOVA 1999, VSHIVKOVA & MAKARCHENKO 1999, AREFINA et al. 1999, MORSE et al. in press).

Up to now 21 hydroptilid species in eight genera are known from the Russian Far East. In the present paper 14 species are discussed and one species new for science is described. Species are arranged in alphabetical order. After each species name, we give bibliographic data about the original description and any references for Far East Russian records. Information about material examined, distribution, and remarks concerning new records and diagnostic features are provided as appropriate.

The holotype of the new species as well as all examined material are deposited in the Institute of Biology and Soil Sciences, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok, Russia. Specimens were collected by T.I. Arefina (TA), Y.J. Bae (YB), E. Belyaev (EB), S.L. Kocharina (SK), E.A. Makarchenko (EM), J.C. Morse (JM), V.A. Teslenko (VT), T.M. Tiunova (TT), Yu.A. Tshistjakov (YuT), T.S. Vshivkova (TV), and K. Tanida (KT).

Results

Hydroptila asymmetrica KUMANSKI, 1990

Hydroptila asymmetrica, KUMANSKI 1990: 50-51, Figs 56-63 (male, female). VSHIVKOVA 1999: 36.

Distribution: Russian Far East (South Primorye), Korea.

Hydroptila botosaneanui KUMANSKI, 1990

Hydroptila botosaneanui, KUMANSKI 1990: 48-49, Figs 5-55 (male, female). Vshivkova, 1999: 36.

Distribution: Russian Far East (South Primorye), Korea.

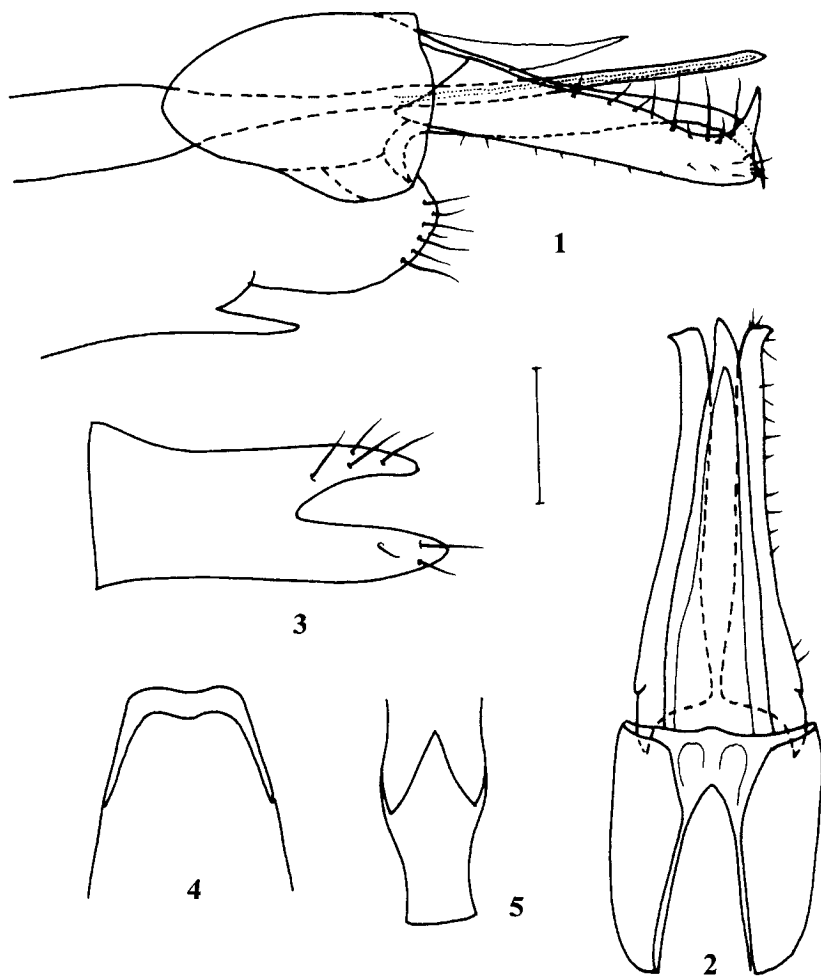
Hydroptila chinensis XUE & YANG, 1990 (Figs 1-5)

Hydroptila chinensis, XUE & YANG 1990: 126-127, Fig. 4 (male). MORSE et al. (in press).

