Review of Giraud's types of the species of *Synergus* Hartig, 1840 (Hymenoptera, Cynipidae)

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KEY WORDS
Hymenoptera, Cynipidae, synergini, *Synergus*, Giraud, lectotypes, systematics, synonymies, hosts.

ABSTRACT
In this work the typical series of the remaining *Synergus* species described by Giraud are studied. The lectotypes of each one are designated. *Synergus consobrinus* is redescribed, *S. variabilis* Mayr, 1872 (= *S. cerridis* n.syn.) (= *S. conformis* n.syn.) and *S. diaphanus* are characterized. The respective synonymies for the rest of the studied species are established. Finally, biological data of some of the species are given and the distribution area of some of them is widened.

MOTS CLÉS
Hymenoptera, Cynipidae, synergini, *Synergus*, Giraud, lectotypes, systématique, synonymies, hôtes.

RÉSUMÉ
Révision des espèces-types du genre Synergus *Hartig, 1840 (Hymenoptera, Cynipidae).* Dans ce travail, nous étudions le matériel des séries de types décrites par Giraud concernant le genre *Synergus*. Les lectotypes de ces séries sont désignés. Nous redécrivons l'espèce *Synergus consobrinus* ; les espèces *S. variabilis* Mayr, 1872 (= *S. cerridis* n.syn.) (= *S. conformis* n.syn.) et *S. diaphanus* sont caractérisées. Nous établissons les synonymies concernant les autres espèces du genre. Pour chaque espèce nous mentionnons les principales caractéristiques biologiques et la répartition.

INTRODUCTION

Joseph-Étienne Giraud (1808-1877) was one of the greatest cynipidologists of the last century. His Cynipidae studies, though few in number (Giraud 1859, 1866, 1868a, b, 1871; Darboux & Houard 1907; Laboulbène 1877), greatly lead to the recognition of a large number of cynipid gall-forming species. He described more than forty species as well as the new genus *Dryocosmus*. A part of the author's research was compiled in an unpublished manuscript deposited in the Muséum national d'Histoire naturelle, Paris (MNHN). Houard (1911) published a version of Giraud's manuscript. In this publication eleven new *Synergus* species are described: *S. apertus*, *S. cerridis*, *S. clavatus*, *S. conformis*, *S. consobrinus*, *S. diaphanus*, *S. hartigi*, *S. inflatus*, *S. longiventris*, *S. subterraneus* and *S. vesiculosus*. The study also contains descriptions of four new cynipids not belonging to the *Synergus* species.
The only species of *Synergus* that has previously been examined is *S. apertus*, which was synonimyzed with *Saphonecrus undulatus* (Mayr 1872) by Pujade-Villar & Nieves-Aldrey (1990).
Giraud's material was drawn largely from Central Europe. In his manuscript there is no mention either of the origin of specimens.
The study of the *Synergus* species type material is especially interesting in the Palaearctic zone, since some doubt has been cast on thirty-one of the fifty-nine species described.

ABBREVIATIONS

NMW	Naturhistorisches Museum, Wien
MNCNM	Museo Nacional de Ciencias Naturales, Madrid
MNHN	Muséum national d'Histoire naturelle, Paris
ZSBS	Zoologische Staatssammlung, München

SEM METHODS

The SEM photographs of the type material *Synergus consobrinus* were taken without any coating. The voltage used ranged between 200 and 1000 V, depending on the specimens. In this way we were able to obtain pictures while preserving the specimen types without any manipulation. The pictures of *S. variabilis* were obtained by gold coating of one of the dissected *S. cerridis*' specimens.

LIST OF SPECIES

Giraud's nominal species described in *Synergus* genus by Houard (1911) are dealt with below. The heading for each species treatment is the currently accepted name. For each species the lectotypes are designated. The synonymous names, hosts, distribution and information concerning type material are given. The main taxonomic aspects are discussed. Giraud's accepted species and *S. variabilis* Mayr are characterized and differentiated from the closely related species using a taxonomical key.

Saphonecrus haimi (Mayr, 1872)

Sapholitus haimi Mayr, 1872. *Verh. Ges. Wien* 22: 723. Types in NMW.

Synergus clavatus Giraud (*in* Houard 1911: 333), n.syn.

Saphonecrus haimi (Mayr), *in* Pujade-Villar *et* Nieves-Aldrey, 1990: 53 (misspelling), n.syn.

TYPE MATERIAL. — Lectotype ♀, and paralectotypes: 1 ♂ and 4 ♀♀ of *Saphonecrus haimi* have been designated *in* Pujade-Villar & Nieves-Aldrey (1990). Lectotype ♀ of *Synergus clavatus* Giraud, here designated, mounted on micro-pin; paralectotypes, 32 ♂♂ and 5 ♀♀, all of them mounted on micropins.

DISTRIBUTION. — Central Europe and Israel in Cynipid galls of *Quercus cerris* and *Q. ithaburensis*.

HOSTS. — Hymenoptera, Cynipidae, Cynipini: *Chilaspis nitidus* (Giraud, 1859) ♁, *Neuroterus lanuginosus* (Giraud, 1859) ♁, *N. saliens* (Kollar, 1857) ♁ and *N. minutus* (Giraud, 1859) ♁. Diptera., Cecidomyiidae: *Janetia cerris* (Kollar, 1850).

COMMENTS
This species and *Saphonecrus undulatus* (Mayr, 1872) are close to *Synergus* genus because they have pronotal carina as do most of the species of *Synergus* Pujade-Villar & Nieves-Aldrey (1990). The *Neuroterus minutus* galls is a new host record of *Saphonecrus haimi*.

Synergus variabilis Mayr, 1872
(Figs 1-3)

Synergus variabilis Mayr, 1872. *Verh. Ges. Wien* 22: 702. Types in NMW.
Synergus cerridis Giraud (*in* Houard, 1911: 331-332), n.syn.

Synergus conformis Giraud (*in* Houard, 1911: 333-334), n.syn.

Synergus cerricolus Vasileva-Samnalieva, 1986, n.syn.

