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A REVISION OF THE GENUS HEMITAXONUS IN THE OLD WORLD, I (HYMENOPTERA, TENTHREDINIDAE)

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The genus *Hemitaxonus* belongs to the Selandriinae and chiefly occurs in eastern Asia and eastern North America. Takeuchi (1941) recorded four species from Japan and a species from Formosa, Zhelochovtsev (1951) five species from U.S.S.R., one of which should be referred to the genus *Pseudohemitaxonus*, and Smith (1966) four species from North America. In the present study it has been confirmed that twelve species of this genus occur in the Old World, three of these being new to science, and they can be split into four species groups which respectively possess some unique features in morphological, ecological

and cytological aspects. The relationships of those species groups and between the species in each group will be described in a separate paper of this series. Type specimens of the new species are preserved in the Entomological Laboratory, College of Agriculture, University of Osaka Prefecture.

Genus ***Hemitaxonus*** Ashmead

Hemitaxonus Ashmead, 1898, Can. Ent. 30: 311 [Type-species: *Taxonus dubitatus* Norton, by original designation]. *Epitaxonus* MacGillivray, 1908, Can. Ent. 40: 365 [Type-species: *Taxonus albidopictus* Norton, by original designation]. *Sahlbergia* Forsius, 1910, Medd. Soc. Fauna et Flora Fenn. 36: 49 [Type-species: *Sahlbergia struthiopteridis* Forsius, monotypic].

Description. — 5.5–8.5 mm. Body slender. Head scarcely covered with pubescence. Clypeus shallowly emarginate. Lateral foveae large. Frontal area surrounded by a raised carina. Occipital carina well defined on lower hind margins. Antennae long, slender; 3rd segment as long as or shorter than 4th. Thorax shining. Prepectus distinctly or slightly defined by a suture. Anepimeron usually with a membranous area. Inner front tibial spur bifid at apex. Claws simple or with a small inner tooth. Wings hyaline; nervures and stigma dark brown. Anal cell of fore wing with a suberect cross-vein. Anal cell of hind wing with a short pedicel or sessile. Sawsheath simple and slender towards apex.

Biology and cytology. — The larvae of this genus feed on the leaves of various ferns, exclusively of Aspidiaceae with a few exceptions, and are monophagous as a rule. Most of the members make their appearance once a year. The life history is similar among them: a female adult deposits her eggs on young fronds through the tissue from the lower cuticle to the upper. A full grown larva leaves fern and bores in decaying wood to pupate, where it makes a chamber but not a cocoon. So far as I examined, the haploid chromosome number of this genus is six or seven.

Key to the Old World species of *Hemitaxonus*

1 Usually more than 7 mm. Tarsal claws with an inner tooth, sometimes very small. Anal cell of hind wing sessile or with a very short pedicel. 2
– Usually less than 7 mm. Tarsal claws simple. Anal cell of hind wing with a short pedicel at most as long as its greatest breadth. 5
2 Head almost impunctate. Anepimeron without a membranous area. Anal cell of hind wing with a very short pedicel. Third antennal segment distinctly shorter than 4th and slightly than 5th. ..... (*kamtchaticus*-group) 3
– Head with large punctures. Anepimeron with a small membranous area. Anal cell of hind wing usually sessile. Third antennal segment as long as 4th and slightly longer than 5th. ..... (*paucipunctatus*-group) 4
3 Raised carina on frontal area continuous at the anterior part. Malar space about a half of the diameter of frontal ocellus. Apex of hind tibia white except for the upper side infuscate in ♂. .....*kamtchaticus* Malaise
– Raised carina on frontal area broken at the anterior part. Malar space almost wanting. Apex of hind tibia dark brown. .....*tokunagai* Takeuchi
4 Abdomen with several middle tergites rufous in both sexes. Postocellar area rather convex. Pronotum feebly reticulate except posterior margin. Tarsal claws with a minute inner tooth in ♀, sometimes without an inner tooth in ♂. Anal cell of hind wing rarely sessile. .....
.....*paucipunctatus* Malaise
– Abdomen entirely black in ♀; with several middle tergites rufous in ♂. Postocellar area extraordinarily convex in ♀. Pronotum strongly reticulate. Tarsal claws with a small inner tooth in ♀, with a minute but distinct inner tooth in ♂. Anal cell of hind wing sessile. ....
.....*melanogyne* n. sp.
5 Clypeus and labrum yellow. Prepectus defined by a distinct suture. Anepimeron with a small membranous area. ..... (*struthiopteridis*-group) 6

– Clypeus and labrum black except *angustatus* Zhelochovtsev. Prepectus usually not defined by a distinct suture. Anepimeron with a large membranous area. ..... (*minomensis*-group) 8