Material examined: KHABAROVSK TERRITORY: **Ussuri River Basin**: 1 male, 4 females, Kiya River near Petrovichi Village, 3 August 1996 (TA), 5 males, 2 females, Kiya River near Ekaterinoslavka Village, 26 July 1996 (TA), 1 female, Khor River near Kondratievka Village, 24 July 1996 (TA). PRIMORYE TERRITORY: **Khanka Lake Basin**: 14 males, 45 females, Chernigovsky Region, small stream and pond near Gribnoye Village, 19 August 1997 (TV), 1 female, Pogranchny Region, Komissarovka River at Komissarovo Village, 28 May 1998 (TT), **Razdolnaya River Basin**: 3 males, 4 females, Komarovka River, 2 July 1998 (TV & YB), **Ussuri River**: 5 males, at Stepanovka, Koksharovka and Novo-Chuguevka Villages, 3-8 July 1993 (TT & VT), 1 male, 3 females, at Belsovo Village, 20 August 1997 (TV), **Ussuri River Basin**: 4 females, Bolshaya Ussurka River near Dalnerechensk Town, 23 June 1998 (TA), 4 females, Kabarga River, 27 July 1998 (TT). JAPAN: **Honshu**: 1 male, Ohura River near Lake Biwa, 16 October 1993 (TV & KT).

Description of female (Figs 3-5): Length of forewing - 1.9-2.5 mm, antennae 22- to 25-segmented, spur formula 0.2.4. Sternite V with small and acute median process. Segment VII rather long, well sclerotized, with lateral terminal excisions (Fig. 3), distal part ventrally and dorsally with shallow median depression (Fig. 4). Spermathecal sclerites of the female illustrated in Fig. 5.

Distribution: Russian Far East (Khabarovsk and Primorye Territories), China, Japan (Honshu).



Figs 1-5. *Hydroptila chinensis* XUF. & YANG: 1-2 - male genitalia, left lateral (1) and dorsal (2) views, 3-4 - female segment VII, left lateral (3) and dorsal (4) views, 5 - vaginal apparatus of female, dorsal view. Scale: 0.1 mm.

***Hydroptila coreana* KUMANSKI, 1990**

Hydroptila coreana, KUMANSKI 1990: 52-54, Figs 72-79 (male, female).

Material examined: KHABAROVSK TERRITORY: **Ussuri River Basin**: 85 males, 171 females, Kiya River near Ekaterinoslavka Village, 26 July 1996 (TA), 1 female, Khor River near Kondratievka Village, 24 July 1996 (TA).

Distribution: Russian Far East (Khabarovsk Territory), Korea.

Remarks: This is a new record to the Russian fauna.

Hydroptila* sp. aff. *coreana, KUMANSKI 1990, (Figs 6-8)

Material examined: KHABAROVSK TERRITORY: 3 females, Amur River Basin, Manoma River - a tributary of Anyui River, 28 July 1996 (TA).

Distribution: Russian far East (Khabarovsk territory).

Remarks: The female genitalia of *Hydroptila* sp. aff. *coreana* KUMANSKI, 1990, from our collection resembles *H. coreana* in segment VII - "segment VIII" in KUMANSKI (1990: 53-54, Figs 76-77) - having similar undulate transverse groove separating two inner chitinous plates ventrally (Fig. 6). However, segment VII of *H. coreana* has two distolateral pairs of ventral setae (KUMANSKI 1990, Figs 76-77), but segment VII of the specimens in our collection has six long and quite stout setae, located evenly along the distal margin ventrally (Fig. 6). Also, the vaginal apparatus in our specimens seem somewhat different from those of *H. coreana* (KUMANSKI 1990, Figs 78-79) and our specimens are larger, with length of each forewing - 2.7-3.0 mm (*H. coreana* - 2.3-2.4 mm).

