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Observations on the genus *Orientus* (Rhynchota Cicadomorpha Cicadellidae) and description of a new species: *O. amurensis* n. sp. from Russia (Amur Region and Maritime Territory) and China (Liaoning Province)

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Key words: Deltocephalinae, Athysanini, Taxonomy, Canada, Germany, Italy, Japan, Korean peninsular, Philippines, Russia, Switzerland, Taiwan, U.S.A..

Abstract: *Orientus amurensis* n. sp. from Russia (Amur Region and Maritime Territory) and China (Liaoning Province) is described and illustrated. *O. amurensis* n. sp. and *O. ishidae* (Matsumura) are distinguishable by the peculiar structure of their male (in details of genital plates, styles, aedeagus, processes of the pygofer) and female genitalia. *O. ishidae* is recorded for the first time in Italy.

In the period 1998-2002, I received several specimens of a Cicadellid taxon collected by Dr. F. Poggi in Lombardia (Northern Italy) in Milano (residential area) and later in the environs of Lecco and Brescia mainly at light traps.

This taxon was not present in the literature dealing with West Palearctic Cicadellidae. The use of OMAN's treatise of Nearctic Cicadellidae (1949), however, left no doubt about the fact, that this italian Cicadellid taxon belonged to the genus *Orientus* DeLong, 1938, whose - at that time - single species "*Phlepsius ishidae* MATSUMURA, 1902" was described from Japan (type locality: Hokkaido: Sapporo, in addition also Honshu: "Tokyo (?)") and subsequently recorded from Kyushu and Shikoku, Formosa, Korea, U.S.A. (New Jersey, New York, Maryland, Pennsylvania, Long Island, New Hampshire, District of Columbia, Ohio, Connecticut), Philippine Islands (see METCALF, 1967) and most recently from Eastern Russia (Maritime Territory: VILBASTE, 1968), Canada (Hamilton, 1983), Switzerland (GÜNTHART & MÜHLETHALER, 2002) and Germany (NICKEL & REMANE, 2003).

A comparison of the italian specimens with the figures of "*Orientus ishidae*" published by VILBASTE 1968, and subsequently by ANUFRIEV 1978 and ANUFRIEV & EMELJANOV, 1988 however revealed striking differences in several details of the male and female genital structures: under the name "*ishidae*" were combined at least two taxa, presumably different species.

Subsequent examinations of existing literature and specimens from the U.S.A., Russia, China, Germany, Switzerland and Japan (from Matsumura collection) have shown:

1. The european specimens (Italy, Switzerland, Germany) agree with the specimens from U.S.A. (based on such specimens *Phlepsius tinctorius* SANDERS & DELONG, 1919 was described) and those from Japan (type and additional specimens of the Matsumura collection): this taxon keeps the name "*ishidae* Matsumura, 1902" (syn.: *Phlepsius tinctorius* SANDERS & DELONG, 1919, under the assumption, that there is only one taxon in the Nearctic, and that the figures given by DELONG 1948 refer to *Phlepsius tinctorius* SANDERS & DELONG, 1919 which is mentioned as a synonym).
2. The specimens from Russia (Maritime Territory - see VILBASTE 1968 - and Amur Region) and China differ that much in several characters of male and female genitalia, that I take them as a species of its own, for which I did not find an existing name. I therefore describe it as:

Orientus amurensis nova species:

Description: Size, proportions, coloration and markings as in *O. ishidae* (Matsumura).
Male genitalia in general structure very similar to those of *O. ishidae* (Mats.), but differing in the shape of several parts.
Processes of pygopher (arising, like in *O. ishidae* (Mats.), on inner margin of each lateral wall near anal tube) short, abruptly narrowing approximately in their distal third and with distal portion straight (Fig. 3); they extend ventrally only to about half of pygofer's width.
Genital plates elongate, about as long as the pygofer. Each plate subtriangular, apically abruptly narrowing and with lateral margin not notched and without tooth (Fig. 5). The basal 2/3 of each plate flat and well sclerified with a row of thin macrosetae near its lateral margin; its distal third cylindrical, few sclerified, wrinkled and sometimes inflexed like a glove's finger, with short and thin macrosetae irregularly arranged in apical position.
Genital styles short and squat, their apophysis hook-shaped (Fig. 7).
Aedeagus sturdy, well sclerified, its socle very broad distally, basally narrowing to about ¼ of its distal width, at the basal end again enlarged to about half of its distal width (Fig. 9). Shaft simple, without processes, progressively curved dorsally and then anteriorly, its apical portion widening into a "duck's beak-shaped" lamina. Shaft and socle of the aedeagus with a carina situated medially on the posterior surface. In lateral view, this carina is in contact with the above mentioned apical lamina of the shaft (Fig. 11). A rather small "sclerotized part" which is hardly broader than the socle's end, is situated at the distal end of the socle (Figs 9, 11, 13).
Female genitalia: 7th abdominal sternite subrectangular, its caudal margin with a small median projection (Fig . 15).