6 Third–6th or 7th abdominal tergites yellow above in the middle in ♀. Hind tibia infuscate above except basal third in ♀. Cerci brown. Median fovea nearly circular. The areas between posterior ocellus and the crests above lateral foveae broadly depressed (Fig. 1). Penis valve of ♂ with teeth on a part of the margin (Fig. 10). .....*struthiopteridis* (Forsius)

– Abdominal tergites black in both sexes. Hind tibia yellow in ♀. Cerci yellow. Median fovea nearly rectangular. The areas between posterior ocellus and the crests above lateral foveae depressed, but the lower portions not well defined (Fig. 2). Penis valve of ♂ without teeth on the margin (Figs. 11 and 12) 7

7 Scape and pedicellum black. Basal half of mandibles black. Hind coxa black except apex. Interocellar and postocellar furrows well defined. .....*japonicus* Rohwer

– Apical half of scape and pedicellum yellow beneath. Basal half of mandibles yellow. Basal half of hind coxa black. Interocellar and postocellar furrows weakly defined. ....*sasayamensis* Okutani

8 Prepectus defined by a fine but distinct suture. Median fovea rather large, nearly rectangular. Abdominal tergites feebly reticulate; black throughout in both sexes. ....*minomensis* Takeuchi

– Prepectus hardly defined and without a distinct suture. Median fovea rather small, nearly circular. Abdominal tergites except propodeum without a distinct microsculpture. 9

9 Clypeus and labrum yellowish. Abdomen with several middle tergites rufous in both sexes. .....*angustatus* Zhelochovtsev

– Clypeus and labrum black. 10

10 Frontal wall slightly broken at the anterior part. Hind tibia black except extreme apex. Marginal teeth of penis valve indistinct (Fig. 7). Abdomen with several middle tergites rufous in both sexes. ..... *formosanus* Takeuchi

– Frontal wall continuous at the anterior part. Hind tibia black except basal third. Penis valve with distinct marginal teeth (Figs. 5 and 6). 11

11 Abdomen black throughout in both sexes. Malar space less than one-third of the frontal ocellus in ♀, almost absent in ♂. Antennae slender in ♀, more or less stout in ♂. .... *athyrii* n. sp.

– Abdomen usually with several middle tergites rufous in both sexes. Malar space a little longer than a half of the frontal ocellus in ♀, about one-fifth in ♂. Antennae more or less stout in ♀, stout in ♂. ..... *takeuchii* n. sp.

The ***kamtchaticus***-group

1. ***Hemitaxonus kamtchaticus*** Malaise

Hemitaxonus kamtchaticus Malaise, 1931, Ark. Zool. 23A: 22; Malaise, 1931, Ent. Tidsk. 51B: 139; Zhelochovtsev, 1951, Sborn. Trud. Zool. Mus. Moskva 7: 145–146.

Distribution. — Kamtchatka and Vladivostok.

Remarks. — I have seen no specimens of this species, but Dr. Okutani examined a male paratype in the British Museum and told me that the specimen possesses several features which are considered to be characteristic of this group, that is to say, the anepimeron has no membranous area, the anal cell of hind wing has a very short pedicel, tarsal claws possess a very small inner tooth and the 3rd antennal segment is distinctly shorter than the 4th (*ca.* 1:1.5).

2. ***Hemitaxonus tokunagai*** Takeuchi

Hemitaxonus tokunagai Takeuchi, 1941, Tenthredo 3:248.

Description. — The male, which remains undescribed, agrees with the female in most morphological features, but differs from the latter in the following characters: 2nd–4th tergites yellowish brown in the middle; fore and mid femora yellowish; apical third of hind femur infuscate above. Penis valve of ♂ as shown in Fig. 3.

Distribution. — Japan (Hokkaido and Honshu).

Specimens examined. – 9 examples from the following localities: Hokkaido (Mt. Moiwayama); Ishikawa Pref. (Mt. Rokumanzan); Kyoto Pref. (Sasari, Kibune).

Host plant. — *Plagiogyria matsumureana* Makino.

The ***paucipunctatus***-group

3. ***Hemitaxonus paucipunctatus*** Malaise

Hemitaxonus paucipunctatus Malaise, 1931, Ent. Tidskr. 51: 139; Takeuchi, 1941, Tenthredo 3: 247; Zhelochovtsev, 1951, Sborn. Trud. Zool. Mus. Moskva 7: 145–146.

Description. — Penis valve of ♂ as shown in Fig. 9.

Distribution. — Siberia, Kamtchatka, Korea and Japan (Hokkaido and Honshu).