Hydroptila phenianica BOTOSANEANU, 1970

Hydroptila phenianica, BOTOSANEANU 1970: 290-291, Pl. 12, Figs 1-5 (male, female).

Material examined: KHABAROVSK TERRITORY: **Ussuri River Basin**: 103 males, 120 females, Kiya River near Ekaterinoslavka Village, 26 July 1996 (TA). PRIMORYE TERRITORY: **Khasansky Region**: 1 male, Amba River, 04 May 1997 (YuT), **Ussuri River**: 1 male, at Gornye Kluchi Village, 18 July 1996 (TA), 37 males, 9 females, at Beltsovo Village, 20 August 1997 (TV), **Ussuri River Basin**: 1 male, Bolshaya Ussurka River near Dalnerechensk Town, 23 June 1998 (TA).

Distribution: Russian Far East (Khabarovsk and Primorye Territories), Korea.

Remarks: This is a new record to the Russian fauna.

***Hydroptila* sp.**

Hydroptila sp., KUMANSKI, 1990: 56-57, Figs 87-90.

Material examined: PRIMORYE TERRITORY: **Khanka Lake**: 8 females, Vostochny Settlement, 17 July 1996 (TA).

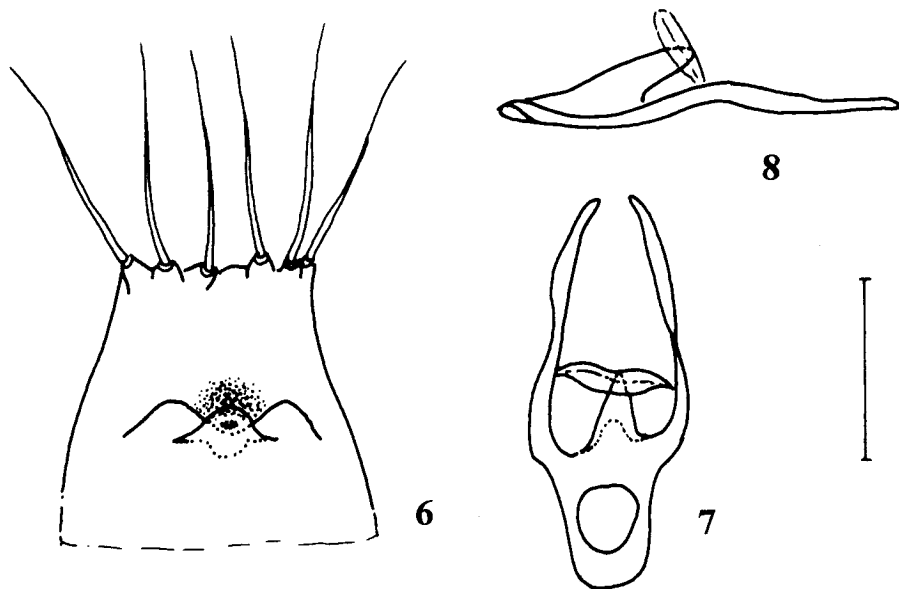
Distribution: Russian Far East (Primorye Territory), Korea.

Remarks: The female of this species is not associated with a male, it is most similar to that of *Hydroptila* sp. described by KUMANSKI (1990).

Orthotrichia tragetti MOSELY, 1930

Orthotrichia tragetti, MOSELY, 1930: 237, 247-249, Figs 25-26 (male). BOTOSANEANU & LEVANIDOVA 1988: 174-175. LEVANIDOVA et al. 1995: 5 (as *Orthotrichia* cf. *tragetti*). VSHIVKOVA & TANIDA 1995: 54 (as *Orthotrichia* sp. af. *tragetti*). AREFINA 1997: 45-46.

