

Studies on Alloxystidae (Hymenoptera, Cynipoidea)¹ 8. *Cynips minuta* Zetterstedt and *Xystus minutus* Hartig

by

H. H. EVENHUIS¹ & I. G. KIRIAK²

¹*Institute for Plant Protection, Wageningen*

²*All Union Institute of Biological Control, Kishinev*

ABSTRACT. — *Alloxysta pallidicornis* (Curtis) (= *Cynips minuta* Zetterstedt, syn. n.) and *Alloxysta minuta* (Hartig) are redescribed. Full synonymy is given and nomenclatorial problems are discussed.

In 1838 Zetterstedt described five *Cynips* species: *C. petiolata*, *C. tibialis*, *C. minuta*, *C. consobrina* and *C. ruficeps*. Despite the descriptions being short and incomplete, it is evident that the former two cannot belong to what we now consider Alloxystidae, but that the latter three might. During a stay at the Zoological Institute, Lund, Sweden, by the senior author in 1978, the types of the three species in question were studied. It can be confirmed that the type material of all three are indeed Alloxystidae.

It is noteworthy that Kieffer (1902-1905) referred both *C. consobrina* and *C. ruficeps* to Cynipidae, Allotriinae, now considered to comprise two families, the Alloxystidae and Charipidae (Quinlan & Evenhuis, 1980). *C. minuta* Zetterstedt was stated by Kieffer to be a problematic species, which consequently was only mentioned in the index, but not in the text of his work. This most probably resulted from a publication of Dahlbom (1842), who placed *C. ruficeps* (incorrectly considered by him as a junior synonym of *Cynips erythrocephala* Jurine, 1807) and *C. consobrina* into the genus *Allotria* Westwood, 1833, whereas *C. minuta* was retained in *Cynips* Linnaeus, 1758. It is not clear why Dahlbom did so, perhaps because of the dark, robust appearance of the latter species, which makes it superficially resemble a gall-making cynipid.

The junior author collected one male and six females of an *Alloxysta* species in Moldavia, U.S.S.R., which are identical with *Cynips minuta* Zetterstedt. Some of these specimens were captured, others reared from a *Cinara* species (Hemiptera, Aphidina) on coniferous trees. Furthermore a collection of Alloxystidae was received for identification from Mr. U. Gärdenfors, Lund, Sweden. Among this material there were 6 males and 36 females of the same species, reared from mummies of *Cinara* spp. and *Schizolachnus pineti* (Fabricius) (Hemiptera, Aphidina) on coniferous trees through *Pauesia* spp. (Hymenoptera: Braconidae) as primary parasites. The Moldavian and the Swedish specimens constitute the basis for the description that follows.

In searching for possible synonyms, the descriptions of *Allotria forticornis* Giraud, 1860, together with the mention of an aphid on "*Pinus pumilio*" as a host by Kieffer (1902), suggested that this species might be *Cynips minuta* Zetterstedt. Mrs. S. Kelner-Pillault, Muséum National d'Histoire Naturelle, Paris, France, kindly sent two specimens, both conspecific females, stated as type-material of *Allotria forticornis* Giraud. They were, indeed, found to be the same species as *Cynips minuta* Zetterstedt.

Giraud (1860), in his original description, mentioned "un seul individu des environs de Vienne", without stating anything about a host. Laboulbène (1877), who saw Giraud's material, reported that Giraud reared this specimen from "Aphis sur *Pinus pumilio*", which aphid might well be a species of Lachnidae. One of the two specimens of the Paris museum bears a label "Schneeb. sur pumilio"; the other does not show an indication of a host. As Giraud generally

¹ In previous papers the group was regarded as a subfamily (Cynipidae, Alloxystinae). In the present publication we support the view, generally accepted to-day, and consider it a family.

gives a record of a host accompanying the description of a hymenopterous parasite, it seems reasonable to accept that it is the captured specimen that he had before him when he described *Allotria forticornis* and not the reared one. Thus the former specimen was considered to be the holotype. Unlike the other specimen, it is undamaged and mounted in a better way. It has been glued with its right side on a white, rectangular cardboard and is accompanied by the labels "Forticornis det. Giraud" (in black ink), "Col. GIRAUD TYPE" (in red ink) and "Allotria forticornis Giraud" (in black ink). An orange label with "Allotria forticornis Giraud holotype det. H. H. Evenhuis 1980" has been added. Though the other specimen also bears a label "Col. GIRAUD TYPE" (in red ink), it cannot be considered a type.