Specimens examined. – 55 examples from the following localities: Korea (Nansetsurei); Hokkaido (Mt. Rausudake, Aizankei, Karurus Spa, Yukomambetsu, Mt. Soranumadake); Nagano Pref. (Mt. Tsurugidake, Mt. Shiroumadake, Kamikochi, Mt. Senjodake, Mt. Nishikomadake).

Host plant. — *Dryopteris austriaca* (Jacq.) Woynar ex Schinz et Thell.

Remarks. — The Japanese specimens in hand quite agree with the original description. Moreover, according to Dr. Okutani, who compared a female paratype of *paucipunctatus* preserved in the British Museum with Japanese specimens, both exactly coincide in their external features.

4. ***Hemitaxonus melanogyne*** n. sp.

Description. — ♀. Black. Clypeus except extreme base, labrum, posterior and lateral margins of pronotum, and tegulae whitish. Apical half of mandibles, cerci and apex of sawsheath brown. Palpi yellow. Antennae black throughout. Legs yellow; base of all coxae, fore and mid femora except apex, basal half of hind femur, and hind tibia except basal third black; fore and mid tibiae and tarsi except each base, and 3rd–5th segments of hind tarsus infuscate. Length 8.5 mm.

Head shining, with large punctures, of which the diameter is about one-third of frontal ocellus. Labrum and clypeus slightly convex, with small and rugose punctures. Inner orbits, hind orbits, lower portion of frons and frontal wall irregularly punctured. Supraclypeal area convex, nearly triangular, with irregular punctures. Median fovea well defined, nearly rectangular. Lateral foveae well defined, large, oval, with a sharp crest above them. The areas between postocellus and the crest above lateral foveae rather broadly depressed. Interocellar and postocellar furrows well defined. Vertical furrows represented by deep, elongate and oval foveae. Postocellar area sharply defined anteriorly and laterally, strongly convex; width: length=24:16. Occipital carina defined on lateral margin. OOL:POL:OCL=16:13:15. Malar space about two-thirds of the diameter of frontal ocellus. Antennae slender, a little shorter than abdomen; relative lengths of the segments being about 10:6:30:31:28:21:19:17:16; scape about as long as its maximum width, which is much wider than the 3rd segmental one; pedicellum shorter than its apical width. Thorax shining. Pronotum rather feebly reticulate with post-angle more strongly reticulate. Mesonotum and scutellum almost impunctate; lateral and posterior margins of the latter usually reticulate, with several large punctures. Post-tergite and metascutellum smooth. Mesepisternum with very sparse and small punctures, covered with sparse pubescence. Prepectus well defined by a distinct suture. Metepimeron with very feeble microsculpture; anepimeron with a rather small membranous area. Abdominal tergites including propodeum shining, very finely reticulate. Sawsheath stout, with the

ventral margin more or less rounded.

♂. Length: 7–7.5 mm. Characters different from the female are as follows: 3rd and 4th abdominal tergites rufous; all femora except apex, apical two segments of fore and mid tarsi and hind tarsus below apex of basal segment infuscate; fore and mid tibiae yellow. Penis valve as shown in Fig. 8.

Distribution. — Japan (Honshu and Shikoku).

Holotype. — ♀, Mt. Oginosen, Hyogo Pref., 4. v. 1964, T. Naito leg.

Paratypes. — 1♀, Karumai, Iwate Pref., 1. vii. 1916, Ogasawara leg.; 2♂♂, Mt. Iidesan, Yamagata Pref., 3. vii. 1966, T. Naito leg.; 3♂♂, Itoshiro, Gifu Pref., 4. v. 1967, T. Naito leg.; 4♂♂, Ashu, Kyoto Pref., 10. v. 1968, T. Naito leg.; 2♂♂, Okubo, Hyogo Pref., 14. v. 1963, T. Okutani leg.; 8♀♀ 3♂♂, Mt. Oginosen, Hyogo Pref., 4. v. 1964, T. Naito leg.; 1 ♀ 2♂♂, Mt. Oginosen, Hyogo Pref., 16. v. 1965, T. Naito leg.; 2♂♂, Mt. Oginosen, Hyogo Pref., 17. v. 1966, T. Naito leg.; 3♀♀, 6♂♂, Mt. Oginosen, Hyogo Pref., 10. v. 1967, T. Naito leg.; 1 ♀, Mt. Ishizuchiyama, Ehime Pref., 28. vii 1955, M. Miyatake leg.; 2♂♂, Mt. Ishizuchiyama, Ehime Pref., 26. v. 1969, T. Naito leg.

Remarks. — This new species is so closely related with *paucipunctatus* Malaise that they have hitherto been confused. This species is slightly separable from *paucipunctatus* by the characters as shown in the key, though it is especially difficult to distinguish them by their male features.