TYPE MATERIAL. — The paralectotypes of *Synergus variabilis* Mayr (1 ♂ and 2 ♀♀), mounted on micro-pins, have been examined. Lectotype ♂ of *Synergus cerridis* Giraud, here designated, mounted on micro-pin; paralectotypes: 15 ♂♂ and 26 ♀♀, all of them mounted on micro-pins. Lectotype ♂ of *Synergus conformis* Giraud, here designated, mounted on micro-pin; paralectotypes: 17 ♂♂ and 16 ♀♀, mounted on micro-pins; 1 ♀, on card.

DISTRIBUTION. — Central Europe and Israel in Cynipid galls of *Quercus cerris* and *Q. ithaburensis.*

HOSTS. — Hymenoptera, Cynipidae, Cynipini: *Andricus grossulariae* Giraud, 1859 ♂♀, *Aphelonyx cerricola* (Giraud,1859) ♂, *Chilaspis nitidus* (Giraud, 1859) ♂, *Dryocosmus cerriphilus* Giraud, 1859 ♂, *Neuroterus lanuginosus* (Giraud, 1859) ♂ and *N. macropterus* (Hartig, 1843) ♂; Synergini: *Synophrus politus* Hartig, 1843. Diptera, Cecidomyiidae: *Dryomyia circinnans* (Giraud, 1861) and *Janetia cerris* (Kollar, 1850).

COMMENTS
This species is a cynipid galls inquiline in *Q. cerris* belonging to Section II of *Synergus.* Kieffer (1902) differentiated four chromatic variations. Quinlan (1978) redescribed this species but he made a number of errors. Firstly, the tarsal claws are not simple, rather they have a small tooth, not pointed and usually hidden by the arolium; secondly, and more importantly: all type material examined does not have a pronotal carina (Fig. 1A) although when viewed dorsally the pronotum is angular at the lateral corners (Fig. 1B). Only the species *Synergus plagiotrochi* does not have a lateral pronotal carinae. This species is typical in the Mediterranean region on cynipid-galls of *Plagiotrochus.* This species is closely related to *S. apicalis* and *S. rotundiventris.*

In order to distinguish these morphologically closely related species a dichotomic key is provided:

1. Lateral pronotal carina present. Punctures on upper face usually distinct. Inquilines frequently associated with shoots *Quercus*, usually deciduous *Quercus* ..... *

— Lateral pronotal carina absent. Punctures on upper face usually obsolete 2

2. Radial cell open on margin. In dorsal view lateral pronotum is rotund. Punctuation on upper face and frontal carina always obsolete. Inquiline in galls of species of *Plagiotrochus* genus on evergreen oaks *Q. ilex* and *Q. coccifera* .... *S. plagiotrochi* Nieves-Aldrey *et* Pujade-Villar, 1986

— Radial cell closed. In dorsal vision the pronotum is angular in the lateral corners. Punctuation on upper face and frontal carina present in larger specimens. Inquiline in several galls of *Neuroterus* associated to *Q. cerris*, mainly *N. macropterus* and *N. lanuginosus* ..... *S. variabilis* Mayr, 1872

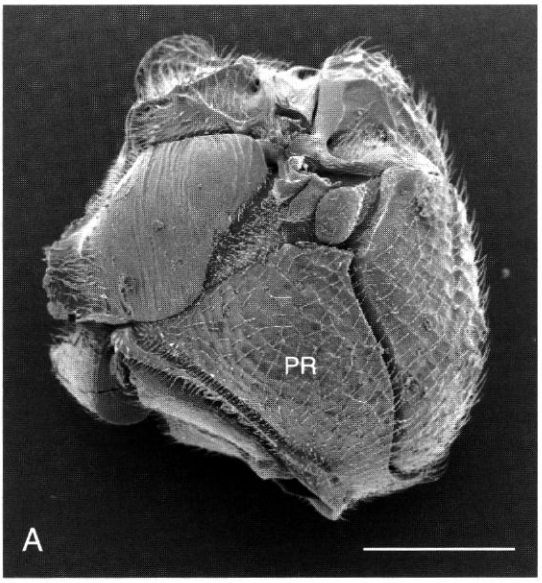
* A complex of two closely related species: *S. apicalis* Hartig, 1841 and *S. rotundiventris* Mayr, 1872, that cannot be satisfactorily distinguished by external morphological characteristics. The intraspecific variation is great and the limits are not clear.

Other notable features include: vertex not punctuated in small specimens (Fig. 2A) and with weak punctuation in large specimens (Fig. 2B); lateral frontal carinae present but not very clear (Fig. 2); second antennomere very long in large specimens, always longer than they are broad and larger than third antennomere; male with first flagellomere weakly expanded basally and apically (Fig. 3); mesonotum with interrupted, sharp and widely-spaced transverse rugae

(Fig. 1); notauli shallow and short, faint or absent at least in anterior one third of mesoscutum; notauli shallow and short, faint or absent at least in the anterior third of mesoscutum, and medial impression very short or absent (Fig. 1B); mesopleuron usually ventrally smooth and shiny (Fig. 1A); radial cell closed on margin.

The material of Giraud belonging to *S. cerridis* and *S. conformis* is the same as that belonging to *S. variabilis*. This series has all of the chromatic variations described by Kieffer (1902). Even though the type series of *Synergus cerricolus* Vassileva-Samnalieva were not examined, after the examination of the type material of *S. variabilis* Mayr, 1872 and Giraud's type series as well as the original description of the former species, we conclude that *Synergus cerricolus* is a junior synonym of *S. variabilis*.

The mention of *Neuroterus saliens* and *Janetia cerris* as a *Synergus variabilis* host is interesting because they are new for *S. variabilis*. Finally, the specimens of *S. variabilis* collected in *Janetia cerris*, deposited in Giraud's collection, are important as this species was mentioned in Cecidomyiidae galls (*Dryomyia circinnans* Giraud, 1861, by Mayr, 1872) and it has been considered dubious as it has not been confirmed by subsequent authors.