Type series: Holotypus Male: RUSSIA: Amur Region: 25 km N of Svobodny, Tshernovka vill., 30.VII.-2.VIII.2003, Belokobylskiy leg.; - Paratypes: same data as Holotypus, 2MM, 3FF; Amur Region: 10 km E Arkhara, 24.VII.2003, 1M, Belokobylskiy leg.; Amur Region: Arkhara environment, 25.VII.2003, 2MM, 1F, Belokobylskiy leg.; Amur Region: Radde, banks of Amur River, 12-15.VII.2003, 2MM, 2FF, Belokobylskiy leg.; Amur Region: 30 km SW of Arkhara, 22-23.VII.2003, 2MM, Belokobylskiy leg.; Amur Region: 40 km SW of Svobodny, 27-29.VII.2003, 1M, 2FF, Belokobylskiy leg.; Maritime Territory: Spasskoe, 3-6.VII.2001, 2MM, Belokobylskiy leg.; Maritime Territory: 10 Km of NW of Artëm, 31.VII.2001, 1 F, Belokobylskiy leg.; Maritime Territory: Vladivostok environment, 24.VII. and 27.VII.1927, 2MM, B. Belov leg.; Maritime Territory: Khanka Lake, Kamen-Rybolov, 27.VII.1908, 1M, 1F, Tshersky leg.. - CHINA: Liaoning Province: Mukden (now Shenyang), 17-18.VII.1952, 1 M, 1F, Rubtzov leg..
O. amurensis specimens above-mentioned belong to the collection of the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia, with the exception of two specimens (1 male and 1 female) kept in Guglielmino's collection, c/o Dipartimento di Protezione delle Piante, Università della Tuscia, Viterbo, Italy.

Measurements: Males. Total body length (from the vertex to the tip of the fore wings): 4.28-5.02 mm; width of the head including the eyes: 1.16-1.28 mm; length of vertex: 0.28-0.36 mm; length of pronotum: 0.52-0.60 mm; width of pronotum: 1.28-1.44 mm. – Females. Total body length (from the vertex to the tip of the fore wings): 5.10-6.23 mm; width of the head including the eyes: 1.32-1.48 mm; length of vertex: 0.32-0.40 mm; length of pronotum: 0.60-0.72 mm; width of pronotum: 1.56-1.76 mm.

2. Comparison of the two species:

	Orientus ishidae Matsumura	*Orientus amurensis* n. sp.
a. Male genitalia		
Processes of pygofer	very long, thin, arrow shaped with dorsal margin smooth and ventral one serrate (Fig 1) and with distal portion ondulate (Fig. 2). Ventroapically they extend to the margin of the pygofer.	short, abruptly narrowing approximately in its distal third (Fig. 3) and with distal portion straight. Ventrally they extend only to about half of pygofer's width.
Genital plates	deeply notched on lateral margins near to the base of the distal third, forming a conspicuous and sturdy tooth (Fig. 4).	lateral margins not notched and without tooth (Fig. 5).
Styles	long, slender, their apophysis finger-shaped (Fig. 6).	short and squat, their apophysis hook-shaped (Fig. 7).
Aedeagus	socle basally very broad "whale's tail-shaped", diminishing distally to less than 1/3 of its basal width, from there on only slightly enlarged to less than half of its basal width, its distal end (around the base of its shaft) semicircularly rounded (Fig. 8). Seen from lateral the shaft's apical lamina does not reach the dorsal side (and its median carina), but ends halfways on the shaft's sides (Fig. 10). "Sclerotized part at the distal end of the socle" very large (more than twice as broad as the socle's distal end) (Figs 8, 10, 12). Phallotreme as in Fig. 8.	socle distally very broad, basally narrowing to about ¼ of its distal width, at the basal end again enlarged to about half of its distal width (Fig. 9). Seen from lateral the shaft's apical lamina reaches the dorsal side and is connected with its median carina (Fig. 11). "Sclerotized part at the distal end of the socle" rather small, hardly broader than the socle's end (Figs 9, 11, 13). Phallotreme as in Fig. 9.
b. Female genitalia		
Caudal margin of 7th abdominal sternite	straight (Fig. 14).	with a small median projection (Fig . 15).