The ***struthiopteridis***-group

5. ***Hemitaxonus struthiopteridis*** (Forsius)

Sahlbergia struthiopteridis Forsius, 1910, Medd. Soc. Fauna et Flora Fenn. 36:49. *Hemitaxonus struthiopteridis* Enslin, 1914, Deut. Ent. Zeit. Beiheft: 206; Malaise, 1931, Ent. Tidsk. 52 (2): 138; Malaise, 1931, Arkiv Zool. 23 (8): 21; Takeuchi, 1941, Tenthredo 3 (3): 246; Zhelochovtzev, 1951, Sborn. Trud. Zool. Mus. Moskva 7: 146; Okutani, 1967, Jap. J. Appl. Ent. Zool. 11 (3): 90.

Description. — Some additions to the original description are as follows: Median fovea well defined, large, nearly circular. Lateral foveae well defined, with a crest above them. The areas between posterior ocellus and the crest broadly depressed (Fig. 1). Interocellar and postocellar furrows well defined. Vertical furrows represented by deep and oval-shaped foveae. Postocellar area sharply defined anteriorly and laterally. Malar space about two-thirds of the diameter of frontal ocellus. Penis valve of ♂ as shown in Fig. 10.

Distribution. — Europe, Siberia and Japan (Hokkaido and Honshu).

Specimens examined. – 157 examples from the following localities: Finland (Helsinki); Hokkaido (Sounkyo, Yukomambetsu, Mt. Soranumadake, Sapporo); Nagano Pref. (Kamikochi); Toyama Pref. (Kurobe); Ishikawa Pref. (Ichinose, Nakamiya, Senami, Mt. Shiritakayama, Yoshioka, Nakanomi, Kamatani); Gifu Pref. (Itoshiro); Kyoto Pref. (Ashu, Hanase, Kibune, Kurama, Yase); Hyogo Pref. (Mt. Oginosen, Mt. Hyonosen, Okubo, Sasayama); Nara Pref. (Tsukigase).

Remarks. — The European specimens of this species in hand were directly compared with the Japanese ones. In consequence, it was confirmed that the Japanese form quite coincides with the European one.

6. ***Hemitaxonus japonicus*** Rohwer

Hemitaxonus japonicus Rohwer, 1910, Proc. U. S. Nat. Mus. 39: 112; Malaise, 1931, Ent. Tidskr. 51: 138 [as a synonym of *H. struthiopteridis* (Forsius)]; Takeuchi, 1941, Tenthredo 3: 246; Zhelochovtsev, 1951, Sborn. Trud. Zool. Mus. Moskva 7: 146 [as a synonym of *H. struthiopteridis*];

Okutani, 1967, Jap. J. Appl. Ent. Zool. 11: 90.

Description. — Some additions to the original description are as follows: The areas between posterior ocellus and the crests above lateral foveae depressed, but the lower portions not well defined. Interocellar furrow and postocellar furrow shallowly defined. Malar space a little shorter than the diameter of frontal ocellus. Prepectus well defined by a distinct suture. Penis valve of ♂ shown as in Fig. 11.

Distribution. — Japan (Hokkaido and Honshu).

Specimens examined. – 72 examples from the following localities: Hokkaido (Sounkyo); Toyama Pref. (Mt. Tateyama); Ishikawa Pref. (Yoshioka, Tsurugimachi, Mt. Rokumanzan, Aidake); Kyoto Pref. (Ashu, Sasari, Mt. Hirasan, Kibune, Kurama, Mt. Ushiozan, Yase); Hyogo Pref. (Sasayama); Wakayama Pref. (Nachi); Fukuoka Pref. (Mt. Wakasugiyama, Mt. Homanzan).

Host plants. — *Polystichum tripteron* (Kunze) Presl; *P. polyblepharum* (Röm.) Presl; *P. rectroso-paleacum* (Kodama) Tagawa; *Dryopteris lacera* (Thunb.) O. Ktze.; *Cyrtomium fortunei* J. Sm.

Remarks. — Malaise (1931), Takeuchi (1941) and Zhelochovtsev (1951) regarded this species as a synonym of *H. struthiopteridis* (Forsius). Though this species is surely similar to *struthiopteridis*, it is definitely separable from the latter by the characters as shown in the key.

7. ***Hemitaxonus sasayamensis*** Okutani

Hemitaxonus sasayamensis Okutani, 1954, Sc. Rept. Hyogo Univ. Agr. 1:76; Okutani, 1967, Jap. J. Appl. Ent. Zool. 11: 90.