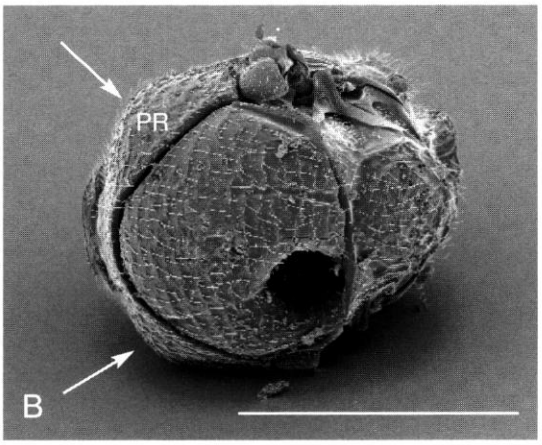


FIG. 1. — Thorax of *S. variabilis* Mayr; **A**, lateral view. **B**, dorsal view. PR, pronotum. See text for additional discussion. Scale bars: a, 200 µm; B, 500 µm.

Synergus thaumacerus (Dalman, 1823)

Cynips thaumacera Dalman, 1823. *Analecta Ent.*: 96. Location of types unknown.

Synergus luteus Hartig, 1840. *Z. Ent. Germar* 2: 199. – Mayr 1872.

Synergus klugii Hartig, 1840. *Z. Ent. Germar* 2: 199. – Mayr 1872.

Synergus carinatus Hartig, 1841. *Ent. Germar* 3: 348. – Mayr 1872.

Synergus thaumatocerus Dalla Torre, 1893. *Cat. Hym.* 2: 114 (unjustified emendation).

Synergus vesiculosus Giraud (*in* Houard 1911: 323-234), n.syn.

Synergus inflatus Giraud (*in* Houard 1911: 324-325), n.syn.

TYPE MATERIAL. — Giraud's collection. Lectotype ♂ of *Synergus vesiculosus* Giraud, here designated, mounted on micro-pin; paralectotypes: 5 ♂♂ and 10 ♀♀, all of them mounted on micro-pins. Lectotype ♂ of *Synergus inflatus* Giraud, here designated, mounted on micro-pin; paralectotypes: 22 ♂♂ and 27 ♀♀, all of them mounted on micro-pins.

DISTRIBUTION. — Western Palaearctic in Cynipid galls of *Quercus cerris*, *Q. faginea*, *Q. humilis*, *Q. petraea*, *Q. pyrenaica* and *Q. robur*.

HOSTS. — Only Cynipini: *Andricus anthracinus* (Curtis, 1838) ♂, *A. curvator* Hartig, 1840 ♂♀, *A. cydoniae* Giraud, 1859 ♂♀, *A. singulus* Mayr, 1870

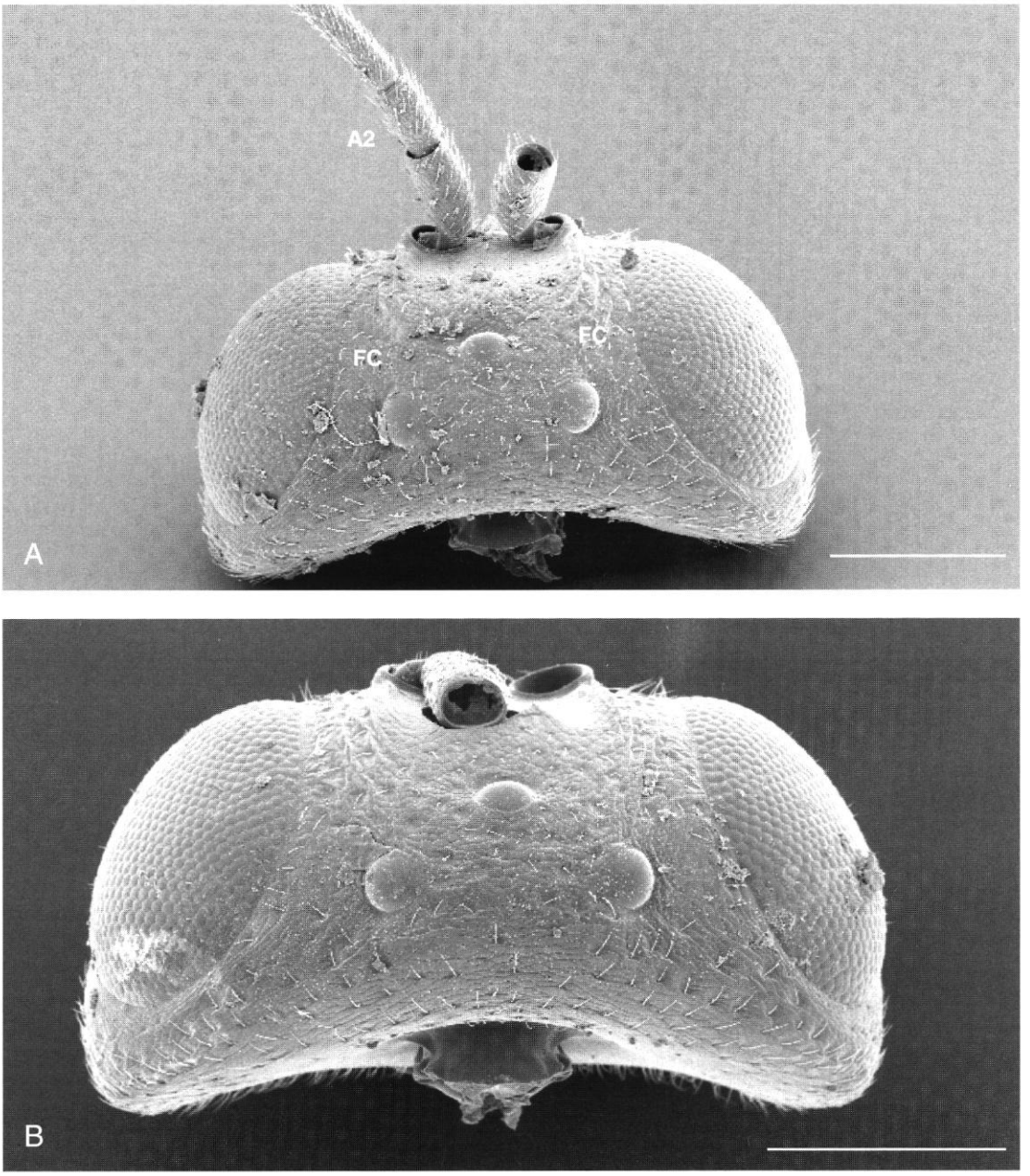


FIG. 2. — Head of *S. variabilis* Mayr, dorsal view; **A**, small specimen; **B**, large specimen. A, antennomere; FC, facial carinae. See text for additional discussion. Scale bars: 200 µm.