3. Ecological data: According to published data and informations by my colleagues (for instance Poggi, Mühlethaler, Remane, Emeljanov) the two *Orientus*-species seem to inhabit a rather wide variety of biotopes (but covered with bushes, trees, etc.) and host plants.
In Europe *O. ishidae* Matsumura was found up to now mainly in towns (gardens etc.) on several trees, often on *Salix* spp. (*Salix purpurea*, *Salix alba* and *S. caprea*) but also on *Betula* and apple trees (MÜHLETHALER, pers. comm.). In Northern America, this species is recorded on *Aralia spinosa* (SANDERS & DELONG, 1919), on willow (OMAN, 1949) and on *Acer*, *Betula*, *Carpinus*, *Crataegus*, *Malus*, *Ostrya*, *Salix*, ecc. (HAMILTON, 1985). In Japan on apple tree (ISHIHARA, 1968).
O. amurensis n.sp. inhabits pastures, meadows, on trees and shrubs (oak, willow, *Lespedeza* (legumes)), it lives on willow (VILBASTE, 1968, as "*O. ishidae*"). According to ANUFRIEV (1978), this species inhabits broodleaved forests on herbaceous plants and diverse shrubs.

4. Geographic distribution: According to the specimens examined by me there is one species living in continental Eastern Asia (*O. amurensis* n. sp.: Russia - Amur Region, Maritime Territory; China - Liaoning Province) and a second (*O. ishidae* Matsumura) described from Japan and - apparently involuntarily distributed by man - Northern America and most recently in Central Europe (Italy, Germany and Switzerland). Records from Korea, the Philippines and Taiwan need to be examined (really *O. ishidae* Matsumura?).

5. Discussion: The genus *Orientus* was established by DELONG (1938) using "classificatory" characters of the exoskeleton, mainly shape of the head, shape and width of the pronotum and of the male genital complex (spine on dorsal side of pygofer lobe, long, slender subgenital plates). In his remarks on the type species (DELONG 1948) he mentions characters of coloration and markings. Future research has to show the phylogenetic position of *Orientus* DeLong in relation to other Cicadellidae, and which of its characters may be considered as synapomorphism of the two species known by now - in my opinion they seem to be rather closely related to each other.

Acknowledgements

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This study was supported by a grant of the University of Tuscia, Viterbo (ex 60%).