Description. — Some additions to the original description are as follows: Antennae black; apical half of scape and pedicel yellow beneath. The areas between posterior ocellus and the crests above lateral foveae depressed, but lower portions not well defined (Fig. 2). Anepimeron with a small membranous area. Penis valve of ♂ as shown in Fig. 12.

Distribution. — Japan (Honshu).

Specimens examined. – 21 examples from the following localities: Kyoto Pref. (Kumogahata); Hyogo Pref. (Mt. Hyonosen, Sasayama).

Host plant. — *Struthiopteris niponica* (Kunze) Nakai.

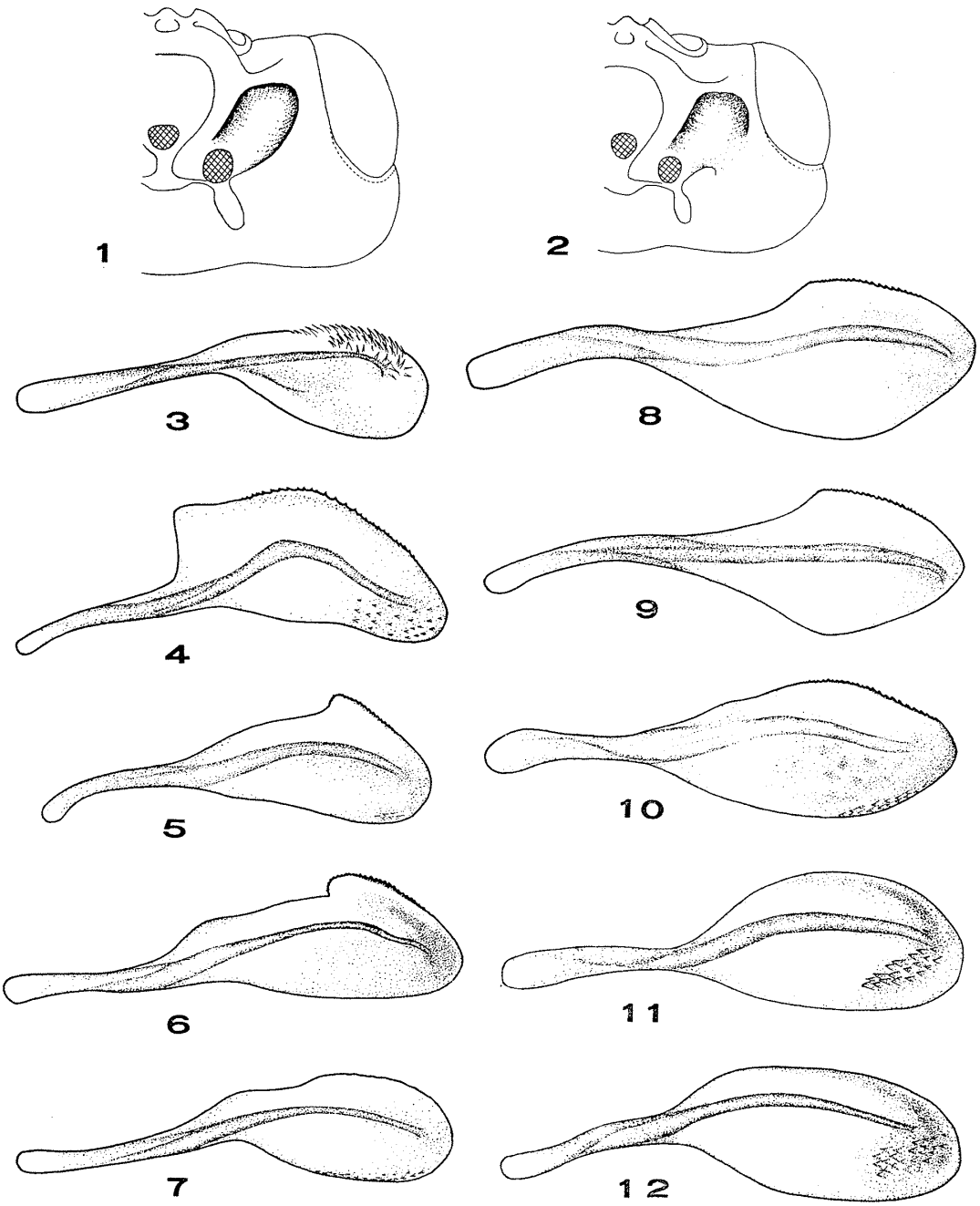
Remarks. — This species is very closely related to *H. japonicus* Rohwer and is separable from the latter only by the color of antennae. Though Okutani (1954) recognized some differences between these two species in their external features, I can not find such definite differences between them.