ŏ, *A. gallaeurnaeformis* (Boyer de Fonscolombe,1832) (= *suflator* Mayr, 1882) ♂ ♀, *A. gallaetinctoriae* (Olivier, 1791) ŏ, *Aphelonyx cerricola* (Giraud,1859) ŏ, *Cynips disticha* Hartig, 1840 ŏ, *C. quercusfolii* L., 1758 ŏ, *Dryocosmus cerriphilus* Giraud, 1859 ŏ, *D. nervosus* (Giraud,1859) ♂ ♀, *Neuroterus saliens* (Kollar, 1857), ♂ ♀, *N. saliens* (= *glandiformis* Kaltenbach, 1867) ŏ, *N. quercusbaccarum* (L., 1758) ♂ ♀, *N. quercusbaccarum* (= *lenticularis* Olivier, 1791) ŏ, *N. tricolor* (Hartig, 1841) ♂ ♀, *N. tricolor* (= *fumi-*

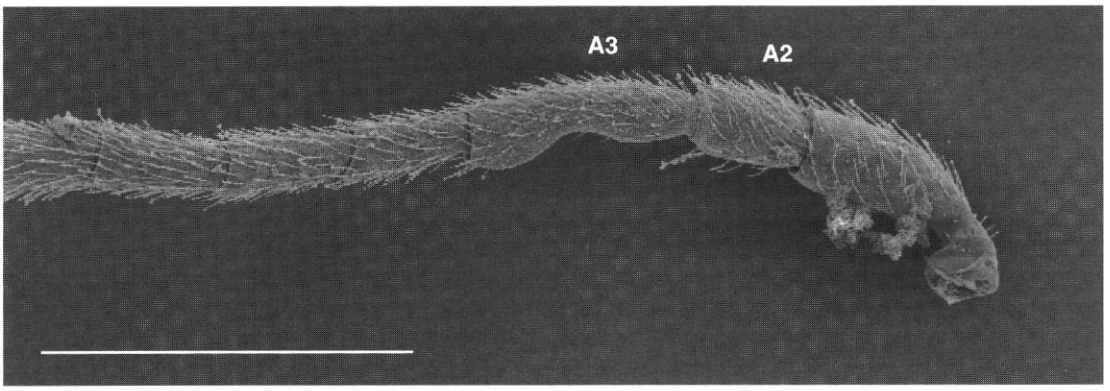


FIG. 3. — First male antennomeres of *S. variabilis* Mayr. Scale bar: 200 µm.

pennis Hartig, 1841) ŏ, *Trygonaspis megaptera* (Panzer, 1801) ♂ ♀, *T. megaptera* (= *renum* Hartig, 1840) ŏ, *T. mendesi* Tavares, 1901 ŏ and *T. synaspis* (Hartig, 1841) ♂ ♀, *Synophrus politus* Hartig, 1843.

COMMENTS

The characters for recognizing *S. thaumacerus* are described in Nieves-Aldrey & Pujade-Villar (1986). Giraud's material of *S. vesiculosus* and *S. inflatus* do not differ from that of *S. thaumacerus*. The hosts *Andricus gallaetinctoriae* and *Dryocosmus cerriphilus* and *Synophrus politus* are new to *S. thaumacerus*.

Synergus subterraneus Giraud (*in* Houard, 1911: 335)

Synergus latifrons Nieves-Aldrey *et* Martin-Chicote, 1985. *Bol. Asoc. esp. Entom.* 9: 151. n.syn. Types in MNCNM.

TYPE MATERIAL. — Of Giraud's collection. Lectotype ♀, here designated, mounted on micro-pin; paralectotypes: 8 ♀ ♀ mounted on micro-pins; 3 ♀ ♀ on carts.

DISTRIBUTION AND HOSTS. — Only Cynipini: Spain in *Andricus sieboldi* (Hartig, 1843) ŏ on *Quercus pyrenaica* and in central Europe (country unknown) in *Andricus rhyzomae* (plant-host unknow, probably *Q. humilis* (= *pubescens*) because Giraud (*in* Houard, 1911) collected *A. rhyzomae* in *Q. humilis*).

COMMENTS

The width of the head in frontal vision is a very specific character of this species, since the transfacial line is at least twice as long as the height of the compound eye. The biology is associated with subterraneous galls of *Andricus*.

Synergus albipes Hartig, 1841

Synergus albipes Hartig, 1841. *Z. Ent. Germar* 3: 349. Types in ZSM.

Synergus erythrocerus Hartig, 1841. *Z. Ent. Germar* 3: 349. – Mayr 1872.

Synergus varius Hartig, 1841. *Z. Ent. Germar* 3: 349. – Eady 1952.

Synergus tristis Mayr, 1873. *Verh. Ges. Wien* 22: 715. – Eady 1952.

Synergus nervosus Hartig, *sensu* Ross, 1951. *Trans Soc. Brit. Entom.* 2 (3): 92. – Eady 1952.

Synergus nervosus f. *albipes* Ross, 1951. *Trans Soc. Brit. Entom.* 2 (3): 91. – Eady 1952.

Synergus nervosus f. *tristis* Ross, 1951. *Trans Soc. Brit. Entom.* 2 (3): 93. – Eady 1952.

