A Classification for Japanese Species of Glossosomatidae

(Trichoptera, Insecta)

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わが国から記載されたヤマトビケラ科（毛翅目）の種について

現在までに，わが国に棲息するヤマトビケラ科には3属10種が知られている。これらの既知種と採集した資料とをあわせて，ヤマトビケラ科の再検討をおこなった結果，1属6種を新たに加える必要が生じたので，ここに発表する。 （小林峯生）

The larvae of the Glossosomatidae make saddle-like cases, and inhabit cool or cold, rapid streams. Both adults and larvae are relatively uniform in appearance throughout the family.

Up to the present time 3 genera and 10 species of this family have been known from Japan. In this paper, 1 subgenus and 6 species are newly described, given keys to the species. Among the known species 5 species were not available. Those are *Glossosoma hospitum* (TSUDA) 1940, *Electragapetus tsudai* ROSS 1951, *Agapetus komanus* (TSUDA) 1942 *Agapetus hieanus* (TSUDA) 1940 and *Agapetus yaseniss* (TSUDA) 1942.

I wish to express my gratitude to Dr. Kintaro BABA, and Mr. Sigikazu UCHIDA, who allowed me to study the specimens collected by them.

Family **Glossosomatidae** WALLENGELN 1891
Type genus: *Glossosoma* CURTIS 1894

Glossosomatidae WALLENGREN, 1891. Skandin. Neur. Tricho., 12; 163.
Glossosomatinae ULMER, 1903. Abh. Ver. Naturw. Hamburg, 19; 128.
Glossosomatinae: ULMER, 1907. Gen. Ins., 60; 202.
Glossosomatinae: TSUDA, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B)., 17; 249.
Glossosomatinae: MOSELY & KIMMINS, 1953. The Trichoptera of Australia and New Zealand. British Mus. (Nat. Hist.), London,; 497.
Glossosomatidae: ROSS, 1956. Evolution and classification of the mountain caddisflies. University of Illinois Press, Urbana.; 127.
Glossosomatibae: FLINT, 1974. Smithsonian Cont. Zool., 169; 6.

Diganosis: Antennae slender, as long as or shorter than the front wings; basal joint stout, shorter than the head. The mouthparts are similar in both sex. Ocelli are distinct, and situated some distance. The dorsal warts of the pronotum are separated by a distance equal to the long measuremant of one of them. Maxillary

palpi alike in the sex, five-jointed; terminal joint not articulated; the first two joints very short, the following joints long, cylindrical. Spure 2, 4, 4. Intermediate tibia and tarsus of the female sometimes considerably dilated. Wings elongate; vestiure variable; neuration gnerally regular. Discoidal cell in the both wings either open or closed, in hind wings sometimes wanting. Front wings with forks nos. 1, 2, 3, 4 and 5; R_1 generaly forked at its apex. Thyridial cell always, midian cell seldom present. On additional costal cross-vein sometimes present. Hind wings shorter and narrower, forks nos. 1, 2, 3 and 5 or 2, 3 and 5 present.

Key to subfamily

Front tibiae with a pair of apical spines which are prominent and scleretized ·····Glossosomatinae

Front tibaie with hairlike apical apines or none ·····Protoptilinae

One subfamily Glossosomatinae, which belong to the family Glossosomatidae have been recorded from Japan.

Subfamily **Glossosomatinae** Ulmer

Type genus: *Glossosoma* Curtis 1834

Glossosomatinae Ulmer, 1903. Abh. Ver. Hamburg, 18; 128

Glossosomatinae: Ulmer, 1907. Gen. Ins. 60; 210.

Glossosomatinae: Betten, 1934. Bull. N. Y. State Mus., 292; 136.

Glossosomatinae: Martynov, 1934. Table analyt. Faun URSS., 13; 35.

Glossosomatinae: Tsuda, 1942. Mem. Coll. Sci. Kyoto Imp. Univ., (B), 17; 249.

Glossosomatinae: Mosely & Kimmins, 1953. The Trichoptera of Australia and New Zealand. British Mus. (Nat. Hist.), London.: 497.

Glossosomatinae: Ross, 1956. Evolution and Classification of the mountain caddisflies. University of Illinois Press, Urbane.; 152.

Diagnosis: Antennae hairy, widely separated at base, generally shorter than the wings, basal segment thicker than others. Ocelli present. Maxillary palpi generally hairy, the first two segments very short, the fourth shorter than the third, also shorter than the fifth. Spurs 2, 4, 4. Intermediate tibia and tarsus of female generally strongly dilated. Front wings long, rounded or elliptical at apex. Hind wings narrower than the front wings, often very narrow, generally with a somewhat blunt apex. Front wings without acessary branch on Sc; discoidal cell always present, often large; apical forks mostly long and narrow. In the hind wings the discoidal cell present or absent. Genitalia of male often very complicated. The sixth and seventh sternites of male, more rarely of female also, with the dorsal plate.

Three genera, which belong to the subfamily Glossosomatinae have been recorded from Japan.

Key to genus

1. - Dicoidal cell of hind wings small or absent; vein R_{2+3} either unbranched or

branched beyoud cross-veins s·····2
–. Discoidal cell of hind wings longer, vein R_{2+3} branched before crossvein s ····· *Glossosoma*
2. Hind wings with sectorial cross-vein (s)····· *Electragapetus*
–. Hind wings without sectorial cross vein (s)····· *Agapetus*

Genus *Glossosoma* Curtis 1834
Type species: *Glossosoma baltani* Curtis

Glossosoma Curtis, 1834. London Edinburgh Philosoph. Mag. and Jour. Sci. 4; 216.
Glossosoma: MacLachlan, 1865, Tran. Ent. Soc. London, (3)., 5; 160.
Glossosoma: Ulmer 1907. Gen. Ins., 60; 211.
Glossosoma: Ulmer, 1909. Trichoptera in Süssw. fauna Deutschl.; 22.
Glossosoma: Betten, 1934. Bull. N. Y. State Mus., 292; 138.
Glossosoma: Ross, 1956. Evolution and classification of the mountain caddisflies. University of Illinois Press, Urbana.; 159.

Diagnosis: Spurs 2, 4, 4. Intermediate tibia and tarsus of female strongly dilated. In front wings apical forks nos. 1, 2, 3, 4 and 5 present. In hind wings apical forks nos. 1, 2, 3 and 5 present. Discoidal cell of front wings clossed. In hind wings vein R_{2+3} branched befor cross-vein s. Genitalia complecated; clasper presant or absent.

Two subgenera, which belong to the genus *Glossosoma* have been recorded from Japan.

Key to subgenus

1. Clasper elongate, spatula-shaped. Aedeagus with a pair of dorsal clavate processes capped with a spinous area ····· *Eomystra*
–. Clasper elongate, basal protion stout, apical protion very narrow. Dorsal lobe of aedeagus without a spinous area····· *Mystroglossa* New subgenus.

Subgenus Eomustra Martynov 1934
Type species: *Mystrophora intermedia* Klapelk 1942

Mystrophora Klapalek, 1892. Ropz. Ceske Acad. Cis Ranct. Jos., Praze. 5; 19.
Mystrophora: Martynov, 1914. Rev. Russe d'Ent., 14; 1.
Mystrophora: Martynov, 1934. The Trichoptera Annulipalpia of the URSS. Lininggrad.; 76.
Eomystra Martynov, 1934. ditto.; 84.
Mystrophorella Kloet & Hincks, 1944. The Entomologist, 77; 97.
Mystrophora: Tsuda, 1940. Annot. Zool. Japonenses, 19; 192.
Mystrophora: Tsuda, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B), 17; 250.
Eomystra: Ross, 1956. Evolution and classification of the mountain caddisflies.

University of Illinois Prass, Urbana.; 154.

Diagnosis: Vanation, spurs, and genral body structure for genus. Outer apical tibial spur on the hind legs of male short and braod, with a pointed and hook-like apical processes. The seventh and eighth sternites with dorsal plates. Male genitalia distinctive; clasper elongate, spatula-shaped; aedeagus with a pair of dorsal clavate processes capped with spinous area.

Distribution: Eastern Asia, Japan, Siberia, and North eastern North America

Key to species

1. The tenth tergite stout, not incised at all·····2
–. The tenth tergite deeply incised to form a long dorsal point·····3
2. The tenth tergite nearly bean-shaped ····· *inops*
–. The tenth tergite nearly pear-shaped ····· *uogatanum* sp. nov.
3. Dorsal lobes of the tenth tergite elongate, pointed knife-shaped ·····*specularis*
–. Dorsal lobes of the tenth tergite slender, long bill-shaped ·····4
4. Dorsal margin of clasper with minute process; dorsal spinous processes with small head·····*sadoensis* sp. nov.
–. Dorsal margin of clasper without process; dorsal spinous processes with larg head ····· *japonica*

1. ***Glossosoma* (*Eomysta*) *inops*** (Tsuda)

(pl. 1)

Mystrophora inops Tsuda, 1940. Annot. Zool. Japonenses, 19; 193.
Mystrophore inops: Tsuda, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B), 17; 191.
Glossosoma inops: Ross, 1956. Evolution and classification of the mountain caddisflies. University of Illinois Press, Urbana.; 155.
Glossosoma inops: Kobayashi, 1973. Bull. Kanagawa Pref., Mus. (Nat. Hist.), 6; 29.

Male: Length 6 mm. Color dark brown, legs and venter slightly lighter than dorsal portion. General structure typical for genus. The fifth abdominal sternite with slightly embossed lateral area. The sixth and seventh sternites with ventral processes; the sixth ventral process slender; the seventh ventral process small and triangular in lateral aspect. Genitalia as in Plate 1. The ninth segment with its ventral margin produced in short and its dorsal margin produced in a long. The tenth tergite short, long, bean-shaped, clothed with long bristles. Clasper elongate; basal protion narrow; distal portion stout, writting brush-shaped. Aedeagus with relatively short cap attached by the short membrane to the ninth sternal region; phalicata divided in to two long lobes; dorsal lobe of aedagus with spinous area; spinuos area small in lateral aspect.

Distribution: Fukuoka, Kyoto, Kanagawa, Saitama, Niigata, Yamagata, Hokkaido Prefectures.

Specimens examined; 1♂, Yoshii-mach, Ukiba-gun, Fukuoka Pref., May 7, 1956

(N. Gyotoku); 2♂♂, Miyagase, Kiyokawa-mura, Kanagawa Pref., May 28, 1956 (M. Kobayashi); 1♂, Kurokawa-mura, Kitakanbara-gun, Niigata Pref., July 2, 1964 (K. Baba); 2♂♂2♀♀, Tsukiyamashizu, Asahi-mura, Higashitagawa-gun, Yamagata Pref., Sept. 18, 1967 (K. Shirahata); 1♂, Mihama, Mt. Chyokai, Yamagata Pref., July 24, 1970 (K. Shirahata); 2♂♂, Mt. Iro, Tsukui-machi, Kanagawa Pref., Aug. 18, 1973 (M. Kobayashi); 1♂, Mt. Tonbio, Atsugi-shi, Kanagawa Pref., Sept. 11, 1973 (M. Kobayashi); 2♂♂2♀♀, Hinokigoya, Mt. Kumotori, Saitama Pref., May 18, 1974 (M. Kobayashi); 12♂♂3♀♀, Mt. Hijiri, Odawara-shi. Kanagawa Pref., June 26, 1974 (M. Kobayashi); 1♂2♀♀, Mt. Takamatsu, Yamakita-machi, Kanagawa Pref., Setp. 29, 1974 (M. Kobayashi); 3♂♂5♀♀, Mt. Jozankei, Sapporo, Hokkaido; Aug. 1976 (T. Ito); 1♂2♀♀, Miwa, Yusa-machi, Yamagata Pref., Sept. 14, 1977 (K. Shirahata).