Material examined: PRIMORYE TERRITORY: **Vladivostok vicinity**: 1 male, 7 females, unnamed lake at 21 July 1999 (EM), **Khasansky Region**: 10 males, 8 females, unnamed stream flows into Troitsa Bay, 26 August 1996 (TT), 5 males, 3 females, Bolshoi Pelis Is., unnamed lake, 3 July 1997 (TV), 417 males, 359 females, Putyatina Is., Gusinoye Lake, 10 July 1999 (EM), **Khanka Lake**: 1 male, at Kamen-Rybolov Village, 7 August 1994 (JM, TV & SK), 1 male, Vostochny Settlement, 26 June 1996 (TV), 2 males, 4



Figs 6-8. *Hydroptila* sp. aff. *coreana* KUMANSKI: 6 - VII segment of female, ventral view, 7-8 - vaginal apparatus, ventral (7) and left lateral (8) views. Scale: 0.1 mm.

females, same label, 10-20 June 1997, **Khanka Lake Basin:** 1 male, 5 females, Chernigovsky Region, small stream and pond near Gribnoye Village, 19 August 1997 (TV), **Ussuri River:** 1 female, at Stepanovka Village, 20 July 1991 (TT & VT), 1 male, at Beltzovo Village, 20 August 1997 (TV).

Distribution: Europe, Russian Far East (Primorye Territory).

Remarks: This species has been previously known in the Far East only from the two Khasansky Region localities, but now it is known to be widespread over all the southern part of Primorye Territory.

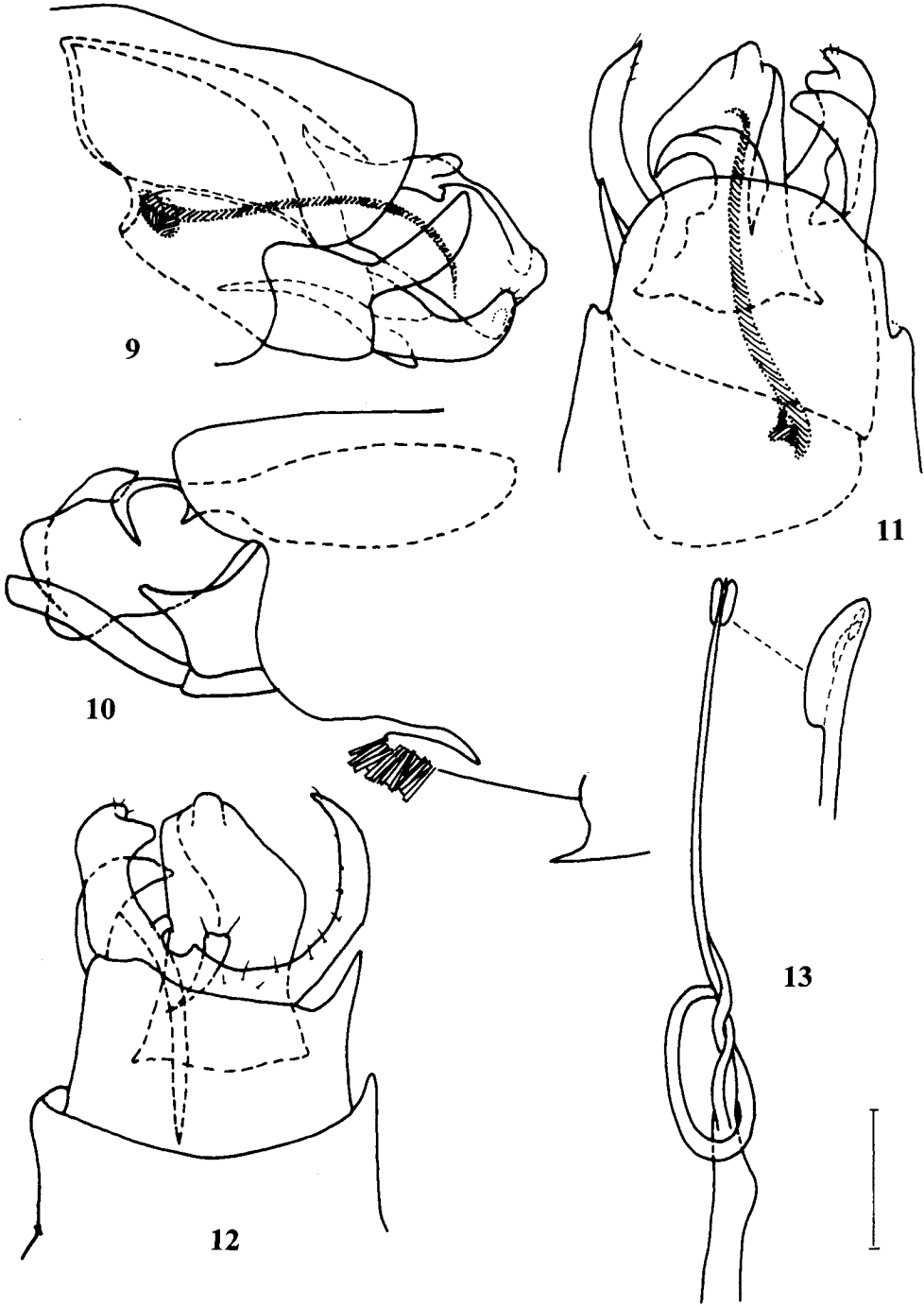
Orthotrichia costalis (CURTIS), 1834 (Figs 9-15)

