BULLETIN
ZOÖLOGISCH MUSEUM

UNIVERSITEIT VAN AMSTERDAM

Vol. 15 No. 8 1996

Contributions to the knowledge of the genus *Stactobia* McLachlan, 1880 from Japan (Trichoptera: Hydroptilidae)

Lazare Botosaneanu & Takao Nozaki

Key words: Insecta Trichoptera, Stactobia, Japan, hygropetric habitats.

ABSTRACT

The knowledge of the Japanese representatives of the microcaddisfly genus *Stactobia* is considerably improved by: first description of the adult (male) of the only species previously recorded, *S. japonica*, for which a neotype is designated; discovery of *S. makartschenkoi*, previously known from Kunashir; description of 4 new species from Honshu, one of them isolated and remarkable. Several morphological, distributional, and ecological (habitat) aspects are considered.

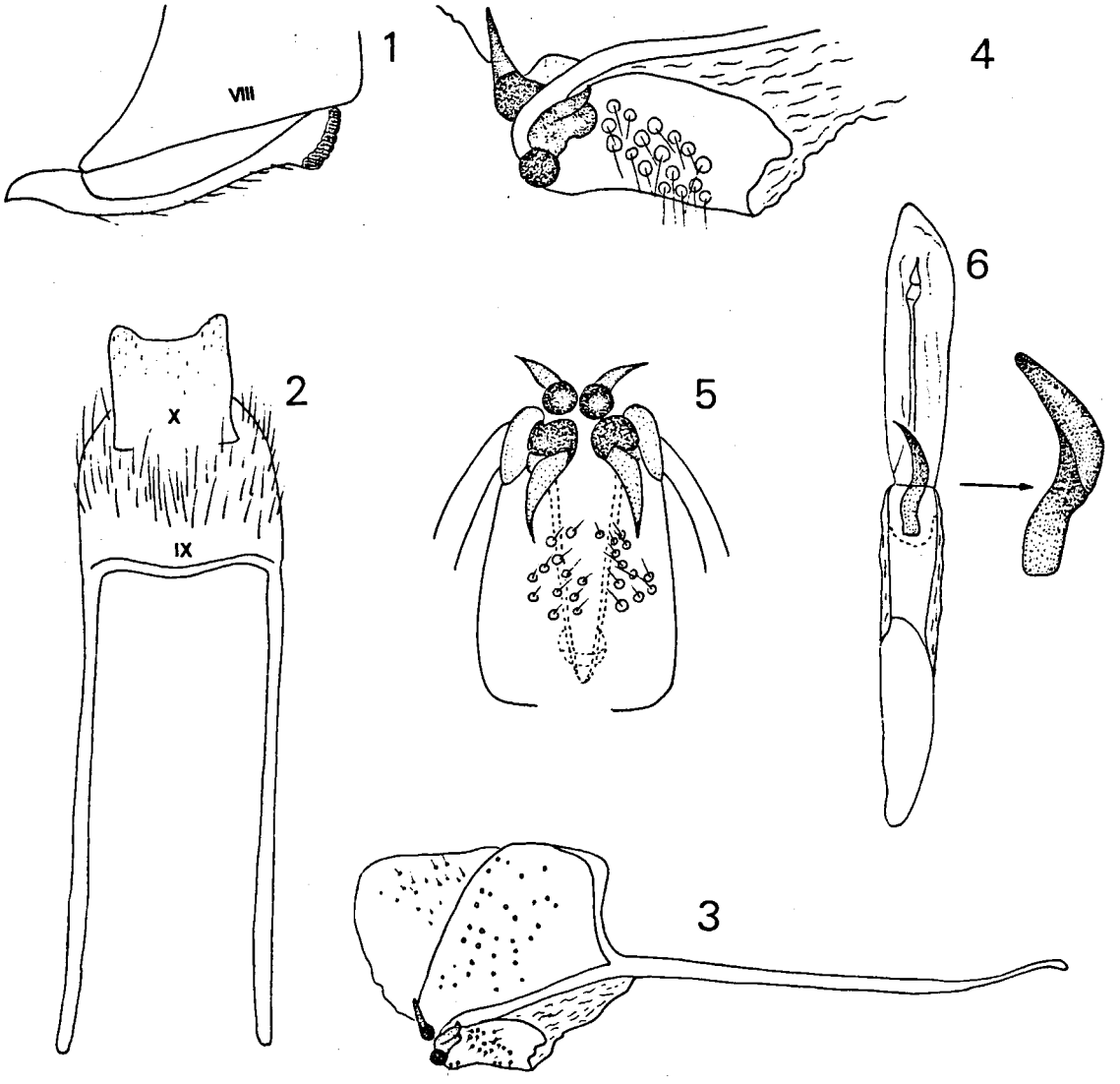
INTRODUCTION

No wonder that the tiny and secretive *Stactobia*, exclusively inhabiting the easily overlooked madicolous or hygropetric habitats of running water, remained until present extremely poorly known from Japan.

Iwata (1930 a) described quite summarily, only from larva and larval case, the first *Stactobia* from Japan: *S. japonica* (from two localities in Gifu and Nagano prefectures, Honshu); the material on which this description was based was subsequently entirely lost (K. Tanida, pers. comm.). In another publication by the same author (Iwata, 1930 b) *S. japonica* is again named, but from larvae sampled in different localities; we presently know that Honshu is inhabited by several species of the genus, which renders quite doubtful the identification in this last mentioned publication. Identical is the case with a mention of *S. japonica* in Tsuda & Nakagawa (1959). Tanida (1985) recorded a *Stactobia* sp., with a few drawings of larva and case, in a book entirely written in Japanese; Dr. K. Tanida informed us recently that the larvae were from Okinawa (and not from Honshu, like mentioned in Botosaneanu, 1990). Again a *Stactobia* sp. was recorded by Kagaya, Nozaki & Kuranishi (1993) from the Tama River; the second author of the present paper is of opinion that this is *S. inexpectata* n. sp. A few notes on far-Eastern *Stactobia* were published by Botosaneanu (1990). The first description of a Far-eastern representative of the genus, based on study of adult insects, was that of *S. makartschenkoi* Botosaneanu & Levanidova (1988) from Kunashir, the southernmost of the Kuril Islands.

Field work of these last years, especially in Honshu but also in Hokkaido, by the second author of the present paper and by several other Japanese workers, enabled discovery of adults of no less than 6 distinct species. *Stactobia japonica* can be, finally, properly described based on study of the male. A male from one of the two localities recorded in Iwata's original description is here designated as neotype. *S. makartschenkoi* is for the first time recorded from Hokkaido and Honshu. And four species, all from Honshu, will be here described as new; three of them belong to the large *martynovi*-group, well represented especially in Asia, the fourth one being remarkably isolated.