Synergus mutabilis Dettmer, 1924. *Natuurhist. Maandbl.* 13: 147. – Wiebes-Rijks 1979.

Synergus hartigi Giraud (*in* Houard 1911: 332) n.syn.

TYPE MATERIAL. — Of Giraud's collection. Lectotype ♂, here designated, mounted on micro-pin; paralectotypes: 10 ♂ ♂ and 11 ♀ ♀, all of them mounted on micro-pins.

DISTRIBUTION. — West Palaearctic in Cynipid galls of *Quercus cerris, Q. canariensis, Q. faginea, Q. humilis, Q. petraea, Q. pyrenaica, Q. suber* and *Q. robur*.

HOSTS. — Only Cynipini: *Andricus anthracinus* (Curtis, 1838) ♂, *A. amblycerus* (Giraud, 1859) ♂, *A. caliciformis* (Giraud, 1859) ♂, *A. callidoma* Hartig, 1841 ♂, *A. capudmedusae* (Hartig, 1843) ♂, *A. clementinae* (Giraud, 1859) ♂, *A. conglomeratus* (Giraud, 1859) ♂, *A. coriarius* Hartig, 1843 ♂, *A. corruptrix* (Schlechtendal, 1870) ♂ *A. curvator* Hartig, 1840 ♂ ♀, *A. fecundator* (Hartig, 1840) ♂, *A. gallaetinctoriae* (Olivier, 1791) ♂, *A. gallaeurnaeformis* (Boyer de Fonscolombe,1832) ♂, *A. glutinosus* (Giraud, 1859) ♂, *A. hartigi* (Hartig, 1843) ♂, *A. hungaricus* (Hartig, 1843) ♂, *A. globuli* (Hartig, 1840) ♂, *A. kollari* (Hartig, 1843) ♂, *A. lignicolus* (Hartig, 1840) ♀, *A. lucidus* (Hartig, 1843) ♂, *A. nudus* (Adler,1881) ♂ (= *malpighii* Adler, 1881), *A. polycerus* (Giraud, 1859) ♂, *A. quadrilineatus* Hartig, 1840 ♂, *A. quercuscalicis* (Burgsdorf, 1679) ♂, *A. quercusramuli* (L., 1761) (= *autumnalis* Hartig, 1840) ♂, *A. quercustozae* (Bosc, 1792) ♂, *A. seminationis* (Giraud, 1859) ♂, *A. solitarius* (Boyer de Fonscolombe, 1832) ♂, *Cynips agama* Hartig, 1840 ♂, *C. disticha* Hartig, 1840 ♂, *C. longiventris* Hartig, 1840 ♂, *C. quercus* (Fourcroy, 1785) ♂, *C. quercusfolii* L., 1758 ♂, *Neuroterus albipes* (Schenck, 1863) ♂ (= *laevisculus* Schenck, 1863), *N. lanuginosus* Giraud, 1859 ♂, *N. numismalis* (Fourcroy, 1785) ♂, *N. numismalis* (= *vesicator* Schlechtendal, 1870) ♂ ♀, *N. saliens* (Kollar, 1857) ♂, *N. quercusbaccarum* (L., 1758) ♂ ♀, *N. quercusbaccarum* (= *lenticularis* Olivier, 1791) ♂, *N. tricolor* (Hartig, 1841) ♂ ♀, *N. tricolor* (= *fumipennis* Hartig, 1841) ♂, *Plagiotrochus amenti* Tavares, 1902 ♂ ♀, *Trygonaspis bruneicornis* Tavares, 1902 ♂, *T. megaptera* (Panzer, 1801) (= *renum* Hartig, 1840) ♂, *T. mendesi* Tavares, 1901 ♂ and *T. synaspis* (Hartig, 1841) ♂ ♀.

COMMENTS

This species has a large number of hosts, most of which are agamic in form. Nevertheless, it seems not to be a specific feature. This species is very closely related to *S. nervosus* Hartig, 1840, and sometimes there are no clear differences between them. The first flagellomere segment (of all the males of *S. hartigi* have) is moderately expanded apically and, usually the second antennomere in both sexes are as long as they are broad or slightly longer. For these reasons, we believe that *S. hartigi* is synonymous of *S. albipes. Andricus hartigi* is a new host of this species.

Synergus gallaepomiformis
(Boyer de Fonscolombe, 1832)

Diplolepis gallae-pomiformis Boyer de Fonscolombe, 1832. *Ann. Sc. Nat.* 26: 195. Location of types unknown.

Synergus facialis. Hartig, 1840. *Z. Ent. Germar* 2: 199. – Dalla Torre & Kieffer 1910.

Synergus vulgaris Hartig, 1840. *Z. Ent. Germar* 2: 198. – Ross 1951.

Synergus bispinus. Hartig, 1841. *Z. Ent. Germar* 3: 347. – Mayr 1872.

Synergus erythrocerus var. 1 *et* 2 Hartig, 1844. *Z. Ent. Germar* 3: 349.

Aulax albinervis Snellen van Vollenhoven, 1869: *Tijdschr. Ent.* 12: 126. – Kieffer 1902.

Synergus pomiformis Kieffer, 1898. *Wien Ent. Zeit.* 17: 264 (not Ashmead, 1885), unjustified emendation.

Synergus gallaepomiformis gallaepomiformis Dalla Torre *et* Kieffer, 1910. *Das Tierreich* 24: 621.

Synergus gallaepomiformis gallicus Dalla Torre *et* Kieffer, 1910. *Das Tierreich* 24: 622.

Synergus gallaepomiformis var. *minima* Kieffer, 1899. *André, Spec. Hym. Europ.* 7 (I): 358.

Synergus gallaepomiformis minimus Kieffer, Dalla Torre *et* Kieffer, 1910. *Das Tierreich* 24: 622.

Synergus maculatus Tavares, 1920. *Mem. Port. Sc. Nat. Zool.* 4: 47-49. – Nieves-Aldrey *et* Pujade-Villar, 1986.

