

# Type Material of Japanese Sawflies of the Genus *Arge* (Insecta, Hymenoptera, Argidae) Described by Snellen van Vollenhoven (1860), Smith (1874) and Kirby (1882)

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**Abstract** The type material of 12 taxa of the genus *Arge* Schrank, 1802 (= *Hylotoma* Latreille, 1803) described from Japan by Snellen van Vollenhoven (1860), Smith (1874) and Kirby (1882) is examined and taxonomic positions of the taxa are revised. *Hylotoma similis* Smith, 1874 (= *Hylotoma dubia* Kirby, 1882) and *Hylotoma quadripunctata* Kirby, 1882, are synonymized with *Arge nigronodosa* (Motschulsky, 1860).

**Key words:** Hymenoptera, Argidae, *Arge*, type material, Japan.

Japanese sawflies of the argid genus *Arge* Schrank, 1802, were first studied by a Dutch entomologist, S. C. Snellen van Vollenhoven (1860), based on the collection of a famous German physician and naturalist, P. F. B. von Siebold. It was followed by more comprehensive papers by the British specialists, F. Smith (1874) and W. F. Kirby (1882), who based their works mainly on the collection made by G. Lewis, a well-known collector of Japanese insects.

Subsequent taxonomic works treating the *Arge* species of Japan, including the revisionary works by Gussakovskij (1935) and Takeuchi (1932, 1939), discussed the taxa described by these authors, but none of them, with the exception of Malaise (1933), reexamined the type material. The purpose of the present study is to check the current interpretation of these taxa by examining the type material and ascertain their taxonomic placement.

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charge.

## I. Species described by Snellen van Vollenhoven (1860)

Snellen van Vollenhoven (1860) described four new species of *Hylotoma*. Of these, one Javanese species, *H. microcephala*, is now assigned to *Tanyphatnidea*, while the other three, all described on the basis of von Siebold's collection from Japan, belong to *Arge*. All the types are kept in Nationaal Natuurhistorisch Museum, Leiden.

***Hylotoma similis*** Snellen van Vollenhoven, 1860, p. 128.

**Taxonomic placement.** A valid species, *Arge similis* (Snellen van Vollenhoven, 1860).

**Type material.** Lectotype (Fig. 1A): ♀, "Museum Leiden, Syntype, *Hylotoma similis* Vollenhoven, 1860" "v. Siebold, Japan" "Cotypus" "Museum Leiden, *Hylotoma similis*, Det. v. Voll." "Lectotype, Des. P. Thomas, 1987". In fair condition; left flagellum and apex of right hind leg missing, lower half of left compound eye infested probably by a dermestid larva.

*Remarks.* This species was described from four females collected by von Siebold in Japan (Snellen van Vollenhoven, 1860). Thomas (1987) studied the type series and designated a lectotype.

***Hylotoma humeralis*** Snellen van Vollenhoven, 1860, p. 129.

*Taxonomic placement.* A junior primary homonym of *Hylotoma humeralis* Palisot de Beauvois, 1809. A junior synonym of *Arge rejecta* (Kirby, 1882).

*Type material.* Holotype (Fig. 1B): ♀, “Museum Leiden, Holotype, *Hylotoma humeralis* Vollenhoven, 1860” “v. Siebold, Japan” “Holotypus” “Museum Leiden, *Hylotoma humeralis*, Det. v. Voll.” “*Arge rejecta* (Kirby, 1882), ♀, Det. P. Thomas, 1987”. In fair condition; right flagellum, right fore tarsus, and apex of right hind tarsus missing.

*Remarks.* This is a junior primary homonym of *Hylotoma humeralis* Palisot de Beauvois, 1809, but no replacement name has been proposed. This homonymy was first noted by Kirby (1882), who also synonymized it under his *Hylotoma rejecta*. An examination of the type material has revealed that Kirby’s synonymy was correct.

***Hylotoma flava*** Snellen van Vollenhoven, 1860, p. 129.

*Taxonomic placement.* A junior synonym of *Arge nigronodosa* (Motschulsky, 1860).

*Type material.* Lectotype (Fig. 1C): ♀, “Museum Leiden, Syntype, *Hylotoma flava* S. v. Vollenhoven, 1860” “v. Siebold, Japan” “Cotypus” “Lectotype, Des. P. Thomas, 1987” “*Arge nigronodosa* (Motsch.), ♀, Det. P. Thomas, XI. 1986”. In fair condition; apex of right hind tarsus missing.