The ***minomensis***-group

8. ***Hemitaxonus minomensis*** Takeuchi

Hemitaxonus minomensis Takeuchi, 1929, Trans. Nat. Hist. Soc. Formosa 19: 511; Malaise, 1931, Ent. Tidskr. 52 (2): 138 [as a synonym of *H. struthiopteridis* (Forsius)]; Takeuchi, 1941, Tenthredo 3: 246; Zhelochovtsev, 1951, Sborn. Trud. Zool. Mus. Moskva 7: 146 [as a synonym of *struthiopteridis*]; Okutani, 1967, Jap. J. Appl. Ent. Zool. 11: 90.

Description. — Some additions to the original description are as follows: Malar space a little longer than a half of the diameter of frontal ocellus. Prepectus defined by a fine but distinct suture. Anepimeron with a large membranous area. Penis valve of ♂ as



Figs. 1–2. Part of head from above in *Hemitaxonus*: 1, *struthiopteridis*; 2, *japonicus*. Figs. 3–12. Penis valve of *Hemitaxonus*: 3, *tokunagai*; 4, *minomensis*; 5, *athyrii*; 6, *takeuchii*; 7, *formosanus*; 8, *melanogyne*; 9, *paucipunctatus*; 10, *struthiopteridis*; 11, *japonicus*; 12, *sasayamensis*.

shown in Fig. 4.

Distribution. — Japan (Honshu and Kyushu).

Specimens examined. – 49 examples from the following localities: Aomori Pref. (Yunokawa); Iwate Pref. (Karumai); Nagano Pref. (Tobira Spa); Ishikawa Pref. (Ichinose, Deai, Yoshioka, Yanagihara); Gifu Pref. (Gifu); Kanagawa Pref. (Manazuru); Kyoto Pref. (Kibune, Kyoto); Hyogo Pref. (Sasayama, Mt. Sengamine); Mie Pref. (Hirakura); Osaka Pref. (Mt. Iwawakisan, Minoo); Fukuoka Pref. (Fukuoka, Mt. Korasan).

Host plant. — *Leptogramma mollissima* (Fisch.) Ching.

Remarks. — Malaise (1931) and Zhelochovtsev (1951) regarded this species as a synonym of *H. struthiopteridis* (Forsius), but, in the present study, it is attested that they not only represent different species but also belong to different species groups. This species seems to be somewhat distantly related to the other members of this species group, because it is different from them in several features, such as prepectus, median fovea and penis valve.

9. ***Hemitaxonus angustatus*** Zhelochovtsev

Hemitaxonus angustatus Zhelochovtsev, 1951, Sborn. Trud. Zool. Mus. Moskva 7: 145–146.

Distribution. — Khabarovsk, Sichote-Alinskij and Korea.

Specimen examined. – 1 ♂ from Korea (Nansetsurei).

Remarks. — One male collected by Dr. Takeuchi in Korea exactly agrees with the original description. With the exception of the color of clypeus and labrum, all the other features of this species are characteristic of the *minomensis*-group.

10. ***Hemitaxonus formosanus*** Takeuchi

Hemitaxonus formosanus Takeuchi, 1928, Trans. Nat. Hist. Soc. Formosa 18: 43; Malaise, 1931, Ent. Tidskr. 52 (2): 138 [as a synonym of *H. struthiopteridis* (Forsius)]; Takeuchi, 1933, Trans. Kansai Ent. Soc. 4: 69; Takeuchi, 1941, Tenthredo 3 (3): 247; Zhelochovtsev, 1951, Sborn. Trud. Zool. Mus. Moskva 7: 146 [as a synonym of *struthiopteridis*].

Description. — Some additions to the original description are as follows: Frontal carina slightly broken at the anterior part. Marginal teeth of penis valve of ♂ indistinct (Fig. 7).

Distribution. — Formosa.

Specimens examined. – 10 examples from Formosa (Arisan [=Alishan]; Mt. Hassenzan [=Mt. Pahsienshan]; Mt. Hinanshuzan [=Mt. Peinanchushan]; Mt. Taiheizan; Mt. Rantaizan).

Remarks. — Malaise (1931) and Zhelochovtsev (1951) sank this species as a synonym of *H. struthiopteridis* (Forsius). This species, however, is not referred to the *struthiopteridis*-group but to the *minomensis*-group. Of the members of this species group, this species is characterized by the indistinct marginal teeth of penis valve.

11. ***Hemitaxonus athyrii*** n. sp.

Description. — ♀. Black. Pronotum with extreme post-angle, tegulae and apical half of mandibles brown. Palpi dark brown. Antennae black throughout. Legs yellow; all coxae except extreme apex, basal half of fore femur, mid and hind femora except apices and hind tibia except basal third black; fore and mid tibiae except apices, fore tarsus, and mid and hind tarsi on and beyond apex of basal segment infuscate. Length 7 mm.