Synergus longiventris Giraud (*in* Houard, 1911: 318-319). n.syn.

TYPE MATERIAL. — Giraud's collection. Lectotype ♀, here designated, mounted on micro-pin; paralectotypes: 9 ♂♂ and 17 ♀♀, all of them mounted on micro-pins.

DISTRIBUTION. — West Palaearctic *in* Cynipid galls of *Quercus cerris, Q. faginea, Q. humilis, Q. petraea, Q. pyrenaica,* and *Q. robur.*

HOSTS. — Only Cynipini: *Andricus anthracinus* (Curtis, 1838) ♂, *A. callidoma* Hartig, 1841 ♂, *A. capudmedusae* (Hartig, 1843) ♂, *A. clementinae* (Giraud, 1859) ♂, *A. conglomeratus* (Giraud, 1859) ♂, *A. coriarius* Hartig, 1843 ♂, *A. coronatus* (Giraud *in* Houard 1911) ♂, *A. corruptrix* (Schlechtendal, 1870) ♂, *A. curvator* Hartig, 1840 ♂ ♀, *A. curvator* (= *collaris* Hartig, 1840) ♂, *A. fecundator* (Hartig, 1840) ♂, *A. gallaetinctoriae* (Olivier, 1791) ♂, *A. gallaeurnaeformis* (Boyer de Fonscolombe, 1832) ♂, *A. glandulae* (Hartig, 1840) ♂, *A. glutinosus* (Giraud, 1859) ♂, *A. hartigi* (Hartig, 1843) ♂, *A. hungaricus* (Hartig, 1843), ♂, *A.globuli* (Hartig, 1840) ♂, *A. kollari* (Hartig, 1843) ♂, *A. legitimus* Wiebes-Rijks, 1980 ♂, *A. lignicolus* (Hartig, 1840) ♀, *A. nudus* (Adler,1881) ♂ (= *malpighii* Adler, 1881), *A. paradoxus* (Rad, 1866), *A. quadrilineatus* Hartig, 1840 ♂, *A. quercuscalicis* (Burgsdorf, 1679) ♂, *A. quercuscorticis* (L., 1761) ♂,

A. quercusradicis (Fabricius, 1798) ♂, *A. quercusradicis* (= *trilineatus* Hartig, 1840) ♂♀, *A. quercusramuli* (Linnaeus, 1761) ♂♀, *A. quercusramuli* (= *autumnalis* Hartig, 1840) ♂, *A. quercustozae* (Bosc, 1792) ♂, *A. seminationis* (Giraud, 1859) ♂, *A. solitarius* (Boyer de Fonscolombe, 1832) ♂, *A. sieboldi* (Hartig,) ♂, *Callirhytis glandium* (Giraud, 1859) ♂, *Cynips disticha* Hartig, 1840 ♂, *C. divisa* Hartig, 1840 ♂, *C. longiventris* Hartig, 1840 ♂, *C. longiventris* Hartig, 1840 (= *similis* Adler, 1881) ♂♀, *C. quercusfolii* Linnaeus, 1758 ♂, *C. quercusfolii* (= *taschenbergi* Selechtendal, 1870) ♂♀, *Neuroterus albipes* (Schenck, 1863) ♂ (= *laevisculus* Schenck, 1863), *N. lanuginosus* Giraud, 1859 ♂, *N. numismalis* (Fourcroy, 1785) ♂ *N. quercusbaccarum* (Linnaeus, 1758) ♂♀, *N. quercusbaccarum* (= *lenticularis* Olivier, 1791) ♂, *N. tricolor* (Hartig, 1841) ♂♀, *N. tricolor* (= *fumipennis* Hartig, 1841) ♂, *Trygonaspis megaptera* (Panzer, 1801), *T. megaptera* (= *renum* Hartig, 1840) ♂, and *T. synaspis* (Hartig, 1841) ♂♀.

COMMENTS

This species has a very large number of hosts, most of them belong to the agamic form. Nevertheless, it seems not to be a specificity in some gall models. Moreover, this species shows a major morphological variability. Giraud described *S. longiventris* according to gastral length. Certainly, Giraud was right, but the males and females (without gaster) are the same as the largest specimens of *S. gallaepomiformis*. For this reason, we believe that gaster length is a new variable caracter of this species. Furthermore, all the hosts of *S. longiventris* mentioned by Giraud have been cited in *S. gallaepomiformis*.

Synergus diaphanus Giraud (*in* Houard, 1911: 317-318)

TYPE MATERIAL — Giraud's collection. Lectotype ♂, here designated, mounted on micro-pin; paralectotypes: 2 ♂♂ and 7 ♀♀, all of them mounted on micro-pins.

DISTRIBUTION AND HOSTS. — Only Cynipini: in Central Europe (country unknown) in *Andricus gallaetinctoriae* (Olivier, 1791) ♂ [*Quercus caducifolius* host unknown; Giraud (*in* Houard 1911) mentioned that *A. gallaetinctoriae* was collected in *Q. petraea*, *Q. robur* and *Q. humilis*].

COMMENTS

Section I species with the medial mesoscutal impression are easy to differentiate. *Synergus diaphanus* is closely related to *S. ibericus* because it has the same morphology and similar ecology; *S. ibericus* is a species inquiline of *A. kollari* ♂ and *S. diaphanus* to *A. gallaetinctoriae*; both host species make spherical galls (10-20 mm) with superficial protuberances (sometimes absent in *A. kollari*) but the galls of *A. gallaetinctoriae* are harder. Probably they are sister species. In order to distinguish these species the following characters may be used:

1. Radial cell 3.0 times longer than wide; R2 vein straight line. Antenna light, orange; last flagellomere segments almost 2 × 1. Inquiline in galls of *Andricus kollari* (in Iberian Peninsula) ..... *S. ibericus* Tavares, 1920

— Radial cell shorter, 2.5 to 2.7 times longer than wide; R2 vein curved. Antenna colour dark, brown; last flagellomere segments shorter, almost 1.5 times longer than wide. Inquiline in galls of *Andricus gallaetinctoriae* (not present in Iberian Peninsula) ..... *S. diaphanus* Giraud (*in* Houard 1911)

Synergus consobrinus Giraud (*in* Houard 1911)

TYPE MATERIAL. — Giraud's collection. Lectotype ♂, here designated, mounted on micro-pin; paralectotypes: 1 ♂ and 9 ♀♀, all of them mounted on micro-pins.