2. *Glossosoma* (*Eomystra*) *uogalanum* sp. nov.
(pl. 2)

Male: Length 4 mm. Color dark borwn, legs and venter slightly lighter than dorsal portion. General structure typical for genus. The fifth abdominal sternite with slightly embossed lateral area. The sixth and seventh sternites with ventral processes; the sixth ventral process long, pickle-shaped; the seventh ventral process short, thorn-shaped. Genitalia as in Plate 2. The ninth segemnt with its ventral margin produced in a short and its dorsal margin produced in a long, with its apical margin produced in a spinous. The tenth tergite long, stout, nearly pear-shaped. Clasper elongate, divided into two lobes; upper lobe narrower and shorter than the lower lobes, stout, embossd at median portion. Aedeagus with long cup attached by the membrane to the ninth sternite region; phalicata simple, broad with basal portion; dorsal lobe of aedeagus stout, with wide spinous area at haed.

Holotype. Male; Araigami, Uogata-machi, Akita Pref., Oct. 8, 1976 (K. Shirahata). Paratype. - 2♂♂; same date as for holotype.

This species is most closely related to *inops*, it differs from the structure of the tenth tergite, aedeagus and clasper.

Distribution: Akita Prefecture.

3. *Glossosoma* (*Eomystra*) *specularis* Kobayashi
(pl. 3)

Glossosoma specularis Kobayashi, 1972. Bull. Kanagawa Pref. Mus. (Nat. Hist.), 5; 5.

Male: Length 6 mm. Color dark brown, legs and venter slightly lighter than the dorsal portion. General structure typical for genus. The fifth sternite with embossed lateral area. The sixth sternite with a narrow spatulate ventral process, and a minute pointed process to the seventh sternite. Genitalia as in Plate 3. The

ninth tergite narrowed ventrad, and broaded dorsard; apical margin produced in a spinous. The tenth tergite forming a pair of lobes, each divided almost to its base by a U-shpaed excision; the upper branch so formed is slender, pointed knife-shaped, lower stouter, each from side irregularly oblong. Clasper elongate, spatula-shaped in lateral aspect. Aedeagus with relatively short cup attached by the short membrane to the ninth sternal region; phalicata slender, pointed at apical portion; dorsal lobe of aedeagus slender, with large spinuos head.

Distribution: Kanagawa Akita Prefectures.

Specimens examined: 3♂♂♀♀♀, Nakatsu mountain torrent, Kiyokawa-mura, Kanagawa Pref., May 28, 1955 (M. KOBAYASHI); 1♂, Mt. Hijiri, Odawara-shi Kanagawa Pref., June 26, 1974 (M. KOBAYASHI); 1♂, Mt. Hinotodake, Chyokai-mura, Akita Pref., 9, 1977 (K. SHIRAHATA).

4. ***Glossosoma* (*Eomystra*) *sadoensis*** sp. nov.
(pl 4)

Male: Length 6 mm. Color dark brown, legs and venter slightly lighter than dorsal portion. General strucure typical for genus. The fifth sternite with slightly embossed lateral area. The sixth and seventh sternites with ventral processes; the sixth ventral process short, narrow, acuted at apex; the seventh ventral process very small, situated on swelling portion. Genitalia as in Plate 4. The ninth tergite narrowed ventrad and broaded dorsard; apical margin produced in a sipnous. The tenth tergite forming a pair of lobes, each divided almost to its base by a U-shaped excision. Upper branch so formed is slender, long bill-shaped; lower stout, destal margin truncated and curved inwardly. Clasper very long and stouter, dilated towards their apices, spatula-shaped; ventral margin with a short process. Aedeagus with long cup attached by the membrane to the ninth sternite region; phalicata slender, with broad basal portion: dorsal lobe of aedeagus slender, with narrow spinous area at head.

Holotype. Male; Mt. Donden, Sado Island, Niigata Pref., July 23, 1970 (K. BABA).

This species is most closely related to *japonica*, differing from it is the structure of genitalia.

Distribution: Niigata Prefecture.

5. ***Glossosoma* (*Eomystra*) *japonica*** KOBAYASHI
(pl. 5)

Glossosoma japonica KOBAYASHI, 1972. Bull. Kanagawa Pref., Mus. (Nat. Hist.), 5; 7.

Male: Length 7 mm. Color dark brown, legs and venter slightly lighter than dorsal portion. General structure typical for genus. The fifth sternite with embossed lateral area. The sixth and seventh sternites with ventral processes: the sixth

ventral process very long,acuted at apex, clow-shaped; the seventh ventral process very short, nearly triangular in lateral aspect. Genitalia as in Plate 5. The ninth tergite with its ventral margin produced in a short and its dorsal margin produced in a long, with its apical margin produced in a spinous. The tenth tergite forming a pair of lobes, each divided almost to its base U-shaped excision. Upper branch so formed is slender, long bill-shaped; lower stout, with wide apical portion; distal margin truncate and deeply undulating in lateral aspect. Clasper very longer than the tenth tergite, basal portion narrow, writting brush-shaped in lateral aspect. Aedeagus with long cup attached by membrane to the ninth sternite region; phalicata spatula-shaped, dorsal lobe of aedeagus slender, with wide spinous area at head.

Distribution: Fukuoka, Kanagawa Prefectures.

Specimens examined: 6♂♂, Nakatsu mountain torrent, Kiyokawa-mura, Kanagawa Pref., May 28, 1955 (M. Kobayashi); 2♂♂, Yoshii-machi, Ukiba-gun, Fukuoka Pref., May 1, 1959 (N. Gyotoku).

Mystroglossa new subgenus

Type species: *Glossosoma alticum* (Martynov) 1914

Diagnosis: Venation, spurs, and general body structure as in genus character. Male genitalia distinctive (Plate 6); the tenth tergite divided into two lobes; clasper slender, basal protion very stouter than the distal portion; dorsal lobes of aedeagus without a spinous area.

Distribution: Japan.

Key to species

1. Clasper elongate, tapered to very narrow apex ·····2
–. Clasper enlarged in middle portion ····· *hospitum*
2. Thinner apical portion simple, stick-shaped ····· *alticum*
–. Thinner apical portion spatula-shaped ····· *sumitaensis* sp. nov.

6. ***Glossosoma* (*Mystroglossa*) *hospitum*** (Tsuda)

Mystrophora hospita Tsuda, 1940. Annot Zool. Japonenses, 19; 192.
Mystrophora hospita; Tsuda, 1942, Mem. Coll. Sci. Kyoto Imp. Univ. (B)., 17; 191.
Clossosoma hospitum Ross, 1956. Evolution and classification of the mountain caddisflies. University of Illinois Press, Urbana.; 155.

The original description of this species was besed upon from Kisofukushima, Nagano Prefecture. But I had no chance to examine on this species, juding from the figure given by Tsuda (1940), this species can be distinguished from other species by the shape of the genitalia of the male.

Distribution: Nagano Prefecture (Tsuda, 1940).

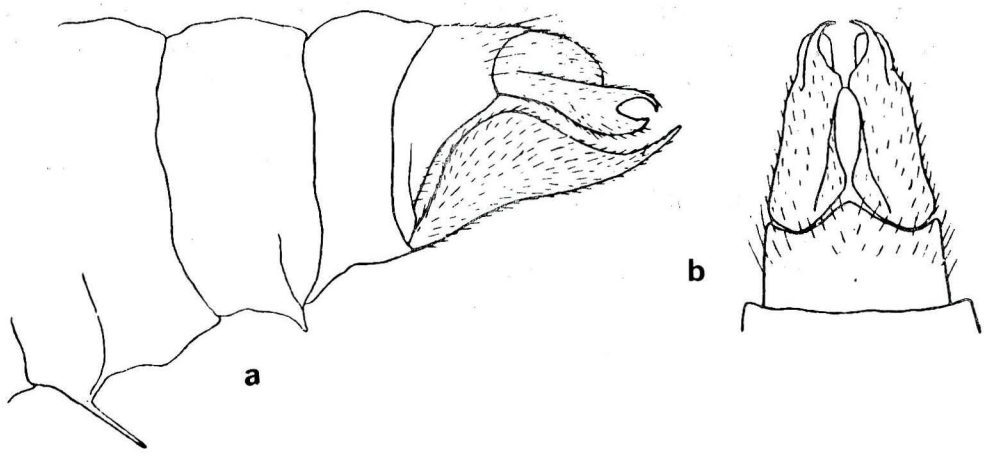

Fig. 1. Male genitalia of *Glossosoma (Mystoglossa) hospitum*. a, lateral aspect; b, dorsal aspect, by TSUDA (1940).

7. *Glossosoma (Mystroglossa) alticum* (MARTYNOV)
(pl. 6)

Mystrophora altaica MARTYNOV, 1914. Rev. Russe d'Ent., 14; 72.
Mystrophora altaica: MARTYNOV, 1934, The Trichoptera Annulipalpia of the URSS. Leningrad.; 76.
Mystrophora lauta TSUDA, 1940. Annot. Zool. Japonenses, 10; 191.
Mystophora lauta: TSUDA, 1942. Mem. Coll. Sct. Kyoto Imp. Univ. (B)., 17; 250.
Glossosoma altaicum: ROSS, 1956. Evolution and classification of the mountain caddisflies., University of Illinois Press, Urbana.,: 155.

Male: Length 7 mm. Color dark brown, lege and venter slightly lighter than dorsal portion. General structure typical for genus. The fifth sternite with embossed lateral area. The sixth and seventh sternites with ventral processes; the sixth ventral process very long, acuted at apex; the seventh ventral process small, nearly triangular in lateral aspect. Genitalia as in Plate 6. The ninth segment with its ventral margin produced in a short and its dorsal margin produced in a long; distal margin produced at middle postion. The tenth tergite broad at their bases, each divided at its distal portion into two lobes separated by a excision; upper lobe so formed is slender, weakly downcurved and acute; lower lobe stouter and shorter than the upper lobe, rounded at apex. Clasper slender, divided to stout and narrow portion; stout portion shorter than the narrow portion; narrow portion acuted at its apex. Aedeagus attached with the ninth sternite region by membrane; phalicata moderately stout and blunt; dorsal lobe of aedeagus stout, without spinous area, truncated at its apex.

Distribution: Fukuoka, Kanagawa, Niigata, Iwate Prefectures.

Specimens examined: 1♂, Yoshii-machi, Ukiba-gun, Fukuoka Pref., May 24, 1959

(N. Gyotoku); 7♂♂23♀♀, same locality., April 13, 1958 (N. Gyotoku); 1♂, Shekigawa-mura, Iwafune-gun, Niigata Pref., June 29, 1964 (K. Baba); 1♂, Tsuchidaru, Yuzawa-machi, Niigata Pref., July 2, 1964 (K. Baba); 2♂♂1♀, Sumita-mach, Iwate Pref., June 15, 1972 (K. Baba); 6♂♂9♀♀, Mt. Bukazan, Aikawa-machi, Kanagawa Pref., July 9, 1973 (M. Kobayashi); 1♂3♀♀, same locality, Aug. 2, 1973 (M. Kobayashi); 2♂♂, Mt. Iro, Tsukui-machi, Kanagawa Pref., Aug. 17, 1973 (M. Kobayashi); 10♂♂20♀♀, Mt. Ogura, Shiroyama-machi, Kanagawa Pref., Sept. 1, 1973 (M. Kobayashi); 6♂♂4♀♀, Mt. Tonbio Atsugi-shi, Kanagawa Pref., Sept. 10, 1973 (M. Kobayashi); 1♂, Mt. Hijiri, Odawara-shi, Kanagawa Pref., June 26, 1974 (M. Kobayashi).

