

**TWO NEW SPECIES OF AYLACINI (HYMENOPTERA : CYNIPIDAE)
FROM FRANCE, ASSOCIATED WITH *SILYBUM*
AND A NEW GALL FROM *SCORZONERA* (ASTERACEAE)**

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Résumé. – Deux nouvelles espèces d'Aylacini (Hymenoptera : Cynipidae) de France associées à *Silybum* et description d'une nouvelle galle sur *Scorzonera* (Asteraceae). – Les deux espèces décrites du Sud de la France (*Aulacidea freesei*, sp. n. et *Phanacis zwölferei*, sp. n.) produisent des galles dans les tiges de *Silybum marianum* et sont les premières espèces d'Aylacini trouvées sur cette plante. *Aulacidea laurae* Nieves-Aldrey, espèce connue seulement d'Espagne, se trouve aussi en France et sa galle, formée dans les achènes de *Scorzonera laciniata* (Asteraceae), est décrite pour la première fois. *Aulacidea macula* Försius, 1921, très semblable mais non co-spécifique d'*Aulacidea laurae*, est considérée comme synonyme d'*Aulacidea abdominalis* (Thomson, 1877).

Abstract. – The two species described from South of France (*Aulacidea freesei*, sp. n. and *Phanacis zwölferei*, sp. n.) are gall inducers in stems of *Silybum marianum* and represent the first known Aylacini species associated with this plant. *Aulacidea laurae* Nieves-Aldrey, previously recorded only from Spain, is reported from France and its gall, formed in achenes of *Scorzonera laciniata* (Asteraceae), is described for the first time. *Aulacidea macula* Försius, 1921, closely allied but not conspecific with *Aulacidea laurae*, is synonymized with *Aulacidea abdominalis* (Thomson, 1877).

The tribe Aylacini is a paraphyletic assemblage of genera within the Cynipidae (Ronquist, 1994b) whose representatives induce galls on herbaceous plants mainly belonging to Asteraceae but also to Lamiaceae, Papaveraceae, Rosaceae, Valerianaceae and Apiaceae. The genera of Aylacini from western Europe have recently been revised (Nieves-Aldrey, 1994a, b). Recent phylogenetic studies indicate that the group comprise the basal lineages of gall wasps (Ronquist, 1994a, b). The available data on richness and distribution of species across the palaeartic region indicate that the center of diversity of the tribe is located in the mediterranean region and in Eastern of Europe where the group remains still largely unknown.

Material sent to me for identification by Gunter Freese and Hermann Stickroth, (University of Bayreuth, Germany) collected in the South of France as part of a survey of stem boring insects (mainly on thistles) and insects associated with Lactuceae (particularly flowerheads), included unknown species of *Aulacidea* Ashmead and *Phanacis* Förster which are described in this paper. All the insects were reared from collected galls after overwintering at 5°C.

Aulacidea freesei, sp. n. (figs. 1-7)

Type material. – **Holotype female** in Museum National d'Histoire Naturelle, Paris (MNHN), card mounted. France, St. Bruno, near Avignon (Vaucluse); ex gall on stems of *Silybum marianum* (L.), gall collected on 3-VIII-1993, insect emerged 30-IV-1994. **Paratypes**: 3 females, same data as holotype, except date of emergence: 1-III-1994, 2-III-1994, 18-IV-1994; 1 female in MNHN; 2 females in Museo Nacional de Ciencias Naturales, Madrid.

Description. – **Female.** Length 1.7-2.2 mm. Head and thorax black, basal half of gaster dorsally chestnut-red; first two segments of antenna black, the others chestnut-red. Legs completely chestnut-red, last segment of tarsi black. Veins of forewing pale yellow.