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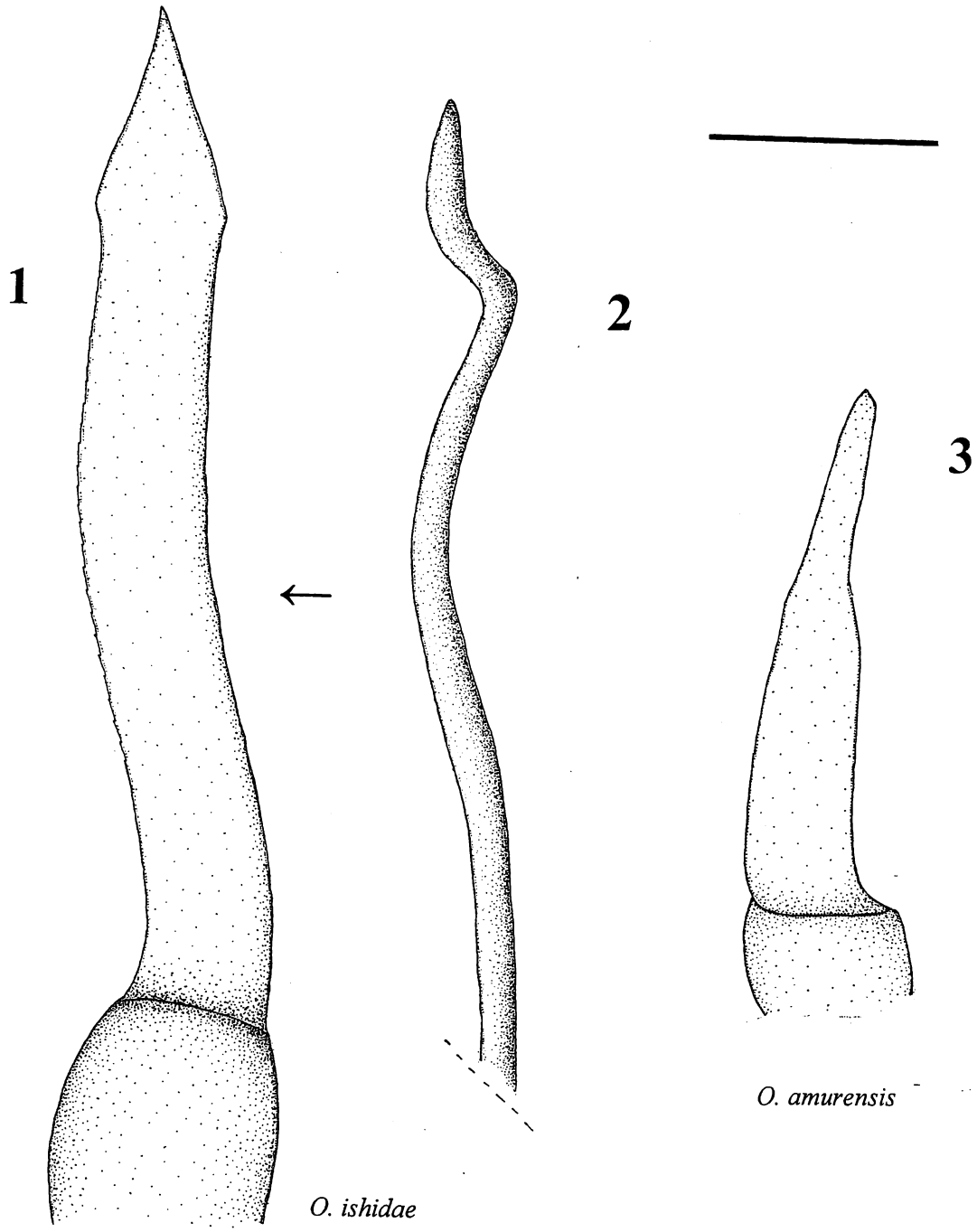
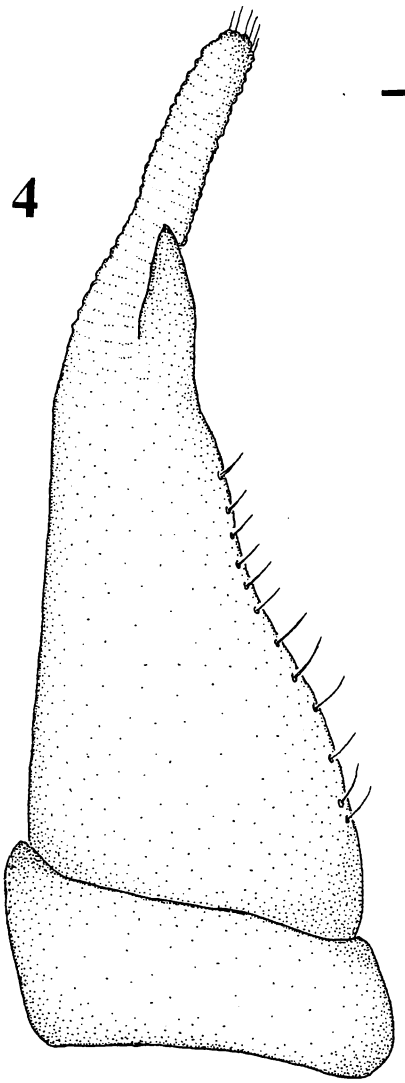
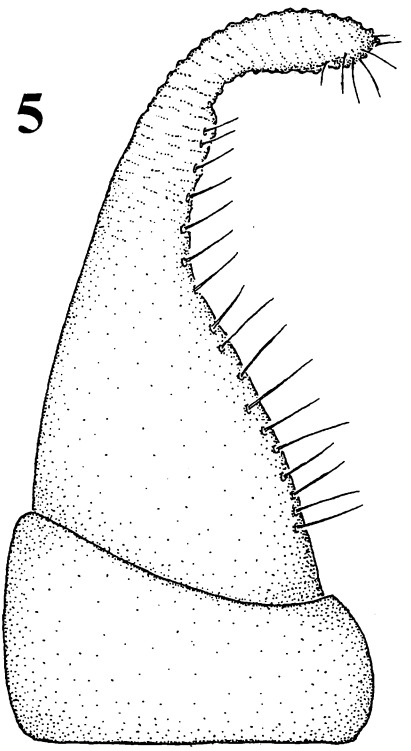