Only males will be recorded/described in the present paper. The morphological terminology used is that proposed in the two major taxonomic contributions to study of



Figs. 1-6. *Stactobia japonica* Iwata, male genitalia. 1, appendage of sternite VII; 2, segments IX and X, dorsal; 3, idem, lateral; 4, strongly magnified superior and inferior appendages, lateral; 5, idem, ventral; 6, phallus, dorsal, and strongly magnified spine.

Stactobia (Schmid, 1959, 1983). Nevertheless, the following additional remarks seem necessary. Do the "superior appendages" belong to segment IX, or to segment X?; this is in some cases a problem, and sometimes our decision on this point has to be taken "cum grano salis". The shape of the "inferior appendages" may appear dramatically different under a low or a strong magnification: many details indistinct in the first case will become distinct in the second one. The "common root" often described and illustrated for the inferior appendages in ventral view, seems to be nothing else than an "optical illusion": in fact, this is the shape taken in ventral view by the proximal - not strongly sclerotized and dark- parts of these appendages, consisting of a pair of "blades" anteriorly converging. Finally, reference to "internal" versus "external" phallic spines, could be misleading: it is possible that any such spine could be devaginated in some circumstances.

All our specimens are kept in alcohol, in : the Natural History Museum and Institute, Chiba (CBM); the Sagamihara City Museum (SCM); the Zoological Museum of the University of Amsterdam (ZMA); or in private collections.

DESCRIPTIVE PART

Stactobia japonica Iwata, 1930
(Figs. 1-6)

Material examined

♂ neotype: Honshu, Gifu, Otohime-buchi, Shimono, Fukuoka-cho, 6.VI.1996, T. Nozaki leg. (CBM-ZI 72284). 2♂: same (ZMA and coll. T. Nozaki). 21♂: Honshu, Kanagawa, Harutake-sawa, 480m a.s.l., Minoge, Hadano-shi, 26.V.1993, T. Nozaki leg. (ZMA). 40♂: same, but 13.IX.1995 (coll. T. Nozaki). 3♂: Ameyama-sawa, 500m a.s.l., Kurokura-gawa, Yamakita-machi,

13.V.1994, T. Nozaki leg. (ZMA). 4♂: Hondana-sawa, 900m a.s.l., Yamakita-machi, 23.VI.1994, T. Nozaki leg. (SCM). 51♂: Ananodaira-sawa, 580m a.s.l., Ogawa-dani, Yamakita-machi, 13.V.1994, T. Nozaki leg. (SCM). 12♂: Kanno-gawa, 500m a.s.l., Tsukui-machi, 13.IX.1995, T. Nozaki leg. (SCM). 49♂: Hiwata-sawa, ca. 700m a.s.l., Kanno-gawa, Tsukui-machi, 5.VI.1994, T. Hattori leg. (coll. T. Nozaki). 7♂: Shiomizu-gawa, 690m a.s.l., Kiyokawa-mura, 5.VI.1994, T. Hattori leg. (coll. T. Nozaki). 14♂: Honshu, Nagano, Otari-onsen, ca. 900m a.s.l., Otari-mura, 28.V.1995, T. Hattori leg. (coll. T. Nozaki). 7♂: Honshu, Gifu, Yokokawa-dani, Tase, Fukuoka-cho, 6.VI.1996, T. Nozaki leg. (coll. T. Nozaki). 3♂: same, reared by T. Nozaki from pupae sampled on 21.V.1996, T. Nozaki & H. Nishimoto leg. (coll. T. Nozaki). 1♂: Honshu, Shizuoka, Sekinosawa, Umegashima, 13.IV.1995, T. Hattori leg. (coll. T. Nozaki).

FIRST DESCRIPTION OF ADULT (MALE)

The material on which *S. japonica* was described (consisting of larvae and cases, and thus anyway not enabling to unequivocally ascertain the identity of this species) being certainly and entirely lost, we designate 1♂ from one of the two localities mentioned in Iwata (1930) as neotype. The numerous specimens sampled in various localities in Gifu, Kanagawa, Nagano, and Shizuoka prefectures (Honshu) and very well matching the neotype, enable us to give the first description of the adult (male) of this species.

Wing expanse: 4.2-5.4 mm. Species not very dark (blackish).

Appendage of sternite VII strongly widened apically. Tergite VIII normally developed, sternite VIII proximally moderately protruding, distal margin not indented or excised. Segment IX not telescoped into segment VIII; its dorsal sclerotized part rather shortened, stout; proximal margin in dorsal view only very slightly sinuous; apico-lateral angles without distinct apophyses; anterior baculiform extensions at least two times as long as the segment itself. Segment X with distal margin with shallow but distinct emargination bordered by blunt angles, distal margin not protruding in its upper part (in lateral view); no distinct "lateral thickenings" on segment X could be observed (they may be, nevertheless, present and indistinct). The superior appendages are contiguous on the median line, relatively well developed, with heavily sclerotized globular black nucleus followed by a slender, pointed "wing" distinctly directed dorsad and laterad. Inferior appendages well separated on the median line, proximal margin in lateral view with two minute sinuses; their sclerotized darkened distal parts have a complex and characteristic shape, with distal globulous nucleus proximally followed by a pair of very dissimilar "wings" - in ventral view lateral "wing" oval, median "wing" longer and sharply pointed; numerous fine setae with large alveolae are inserted on its ventral (ventro-lateral) parts. Phallic apparatus not very strong, with distal parts membranous, pale; apex pointed; internally with only one, short but strong black spine, which is curved, slightly twisted, apex appearing either pointed or rather blunt.

DISCUSSION

Clearly belonging to the *martynovi* species- group, *S. japonica* is apparently close- not very close!- to *S. makartschenkoi* Botosaneanu & Levanidova, 1988. Some similarity between these two species can be seen in the shape of the superior and inferior appendages; but numerous characters of segments IX and X, and especially the structure and spine armature of the phallic apparatus will allow easy distinction of these two species.

Stactobia makartschenkoi
Botosaneanu & Levanidova, 1988

Material examined

1♂: Hokkaido, Mt. Saranuma, Sapporo, 1.VII.1989, N. Kuhara leg. (coll. N. Kuhara, Chitose-shi). 86♂: Honshu, Niigata, Kijiya-gawa, 500m a.s.l., Ôtokoro, Itoigawa-shi, 27.V.1995, T. Hattori leg. (10♂: ZMA; 76♂, coll. T. Nozaki). 1♂: Honshu, Shizuoka, Funabara-gawa, 550m a.s.l., Amagiyugashima-cho, 14.V.1995, T. Hattori leg. (coll. T. Nozaki).