Hydroptila costalis, CURTIS 1834: 218.

Orthotrichia costalis, NEBOISS, 1963: 594-595, Fig. 4 (male). MORSE et al., (in press).

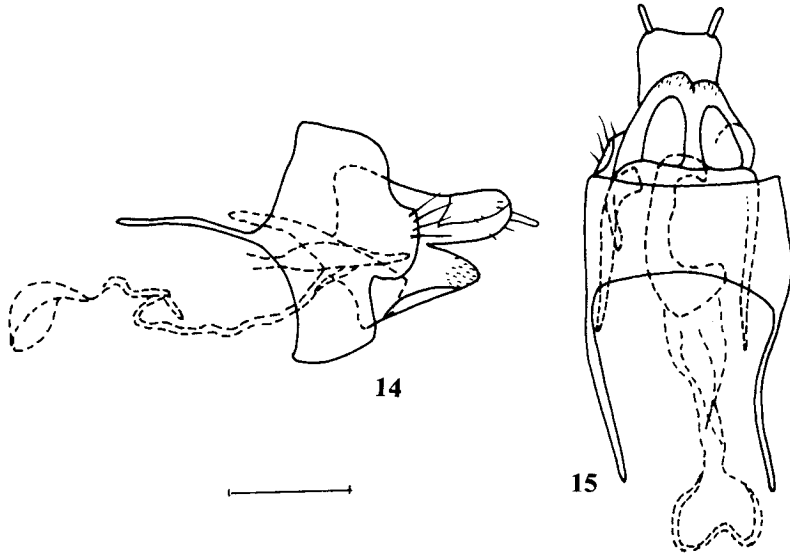
Material examined: **KHABAROVSK TERRITORY:** **Amur River:** 2 males, 24 females, at Troitskoye Village, 2 August 1996 (TA), 1 male, 15 females, at Slavyanka Village, 15-18 August 1997 (TA), **Ussuri River Basin:** 1 female, Khor River near Kondratievka Village, 24 July 1996 (TA), 3 females, Kiya River near Ekaterinoslavka Village, 26 July 1996 (TA). **PRIMORYE TERRITORY:** **Ussuri River:** 3 males, at Novo-Chuguevka, Samarka and Ozerny Villages, 3-6 July 1993 (TT & VT), **Ussuri River Basin:** 3 males, Bolshaya Ussurka River near Dalnerechensk Town, 23 June 1998 (TA), **Khanka Lake:** 16 males, 40 females, at Kamen-Rybolov Village, 7 August 1994 (TV), 2 males, same locality, 25 July 1997 (TV), 1 female, Vostochny Settlement, 17 July 1996 (TA), 7 males, 20 females, same locality, 10 June 1997 (TV), 56 males, 75 females, same locality, 23-28 July 1997 (TV).

Distribution: Europe, Asian Far East (Khabarovsk and Primorye Territories).



Figs 9-13. *Orthotrichia costalis* CURTIS: 9-12 - male genitalia, left lateral (9), right lateral (10), dorsal (11) and ventral (12) views, 13 - aedeagus, left lateral view, with dorsal inset. Scale: 0.1 mm.