8. ***Glossosoma* (*Mystoglossa*) *sumitaensis*** sp. nov.
(pl. 7)

Male: Length 7 mm. Color dark brown, legs and venter slightly lighter than the dorsal portion. General structure typical for genus. The fifth sternite with slightly embossed lateral area. The sixth and seventh sternites with ventral processes; the sixth ventral process long, spine-shaped; the seventh ventral process very small, pointed in swelling portion of membrance in laterl aspect. Genitalia as in Plate 7. The ninth tergite with its ventral margin produced in a short and its dorsal margin produced in a long; distal margin waved. The tenth tergite broad at their bases, each divided at its distal portion into two lobes separated by a excision; upper lobe so formed is slender, weakly downcurved and acuted; lower lobe stout, shorter than the upper lobe, rounded at its apex. Clasper elongate, embossed at middle portion; distal portion narrower than the basal portion, spatula-shaped. with a few short spines. Aedeagus atteched with the ninth sternite region by membrane; phalicata blunt, with squarish distal margin; dorsal lobe of aedeagus without spinous head, rounded at its apex.

Holotype. Male; Sumita-machi, Iwate Pref., June 15, 1972 (K. Baba).

This species is mostly closely related to *alticum*, it differs from the structure of clasper and aedeagus.

Distribution: Iwata Prefecture.

Genus ***Electragapetus*** Ulmer 1912

Type species: *Electragapetus scitulus* Ulmer 1912

Electragapetus Ulmer, 1912. Beiträge zur Naturkunde Preussens, Königsherg, 10: 33.

Electragapetus: Ross, 1951. Jour. Washington Aca. Sci. 41; 353.

Electragapetus: Ross, 1956. Evolution and classification of the mountain caddisflies. University Illinois Press, Urbana.; 158.

Diagnosis: Spurs 2, 4, 4. Intermediate tibiae and tarsus of the female

strongly dilated. In front wings apical forks nos. 1, 2, 3, 4 and 5 present. In hind wings apcal forks nos. 1, 2, 3 and 5 present. Discoidal cell of both wings clossed. Front wings without R_{a1}, discoidal cell elongate. Hind wings with vein 2A at least partially atrophied, but Sc is free to its apex and R_{2+3} branhes near wing margin; vein R_{4+5} branches beyond crossvein s; discoidal cell very shorter than the discoidal cell of front wings. Male genitalia comparatively complicated; cercus are short but extremely broad at base, extending for some distence along the margin of the ninth segment; lobes of the tenth segment are less reduced in *E. scitulus* (This species is known from Baltic amber), but other species are almost atropied.

One subgenus *Eogapetus*, which belong to the genus *Electragapetus* have been recorded from Japan.

Subgenu ***Eogapetus*** MARTYNOV 1934
Type species: *Eogapetus praeteritus* MARTYNOV 1934

Eogapetus MARTYNOV, 1934. The Trichoptera Annulipapia of the URSS. Leningrad; 94.

Eoagapetus: ROSS, 1956. Evolution and classification of the mountain caddisflies. University of Illinois Press, Urbana.,; 158.

Diagnosis: Venation, spurs, and general bodys structure for genus. Cercus low, with basal attached potion very long; clasper stout, nearly thumb-shaped in lateral aspect.

Distribution: South Ussuri, Japan.

Key to species

1. Clasper with lateral aspect regular, rounded at apex, thumb-shaped·····2
-. Clasper with lateral aspect irregular, deeply emerginated at apex ····· *uchidai* sp. nov.
2. Left lobe of the tenth tergite with dorsal aspect acuted a apex, nearly triangle ····· *mayaensis* sp. nov,
-. Left lobe of the tenth tergite with dorsal aspect ventral corner digitate and long, angled both ventral and laterad·····*tsudai*

9. ***Electragapetus (Eoagapetus) tsudai*** ROSS

Electragapetus tsudai ROSS, 1951. Jour. Washington Acad. Sci., 41; 353

Electragapetus tsudai: ROSS, 1956. Evolution and classification of the monutain caddisflies., University of Illinois Press. Urbana.

The original description of this species was based upon from Higashiyama, Fukushima Prefecture. I had no chance to examine on this species, but juding from the figure given by ROSS (1951), this species can be distinguished from

other species by the shape of the ginitalia of the male.

Distribution: Fukushima Prefecture (Ross, 1951).

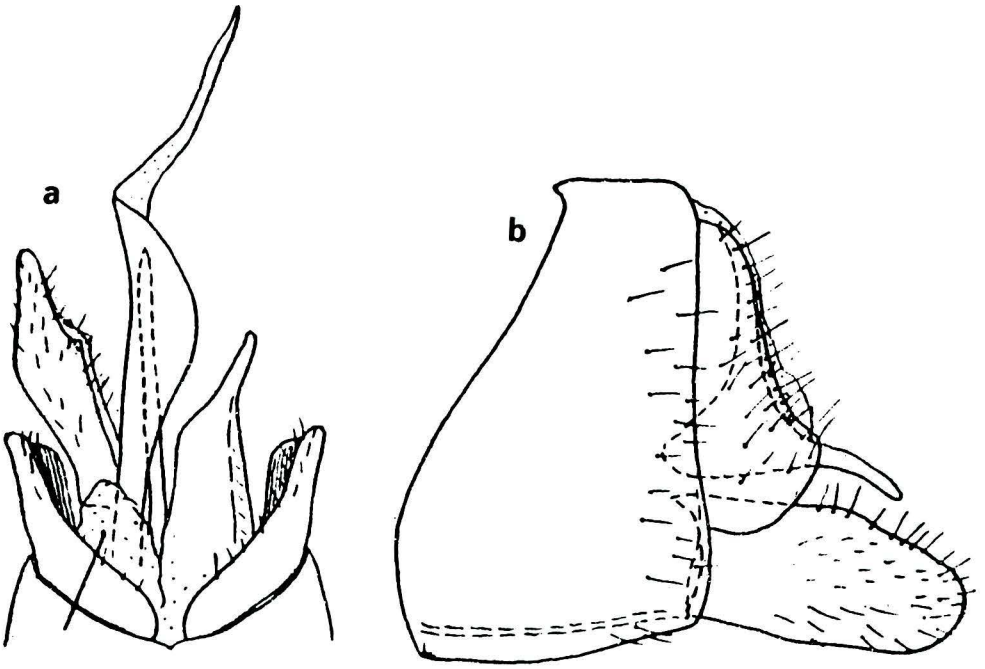

Fig. 2. Male genitalia of *Electragapetus* (*Eoagapetus*) *tsudai*, a. lateral aspect; b, dorsal aspect, by Ross (1956).

10. ***Electragapetus* (*Eoagapetus*) *mayaensis*** sp. nov.

(pl. 8)

Male: Length 7 mm. Color dark brown, legs and venter slightly lighter than dorsal portion. General strucure typical for genus. The fifth sternite with slightly embossed lateral area. The sixth and seventh sternites with ventral processes; the sixth ventral process long, spine-shaped; the seventh ventral process very short, spine-shaped. Genitalia as in Plate 8. The tenth tergite with right lobe membranous and inconspicuous; left lobe long, acuted at apex. Cercus with laterl aspect narrow dorsal portion and broad ventral portion, extending ventrad over the base of the clasper. Clasper with laterl aspect regular, rounded at apex, thumb-shaped; inner surface with three black speckles. Aedeagus very longe, with a pair of long sclerotized rod, one convoluted before the spine-like apex; other nearly stright, acuted at apex.

Holotype. Male; Mt. Maya, Onmi-machi, Yamagata Pref, May 10, 1969 (K. Shirahata).

This species is most closely related to *tsudai*, it differs from the structure of the tenth tergite and cercus.

Distribution : Yamagata Prefecture.

11. *Electragapetus* (*Eoagapetus*) *uchidai* sp. nov.
(pl. 9)

Male : Length 5 mm. Color dark brown. General structure typical for genus. The fifth sternite with slightly embossed lateral area. The sixth and seventh sternites with ventral processes; the sixth ventral process long, bill-shaped; the seventh sternite slightly shorter than the sixth process, bill-shaped. Genitalia as in Plate 9. The tenth tergite with right lobe membranous and inconspicuous, left lobe with ventral corner digitate and long, rounded both ventrad and laterad. Cercus short, very borad, with embossed apical area, extending ventrad over the base of the clasper. Clasper stout, irregular, deeply emerginated at apex; inner surface with a black speckle; ventral process with a small black speckle. Aedeagus very longer, with a pair of short sclerotized rods, the both rods stright, acuted at apex.

Holotype. Male; Koma Riv., Ohokurayama, Saitama Pref., July 25, 1979 (S. Uchida). Paratype 4♀♀, same date as holotype.

This species is easily distinguished from the other species by the structure of male genitalia.

Distribution : Saitama Prefecture.

Genus *Agapetus* Curtis 1834
Type species : *Agapetus fuscipes* Curtis 1834

Agapetus Curtis, 1634. London and Edinburgh Philosoph. Mag. and Jour. Sci., 4; 217

Agapetus : Ulmer, 1907. Gen. Ins., 60 ; 213

Agapetus : Martynov, 1934. Table. analyt. Faunne URSS., 12 ; 96

Synagapetus ; Tsuda, 1942. Mem. Coll. Sci. Kyoto Im. Univ. (B)., 17 ; 250

Agapetus : Mosely & Kimmins, 1953. The Trichoptera of Australia and New Zealand. British Mus. (Nat. Hist.)., London. ; 497

Agapetus : Ross, 1956. Evolution and classification of the mountain caddisflies. University of Illinois Prass. Urbana. ; 158

Diagnosis : Spurs 2, 4, 4. Intermediate tibiae and tarsus of female strongly dilated. In front wings apical forks nos. 1, 2, 3, 4 and 5 or 2, 3, 4 and 5 present; discoidal cell present. In hind wings with apical forks nos. 1, 2, 3, 4 and 5 or 2, 3 and 5 present; discoidal cell present or basent; beins R_{2+3} eithor unbranched or branched beyond cross vein *s*. The sixth abdominal process present and the seventh abdominal sternite either present of absent or a process. Male genitalia distinctive; the tenth tergite broad, long; cercus present or absent; clasper thick, long.

Two subgenera, which belong to the genus *Agapetus* have been recorded from Japan.

Key to subgenus

1. Fifth abdominal sternite with an internal pouch on each side ····· *Agapetus*
–. Fifth abdominal sternite simple, arcuate ridges on each side ····· *Synagapetus*

Subgenus ***Synagapetus*** McLachlan 1879
Type species: *Synagapetus dubitans* McLachlan

Synagapentus McLachlan, 1879. A Monographic revision and synopsis of the Trichoptera of European fauna. ot. 8; 484
Pseudagapetus McLachlan, ditto.; 465
Myspoleo Branerd, 1934. Arkiv. fär Zoologi, 30 (49); 5.
Afragapetus Mosely, 1939. Ruwenzori Expedition 1935. 3 (1), Trichoptera. British Mus. (Nat. Hist.), London.; 34
Synagapetus: Tsuda, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B), 17; 257
Synagapetus: Mosely & Kimmins, 1953. The Trichoptera of Australia and New Zealand. British Mus. (Nat. Hist.). London.; 498
Synagapetus: Ross, 1956. Evolution and classification of the mountain caddisflies. University of Illinois Press. Urbana.; 159

Diagnosis: General structure typical for genus. In hind wings apical forks nos. 1, 2, 3 and 5 or 2, 3 and 5 present; discoidal cell wanting; subcost joining the costa beyond middle of the wings. The fifth abdominal sternite with a long ventral process. Male genitalia distinctive; the tenth tergite long, broad; apical portion clothed with membranous area. Cercus present; clasper long, thick rounded at apex; aedeagus elongate, divided into two lobes.