This species, originally described from the southernmost of the Kuril Islands, Kunashir, is new for Hokkaido and Honshu.

Stactobia inexpectata Botosaneanu & Nozaki n. sp.
(Figs. 7-10)

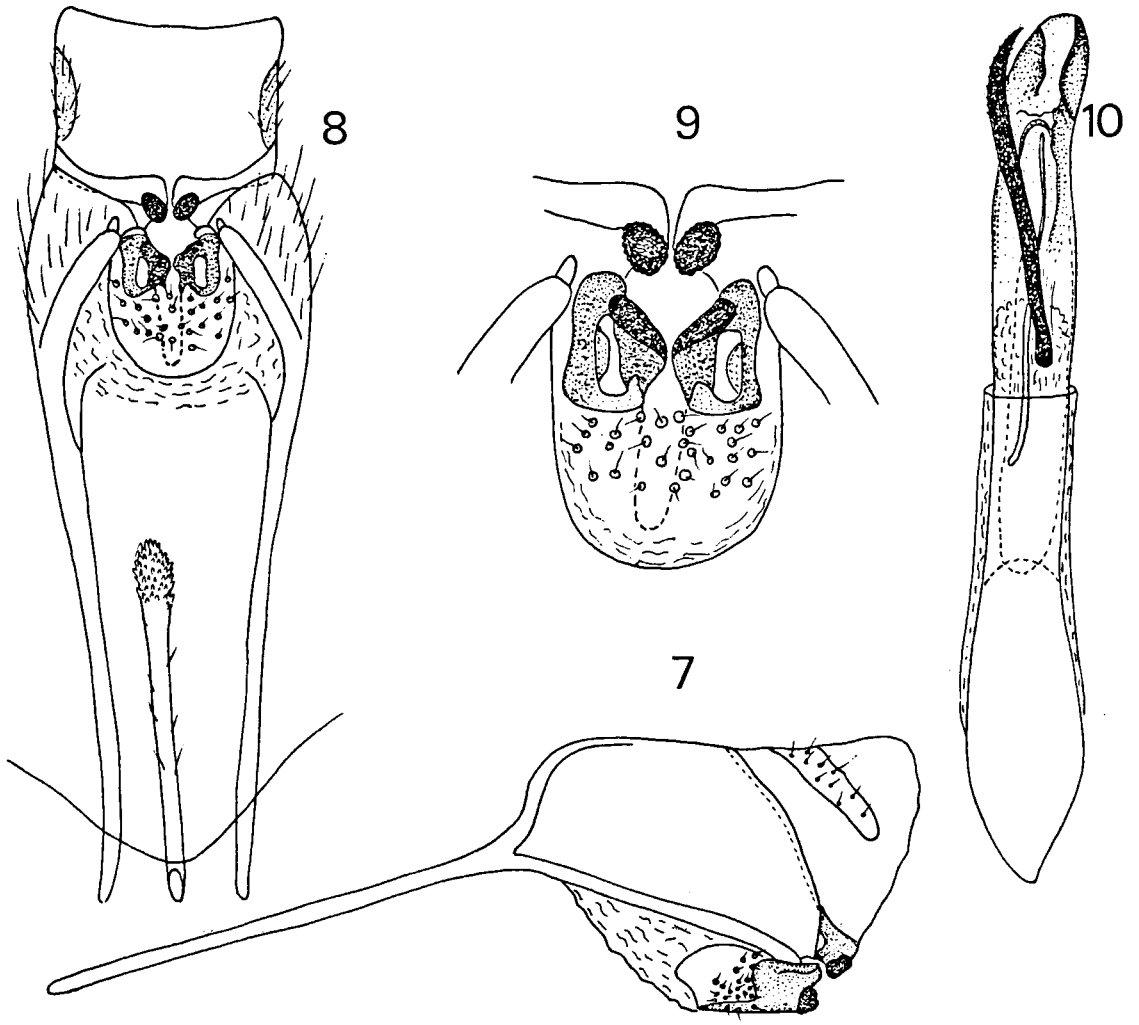
Material examined

♂ holotype: Honshu, Kanagawa, Harutake-sawa, 480m a.s.l., Minoge, Hadano-shi, 26.V.1993, T. Nozaki leg. (CBM-ZI 72285). 2♂ paratypes: Hiwata-sawa, ca. 700m a.s.l., Kanno-gawa, Tsukui-machi, 5.VI.1994, T. Hattori leg. (ZMA and coll. T. Nozaki). 8♂ paratypes: Honshu, Yamanashi, Hondani, 1300m a.s.l., Ichinose, Enzan-shi, 6.VI.1991, T. Nozaki & T. Kagaya leg. (3♂: CBM-ZI 72286-72288; 2♂: ZMA; 3♂: coll. T. Nozaki).

DESCRIPTION OF MALE

Wing expanse: 5.3-5.5 mm. Species not very dark (blackish-brown).

Appendage of sternite VII in ventral view with slender apex entirely covered by minute tubercles (but rather dilated in lateral view). Tergite VIII normally developed, distally with shallow emargination; sternite VIII proximally moderately protruding, distal margin slightly indented. Segment IX not telescoped into segment VIII; its dorsal sclerotized part relatively slender, elongate, lower margin (lateral view) straight; proximal margin in dorsal view only slightly sinuous; apico-lateral angles with small but distinct apophyses; anterior baculiform extensions only about 1.5 times as long as the segment itself. Segment X with distal margin only with very shallow emargination not bordered by protruding angles; in lateral view, distal margin not protruding in its upper part; well distinct setose "lateral thickenings". The superior appendages are simple, strong, almost contiguous black buttons with granulated surface, placed on the sclerotized ventral margin of segment X. Inferior appendages short, sometimes almost contiguous on the median line, proximal border in lateral view only very slightly emarginate; their sclerotized (dark) distal parts have in ventral view the shape of strong, complex "frames" with lighter central "windows", and the black distal nuclei



Figs. 7-10. *Stactobia inexpectata* n. sp., male genitalia. 7, segments IX and X, lateral; 8, idem, ventral (with appendage of sternite VII); 9, strongly magnified superior and inferior appendages, ventral; 10, phallus, ventral.

are elongate and oblique (under a low power microscope the inferior appendages appear, in ventral view, simply bilobed); numerous fine setae from large alveolae are inserted on their ventral (ventro-lateral) parts. Phallic apparatus extremely strong, with distal parts sclerotized, darkened, with distinct folds, apex distinctly blunt; there is one very long, relatively slender black spine reaching to the phallus apex (in some specimens at least its distal half is extruded).