Figs 1-3. *Orientus ishidae* Matsumura: Male (specimen from Milano, Lombardia, Italy): 1: left pygofer process from inside; 2: left pygofer process as seen in direction of the arrow. - *Orientus amurensis* n. sp.: Male (paratype from Spasskoe, Maritime Territory, Russia): 3: left pygofer process from inside. Scale: 0.1 mm.

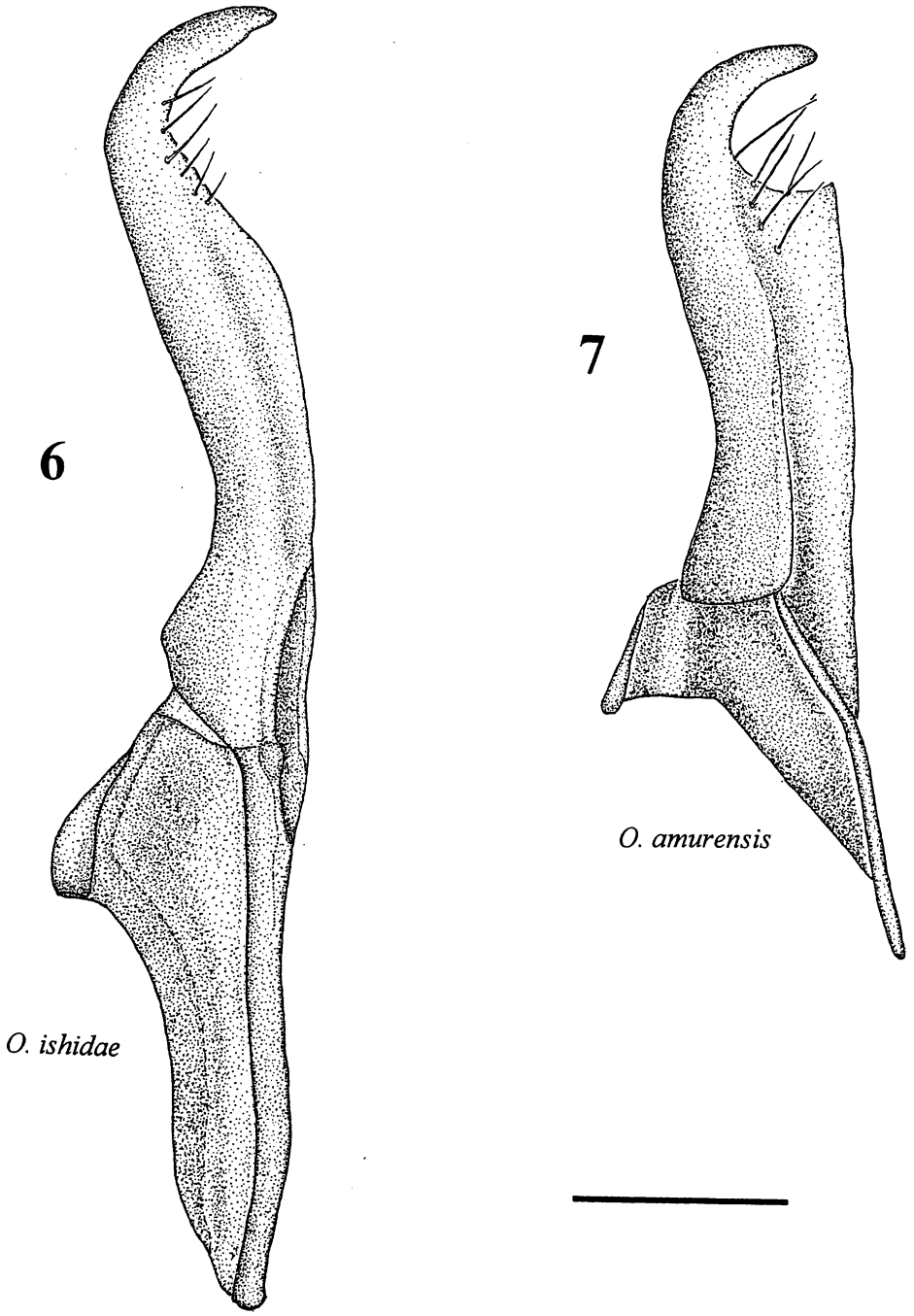


O. ishidae

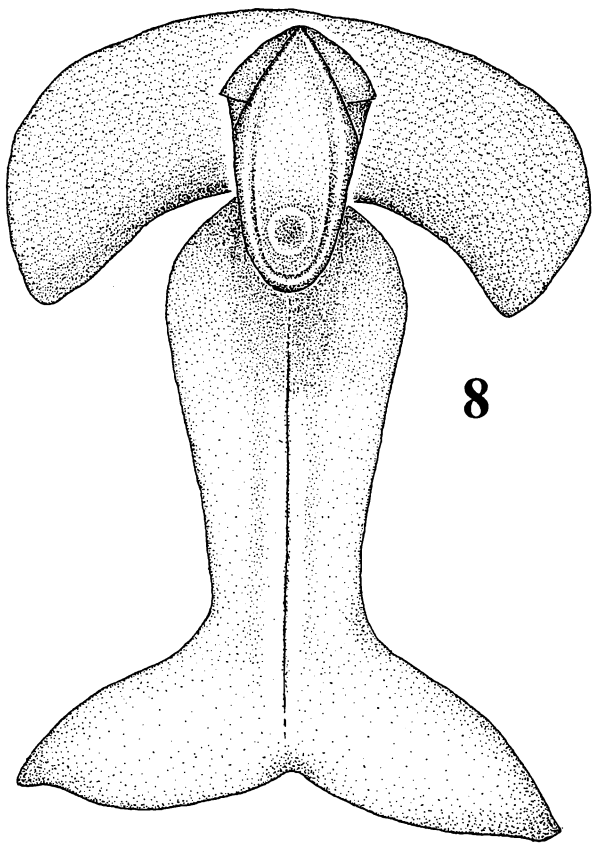


O. amurensis

Figs 4-5. *Orientus ishidae* Matsumura: Male (specimen from Milano, Lombardia, Italy): 4: right genital plate and