Distribution: Austria, Porutugal, Spain, Central Europe, South Africa, China, Northeastern Burma, Japan.

Key to species

1. The tenth tergite with lobes moderately broad, deep; cercus elongate, from lateral view the dorsal margin dilated about midway ····· *japonicus*
–. The tenth tergite with elongate lobes; the basal portion broad, apical portion narrow; cercus short, wart-shaped ····· *komanus*

12. ***Agapetus* (*Synagapetus*) *japonicus*** (Tsuda)
(pl. 10)

Synagapetus japonicus Tsuda, 1940. Annot. Zool. Japonenses, 19; 194
Synagapetus japonicus: Tsuda, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B),; 17; 250
Agapetus japonicus: Ross, 1956. Evolution and classification of the mountain caddisflies. University of Illinois Press. Urbana; 160

Male: Length 4 mm. Color bark brown, almost black and general structure

typical for genus. The fifth sternite with simple, arcuate redges; the sixth sternite process long, basal portion stout, rounded at tis apex. Genitalia as in Plate 10. The ninth segment with a long anterior process, narrow and acuted at apex. The tenth tergite semi-membranous and hood, excised from above. Cercus is humped on its dorsal margin near the base, its apex round; dorsal portion of the cercus with a few long bristles. Clasper about as long as the tenth segment, parallel sided and truncated from lateral. Aedeagus elongate, its apex with a air of slender rods, each lobes acuted at apex.

Distribution: Fukuoka, Kyoto and Saitama (TSUDA 1940) Prefectures.

Specimens examined: 3♂♂1♀, Yoshi-machi, Ukida-gun, Fukuoka Pref., June 13, 1956 (N. GYOTOKU); 5♂♂4♀♀, same locality, April 22, 1958 (N. GYOTOKU); 3♂♂ 3♀♀, same locality, June 4, 1958 (N. GYOTOKU); 1♂1♀, same locality, May 4, 1958 (N. GYOTOKU).

13. *Agapetus* (*Synagapetus*) *komanus* (TSUDA)

Synagapetus komanus TSUDA, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B). 17; 252
Agapetus komanus: ROSS, 1956. Evolution and classification of the mountain caddisflies. University of Illinos Press. Urbana; 160

The holotype of this species was originally described in 1942 of the base of the male taken from Kisofukushima, Nagano Prefecture. I unable to examine this species, but juding from the figure given by TSUDA, this species can be distinguished from other species by the shape of the ginitalia of the male.

Distribution: Nagano Prefecture (TSUDA, 1942).

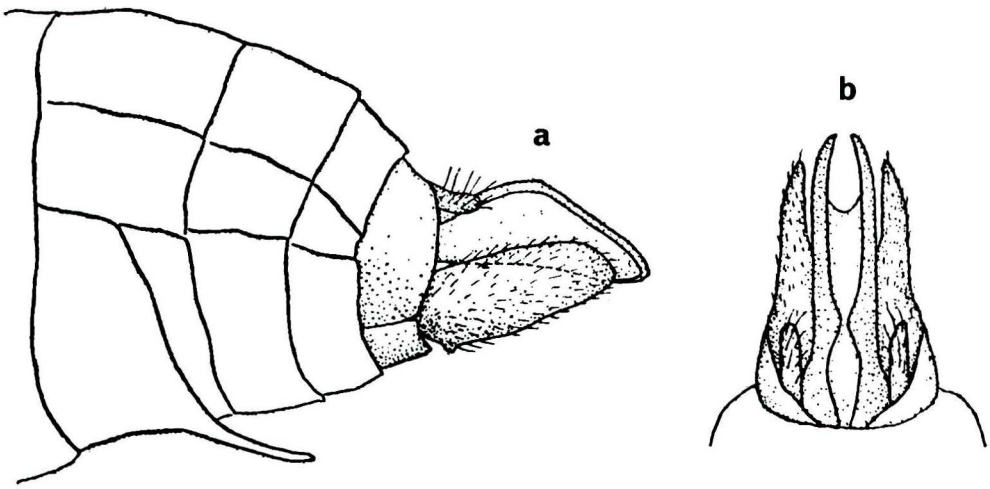

Fig. 3. Male genitalia of *Agapetus* (*Synegapetus*) *komanus*. a, lateral aspect: b, dorsal aspect, by TSUDA (1942).

Sugenus ***Agapetus*** Curtis 1834

Type species: *Agapetus fuscipes* Curtis 1834

Agapetus Curtis, 1834. London and Edinburgh Philosoph. Mag. and Jour. Sci. 4; 217.

Allagapetus Martynov, 1936. Rec. Indian Mus., 38; 304

Agapetus: Ross, 1956. Evolution and classification of the mountain caddisfles., University of Illinois Press. Urbana; 163

Diagnosis: General structure typical for genus. In hind wings apical forks nos. 1, 2, 3 and 5 or 2, 3 and 5 present; discoidai cell wanting; Sc rudimentary, distinct near at base but soon margin into the costa; R running very close to the costa and often terminating in a small apical fork. The fifth sternite with a internal pouch on each side near dorsal margin. The sixth and seventh abdominal processes may be present or absent in the some species. Male genitalia distinctive; the tenth tergite elongete, sharply acuted at apex in lateral veiw; seem from ventral, the tenth tergite divided into two lobes; cercus finger-shaped. Aedeagus long, its apex with a pair of slender rods.

Distribution: Turkestan, China, India, Kashmir, Scotland, Corsica, Central Europe, California, North Amirica, Japan.

Key to species

1. Cercus elongate, finger-shaped, curved downwardly·····2
–. Cercus short, curved upwardly ····· *yasensis*
2. Apical portion of the tenth tergite with long spine-like process·····*hieianus*
–. Apical portion of the tenth tergite without process ····· *budoensis* sp. nov.

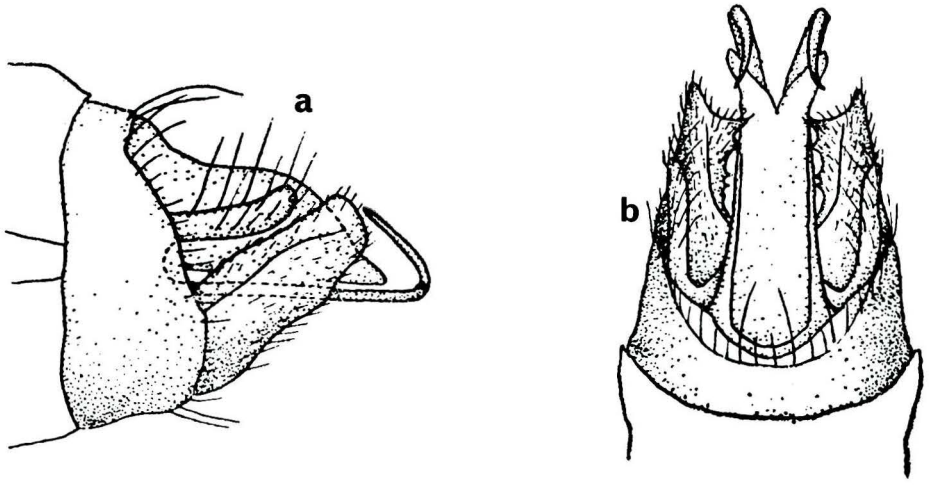

Fig. 4. Male genitalia of *Agapetus* (*Agapetus*) *yasensis*. a. lateral aspect: b, borsal aspect, by Tsuda (1942).

14. *Agapetus* (*Agaqetus*) *yasensis* (Tsuda)

Synagapetus yasensis Tsuda, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B), 17; 251
Agapetus yasensis: Ross, 1956. Evolution and classification of the mountain caddisflies. University of Illinois Press. Urbana ; 146

The original description of this species was based upon from Yase, Yyoto. I had

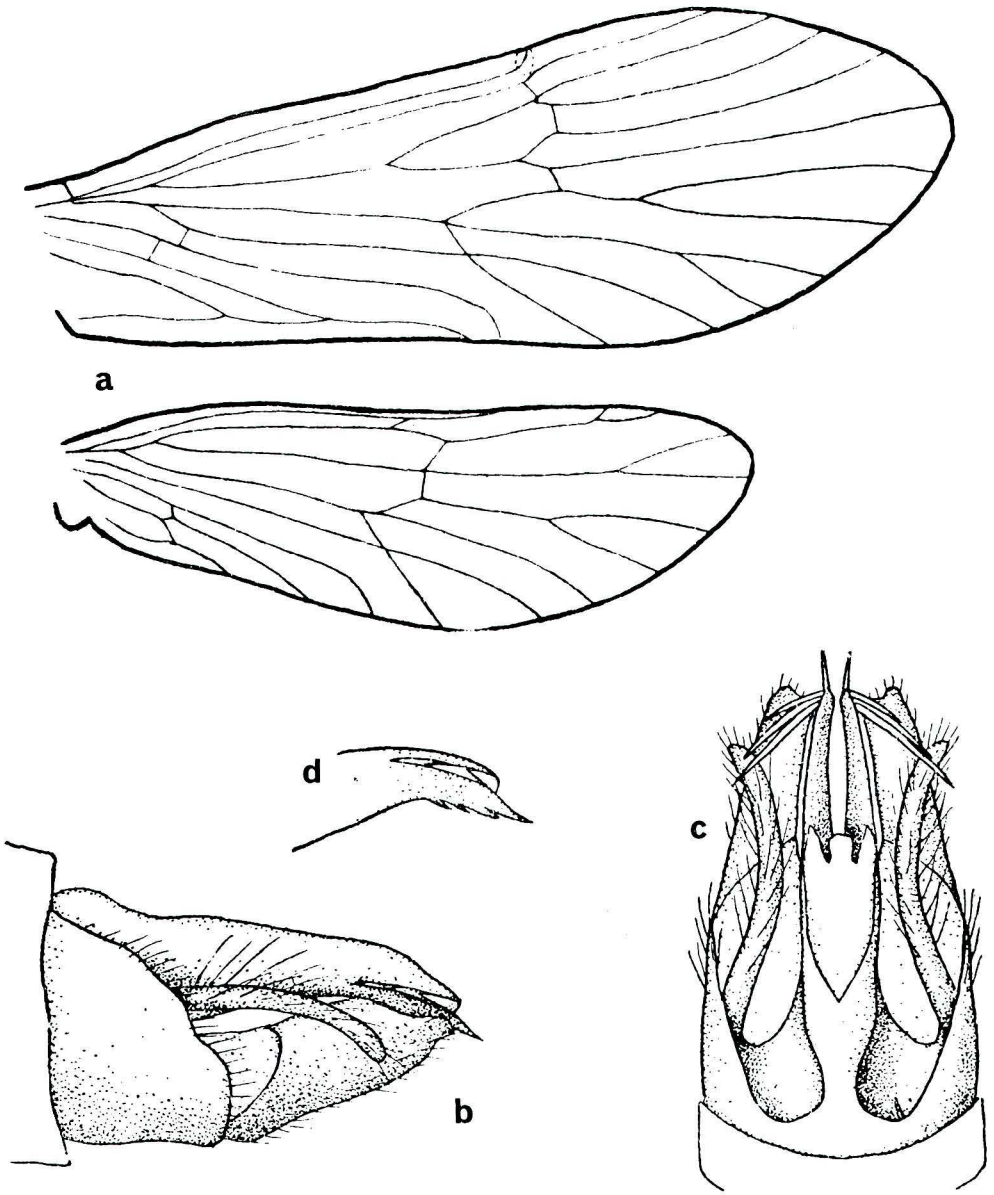

Fig. 5. Wings and male genitalia of *Agapetus* (*Agapetus*) *hieianus*. a, wings; b-d, genitalia. b, lateral aspect; c, dorsal aspect; d, apex of tenth tergite, by Tsuda (1942).

no chance to examine on this species, juding from the figure given by TSUDA (1942), this spesies can by distinguished from other species by the shape of the ginitalia of the male.