Head in facial view (fig. 1) weakly broader than high; in dorsal view (fig. 2) two times as broad as long; temples not expanded behind eyes; POL about two times OOL, posterior ocellus separated from inner orbit of eye by about two times its diameter; transfacial line around 1.4 times height of eye; clypeus slightly produced; frons and vertex with sculpture finely alutaceous, some weak punctures are visible in upper frons and between ocelli; face laterally with radiating striae; lower face medially raised, without striae. Antenna (fig. 3) 0.7 times as long as body, with 12 antennomeres, scape 1.5 times as long as pedicel, pedicel almost as long as first flagellar segment, third antennal segment about 0.8 times as long as fourth; segments 4-8 almost of equal length; 9-11th slightly shorter, last segment slightly less than two times as long as the 11th flagellomere.

Thorax. Pronotum in anterodorsal view long medially; submedial pits distinct, slightly transverse and separated (fig. 4). Sculpture of pronotum minutely alutaceous. Mesoscutum (fig. 5) 0.7 times as long as broad, 1.3 times as long as scutellum; notauli faint anteriorly; median mesoscutal impression visible as a short triangle; sculpture of mesoscutum minutely alutaceous, some irregular striae visible medially; scutellum ovate, convex dorsally with rugose sculpture; scutellar foveae (fig. 5) shining and almost smooth, their inner margins diverging posteriorly from the middle, reaching posteriorly about 1/4 of the length of scutellum; mesopleuron (fig. 6) with fine longitudinal striae; lateral carina of propodeum parallel; median area smooth and glabrous. Forewing (fig. 7) slightly shorter than body, hyaline and pubescent; radial cell closed on the margin; length of the radial cell about 2.6 times the width; areolet indistinct; hair fringe on wing margins short. Gaster (fig. 6) as long as head + thorax; third abdominal tergum with a lateral pubescent patch, following segments minutely punctate; ventral spine of hypopygium very short; tarsal claws simple.

Male. Unknown.

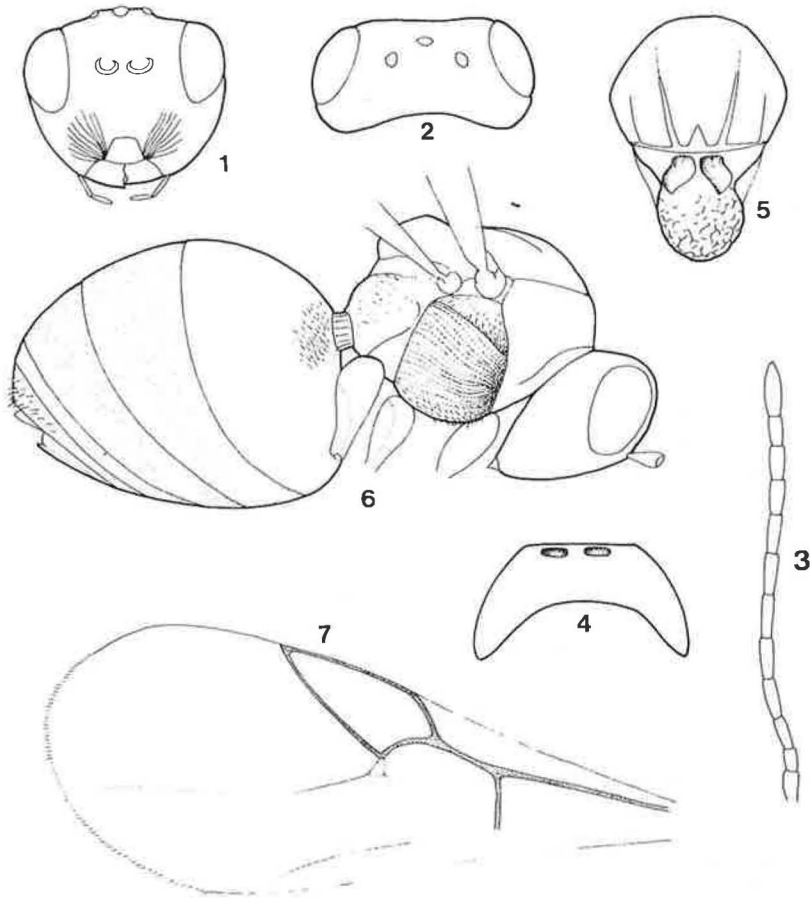
Etymology. – Named in honour of its collector, Gunter Freese.