Head shining, almost impunctured. Labrum and clypeus slightly convex, with feeble and rugose punctures; the former rather small, the anterior margin being gently rounded. Inner and hind orbits with feeble and close punctures. Occipital area with rather strong punctures. Median fovea well defined, small, circular. Lateral foveae well defined, rather large, with a crest above them. The areas from postocellus to the crest above lateral orbits broadly depressed. Interocellar and postocellar furrows well defined. Vertical furrows represented by deep, oval foveae. Postocellar area sharply defined anteriorly and laterally, feebly convex; width: length=18:9. OOL:POL:OCL=14:11:10. Malar space narrow, less than one-third of the diameter of frontal ocellus; sometimes almost absent. Antennae slender; relative lengths of the segments being about 8:5:26:25:23:18:17:17:18. Thorax

shining, almost impunctate. Posterior margin of pronotum feebly reticulate, with feeble and coarse punctures. Lateral and posterior margins of scutellum usually reticulate, with several large punctures. Mesepisternum covered with very sparse pubescence. Prepectus hardly defined, without a distinct suture. Anepimeron with a large membranous area. Anal cell of hind wing with a short pedicel, which is shorter than the breadth of the cell. Abdominal tergites shining, almost without microsculpture. Propodeum feebly reticulate. Sawsheath elongate, with the ventral margin nearly straight.

♂. Similar to female, but different in the following features: Legs infuscate; all coxae except extreme apex, fore and mid femora except apex, and hing leg on and beyond femur black. Malar space very narrow. Penis valve as shown in Fig. 5.

Distribution. — Japan (Hokkaido, Honshu, Shikoku and Kyushu).

Holotype. — ♀, Sasayama, Hyogo Pref., 13. vi. 1965, emerged from larva reared by T. Naito.

Paratypes. — 1 ♂, Shiranuka, Hokkaido, 31. vii. 1967, T. Saigusa leg.; 1 ♂, Tsuta-onsen, Aomori Pref., 8. vii. 1932, K. Takeuchi leg.; 1 ♀, Mt. Hayachine, Iwate Pref., 29. vii. 1965, T. Naito leg.; 1 ♂, Morioka, Iwate Pref., 20. vi. 1969, T. Naito leg. ; 5 ♀♀ 3 ♂♂, Mt. Iidesan, Yamagata Pref., 2. viii. 1966, T. Naito leg.; 1 ♀ 1 ♂, Kanayama, Yamanashi Pref., 1. vii. 1963, A. Nagatomi leg.; 1 ♂, Hakusan, Ishikawa Pref., 24. vii. 1937, K. Takeuchi leg.; 1 ♀, Hakusan, Ishikawa Pref., 18. vii. 1952, I. Togashi leg.; 1 ♀ 1 ♂, Nakamiya, Ishikawa Pref., 1. v. 1955, I. Togashi leg.; 1♀, Mt. Shiritakayama, Ishikawa Pref., 3. v. 1969, I. Togashi leg.; 2 ♀♀, Futakuchi, Ishikawa Pref., 31. v. 1970, I, Togashi leg.; 1 ♂, Tokyo, 22. iv. 1934, K. Takeuchi leg.; 1♀, Tokyo, 10. v. 1948, T. Okutani leg.; 1 ♀, Tokyo, 22. v. 1948, T. Okutani leg.; 1 ♂, Sasari, Kyoto Pref., 17. v. 1968, T. Naito leg.; 1 ♀, Mt. Atagoyama, Kyoto Pref., 9. vii. 1939, K. Takeuchi leg.; 1 ♀, Mt. Bunasan, Shiga Pref., 3. vii. 1939, K. Takeuchi leg.; 1 ♂, Kibune, Kyoto Pref., 29. iv. 1930, K. Takeuchi leg.; 1 ♂, Nara, Nara Pref., 22. vii. 1957, I. Hiura leg.; 1 ♂, Mt. Kongosan, Osaka Pref., 29. iv. 1966, T. Naito leg.; 1 ♀, Mt. Oginosen, Hyogo Pref., 9. vi. 1963, T. Naito leg.; 1 ♀, Sekinomiya, Hyogo Pref., 18. vi. 1953, A. Nagatomi leg.; 3 ♀♀, Sasayama, Hyogo Pref., 12. vi. 1962, T. Okutani leg.; 2 ♀♀, 2 ♂♂, Sasayama, Hyogo Pref., 13. vi. 1965, emerged from larvae reared by T. Naito; 1 ♀, Nishiwaki, Hyogo Pref., 23. v. 1961, R. Inomata leg.; 1 ♂, Shodo-shima, Kagawa Pref., 18. v. 1964, T. Naito leg.; 1 ♂, Matsuyama, Ehime Pref., 4. iv. 1954, T. Yano leg.; 1 ♀, Kajigamori, Kochi Pref., 21. vii. 1952, K. Morimoto leg.; 2 ♂♂, Mt. Hikosan, Fukuoka Pref., 25. vi. 1966, A. Nakanishi leg.