Distribution: Kyoto Prefecture (TSUDA, 1942).

15. *Agapetus* (*Agapetus*) *hieianus* (TSUDA)

Synagapetus hieianas TSUDA, 1942. Mem. Coll. Sci. Kyoto Imp. Univ. (B), 17; 250
Agapetus hieianus: ROSS. 1956. Evolution and classification of the mountain caddisflies. University of Illinois Press. Urbana.; 164

The original description of this species was based upon from Hieizan, Shiga Prefecture. I had no chance to examine on this species, but juding from to the figure by TSUDA (1942), this species can by distinguished from other spesies by the shape of the genitalia of the male.

Distribution: Shiga Prefecture (TSUDA, 1942).

16. *Agapetus* (*Agapetus*) *budoens* sp. nov.
(pl. 11)

Male: Length 5 mm. Color dark brown, legs and venter slightly lighter than dorsal portion. General structure typical for genus. The fifth abdominal sternite with an internal pouch each side near dorsal margin. The sixth abdominal process downward, stouter and longer than the seventh abdominal process. Genitalia as in Plat 11. The ninth segment deeply excissed on its dorsal apical margin, and its ventral margin much broaded. The tenth tergite elongate, divided into two lobes in dorsal view, each lobes stout, acuted at apex; seen from lateral view the tenth tergite elongate, acuted at apex, clow-shaped. Cercus slender, about half length of the tenth tergite, with a few long bristles. Clasper elongate, stout, truncated at apical margin. Aedeagus slender, divided into two lobes; each lobes much slender, sharply acuted at apex.

Holotype. Male, Eodo Pass, Niigata Pref., June 27, 1964 (K. BABA). Paratype.-3♂♂; same date as for holotype.

This spscies is most closely related to *hieanus*, it differs from the structure of the genitalia of the male.

Distribution: Niigata Prefecture.

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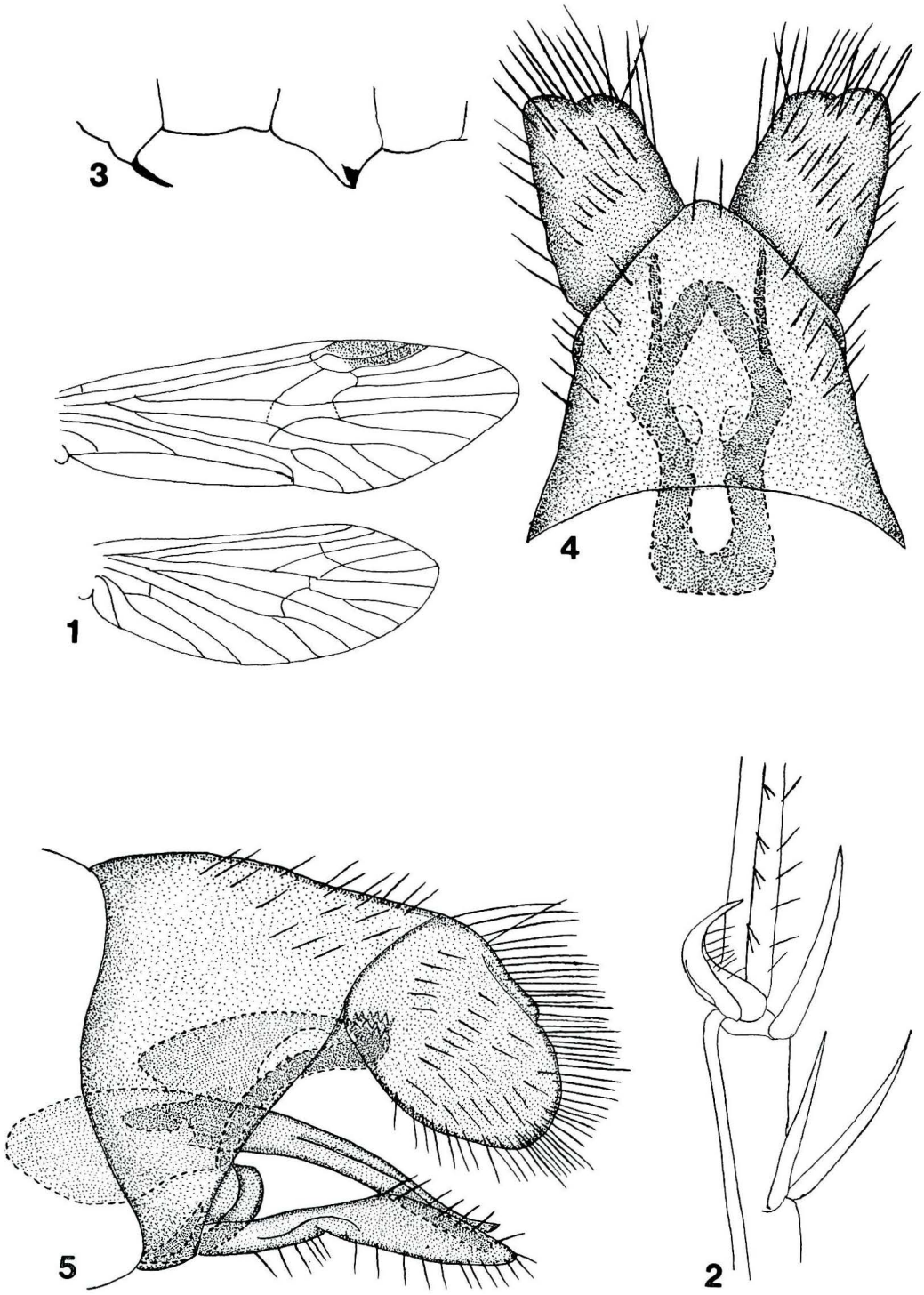

Plate 1. *Glossosoma (Eomystra) inops* (TSUDA), (♂).
1. venation; 2. spurs of hind leg; 3. ventral processes; 4. genitalia, lateral aspect; 5. genitalia, dorsal aspect.

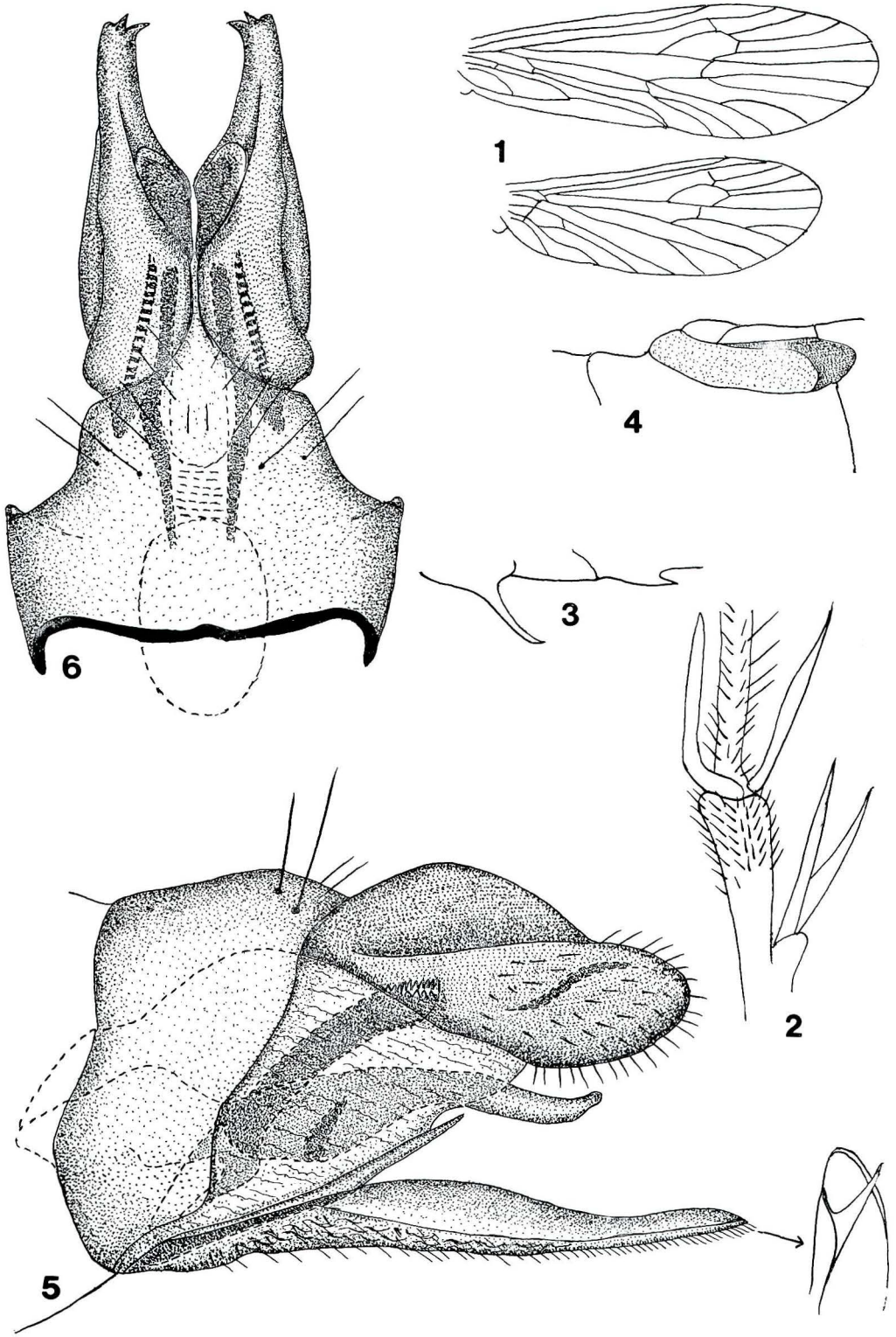

Plate 2. *Glossosoma (Eomystra) uogatanum* sp. nov., (♂).
1. venation; 2. suprs of hind leg; 3. ventral processes; 4. fifth sternite; 5. genitalia, lateral aspect; 6. genitalia, dorsal aspect.