Kieffer (1902) mentioned *Allotria basalis* Thomson, 1862, as a synonym of *Allotria forticornis* Giraud, 1860. Thomson (1862) himself pointed to the similarity of the two species. Where this latter author writes "laticornis Giraud", he apparently means "forticornis Giraud".

The senior author studied the three conspecific specimens indicated as "*Allotria basalis* Thomson" in the Lund museum and could confirm the synonymy introduced by Kieffer (1902). One of the specimens is accompanied by two labels, "basalis" and "Esp.", respectively, both in Thomson's handwriting, the latter label indicating the locality "Esperöd", the same locality as given in Thomson's original description. The second specimen bears only a small, square label "Ld" (printed), and the third a label "Scan" (printed). "Ld" means Lund, the specimen in question thus cannot be part of the type-series. It is doubtful whether the third specimen can be considered as belonging to the type-series. Consequently, the first mentioned of the three specimens is hereby designated lectotype of *Allotria basalis* Thomson, 1862.

The more precise description of *Allotria anthracina* Andrews, 1978, with distinct figures, suggests that this, too, is the same species. The senior author saw the holotype, kindly sent to him by Dr. K. Yoshimoto, Canadian National Collection, Ottawa, Canada, and has established the synonymy.

Quinlan & Fergusson (1981) published a paper on the types of Cynipoidea described by Curtis (1838), which are in the National Museum of Victoria, Melbourne, Australia. They established the synonymy of *Cynips pallidicornis* Curtis and *Allotria forticornis* Giraud. The senior author saw the lectotype of *Cynips pallidicornis*, kindly sent to him by Dr. A. Neboiss, and confirmed the synonymy. Thus the species names *pallidicornis* Curtis, 1838, and *minuta* Zetterstedt, 1838, are synonyms, as both have to be referred to the genus *Alloxysta*. It has to be argued out which of the two names has priority.

Both the works of Curtis and Zetterstedt were published in separate parts, which appeared at different times. That part of Curtis' work containing the description of *Cynips pallidicornis* is accompanied by a colour plate, referring however to another insect, with the underline "Pub: by J. Curtis Apr. 1. 1838". Consequently the date of publication of the description of *Cynips pallidicornis* can be fixed on April 1, 1838. On the title page of Zetterstedt's work as a whole, the year 1840 is given. However, in the preface the date March 3, 1837 is mentioned. In the body of the work is no indication of the dates on which the separate parts have been published. According to Hagen (1863) and Horn & Schenkling (1929), Zetterstedt's *Insecta lapponica* appeared in six parts; in 1838 the orders Coleoptera, Orthoptera, Hemiptera, Hymenoptera and Diptera were dealt with, each on different days. In view of the fact that the Hymenoptera appeared late in this sequence, it seems improbable that the description of *Cynips minuta* Zetterstedt appeared before April 1, 1838. Furthermore, considering article 21 (b) of the International Code of Zoological Nomenclature (1964), the date of publication of the description has to be interpreted as December 31, 1838, and consequently the name *Alloxysta pallidicornis* (Curtis, 1838), should have priority.

It seems a happy circumstance that *Alloxysta minuta* (Zetterstedt) is not the valid name, since, within the genus *Alloxysta*, the species is not especially small as the name "minuta" suggests. Within the genus *Cynips* Linnaeus, 1758, as understood by Zetterstedt, comprising the whole present-day superfamily Cynipoidea, it is a small species.

Hartig (1840) described *Xystus minutus*, which species has to be referred to *Alloxysta*. Though *Alloxysta minuta* (Hartig, 1840) is a junior homonym of *Alloxysta minuta* (Zetterstedt,

1838), Hartig's species name can be maintained as the valid one, since *Alloxysta minuta* (Zetterstedt, 1838, December 31) is a junior synonym of *Alloxysta pallidicornis* (Curtis, 1838, April 1).

Alloxysta pallidicornis (Curtis)

Cynips pallidicornis Curtis, 1838 (April 1)

Cynips minuta Zetterstedt, 1838 (December 31), syn.n.