Remarks: This represents first record for the Russian Far East. Our specimens resemble *Orthotrichia costalis* CURTIS, illustrated by H. MALICKY (1983: 54) and A. NEBOISS (1963: 594-595, Fig. 4). They differ from those illustrations by details of the male genitalia, but not sufficiently to convince us that they represent another species.



Figs 14-15. *Orthotrichia costalis* CURTIS: female genitalia, left lateral (14) and ventral (15) views. Scale: 0.1 mm.

***Oxyethira ecornuta* MORTON, 1893**

Oxyethira ecornuta, MORTON 1893: 79-80, Pl. 6, Figs 1-5 (male, female). BOTOSANEANU & LEVANIDOVA 1988: 174, Figs 10-14 (male). LEVANIDOVA et al. 1995: 5. AREFINA 1997: 45, Figs 10-13.

Material examined: KHABAROVSK TERRITORY: **Ussuri River Basin:** 47 males, 113 females, Kiya River near Ekaterinoslavka Village, 26 July 1996 (TA). PRIMORYE TERRITORY: **Khanka Lake Basin:** 1 male, Spassovka River mouth, 25 June 1996 (TV), **Khasansky Region:** 3 males, unnamed stream flows into Troitsa Bay, 26 August 1996 (TT).

Distribution: Holarctic.

***Oxyethira josifovi* KUMANSKI, 1990**

Oxyethira josifovi, KUMANSKI 1990: 57-59, Figs 91-98 (male, female). VSHIVKOVA 1999: 36.

Material examined: KHABAROVSK TERRITORY: **Ussuri River Basin:** 1 male, 3 females, Kiya River near Petrovichi Village, 3 August 1996 (TA). PRIMORYE TERRITORY: **Khanka Lake Basin:** 3 females, Chernigovsky Region, small stream and pond near Gribnoye Village, 19 August 1997 (TV), 7 males, 8 females, Pogranichny Region, Komissarovka River near Barabash-Levada Village, 18 June 1998 (JM & TV), **Lazovsky Nature Reserve:** 40 females, 5-9 August 1998 (TV), **Shkotovsky Region:** 2 males, 7 females, Smolny Stream near Anisimovka Village, 26 July 1998 (TV), **Khasansky Region:** 7 males, 85 females, Osokovy Stream near Ryazanovka Village, 14-16 August 1995 (TV), 1 male, 2 females, Ryazanovka Village, 13-15 August 1997 (EB), 1 male, unnamed stream flows into Srednyaya Bay, 1 July 1997 (TV).

Distribution: Russian Far East (Khabarovsk and Primorye Territories), Korea.

***Stactobia sujangsanica* KUMANSKI, 1990**

Stactobia sujangsanica, KUMANSKI 1990: 46, Figs 39-47 (male, female).

Material examined: PRIMORYE TERRITORY: **Khasansky Region**: 11 males, 4 females, Gryaznaya Stream, 17 July 1998 (TA).

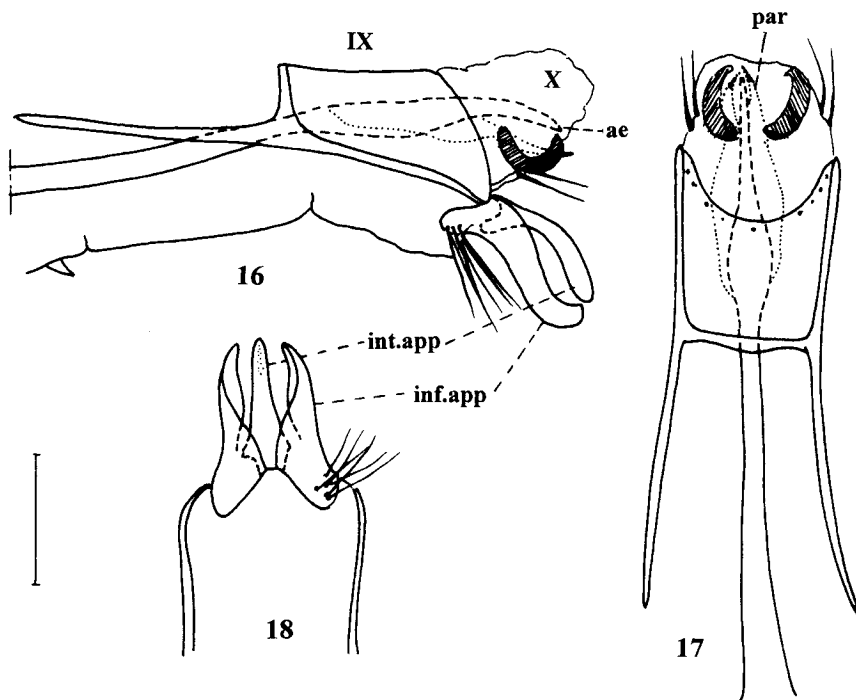
Distribution: Russian Far East (Primorye Territory), Korea.