valve, lateral view. - *Orientus amurensis* n. sp.: Male (paratype from Spasskoe, Maritime Territory, Russia): 5: right genital plate and valve, lateral view. Scale: 0.5 mm.



Figs 6-7. *Orientus ishidae* Matsumura: Male (specimen from Milano, Lombardia, Italy): 6: left genital style, dorsal view. - *Orientus amurensis* n. sp.: Male (paratype from Spasskoe, Maritime Territory, Russia): 7: left genital style, dorsal view. Scale: 0.1 mm.



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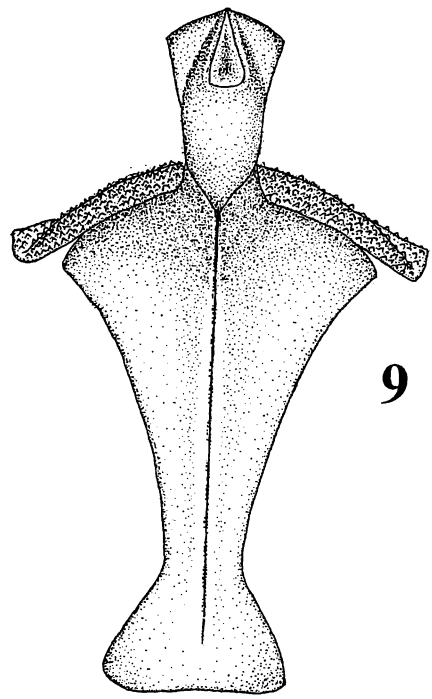
O. ishidae