DISCUSSION

It is this species which was recorded as "*Stactobia* sp." from Tama River by Kagaya, Nozaki & Kuranishi (1993).

S. inexpectata n. sp. is clearly closely related to the next new species belonging to the *martynovi* species-group which will be described in this paper: *S. hattorii* n. sp. (for details, see "discussion" under this last species).

"Inexpectata" (Lat.) = the unexpected.

Stactobia hattorii Botosaneanu & Nozaki n. sp.
(Figs. 11-14)

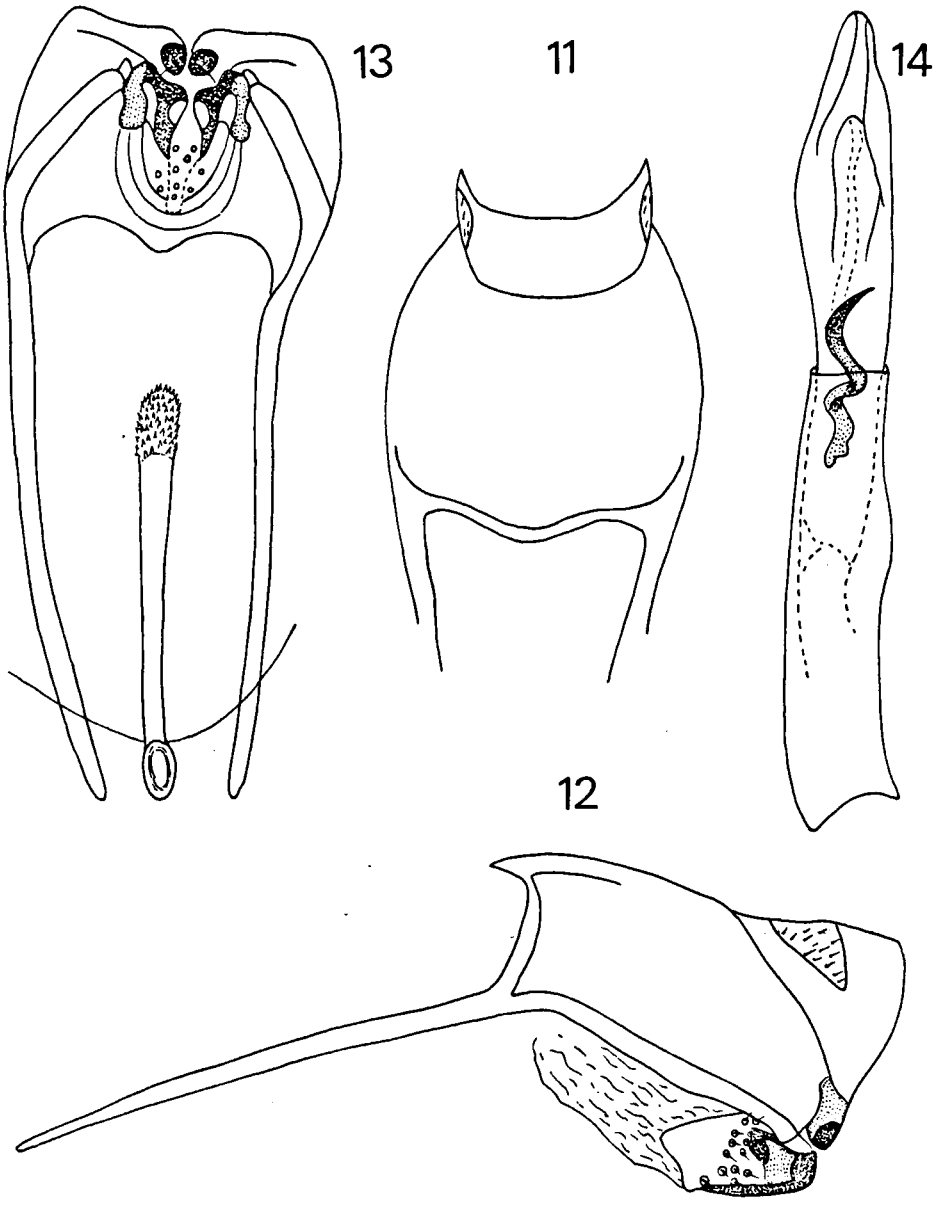
Material examined

♂ holotype: Honshu, Shizuoka, Tokusa, Oi-gawa, ca. 1200 m a.s.l., Akaishi Mts., Shizuoka-shi, 29.IV.1991, T. Hattori leg. (CBM-ZI 72293). 18♂ paratypes: same (2♂: CBM-ZI 72294-72295; 7♂: ZMA; 9♂: coll. T. Nozaki).

DESCRIPTION OF MALE

This species is remarkably large: wing expanse 6.3-6.9 mm. It is also remarkably pale, the wings being beige.

Appendage of sternite VII in ventral view with slender apex entirely covered by minute tubercles. Segment VIII without remarkable characters. Dorsal sclerotized part of segment IX in lateral view remarkably slender, strongly obliquely directed ventrad and posteriad, not very strongly narrowed apically, lower margins in lateral view not arched; there is a characteristic and strong median projection