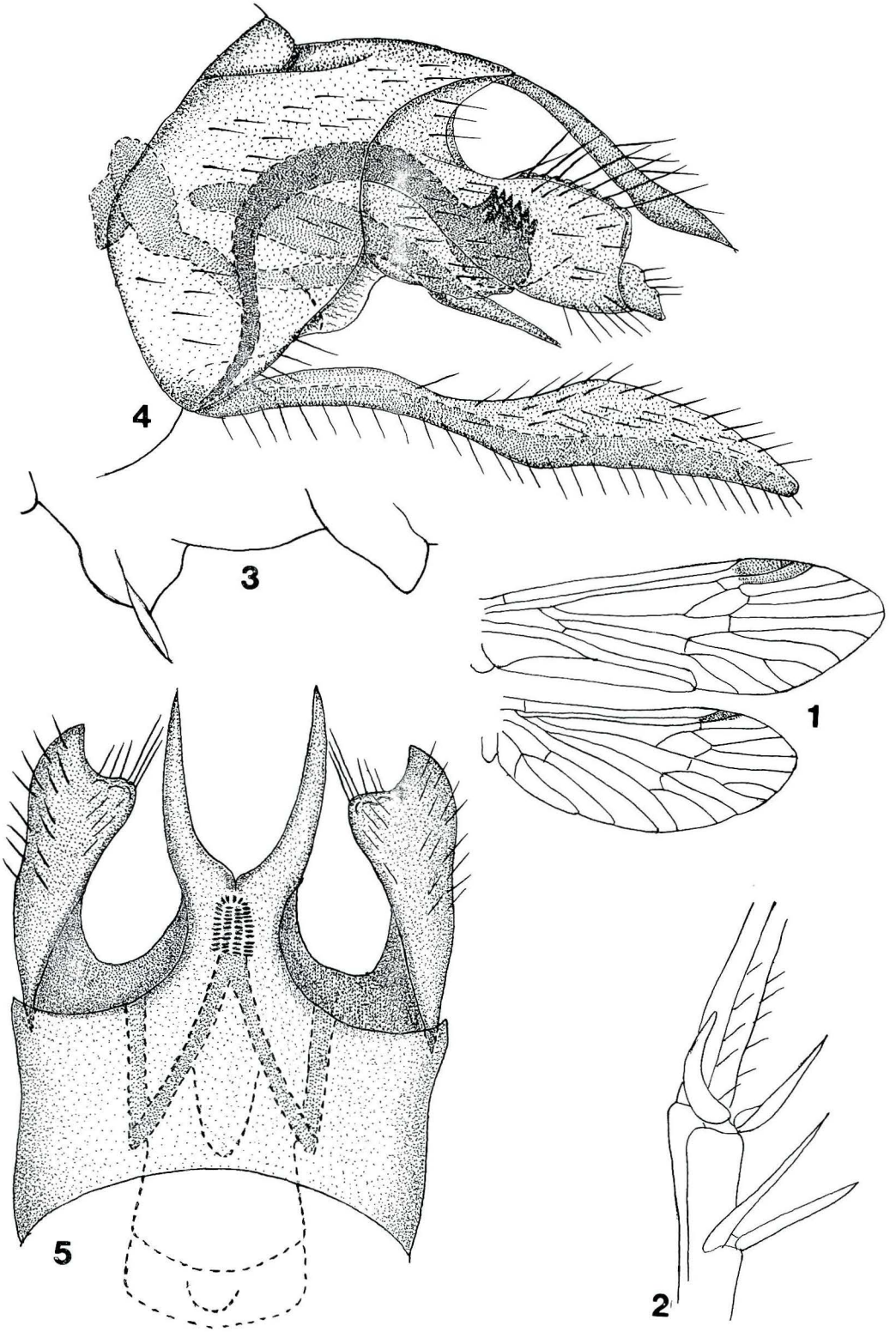

Plate 3. *Glossosoma (Eomystra) specularis* (KOBAYASHI), (♂).
1. venation; 2. spurs of hind leg; 3. ventral processes; 4. genitalia, lateral aspect; 5. genitalia, dorsal aspect.

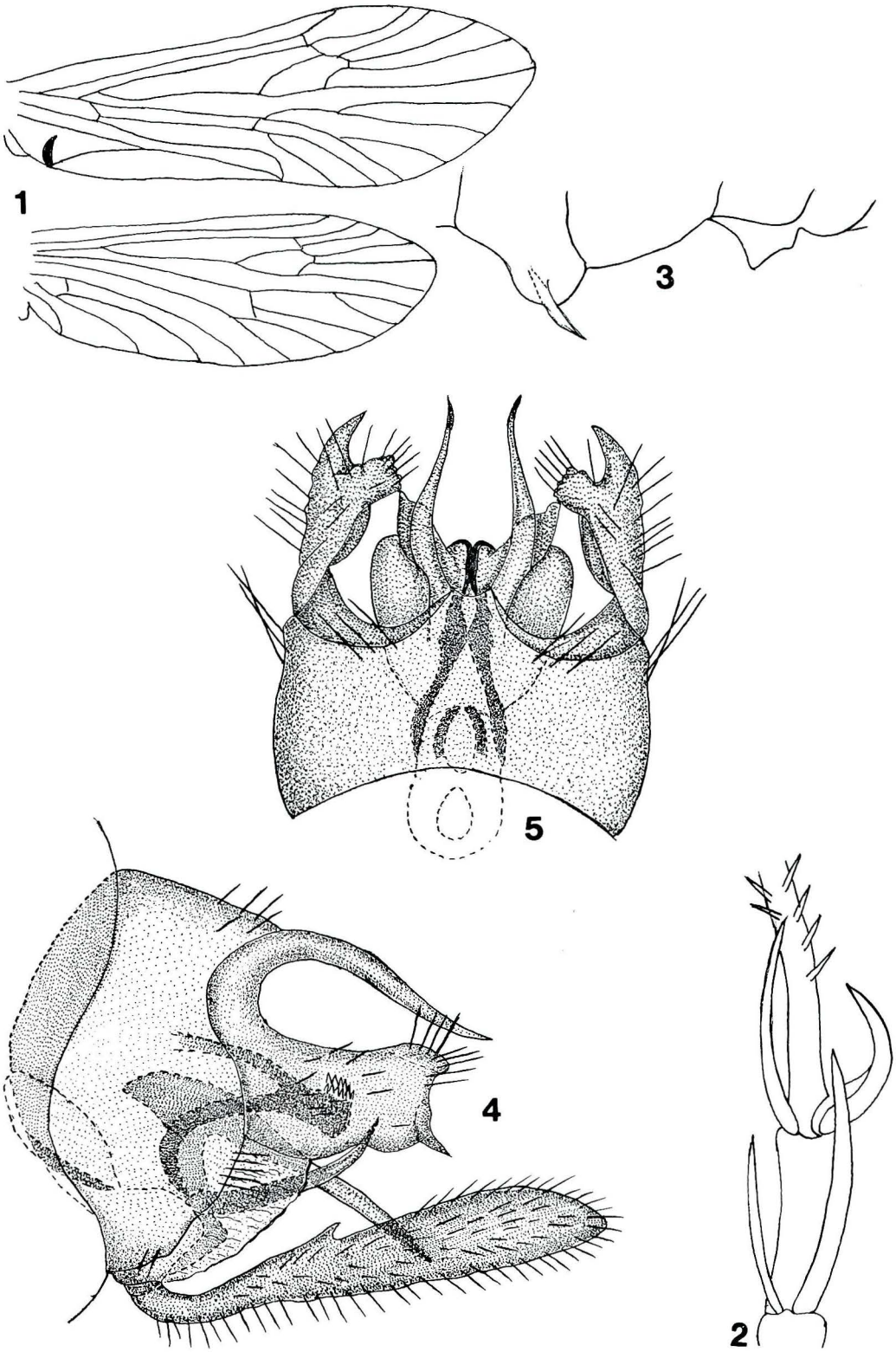

Plate 4. *Glossosoma* (*Eomystra*) *sadoensis* sp. nov., (♂).
1. venation; 2. spurs of hind leg; 3. ventral processes; 4. genitalia, lateral aspect; 5. genitalia, dorsal aspect.

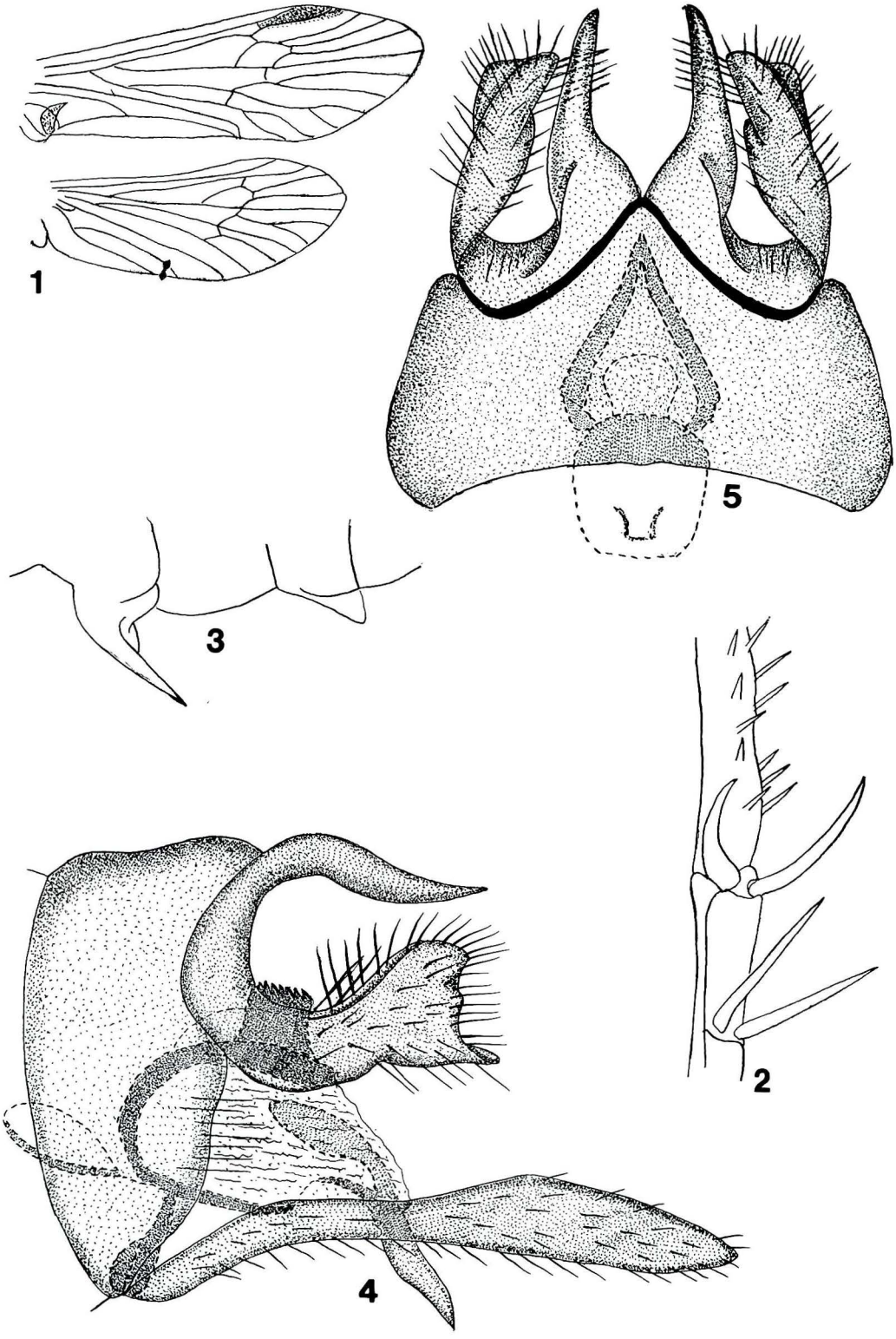

Plate 5. *Glossosoma (Eomystra) japonica* (KOBAYASHI), (♁).
1. venation; 2. spurs of hind leg: 3. ventral processes; 4. genitalia, lateral aspect; 5. genitalia, dorsal aspect.