DISTRIBUTION AND HOSTS. — Only Cynipini: in Central Europe (country unknown) in *Andricus grossulariae* Giraud, 1859 probably in *Q. cerris* according to Giraud, 1859.

REDESCRIPTION

Male

Length 1.5-2.1 mm. Head with a yellow coloration more or less expanded; vertex black and

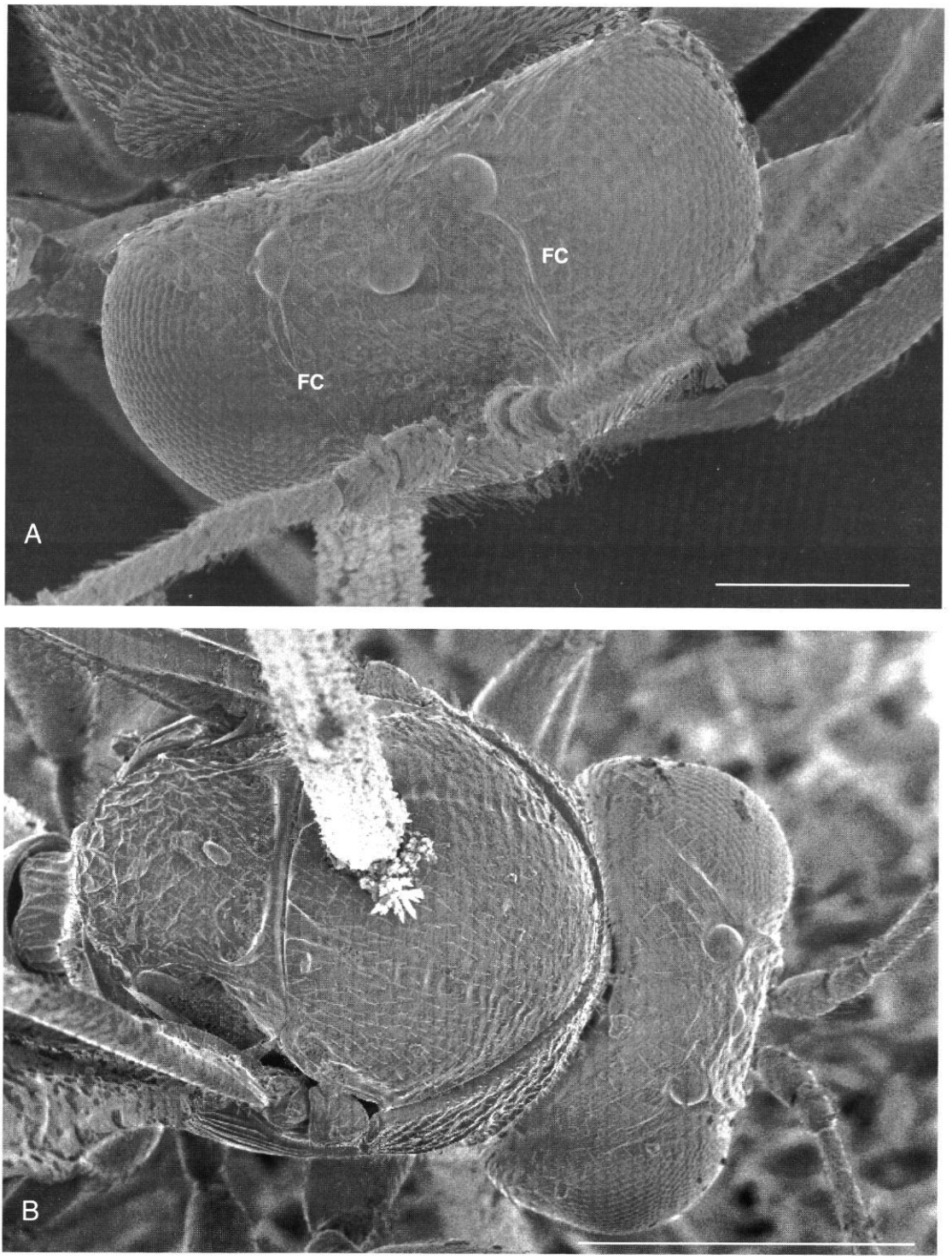


FIG. 4. — *Synergus consobrinus* Giraud, dorsal view. **A**, head; **B**, thorax. FC, facial carinae. Scale bars: A, 200 µm; B, 500 µm.

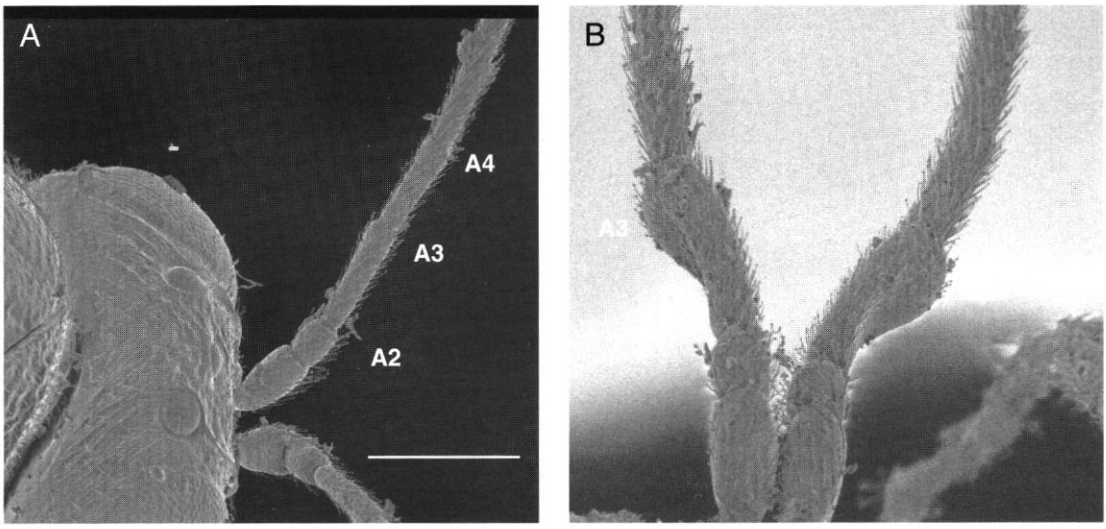


FIG. 5. — **A**, head and first female antennomeres of *S. consobrinus* Giraud; **B**, first male antennomeres of *S. consobrinus* Giraud. A, antennomeres. Scale bar: 200 µm.