*Remarks.* This species was correctly synonymized with *Arge nigronodosa* (Motschulsky, 1860) by Kirby (1882). Thomas (1987) studied the type series and designated a lectotype.

## II. Species described by Smith (1874)

Smith (1874) dealt with nine Japanese species of *Hylotoma* (= *Arge*), of which eight were described as new. All the new species were described from “Hiogo” (= Hyogo), except that the type material of *Hylotoma humeralis* was from “Nagasaki; Hiogo”. All the types are preserved in the Natural History Museum, London.

***Hylotoma nigratarsis*** Smith, 1874, p. 374.

*Taxonomic placement.* A junior primary homonym of *Hylotoma nigratarsis* Klug, 1834, and renamed as *Hylotoma jonasi* by Kirby (1882). *Arge jonasi* (Kirby, 1882).

*Type material.* Lectotype (Fig. 1D): ♀, “♀ Type” “B.M.TYPE, HYM. 1.72” “*Hylotoma nigratarsis*, Type Smith” “*H. jonasi*, Type” “Hiogo, Japan” “/4/11”. In fair condition; abdomen detached and repaired, apices of right fore tarsus and left mid and hind tarsi missing.

*Remarks.* Smith (1874) did not designate a holotype and did not clearly state the number of specimens he had examined. Kirby (1882) listed only one female as the “Type of species”, which should be taken as a lectotype designation.

***Hylotoma imperator*** Smith, 1874, p. 374.

*Taxonomic placement.* A junior synonym of *Arge similis* (Snellen van Vollenhoven, 1860).

*Type material.* Syntype (Fig. 1E): ♀, “Type H. T.” “B.M.TYPE, HYM. 1.68” “*Hylotoma imperator*, Type ♀ Smith” “Type F. Sm. Coll. 79.22” “Kb/4/13” “Hiogo, Japan”. In fair condition; left hind leg missing.

*Remarks.* Smith (1874) described this species on the basis of 12 specimens of both sexes from Hiogo, whereas Kirby (1882) listed only five. The syntype examined belongs to *A. similis* (Snellen van Vollenhoven, 1860), with which Smith’s taxon was correctly synonymized by Kirby (1882).

***Hylotoma humeralis*** Smith, 1874, p. 374.

*Taxonomic placement.* A junior primary homonym of *Hylotoma humeralis* Palisot de Beauvois, 1809, and *Hylotoma humeralis* Snellen



Fig. 1. Primary types of *Arge* species described from Japan. — A, Lectotype of *Hylotoma similis* Snellen van Vollenhoven, 1860; B, holotype of *Hylotoma humeralis* Snellen van Vollenhoven, 1860; C, lectotype of *Hylotoma flava* Snellen van Vollenhoven, 1860; D, lectotype of *Hylotoma nigritarsis* Smith, 1874; E, syntype of *Hylotoma imperator* Smith, 1874; F, lectotype of *Hylotoma humeralis* Smith, 1874; G, syntype of *Hylotoma ephippiata* Smith, 1874; H, syntype of *Hylotoma simillima* Smith, 1874; I, lectotype of *Hylotoma similis* Smith, 1874; J, lectotype of *Hylotoma trinotata* Smith, 1874; K, lectotype of *Hylotoma captiva* Smith, 1874.



van Vollenhoven, 1860, and renamed as *Hylotoma disparilis* by Kirby (1882). A junior synonym of *Arge nigronodosa* (Motschulsky, 1860).

*Type material.* Lectotype (Fig. 1F): ♀, “Type H. T.” “B.M.TYPE, HYM. 1.77” “Hylotoma humeralis, Type Smith” “Hylotoma humeralis, Type” “T4/11” “Hiogo, Japan” “B.M.TYPE, HYM. Hylotoma disparilis (Kirby, 1882)”. In fair condition; abdomen detached and repaired; apices of hind tarsi missing.

*Remarks.* Smith (1874) described both sexes of this species as well as the female of a “Var.” but did not designate a holotype. Because of the homonymy noted above, Kirby (1882) gave a replacement name, *Hylotoma disparilis*, and listed a female from Hiogo as the “Type of species”, thus fixing a lectotype for Smith’s taxon. Kirby (1882) also treated Smith’s “Var.” as a separate species and described it under the name of *Hylotoma quadripunctata*. The lectotype of *H. humeralis* belongs to *Arge nigronodosa* (Motschulsky, 1860). Gussakovskij (1935), without seeing the type material, treated *A. diparilis* (= *H. humeralis*) as a species distinct from *A. nigronodosa*, but we agree with Takeuchi (1939) in treating them as synonyms.