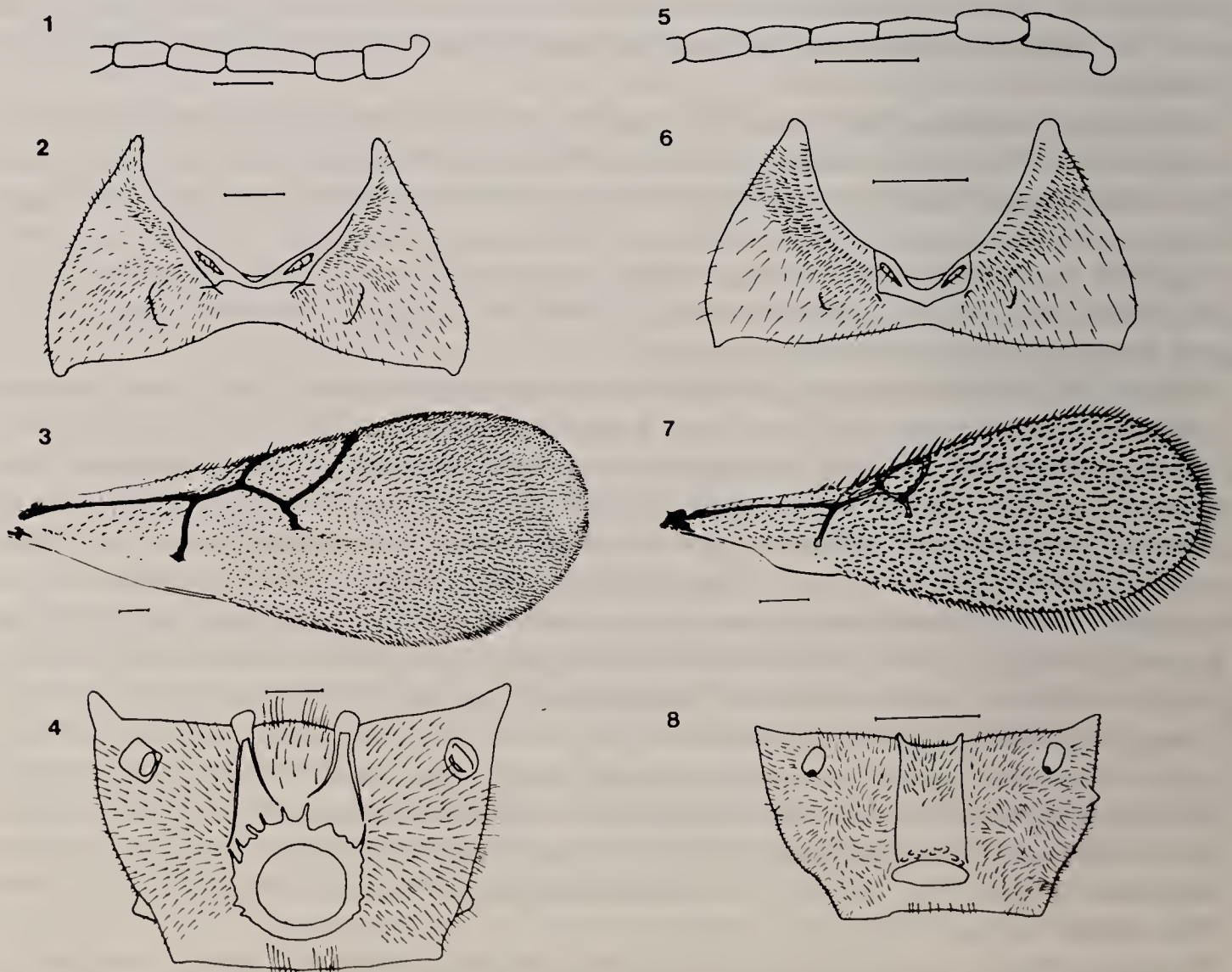
Allotria forticornis Giraud, 1860

Allotria basalis Thomson, 1862, syn.n.

Alloxysta anthracina Andrews, 1978, syn.n.

Morphological characters. — Third antennal segment in both sexes conspicuously long (fig. 1, female). Third and especially fourth antennal segments in the male slightly curved. Pronotum for the greater part pubescent, on the hind part less densely (fig. 2). Fore wing with a large, open cell (fig. 3). Propodeum for the greater part pubescent, with two longitudinal carinae, each bifurcating backwards; the inner branches curved inwards posteriorly, enclosing the middle part that is more or less rounded behind (fig. 4).