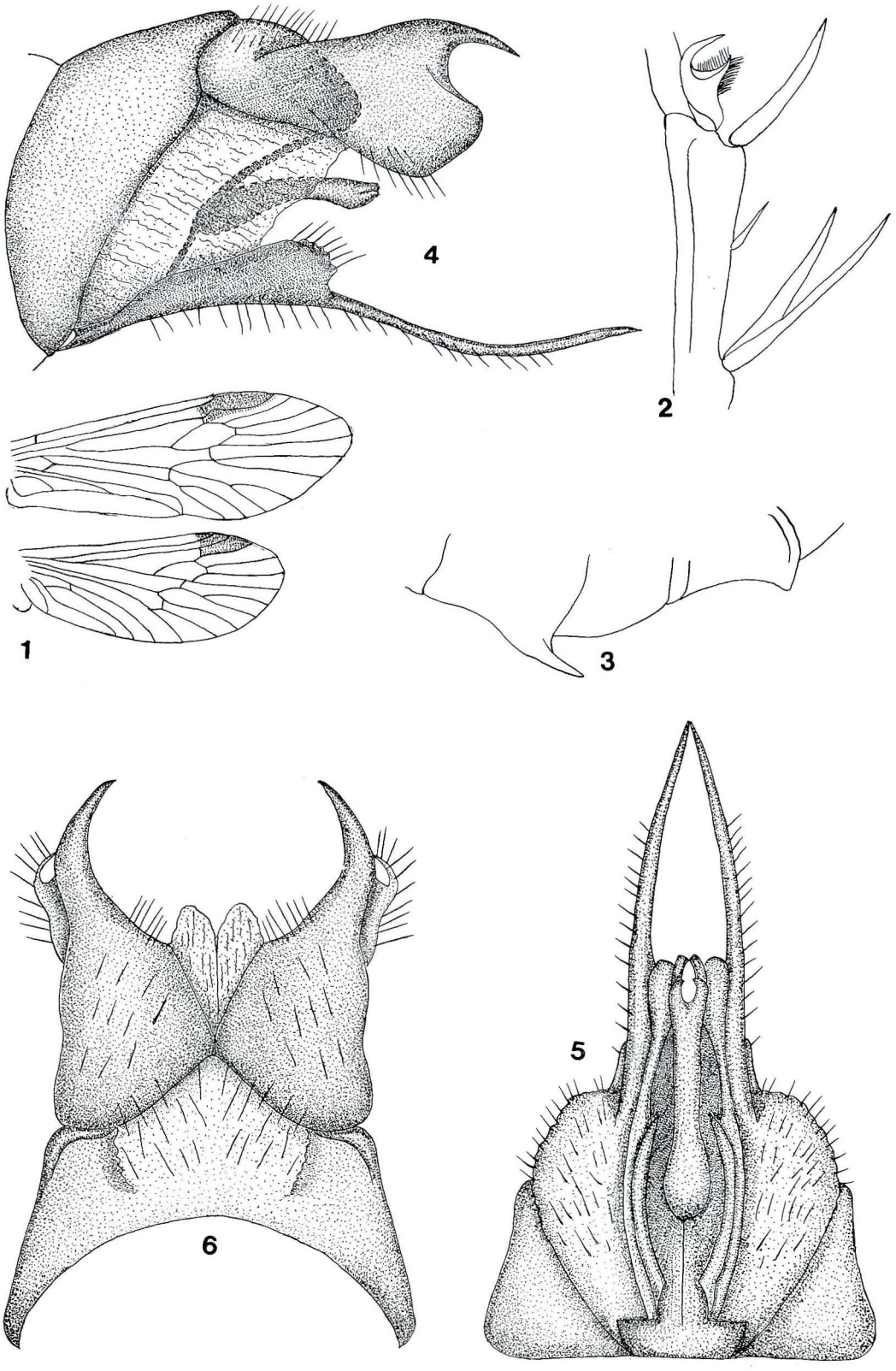

Plate 6. *Glossosoma (Mystroglossa) alticum* (MARTYNOV), (♂).
1. venation; 2. spurs of hind leg; 3. ventral processes; 4. genitalia, lateral aspect; 5. genitalia, dorsal aspect; 6. genitalia, ventral aspect.

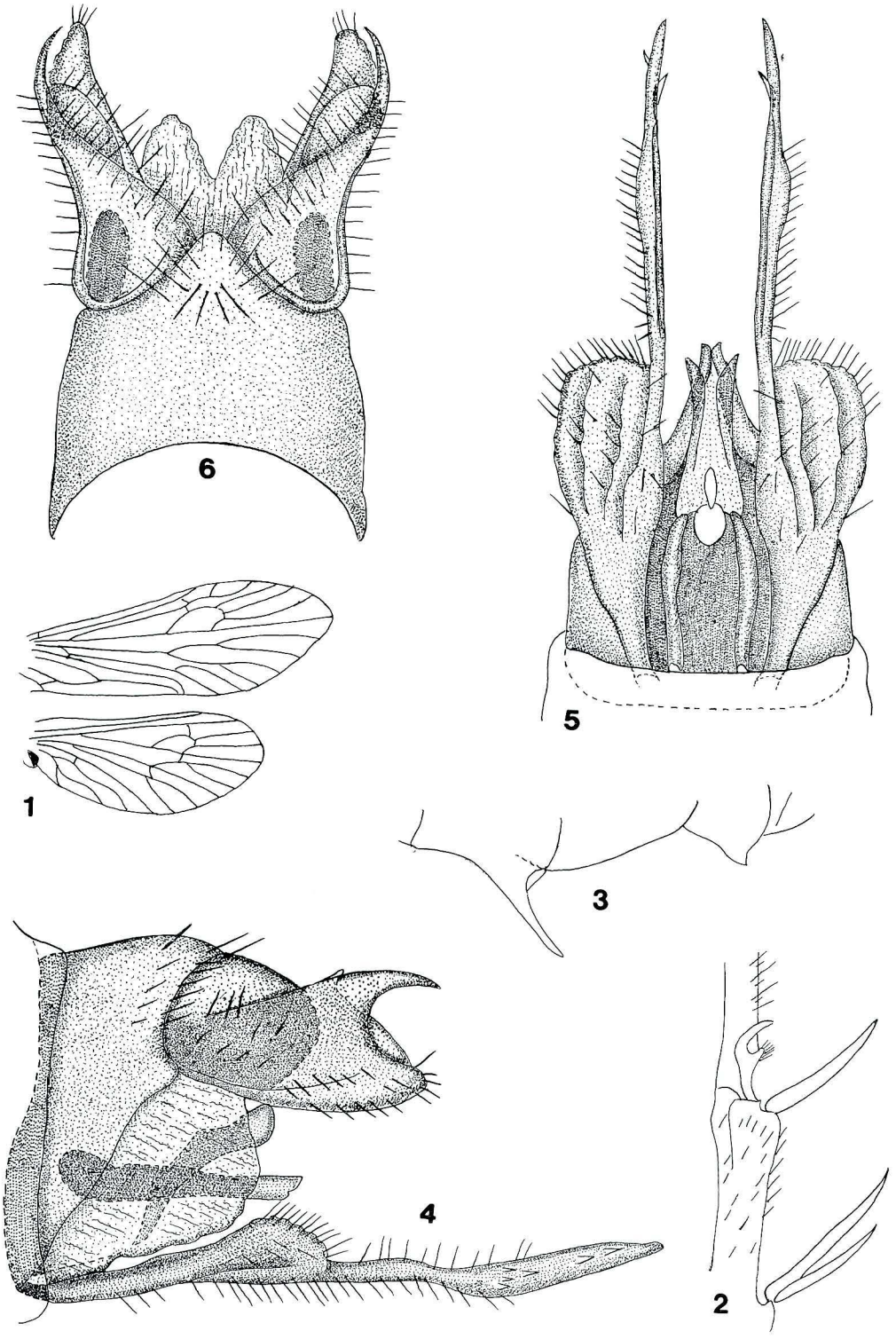

Plate 7 *Glossosoma* (*Mystroglossa*) *sumitaensis* sp. nov., (♂).
1. venation; 2. spurs of hind leg; 3. ventral processes; 4. genitalia, lateral aspect; 5. genitalia, dorsal aspect; 6. genitalia, ventral aspect.

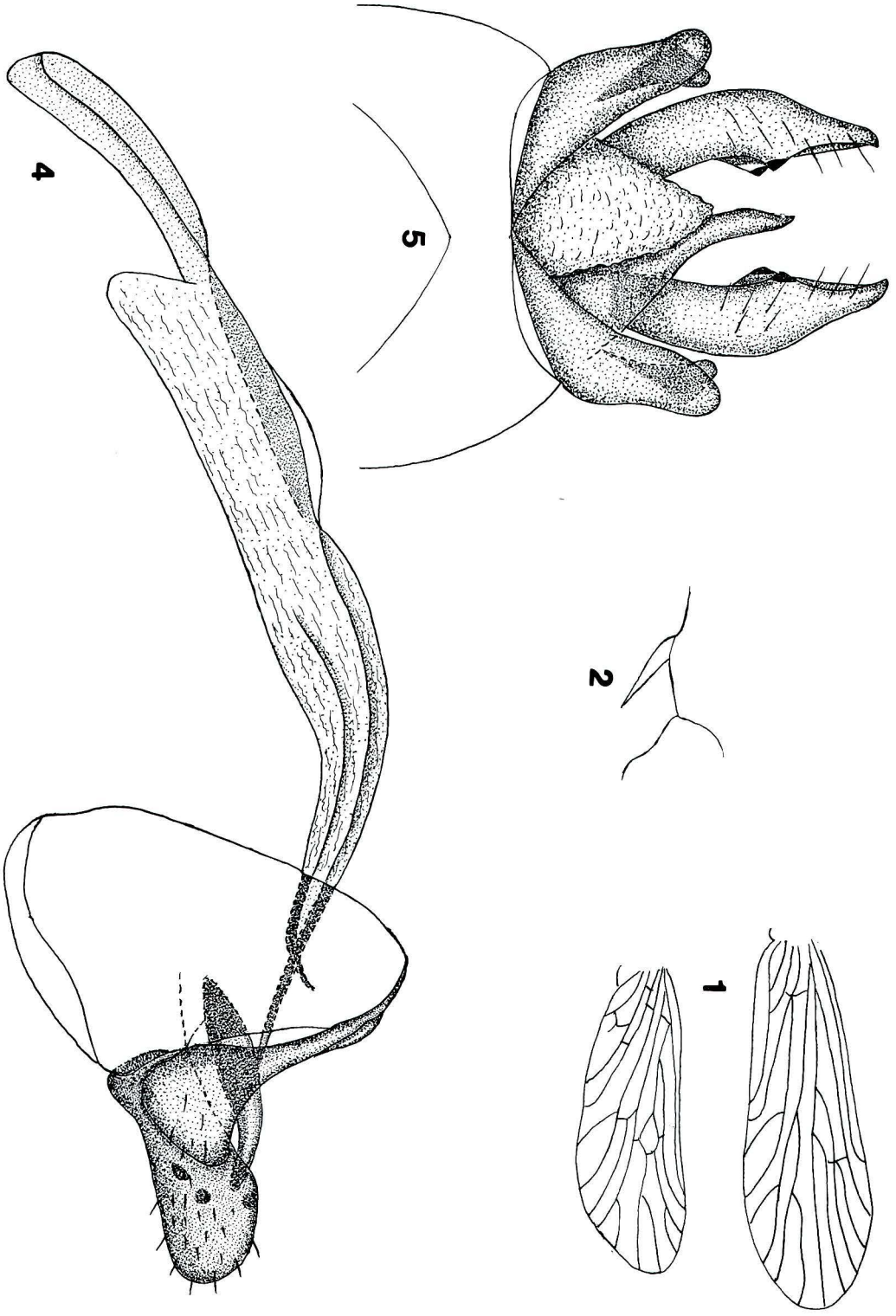

Plate 8. *Electragapetus* (*Eoagapetus*) *mayaensis* sp. nov., (♂).
1. venation; 2. ventral processes; 3. genitalia, lateral aspect; 4. genitalia, dorsal aspect.