cheeks from yellow to red; thorax black; gaster red; legs light between yellow and brown; wing venation light brown. Head, in dorsal view, about two times broader than long; in frontal view, triangular and slightly broader than long; face radiating striate with strias to the toruli; front coriarious without punctures in small specimens and with punctures in large specimens; lateral frontal carinae strong and not branched near ocelli (Fig. 4); vertex coriarious-rugose not punctuated or with scattered shallow punctures without subparallel carinae running transversely between posterior ocelli; the diameter of the lateral ocelli is 2 and POL: OOL: OCO relation is 6: 3: 3; antenna with fifteen antennomeres (4: 2: 7: 4: 4: 4: 4: 4: 3,5: 3: 3: 3: 3: 3: 3); A2 is longer than broad; A3 is strongly expanded apically (Fig. 5B); those from A7 to A15 are thicker. Pronotum with coriarious sculpture and some longitudinal striae laterally; lateral pronotal carinae present; mesoscutum with coriarious sculpture; notauli (Fig. 4B) percurrent, not very deep and posteriorly not very broad; medial mesoscutal impression short; scutelar foveae ovate and sculptured with blurred posterior margins; mesopleuron longitudinally striate; parallel propodeal carinae, pubescent area between them. Radial cell of forewing closed, length from 2.5 to 2.7 times breadth. Gaster without punctuation, one smaller than thorax; abdominal terga 3 + 4 without pictures posteriorly or limited to an apical dorsal patch. Tarsal claws with a tooth.

Female

Differs from male as follows: length 1.5-2.5 mm; antenna with fourteen segments (5: 3: 7: 6: 6: 6: 5: 5: 4: 4: 3: 3: 3: 5); A2 longer than broad (Fig. 5A); A3 not modified. Face black and yellowish around mouth.

After examining the typical series of this species, we concluded that it is related closely to the *S. pallicornis*, *S. albipes* and *S. nervosus* group. Moreover, *S. consobrinus* is a cynipid-host in galls of *Andricus grossulariae*. Not one species of this species group has this host. *Andricus grossulariae* forms galls in catkins on *Q. cerris* (in Europe except the Iberian Peninsula) or on *Q. suber*.

We summarize the morphological differences of this group of species in the following dichotomical key to identification:

1. Lateral frontal carinae strong and often much branched near ocelli; subparallel carinae running transversely between posterior ocelli, and obliquely from each posterior ocellus to margin of occiput. First flagellomere long in both sexes; in females at least 1.5 times longer than second; in males curved in the middle and weakly expanded distally. Face always black ..... *S. pallicornis* Hartig 1841

— Lateral frontal carinae weak (where strong the face is not black) and branched or not near ocelli; vertex coriarious, usually without subparallel carinae running transversely between posterior ocelli. First flagellomere relatively shorter; in females less than 1.5 times longer than second; in males slightly expanded apically or curved in the middle and not expanded (where it is weakly expanded distally the face is yellow or yellowish red) 2

2. Lateral frontal carinae strong and complete. Males with first flagellomere weakly expanded distally. Face in males yellowish color and red in females. Inquilines in galls of *Andricus grossulariae* in *Q. cerris* .... *S. consobrinus* Giraud (*in* Houard, 1911)

— Lateral frontal carinae weak. Males with the first flagellomere segment different and face black. Females with the face black. Inquilines in a large number of Cynipid galls in *Quercus caducifolious* .....
..... *S. albipes* Hartig, 1841 and *S. nervosus* Hartig, 1840

TAXONOMICAL SUMMARY AFTER THE GIRAUD'S TYPES REVIEW OF *Synergus*

SYNERGINI

Saphonecrus Dalla Torre *et* Kieffer, 1910

S. haimi (Mayr, 1872)
- *S. clavatus* Giraud (*in* Houard 1911) n.syn.
- *S. haymi* (Mayr); Pujade-Villar *et* Nieves-Aldrey, 1990: (misspelling), **n.syn.**

S. undulatus (Mayr, 1872)
- *S. apertus* Giraud (*in* Houard 1911)
- *S. giraudi* Pujade-Villar, 1985

Synergus Hartig, 1840

S. albipes Hartig, 1841
- *S. hartigi* Giraud (*in* Houard 1911) **n.syn.**

S. consobrinus Giraud (*in* Houard 1911)

S. diaphanus Giraud (*in* Houard 1911)

S. gallaepomiformis (Fonscolombe, 1832)
- *S. longiventris* Giraud (*in* Houard 1911) **n.syn.**

S. subterraneus Giraud (*in* Houard, 1911)
- *S. latifrons* Nieves-Aldrey *et* Martín-Chicote, 1985 **n.syn.**

S. thaumacerus (Dalman, 1823)
- *S. inflatus* Giraud (*in* Houard 1911) **n.syn.**
- *S. vesiculosus* Giraud (*in* Houard 1911) **n.syn.**

S. variabilis Mayr, 1872
- *S. cerridis* Giraud (*in* Houard 1911) **n.syn.**
- *S. conformis* Giraud (*in* Houard 1911) **n.syn.**
- *S. cerricolus* Vassileva-Samnalieva, 1986 **n.syn.**

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