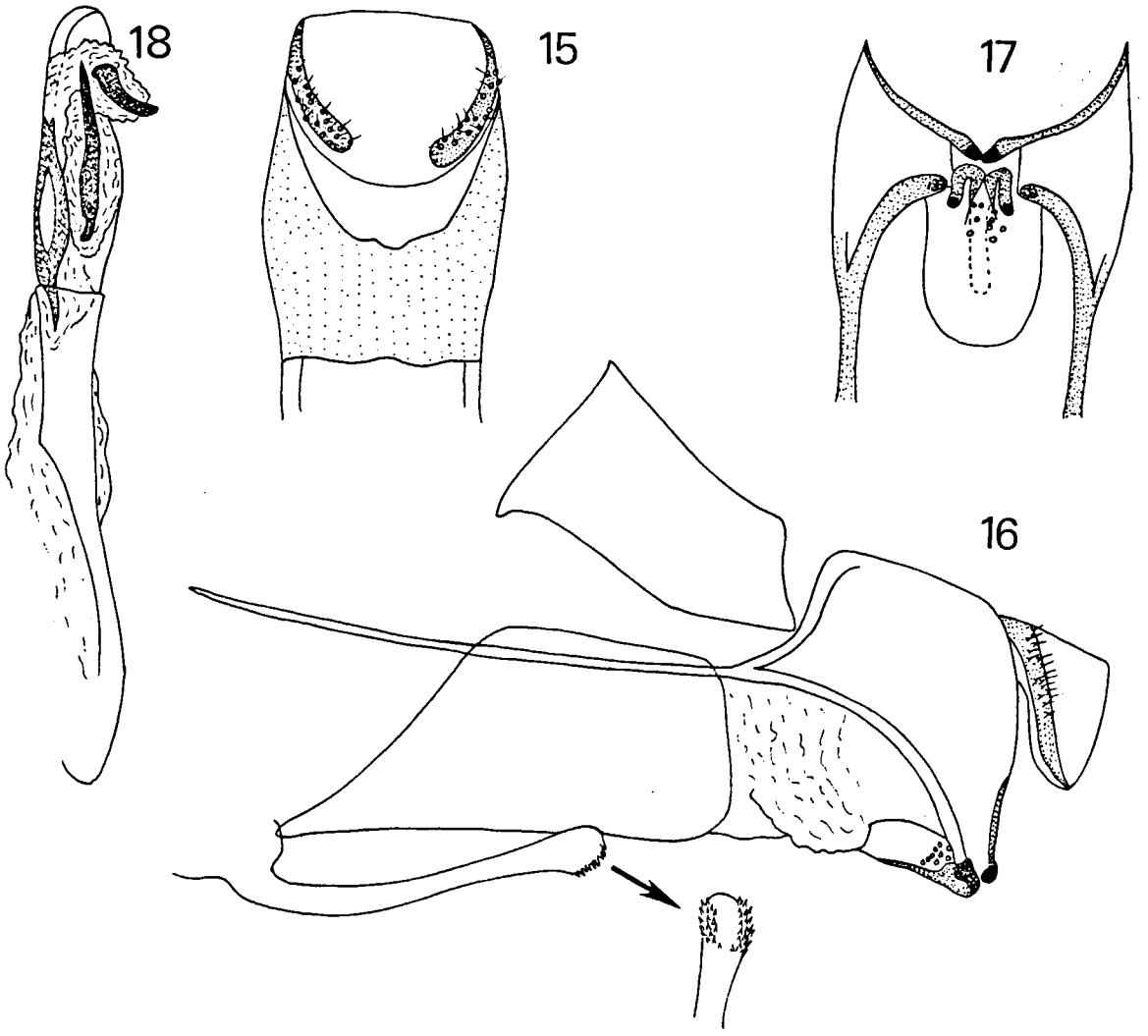


Figs. 11-14. *Stactobia hattorii* n. sp., male genitalia. 11, segments IX and X, dorsal; 12, idem, lateral; 13, segment IX, ventral, with superior and inferior appendages (and with appendage of sternite VII); 14, phallus, ventral.

of the dorso-proximal margin - distinct in ventral view, too; anterior baculiform extensions relatively strong and only ca. $1^1/_3$ as long as the segment itself; apico-lateral angles with clearly distinct, although not large apophyses. Segment X small, distal margin rather deeply emarginate, setose "lateral thickenings" rather small, indistinct (illustrated in Figs. 11-12 in a manner which is not really reliable). The superior appendages are simple and rather large black buttons placed on the sclerotized ventral margins of segment X; they are almost contiguous in ventral view, and connected to the inferior appendages by short oblique traits. Inferior appendages in lateral view rather massive, proximally only with extremely shallow emargination; in ventral view they are almost contiguous medially, their sclerotized (dark) distal parts are proximally clearly bilobed, their distal margins oblique and sinuous, and each appendage has a pair of light "windows" surrounded by the dark frame; the fine setae inserted on large alveolae on the ventral (ventro-lateral) parts of the inferior appendages are not very numerous. Phallic apparatus tubular, very large and strong, without strongly widened parts, apex rather pointed, distal parts distinctly folded; there is only one highly characteristic spine with central position: slender, sinuous, two times twisted, strongly curved in its distal half.

DISCUSSION

S. hattorii n. sp. is clearly closely related to *S. inexpectata* n. sp. This can be seen especially in the structure of the superior and inferior appendages, but also in the strongly



Figs. 15-18. *Stactobia nishimotoi* n. sp., male genitalia. 15, segments IX and X, dorsal; 16, lateral view of genitalia (with apex of sternite VII appendage, ventral); 17, segment IX, ventral, with superior and inferior appendages; 18, phallus, lateral.

developed phallic apparatus, or in the shape of the appendage of sternite VII. On the other side, several important peculiarities allow clear distinction of *S. hattorii*: large size and pale colour, strong median projection of the dorso-proximal margin of segment IX, and the completely different internal spine of the phallus.

We have the pleasure to dedicate this species to its discoverer, our colleague T. Hattori (Shizuoka-shi).

Stactobia nishimotoi Botosaneanu & Nozaki n. sp.
(Figs. 15-18)