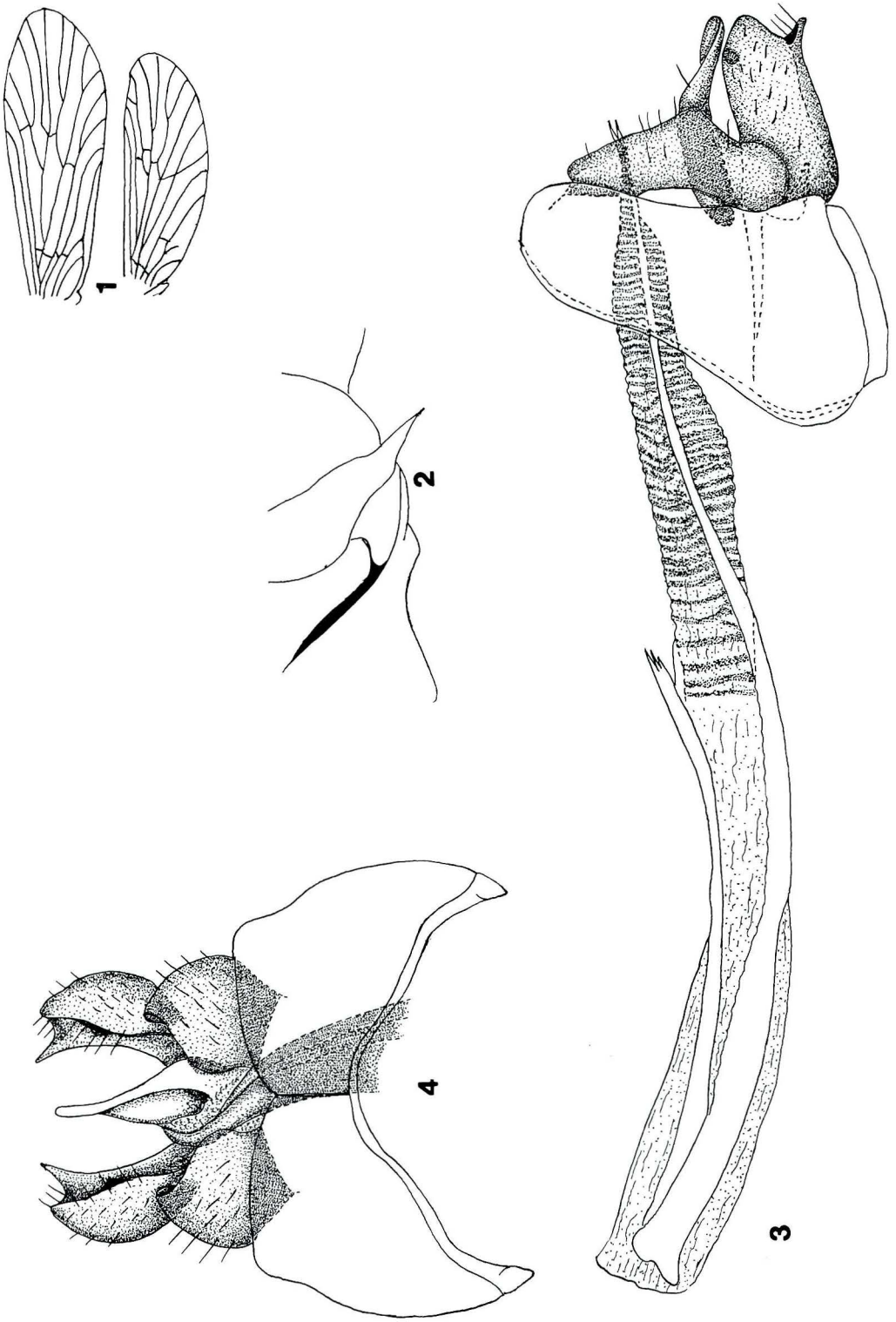

Plate 9. *Electragapetus* (*Eoagapetus*) *uchidai* sp. nov., (♂).
1. venation; 2. ventral processes; 3. genitalia, lateral aspect; 4. genitalia, dorsal aspect.

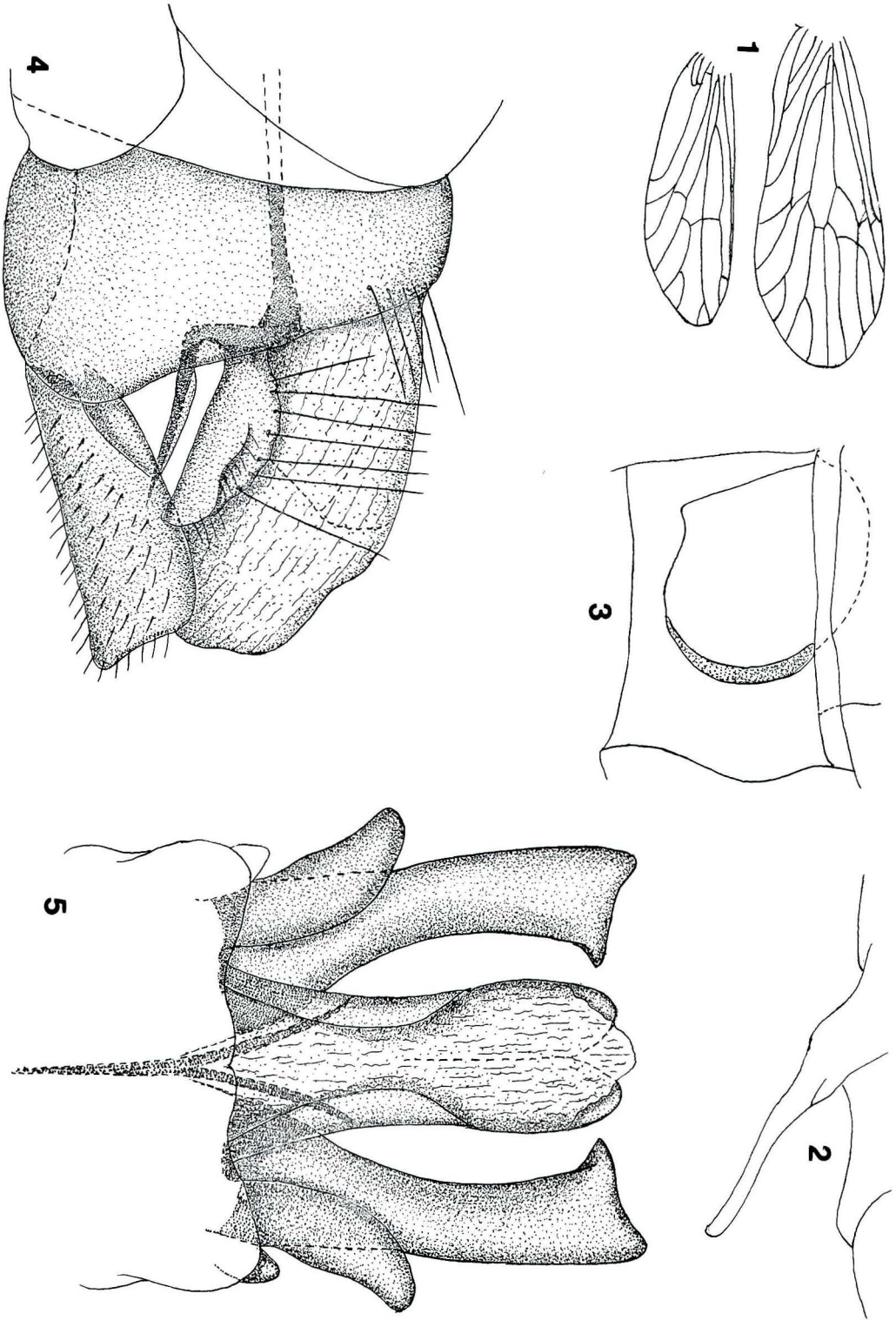

Plate 10. *Agapetus* (*Synagapetus*) *japonicus* (TSUDA), (♂).
1. venation; 2. ventral process; 3. fifth sternite; 4. genitalia, lateral aspect; 5. genitalie, dorsal aspect.

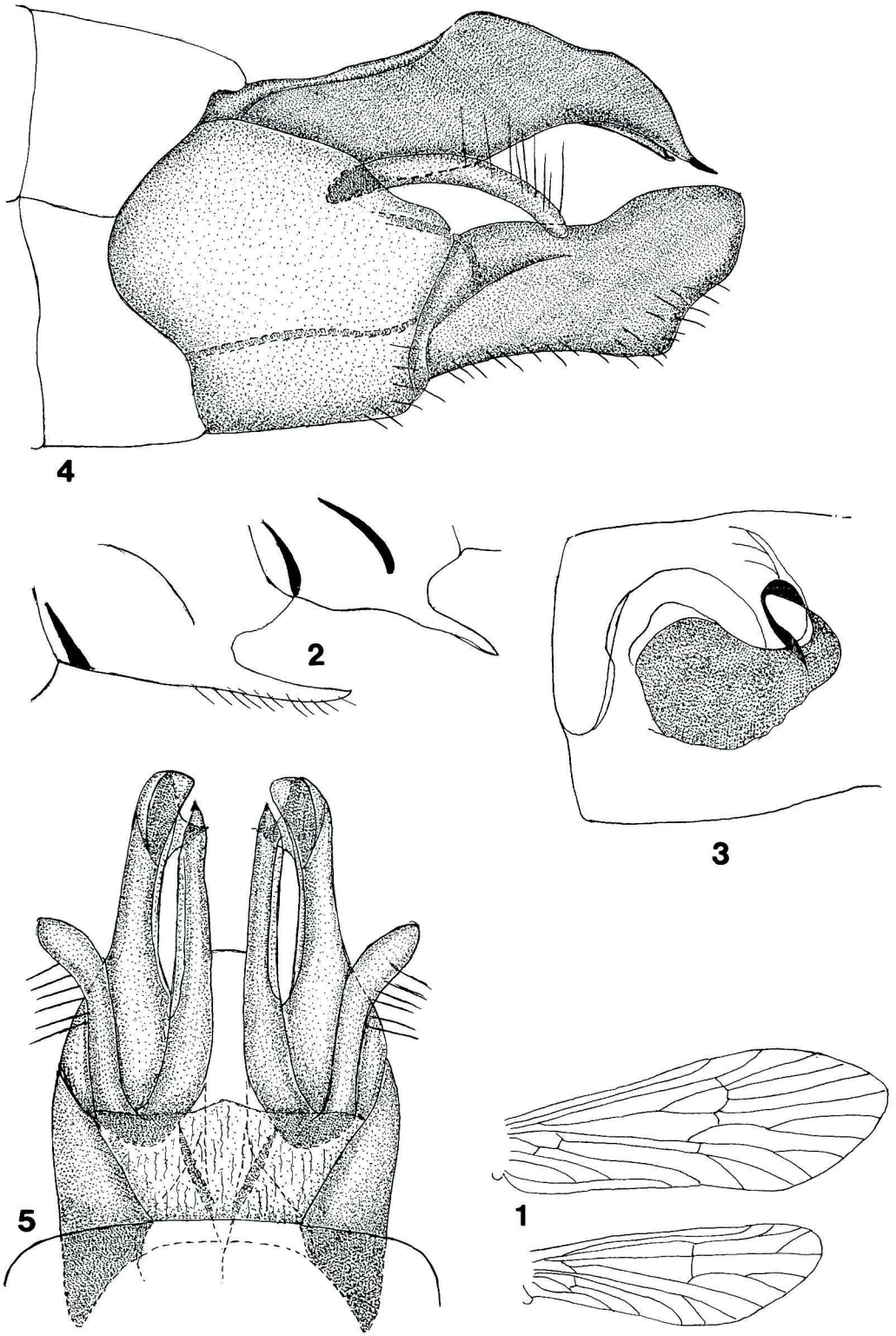

Plate 11. *Agapetus* (*Agapetus*) *budoensis* sp. nov., (♂).
1. venation; 2. ventral processes; 3. fifth sternite; 4. genitalia, lateral aspect; 5. genitalia, dorsal aspect.