Host plant. — *Athyrium otophorum* (Miq.) Koidz.

Remarks. — This new species has hitherto been included in *H. minomensis* Takeuchi, but definite differences between them are shown in the key. This species is very closely related to *H. takeuchii* n. sp., but may be separable from the latter by the coloration of abdominal tergites and the shape of penis valve.

12. ***Hemitaxonus takeuchii*** n. sp.

Description. — ♀. Black. Pronotum with post-angle and tegulae yellow or dark brown. Apical half of mandibles brown. Abdomen with 4th–6th tergites rufous. Palpi dark brown. Antennae black throughout. Legs yellow; all coxae and femora except each extreme apex, fore tibia, mid tibia except apex, hind tibia except basal third, fore and mid tarsi, and hind tarsus on and beyond apex of basal segment infuscate. Length 6.5 mm.

Head shining, almost impunctate. Labrum and clypeus slightly convex, rugosely punctured; the former rather small, the anterior margin being gently rounded. Inner and hind orbits with rather strong and close punctures. Supraclypeal area strongly convex,

nearly triangular. Median fovea well defined, small, circular. Lateral foveae well defined, large, with a crest above them. The areas from postocellus to the crest above lateral orbits broadly depressed. Interocellar and postocellar furrows well defined. Vertical furrows represented by deep, oval foveae. Postocellar area sharply defined laterally and anteriorly, feebly convex; width: length = 18: 9. OOL: POL: OCL=13: 10: 8. Malar space a little longer than a half of the diameter of frontal ocellus. Antennae more or less stout, of which relative lengths of the segments are about 7:4:26:26:24:18:17:16:17. Thorax shining, almost impunctate. Post-angle of pronotum feebly reticulate, with feeble and coarse punctures. Lateral and posterior margins of scutellum usually reticulate, with several large punctures. Mesepisternum covered with very sparse pubescence. Prepectus slightly defined but without a distinct suture. Anepimeron with a large membranous area. Anal cell of hind wing with a rather short pedicel, which is a little less than a half of the breadth of the cell. Abdominal tergites shining, almost without microsculpture; propodeum feebly reticulate. Sawsheath elongate with the ventral margin nearly straight.

♂. Characters different from the female are as follows: Fore and mid tibiae and hind tarsus infuscate. Malar space very narrow, about one-fifth of the diameter of frontal ocellus. Penis valve as shown in Fig. 6.

Distribution. — Japan (Hokkaido and Honshu).

Holotype. — ♀, Yukomambetsu, Hokkaido, 25. vi. 1967, T. Naito leg.

Paratypes. — 2 ♂♂, same data and collector as holotype; 1 ♀, Mt. Yubaridake, Hokkaido, 15. vii. 1967, A. Nakanishi leg.; 1 ♀ 2 ♂♂, Mt. Yubaridake, Hokkaido, 15. vii. 1967, T. Saigusa leg.; 1 ♀, Mt. Rausudake, Hokkaido, 3. vii. 1967, A. Nakanishi leg.; 1 ♀, Tomuraushi, Hokkaido, 29. vii. 1966, I. Togashi leg.; 2 ♀♀, 4 ♂♂, Kamikochi, 4. vi. 1968, T. Naito leg.

Remarks. — This new species is closely allied to *H. athyrii* n. sp. and *H. formosanus* Takeuchi. From the former it can be distinguished by the rufous abdomen, and from the latter by the marginal teeth of penis valve and by the coloration of hind tibia.

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NOTES ON THE GENUS LASIOMMA STEIN IN JAPAN, WITH DESCRIPTIONS OF TWO NEW SPECIES (DIPTERA: ANTHOMYIIDAE)

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The genus *Lasiomma* Stein is restricted to the Holarctic region. Several species of this genus are known to be injurious to the cones of coniferous trees. According to Hennig (1967–1968) eleven species of the genus are distributed in the Palaearctic region, and yet no species have been known to occur in Japan except for *Lasiomma laricicola*. In the course of the present investigation have been found seven species, of which two are new to science.

Before going further I wish to express my sincere thanks to Prof. C. Watanabe for his kind