Remarks: This is a new record to the Russian fauna.

***Stactobia tshistjakovi* AREFINA & MORSE, sp. n.** (Figs 16-18)

Holotype male: SOUTHERN PRIMORYE TERRITORY: **Khasansky Region**: Amba River, 4 May 1997 (YuT).

Description of male: Forewing length of holotype - 1.8 mm, antennae 18-segmented, spur formula 1.2.4. Sternite VII with small triangular ventral appendage. Segment IX (IX) with very long apodemal rods (Fig. 16). Segment X (X) membranous with pair of well-sclerotized hook-shaped plates (Figs 16-17), baso-ventral corners of segment slightly sclerotized, each with pair of setae. Intermediate appendages (int.app) fused into slender



Figs 16-18. *Stactobia tshistjakovi* AREFINA & MORSE, sp. n.: male genitalia, left lateral (16), dorsal (17) and ventral (18) views. Abbreviations: IX-X - abdominal segments IX and X, ae - aedeagus, inf.app - inferior appendages, int.app - intermediate appendages, par - parameres. Scale: 0.1 mm.

der unpaired lobe (Fig. 17, 18), curved ventrad in lateral view. Inferior appendages (inf.app) slightly longer than intermediate appendages, with several long setae ventro-basally, each inferior appendage slender, sinuous, with upturned tip in lateral view. Aedeagus (ae) long and straight, swollen near middle, apical portion slightly curved ventrad. Paired parameres (par) membranous, with sclerotized apices (Fig. 17).

Female and immature stages unknown.

Diagnosis: The male of *Stactobia tshistjakovi* sp. n. most closely resembles that of *S. delira* ROSS (1938) in the structures of their intermediate and inferior appendages, but differs from it in possessing a pair of well-sclerotized, hook-shaped plates of segment X.

Distribution: Known only from the type locality in Southern Primorye (Russian Far East).

Etymology: The species is named for Yuri Tshistjakov (Institute of Biology and Soil Sciences, Vladivostok), an expert in macromoths.

Stactobiella alassignata BOTOSANEANU, 1993

Stactobiella alassignata, BOTOSANEANU 1993: 184-186, Figs 1-6 (male, female). AREFINA 1997: 44-45, Figs 1-2.

Material examined: PRIMORYE TERRITORY: **Ussuri River**: 12 males, 6 females, at Ozernoe, Samarka, Stepanovka Villages, 5-8 July 1993 (TT & VT), 12 males, 3 females, at Gornye Kluchi Village, 18 July 1996 (TA).

Distribution: Russian Far East (Primorye Territory).

Stactobiella biramosa MARTYNOV, 1929 (Figs.19-23)