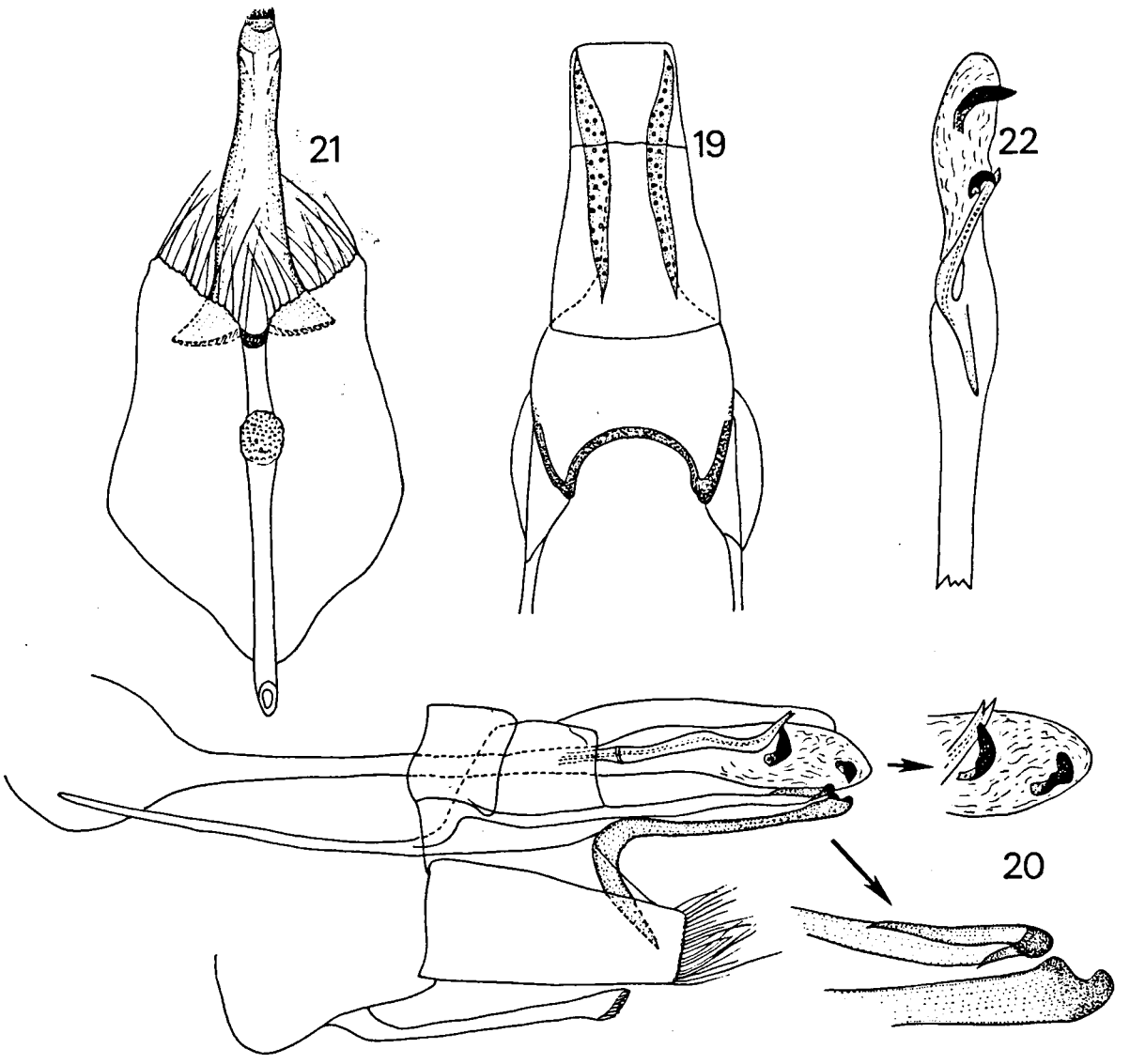
Material examined

♂ holotype: Honshu, Aichi, Shimada-gawa, a tributary of Kansa-gawa, Horai-cho, 14.V.1996, H. Nishimoto leg. (CBM-ZI 72290). 11♂ paratypes: same (2♂: CBM-ZI 72291-72292; 5♂: ZMA; 4♂: coll. T. Nozaki).

DESCRIPTION OF MALE

Wing expanse: 4.7-5.3 mm. A very dark species.

Appendage of sternite VII only very slightly widened apically, apex only with a "crown" of minute tubercles. Tergite VIII well developed in length, protruding distally beyond the sternite but still shorter than the sternite, which is very strongly protruding proximally. Segment IX not telescoped into segment VIII; its dorsal sclerotized part ventro-distally remarkably elongate and narrowed, ventral margins in lateral view clearly arched, anterior baculiform extensions very slender, slightly less than two times as long as the segment itself; apico-lateral angles without distinct apophyses, but darkened, these dark apices connected by vertical traits to the distal margins of the segment. Segment X rather small, distally without emargination, with quite distinct "lateral thickenings" which are narrow, long,

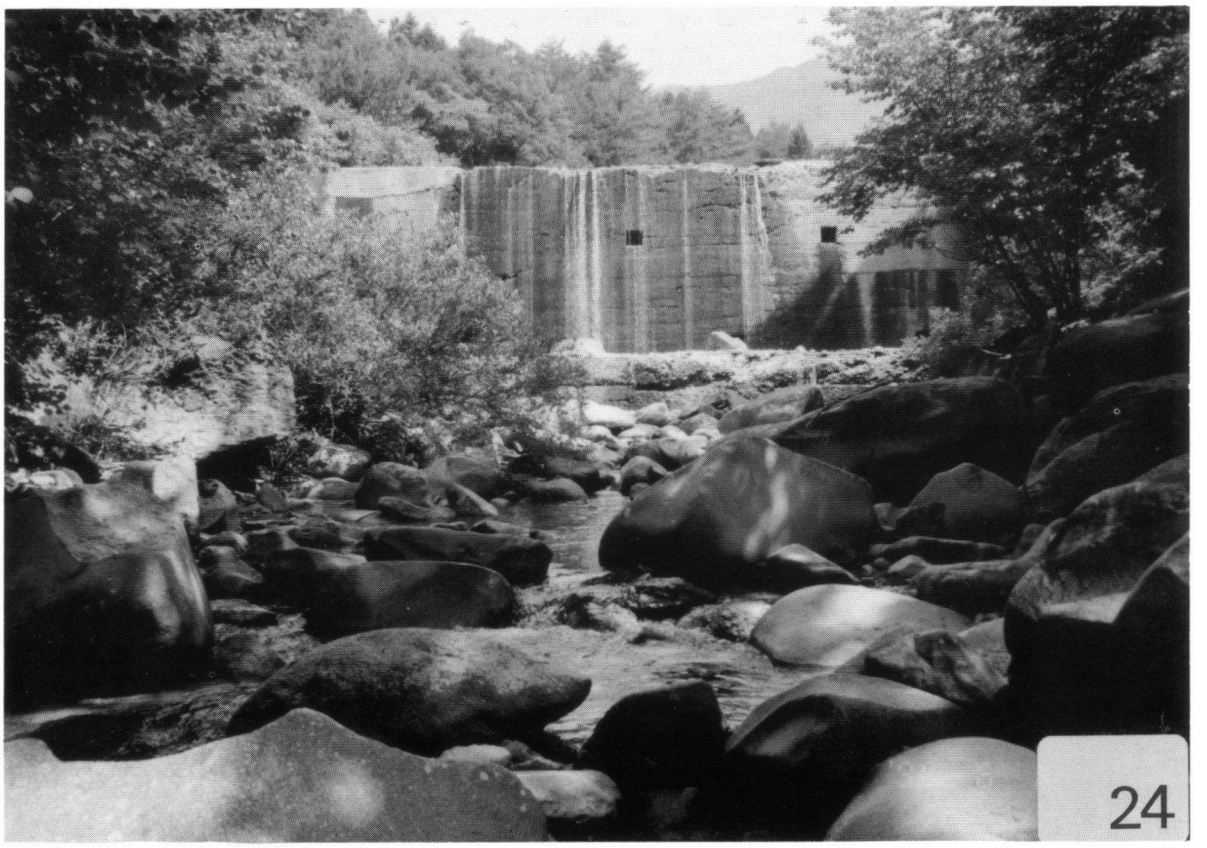


Figs. 19-22. *Stactobia distinguenda* n. sp., male genitalia. 19, segments IX and X, dorsal; 20, lateral view of genitalia, segment X only outlined (with two more strongly magnified details under slightly different angles); 21, appendage of sternite VII, sternite VIII, and inferior appendage, ventral; 22, distal part of phallus, dorsal.

and gently curved. Along part of their lower half the distal margins of segment IX are blackened, the two narrow black strips ending in inconspicuous black tubercles contiguous on the median line, which probably represent the superior appendages. Inferior appendages typical for the *martynovi* species group, proximally in lateral view with one shallow sinus; still in lateral view their dark lower margin is apically strongly widened and bilobed (in ventral view these medially contiguous dark apical parts are somewhat horse-shoe shaped); there are relatively few fine setae from large alveolae on the ventral (ventro-lateral) parts of the inferior appendages. Phallic apparatus in its proximal 2/3 tubular but not very narrow, and apparently dorsally open (?) in its most proximal parts; distal membranous part only slightly inflated, with some dorsal chitinous thickenings, and with two spines, both with black tips: one rooted more proximally, longer, rather slender, pointing distad; the second one distinctly shorter, slightly curved, not thicker than the first one (in the specimens from which fig. 18 was prepared, this spine was found in a membranous lobe subapically protruding from phallus).