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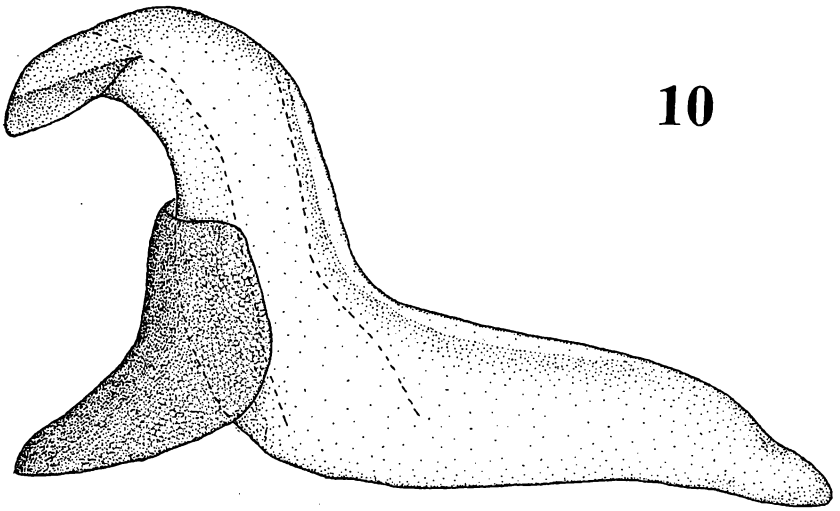
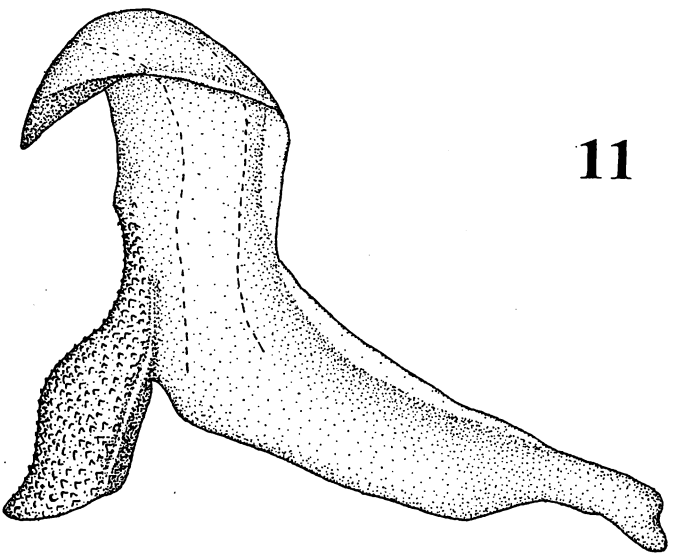
O. amurensis

Figs 8-9. *Orientus ishidae* Matsumura: Male (specimen from Milano, Lombardia, Italy): 8: aedeagus, posterior view. - *Orientus amurensis* n. sp.: Male (paratype from Spasskoe, Maritime Territory, Russia): 9: aedeagus, posterior view. Scale: 0.1 mm.