Colour pattern. — Black. Antenna fuscous, somewhat darkened towards the tip; scapus dark. Legs and wing veins fuscous; coxae, middle part of fore and middle femora, hind femur, hind tibia and last tarsal segments darker. Length male and female: 1.1-1.7 mm, rather variable.



Figs 1-4. *Alloxysta pallidicornis* (Curtis). 1, basal part of female antenna; 2, pronotum; 3, fore wing; 4, propodeum, posterodorsal; view.

Figs 5-8. *Alloxysta minuta* (Hartig). 5, basal part of female antenna; 6, pronotum; 7, fore wing; 8, propodeum, dorsal view. Scale in each case 0.1 mm.

This black species of robust appearance may be easily distinguished by the branching carinae on the propodeum, a character that we did not observe in any other *Alloxysta* species. It is apparently a hyperparasite of Lachnidae on coniferous trees through *Pauesia* spp. as primary parasites. Andrews (1978), who did not rear the species but saw several specimens taken in North America, states "Its northern range, and mountainous occurrence indicates its association may be to a lachnini aphid on a conifer...", which seems to agree with its occurrence in Europe. Except for the one specimen of the Curtis collection, for which the exact locality is not known, there are no records from western Europe.

Alloxysta minuta (Hartig)

Xystus minutus Hartig, 1840

Allotria ramulifera Thomson, 1862

Allotria parvicellula Kieffer, 1904, syn.n.

The synonymy of the two former names has been published earlier (Evenhuis, 1982), that of the latter name will be dealt with in a future paper on Kieffer types of Alloxystidae, the material of which is in "Le Musée de Picardie" at Amiens (France).

Morphological characters. — Third and fourth antennal segments only a little longer than the second, both conspicuously narrower than the remaining (fig. 5). Pronotum for the greater part pubescent, in front more densely, with short longitudinal carinae (fig. 6). Radial cell in front wing very small, closed (fig. 7). Propodeum for the greater part pubescent, with two more or less parallel carinae (fig. 8). Length female: 0.9-1.0 mm.

Colour pattern. — Black. Four or five basal antennal segments yellowish fuscous, the rest darker. Mouth parts and legs yellowish fuscous, last tarsal segments darkened.

The species shows some resemblance with *Alloxysta mullensis* (Cameron), which has been dealt with in an earlier paper (Evenhuis, 1978). Female specimens of the latter species, however, are conspicuous by the small and narrow antennal segments 4, 5 and 6, by the absence of longitudinal carinae on the pronotum and by the somewhat larger and slightly differently shaped radial cell.

The species has been captured on several localities in the Netherlands, especially by sweeping low vegetation. It has also been captured in Moldavia (U.S.S.R.). Probably it is common throughout Europe. Only female specimens were taken. We have yet to rear this species.

A few specimens were taken at Leersum, the Netherlands, in 1981 as early as March 18, suggesting that the species might hibernate in the adult stage. This seems uncommon for Alloxystidae, which, as far as known, hibernate as full-grown larvae within mummified aphids.

Acknowledgements

The authors are indebted to Mrs. S. Kelner Pillault (Paris), Mr. R. Danielsson (Lund), Mr. U. Gardenförs (Lund), Dr. A. Neboiss (Melbourne) and Dr. K. Yoshimoto (Ottawa) for making type and other material available, to Dr. A. K. Minks (Wageningen), Mr. H. J. Vlug (Wageningen), Prof. Dr. J. T. Wiebes (Leiden) for critically reading the manuscript, to Mr. J. Quinlan (London) also for correcting the English text, and to Dr. W. N. Ellis (Amsterdam) for discussing nomenclatorial problems.

REFERENCES

- Andrews, F. G., 1978. Taxonomy and host specificity of Nearctic Alloxystinae with a catalog of the world species (Hymenoptera: Cynipidae). — *Occ. Pap. Ent.* 25: 1-128.
- Curtis, J., 1838. *British entomology, being illustrations and descriptions of the genera of insects found in Great Britain and Ireland* 15: 674-721, London.
- Dahlbom G., 1842. *Onychia och Callaspidia*: 1-6, Plates: 1-2, Akademiska Boktryckeriet, Lund.