DISCUSSION

Although belonging to the same *martynovi* species-group like most of the presently known Japanese *Stactobia*, *S. nishimotoi* n. sp. is a clearly distinct species, excellent distinctive characters being offered, for instance, by the shape of segment IX in lateral view, the thickenings on segment X, the superior- and inferior appendages; whereas the armature of spines of the phallic apparatus, although not identical with that of any other described species belonging to this group, cannot be considered as



Figs. 23-24. Typical habitats of Japanese *Stactobia*. 23, Otohime-buchi (*S. japonica*, *S. distinguenda*; photo T. Nozaki); 24, Yokokawa-dani (*S. japonica*; photo T. Nozaki);

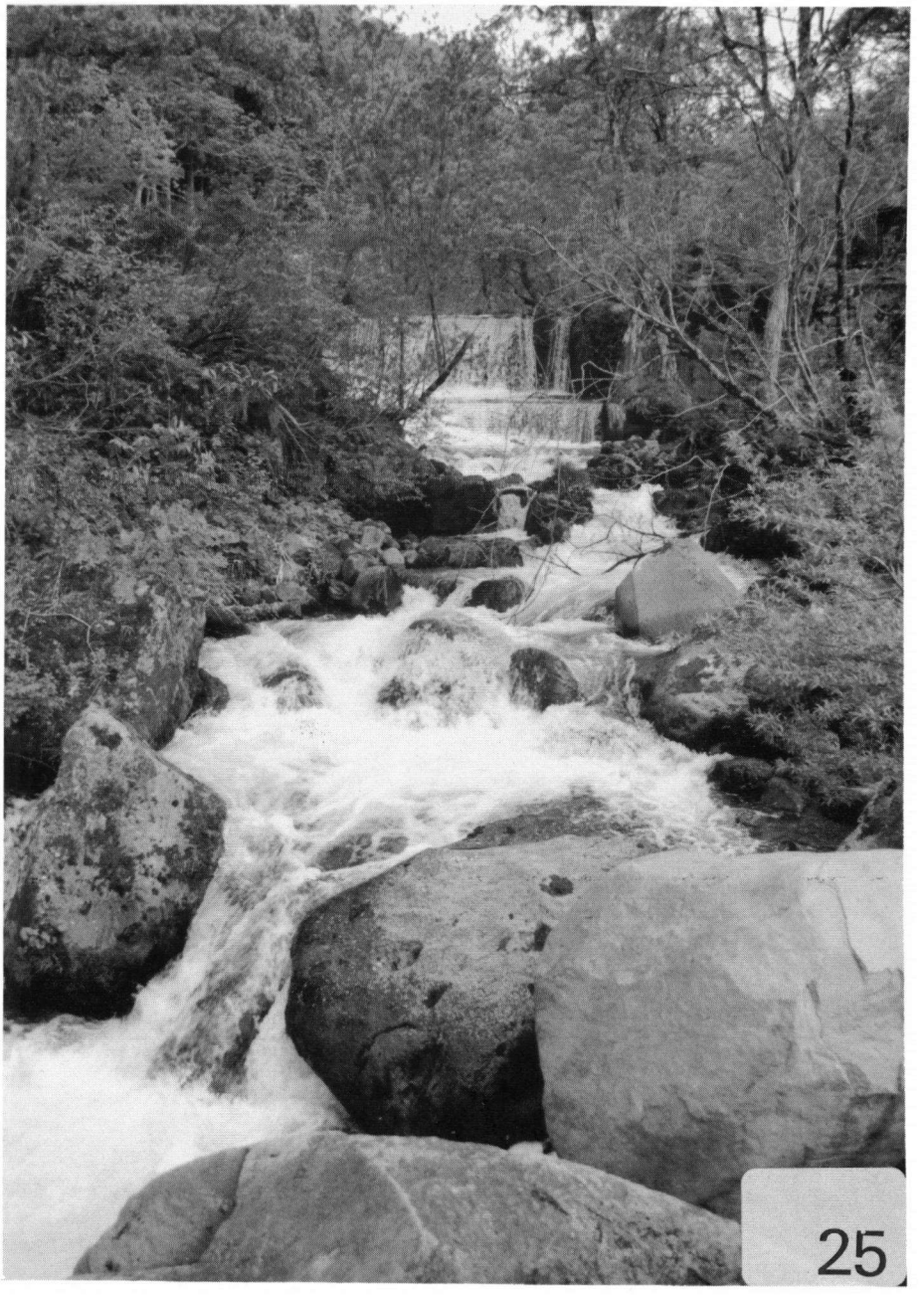


Fig. 25. Typical habitat of Japanese *Stactobia*.
25, Kijiya-gawa (*S. makartschenkoi*; photo T. Hattori).

very original.
We have the pleasure to name this species after its discoverer, our colleague H. Nishimoto (Komaki-shi).

Stactobia distinguenda Botosaneanu & Nozaki n. sp.
(Figs. 19-22)

Material examined
♂ holotype: Honshu, Gifu, Otohime-buchi, Shimono, Fukuoka-cho, 6.VI.1996, T. Nozaki leg. (CBM-ZI 72289). 1 ♂ "metamorphotype", paratype: same (ZMA).

DESCRIPTION OF MALE
A very small *Stactobia*: wing expanse of holotype 3.65 mm. The species is very dark.