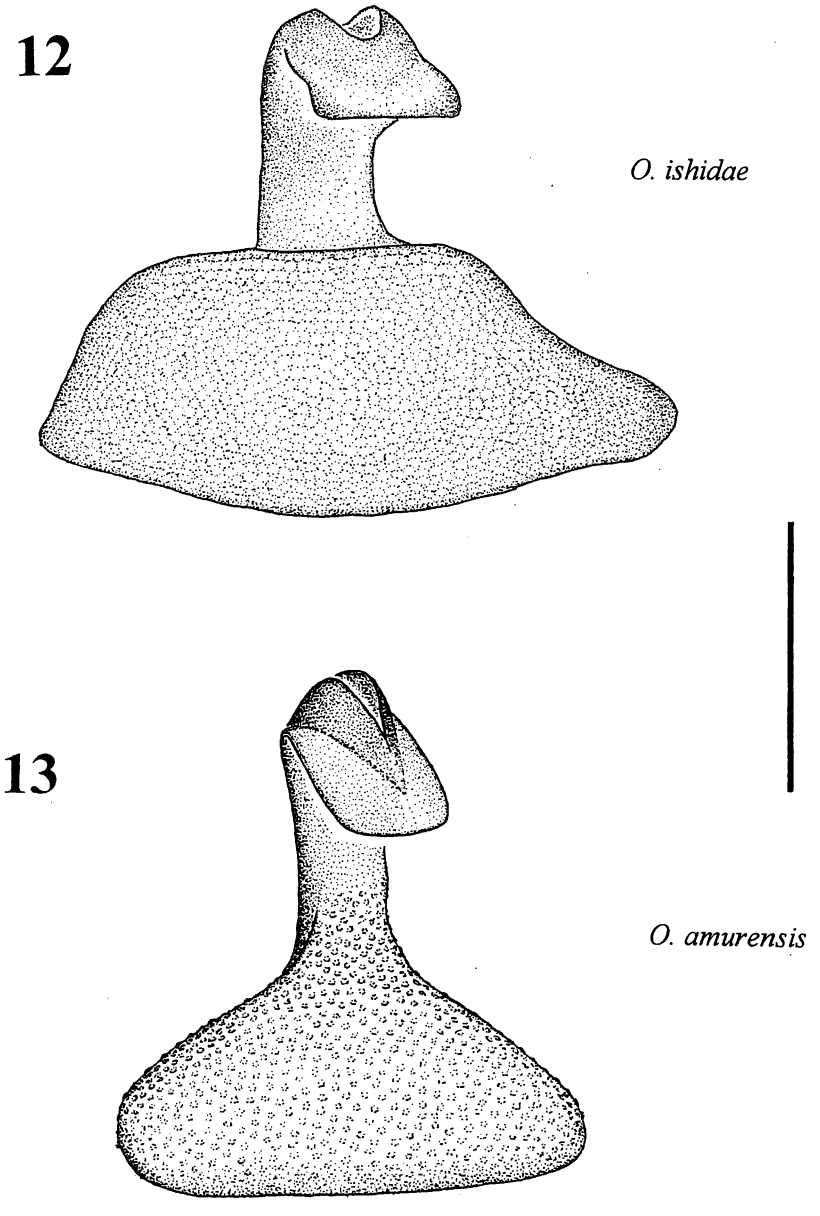


O. ishidae

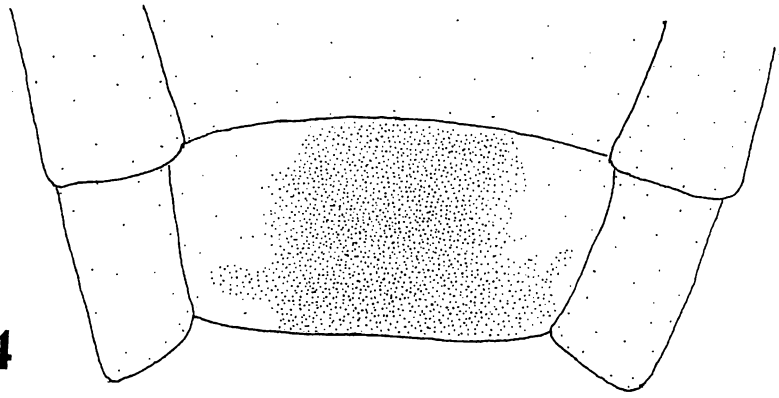


O. amurensis

Figs 10-11. *Orientus ishidae* Matsumura: Male (specimen from Milano, Lombardia, Italy): 10: aedeagus, lateral view. - *Orientus amurensis* n. sp.: Male (paratype from Spasskoe, Maritime Territory, Russia): 11: aedeagus, lateral view. Scale: 0.1 mm.



Figs 12-13. *Orientus ishidae* Matsumura: Male (specimen from Milano, Lombardia, Italy): 12: aedeagus, dorsal view. - *Orientus amurensis* n. sp.: Male (paratype from Spasskoe, Maritime Territory, Russia): 13: aedeagus, dorsal view. Scale: 0.1 mm.



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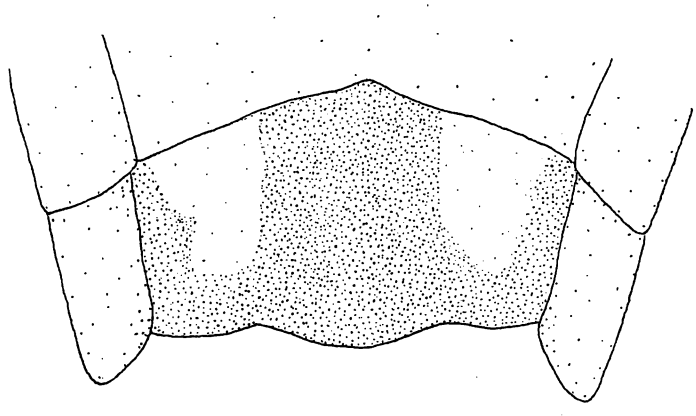
O. ishidae



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O. amurensis

Figs 14-15. *Orientus ishidae* Matsumura: Female (specimen from Milano, Lombardia, Italy): 14: 7th abdominal sternite, ventral view. - *Orientus amurensis* n. sp.: Female (paratype from 25 Km N of Svobodny, Tshernovka vill., Amur Region, Russia): 15: 7th abdominal sternite, ventral view. Scale: 0.5 mm.