***Hylotoma ephippiata* Smith, 1874, p. 375.**

*Taxonomic placement.* A junior primary homonym of *Hylotoma ephippiata* Klug, 1834, and renamed as *Hylotoma rejecta* by Kirby (1882). *Arge rejecta* (Kirby, 1882).

*Type material.* Syntype (Fig. 1G): ♀, “Type H. T.” “B.M.TYPE, HYM. 1.70” “H. rejecta Type” “H. rejecta Kb. 1882=ephippiata Smith nec Klug, 1834” “Hiogo, Japan” “T 4/16” “Hylotoma ephippiata, Type ♀ Smith”. In fair condition; right wings somewhat damaged.

*Remarks.* Smith (1874) described both sexes of *H. ephippiata* but did not give the exact number of specimens he had examined, while Kirby (1882) listed three specimens of both sexes from Hiogo, which are regarded as syntypes.

***Hylotoma simillima* Smith, 1874, p. 375.**

*Taxonomic placement.* A valid species, *Arge*

*simillima* (Smith, 1874).

*Type material.* Syntype (Fig. 1H): ♀, “Type H. T.” “B.M.TYPE, HYM. 1.67” “Hylotoma simillima, Type ♀ Smith” “Hiogo, Japan” “T 4/6”. In fair condition; left foreleg and left antennal flagellum missing.

*Remarks.* Smith (1874) described both sexes of this species but did not designate a holotype. Kirby (1882) listed only two females as the “Types of species”.

There were different opinions as to the identity of this species (Konow, 1905–1908; Takeuchi, 1932, 1939; Malaise, 1933; Gussakovskij, 1935). Though we treat *A. simillima* as a valid species for now, the syntype examined resembles a small specimen of *A. berberidis* Schrank, 1802, which has been recorded also from Hokkaido, northern Japan (Sasakawa, 1958; Hara & Shinohara, 2005). The relationship of *A. simillima* with *A. berberidis* and two central Chinese species, *A. coriacea* Jakovlev, 1891, and *A. forficula* Jakovlev, 1891 (Malaise, 1933; Gussakovskij, 1935) may need a revision.

Takeuchi’s (1932) interpretation based only on Smith’s and Kirby’s very short descriptions was erroneous, but we feel sympathy with Takeuchi’s (1939) statement that “it is impossible to consider that *simillima* sensu Malaise and Gussakovskij inhabits the neighbourhood of Hiogo”. In Japan, only one specimen of *A. simillima* was (and still is) known besides the type material of Smith and it was collected at Kitazawa (1800–2000 m) in South Alps in central Honshu (Takeuchi, 1939). The type locality of *H. simillima*, “Hiogo”, is now within or near the big city of Kobe on the sea coast in southwestern Honshu. The natural environment of the two localities are quite different. The sawfly fauna of Hyogo Prefecture, including the area previously called “Hiogo” has been well explored (Naito *et al.*, 2004), but no additional material of *A. simillima* has been discovered.

***Hylotoma similis* Smith, 1874, p. 375.**

*Taxonomic placement.* A junior primary homonym of *Hylotoma similis* Snelle van Vollen-

hoven, 1860, and renamed as *Hylotoma dubia* by Kirby (1882). A junior synonym of *Arge nigronodosa* (Motschulsky, 1860). New synonymy.

*Type material.* Lectotype (Fig. 1I): ♀, "Type" "B.M.TYPE, HYM. 1.78" "H. dubia, type" "12 4" "Arge nigrinodosa Mots." "B. M. TYPE, HYM. *Hylotoma dubia* (Kirby, 1882)". In good condition; left antennal flagellum missing.

*Remarks.* Smith (1874) did not designate a holotype and did not clearly mention the number of specimens he had before him. Kirby (1882) listed only one specimen of this species as the "Type of species". We regard this as fixation of the lectotype.