Appendage of sternite VII only slightly widened apically, apex completely covered by minute tubercles. Tergite VIII very small; sternite VIII almost 3 times as long, but not very high, medio-proximally strongly protruding, medio-ventrally completely split, the two resulting flaps apically oblique in ventral view, but more or less vertical in lateral view. Segment IX very small, "perched" in the upper part of the genitalia; proximal margin forming a broad and deep sinus, distal margin rather indistinct; anterior extensions slender and long (more than two times the length of segment IX without its distal apophyses); latero-ventrally the segment is bordered by the usual thickened ridges, but a). below these ridges the segment is continued by a rather strongly developed sclerotized flap, and b). the ridges themselves are continued by what could be considered as

remarkably long "apophyses", longer than the segment itself and finishing in a complex of thickenings which could be assimilated to the superior appendages. Segment X with structure difficult to understand; its setose thickenings are well developed, very long, slightly sinuous. Inferior appendages coalescent, this unpaired, dark appendage strongly and curiously developed, with a shorter proximal branch obliquely directed ventrad and distad, and a much longer horizontal branch directed parallel to the distal "apophyses" of segment IX and ending in a pair of blunt lobes at level with the apical thickenings of these "apophyses" (the superior appendages). Phallic apparatus basally like a large bladder followed by a long and very narrow tube; terminal third membranous, widened, internally with two spines having an apical/preapical position, both small, stout, slightly curved, their roots twisted; almost at the limit between the narrow tube and the distal widened part, a curious, rather long and slender, slightly sinuous appendage is rooted which, in our opinion, could be considered as being an aedeagus (through it a ductus ejaculatorius apparently runs); this appendage seems to be external, but this could not be ascertained in order not to damage the only adult specimen available.

DISCUSSION

This is by far the most peculiar of the presently known Japanese *Stactobia*, and one of the several Asiatic species which cannot be attributed to any of the species-groups defined by Schmid (1959, 1983). The most remarkable characters of *S. distinguenda* n. sp. are: large sternite VIII completely split medio-ventrally; small, perched segment IX with extremely long "apophyses" from the ventro-distal angles, supporting at their end what seem to be the superior appendages; the unpaired two-branched inferior appendage; and the phallus with its bladder-like root followed by a very narrow tube, and with its apparently external aedeagus.

"Distinguenda" (Lat.) = which has to be distinguished.

FINAL NOTES

Six species of *Stactobia* are presently known from Japan (Hokkaido and Honshu) and from Kunashir; but there is already some evidence of presence of the genus in other, widely distant zones of the Far East: Primorie, Kyushu, Okinawa. Many exciting discoveries can be expected in the near future!

Already known cases of syntopy are those of *S. japonica* with *S. inexpectata*, and of *S. japonica* with *S. distinguenda*.

The larva of only one species was described in a manner rendering comparisons possible: that of *S. makartschenkoi* (Botosaneanu & Levanidova, 1988). As for the larval/pupal cases, those of *S. japonica* and *S. makartschenkoi* were described, and there is also some unpublished information about those of some other Japanese species: in all these (including *S. distinguenda*!) there is great similarity of case shape. On the other side, the larvae from Okinawa recorded by Tanida (1985) build cases of a very different type.

In publications on *Stactobia* mention was repeatedly made of the alleged existence of typical madicolous species in contrast with species inhabiting "streams". The existing evidence seems to show that this is not true, and that all *Stactobia* are hygropetric, but a). whereas some of them inhabit small, well isolated, madicolous habitats found outside the bed of larger streams and mostly fed by water from springs/spring-brooks, b). other species are inhabitants of hygropetric surfaces - on boulders, wet sides of water falls, concrete walls of dams, etc. - in the bed of larger streams (Figs. 23-25). It seems that many (most?) of the European species belong to the first group, and many Asiatic species to the second group (this being apparently the case with the presently known Far-eastern species). All field observations made on Japanese species seem to confirm the validity of this idea. Moreover, if adults of species belonging to the first group - generally unable to fly and to leave the madicolous niche - have to be mostly picked by hand, by a wet brush or by forceps, those of the 2nd group are easily caught by net, at the banks or in the bed of the stream; most specimens available for the present study were sampled in this last manner (numerous specimens of *S. makartschenkoi* were caught on a rock surface by means of a small suction bottle).

GLOSSARY

buchi = a pool in streams or rivers, often formed under a waterfall.
cho = a town.
dani = a valley, a gorge, a stream - often used in a wider sense in place names.
gawa = a river, a stream, a brook - often used in a wider sense in place names.
machi = same meaning as "cho".
mura = a village.
onsen = a hot spring, a spa.
sawa = a stream, often used in a wider sense in place names.
shi = a city.

ACKNOWLEDGEMENTS

We express our cordial thanks to Messrs. H. Nishimoto (Komaki-shi), T. Hattori (Shizuoka-shi) and N. Kuhara (Chitose Board of Education, Chitose-shi) for the loan or the gift of valuable material, and to Dr. K. Tanida (Osaka Prefecture University) for various information.

REFERENCES

Botosaneanu, L., 1990. About Far-eastern *Stactobia* McLachlan (Trichoptera: Hydroptilidae): a correction. Aquatic Insects, 12 (1): 47-48.

Botosaneanu, L. & I. M. Levanidova, 1988. Trichoptera Hydroptilidae from Soviet Union Far-eastern territories. Bull. Zool. Mus. Amsterdam, 11 (21): 169-176.

Iwata, M., 1930 a. Trichopterous larvae from Japan V. Zool. Mag. Tokyo (Dobutsugaku Zasshi), 42:59-66.

Iwata, M., 1930 b. An entomological survey of the upper Kamogawa River, with special reference to trichopterous larvae and pupae. Bull Biogeogr. Soc. Japan, 2 (1):1-20, 5 plates.
Kagaya, T., T. Nozaki & R. B. Kuranishi, 1993. Fauna and distribution of Trichoptera in the Tama-River system, central Japan. Proc. 7th Int. Symp. Trichoptera 1992 (C. Otto, ed.; Backhuys Publishers, Leiden): 73-77.
Schmid, F., 1959. Le genre *Stactobia* McL. Miscelánea Zoológica (Barcelona), 1 (2): 1-56.
Schmid, F., 1983. Encore quelques *Stactobia* McLachlan (Trichoptera, Hydroptilidae). Le Naturaliste Canadien, 110 (3): 239-283.
Tanida, K., 1985. Trichoptera (pp.167-215). In: T. Kawai (ed.), An illustrated book of aquatic insects of Japan. (Tokai Univ. Press, Tokyo).
Tsuda, M. & A. Nakagawa, 1959. Fauna hygropetrica of a mountain stream. Jap. J. Ecol., 9: 134-136.

L. Botosaneanu
I. S. P./ Zoologisch Museum
University of Amsterdam,
Plantage Middenlaan 64,
1018 DH Amsterdam,
The Netherlands

T. Nozaki
Kanagawa Environmental Research
Center,
842 Nakahara-Shimojuku,
Hiratsuka, Kanagawa,
254 Japan

Received: 1 July 1996.
Distributed: 15 November 1996.