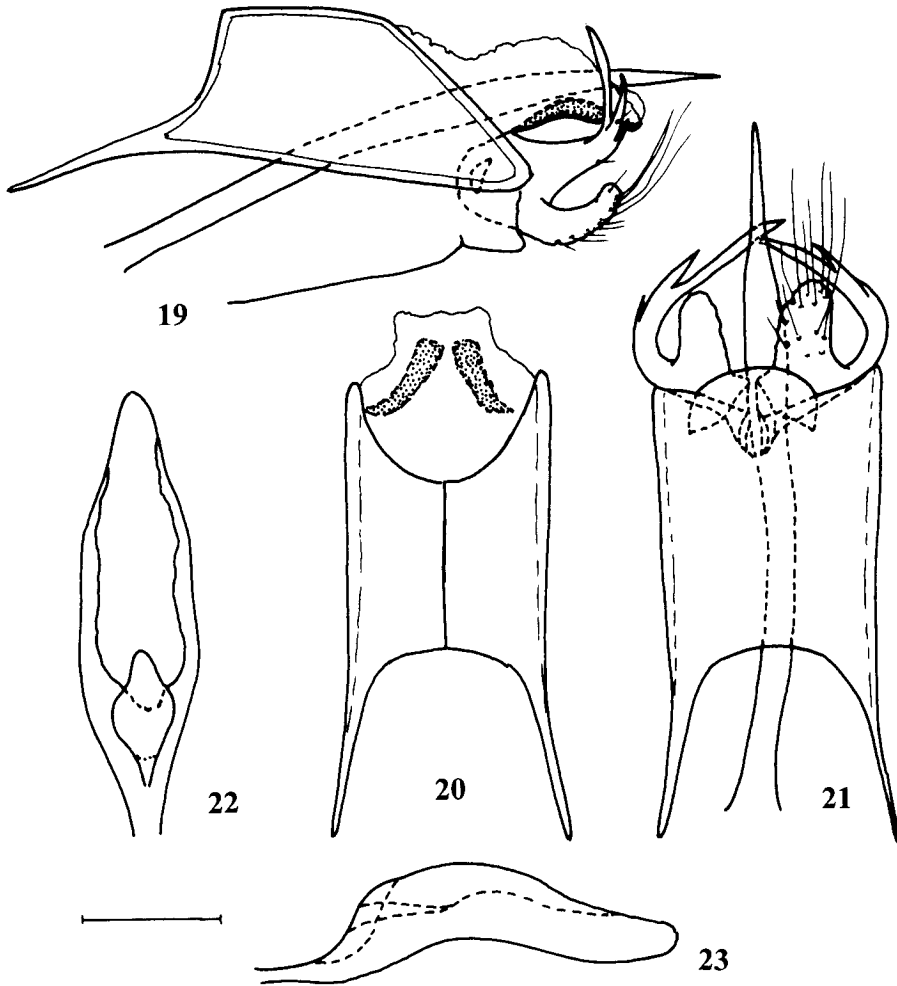
Stactobiella biramosa, MARTYNOV 1929: 297, Figs 5-6 (male).

Material examined: KHABAROVSK TERRITORY: **Ussuri River Basin**: 5 males, 12 females, Bikin River Basin, Tuchnaya River, 19 June 1998 (TA), 3 males, 4 females, Bikin River near Pereval Village, 18 June 1998 (TA), **Okhotsky Region**: 1 male, 9 females, Okhota River, 30 km upstream of the mouth, 7 August 1998 (T), **Ayano-Maisky Region**: 27 males, 13 females, Maya River Basin, Chuya River near Nelkan Village, 6 August 1999 (TT). PRIMORYE TERRITORY: **Ussuri River**: 8 males, 7 females, at Stepanovka and Novo-Chuguevka Villages, 3-8 August 1993 (TT & VT), **Pazdlnaya River Basin**: 3 males, 3 females, Komarovka River, 2 July 1988 (TV).

Description of female: Forewing length of female - 2.4-2.6 mm, antennae 18-segmented, spur formula 1.3.4. Segment VII forming simple tube with row of setae. Spermathecal sclerites of female illustrated in Figs 22-23.

Remarks: This species is recorded for the Russian Far East for the first time. The male of *Stactobiella biramosa* most closely resembles *S. palmata* ROSS, 1938, but differs by the shape of inferior appendages.

Distribution: Russia: Siberia (Bija River), Far East (Khabarovsk and Primorye Territories).



Figs 19-23. *Stactobiella biramosa* MARTYNOV: 19-21 - male genitalia, left lateral (19), dorsal (20) and ventral views (21), 22-23 - vaginal apparatus of female, dorsal (22) and left lateral (23) views. Scale: 0.1 mm.

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