This is a junior primary homonym of *Hylotoma similis* Snellen van Vollenhoven, 1860, and Kirby (1882) gave a new name, *Hylotoma dubia*, for it. Takeuchi (1932, 1939) treated this taxon as a variety of *A. nigronodosa*, whereas Guskovskij (1935) treated it as an independent species. In our view, the lectotype is a very dark individual of *A. nigronodosa*, which is extremely variable in the coloration of the thorax (Takeuchi, 1939; Naito, 1983).

***Hylotoma trinotata*** Smith, 1874, p. 376.

*Taxonomic placement.* A junior synonym of *Arge nigronodosa* (Motschulsky, 1860).

*Type material.* Lectotype (Fig. 1J): ♀, "Type H. T." "B.M.TYPE, HYM. 1.74" "*Hylotoma trinotata*, Type Smith" "Kb.1: 5/15" "Hiogo T 4/6". In good condition; apex of right hind tarsus and left mid tarsus missing.

*Remarks.* Smith (1874) did not designate a holotype and did not clearly mention the number of specimens he had before him. Kirby (1882) listed only one specimen of this species as the "Type of species". We regard this as fixation of the lectotype. This species was correctly synonymized with *A. nigronodosa* by Kirby (1882).

***Hylotoma captiva*** Smith, 1874, p. 376.

*Taxonomic placement.* A valid species, *Arge captiva* (Smith, 1874).

*Type material.* Lectotype (Fig. 1K): ♀, "Type H. T." "B.M.TYPE, HYM. 1.71" "*Hylotoma cap-*

*tiva*, Type Smith" "Hiogo/T 4/6" "Kb.1: 4/14". In fair condition; apex of left hind tarsus missing.

*Remarks.* Smith (1874) did not designate a holotype and did not clearly mention the number of specimens he had before him. Kirby (1882) listed only one specimen of this species as the "Type of species". We regard this as fixation of the lectotype.

### III. Species described by Kirby (1882).

Kirby (1882) proposed replacement names for four taxa described by Smith (1874) and described one new species from Japan. The type material is kept in the Natural History Museum, London.

***Hylotoma jonasi*** Kirby, 1882, p. 61.

*Taxonomic placement.* A replacement name for *Hylotoma nigratarsis* Smith, 1874 (not Klug, 1834). A valid species, *Arge jonasi* (Kirby, 1882).

***Hylotoma rejecta*** Kirby, 1882, p. 62.

*Taxonomic placement.* A replacement name for *Hylotoma ephippiata* Smith, 1874 (not Klug, 1834). A valid species, *Arge rejecta* (Kirby, 1882).

*Remarks.* Kirby (1882) also listed *Hylotoma humeralis* Snellen van Vollenhoven, 1860 (a junior primary homonym of *Hylotoma humeralis* Palisot de Beauvois, 1809) as a synonym of this species, but the new name was clearly given to Smith's (not to Snellen van Vollenhoven's) species, because the type series cited is apparently identical with that of Smith's (1874) species.

***Hylotoma disparilis*** Kirby, 1882, p. 63.

*Taxonomic placement.* A replacement name for *Hylotoma humeralis* Smith, 1874 (not Palisot de Beauvois, 1809; Snellen van Vollenhoven, 1860). A junior synonym of *Arge nigronodosa* (Motschulsky, 1860).

***Hylotoma quadripunctata*** Kirby, 1882, p. 63.

*Taxonomic placement.* A junior synonym of *Arge nigronodosa* (Motschulsky, 1860). New

### Synonymy.

*Type material.* Holotype: ♀, “Hiogo, Japan” “var.” “14/6” “Paratype” “H. 4-punctata, Type”.

*Remarks.* Smith (1874) first referred to the holotype of this species as a “Var.” of *Hylotoma humeralis* Smith, 1874 (= *Arge nigronodosa*), but Kirby (1882) described it as a separate species. Takeuchi (1932, 1939) treated *quadripunctata* as a variety of *A. nigronodosa*. We believe all the varieties of *A. nigronodosa* recognized by Takeuchi are individual variations found in all local populations, thus varieties of infrasubspecific nature (see also Naito, 1983). Here, we treat *H. quadripunctata* as a junior synonym of *Arge nigronodosa*.

***Hylotoma dubia*** Kirby, 1882, p. 64.

*Taxonomic placement.* A replacement name for *Hylotoma similis* Smith, 1874 (not Snellen van Vollenhoven, 1860). A junior synonym of *Arge nigronodosa* (Motschulsky, 1860).

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