- Evenhuis, H. H., 1978. Studies on Cynipidae Alloxystinae. 7. Remarks on Cameron's species and a discussion of Phaenoglyphis species with incomplete parapsidal furrows. — *Ent. Ber., Amst.* 38: 169-175.
- , 1982. A study of Hartig's Xystus species with type designations and new synonyms. — *Spixiana* 5: 19-29.
- Giraud, J., 1860. Enumération des Figitides de l'Autriche. — *Verh. zool.-bot. Ges. Wien* 10: 123-176.
- Hagen, A., 1863. *Die Literatur über das ganze Gebiet der Entomologie bis zum Jahre 1862*. 2: 1-512, Engelmann, Leipzig.
- Hartig, Th., 1840. Ueber die Familie der Gallwespen. *Z. Ent. (Germar)* 2: 176-209.
- Horn, W. & S. Schenkling, 1929. *Die Welt-Literatur über die gesamte Entomologie bis inklusiv 1863*. 4: 1057-1426, Berlin-Dahlem.
- Kieffer, J. J., 1902. Les Cynipides (suite), 3e Tribu: Allotriinae. *Spécies des Hyménoptères d'Europe & d'Algérie (E. André ed.)* 7 bis: 5-78, Froment-Dubosclard, Paris.
- Laboulbène, A., 1877. Liste des éclosions d'insectes observées par le Dr. Joseph-Etienne Giraud, membre honoraire. — *Ann. Soc. ent. Fr.* 5: 397-436.
- Quinlan, J. & H. H. Evenhuis, 1980. Status of the subfamily names Charipinae and Alloxystinae (Hymenoptera: Cynipidae). — *Syst. Ent.* 5: 427-430.
- Quinlan, J. & N. D. M. Fergusson, 1981. The status and identity of the Cynipoidea (Hymenoptera) described by J. Curtis. — *Entomologist's Gaz.* 32: 251-256.
- Thomson, C. G., 1862. Försök till uppställning och beskrifning af Sveriges Figiter. — *Öfvers. K. Vetensk. Akad. Förh. Stockh.* 18: 395-420.
- Zetterstedt, J. W., 1838. *Insecta lapponica*, Hymenoptera: 315-476, Voss, Lipsiae.

P.O.B. 9060, 6700 GW Wageningen.

Prospect Mira 58, Kishinev, 277060, Moldavia, U.S.S.R.

CHRYSOMELA LAPPONICA LINNAEUS (COLEOPTERA: CHRYSOMELIDAE).

Naar aanleiding van een mededeling van A. Goutbeek over deze kever in *Natura* 81: 251 (1984) kan ik melden, dat ik *Chrysomela lapponica* de afgelopen jaren driemaal heb waargenomen. Twee exemplaren op 30.V.1983 op lage berkjes op een venig dopheiveldje met Veenpluis (*Eriophorum angustifolium* Honckeny) op het landgoed Bunia (Driebergen, Amersfoort coördinaten 147-453). Eén daarvan werd verzameld. In najaar 1983 één exemplaar in de strooisellaag van een berkenbos in de boswachterij Austerlitz (151-456). En tenslotte een dood exemplaar in een slootje te Maarn (154-452). De kever is op de Utrechtse Heuvelrug dus zeker niet zeldzaam. Alle vindplaatsen liggen veel zuidelijker dan tot nog toe bekend was.

O. Voorst, Couwenhoven 61-41, 3703 HJ Zeist.

Naar aanleiding van een artikel in het september-nummer van *Natura* deel ik mee, dat mijn collectie zeven exemplaren van de kever bevat. Ze zijn gevangen bij de Pol, een buurtschap bij Willemsoord, ten noorden van Steenwijk. Zes exemplaren zijn geklopt uit een berk, de zevende zat op een boomstam, maar er stonden wel berken in de buurt.

J. H. Lambrechts, Bloemaertlaan 198, 1816 KG Alkmaar.

De heer A. Tielenius, Vogelboom 69, 2771 KT Boskoop, meldde *lapponica* nog van Otterlo. Op 4.X.1984 trof hij daar een exemplaar aan op een eikeblad. Door de foto van de heer A. Goutbeek in *Natura* was de kever makkelijk te identificeren.