Recognition. – The radial cell closed on the frontal margin, longitudinally striated mesopleuron, lateral pubescent patch on third abdominal tergum, and pronotum relatively long dorsally with two distinct submedial pits allow the inclusion of the new species in the genus *Aulacidea* Ashmead. From the previously known species of *Aulacidea*, the new species can be distinguished by the antenna being 12-segmented, the shape of the scutellar foveae (their inner and outer margins being S shaped) and its association with *Silybum* (no other species of *Aulacidea* are associated with this plant genus of Asteraceae).

Biological data. – Reared from galls in the stems of *Silybum marianum* (L.) (Asteraceae). The galls (figs. 19, 20) are small ellipsoidal cells inside the stem pith of the plant. The presence of the galls is not revealed from the outside by any malformation or swelling. The cells lie parallel to the longitudinal axis of the stem, its large diameter measuring 2.5 mm. Galls can be found in main and side stems. Up to 82 galls per plant were found. The species seems to be univoltine; galls maturing in summer and insects emerging in spring of the next year.

Remarks. – *Aulacidea* now includes 13 species from western Europe mainly associated with Asteraceae; four species are gall inducers on *Hieracium*, two on *Scorzonera*

and one on each one of the following host plant genera : *Tragopogon*, *Sonchus*, *Arnica*, *Silybum* and *Nepeta* (Lamiaceae). The host plant data for two species remains unknown.



Figs. 1-7, *Aulacidea freesei*, sp. n., female. – 1, head frontal view. – 2, head dorsal view. – 3, antenna. – 4, pronotum. – 5, mesoscutum and scutellum. – 6, body, lateral view. – 7, forewing (hairs omitted).

Aulacidea laurae Nieves-Aldrey, 1992

The material collected in southern France, included a series of individuals reared from galls in flower heads of *Scorzonera laciniata* (L.) that once studied proved to be conspecific with *Aulacidea laurae* Nieves-Aldrey, 1992. This species was recently described from material collected by net sweeping in the Spanish province of Madrid and the male and the galls were previously unknown. The French specimens differ from the Spanish in the coloration, all the specimens from France being almost completely black, while the specimens from Spain are variable in their coloration. Another difference is the clearly visible punctures on the third abdominal tergum in the Spanish individuals, which are lacking on the French specimens. Nevertheless, I am confident that the specimens belong to the same species.

Description of male. – Similar to female except antenna being 14-segmented ; third segment slightly curved and broadened at apex ; shorter than fourth.

Description of galls (figs. 21-22). – Consist of transformed achenes in the flower heads of *Scorzonera laciniata* (L.). Galled achenes are about 10 mm long and 2 mm wide. Galls are preferably located at the tubular base between the achene and the pappus ; galled area is slightly swelled. I have collected now the galls in Spain, in Vaciamadrid (near Madrid). The galls were collected on the same plant species. The galled achenes do not remain attached to the flower head but fall to the ground.

Material examined. – 3 males, 7 females : Gallargues le Montueux (Gard), galls collected 16-V-1992, insects emerged 4-VI-1993 ; 8 males, 9 females : Bouzigues (Hérault), 16-V-1992, emerg. VI-1993. All the material reared from galls in achenes of *Scorzonera laciniata* (L.) (*Stickroth* leg.).

Discussion. – Another cynipid species is known from galls in flower heads of *Scorzonera humilis* : *Aulacidea macula* Forsius, 1921. The galls were first described and figured by Mik (1899) who found them in southern Austria and attributed to an undetermined species of *Aulax*. The insects were described later by Forsius (1921) from material collected in Finland. In order to investigate the possible identity of the two species I borrowed the type material of *Aulacidea macula* housed in the Finnish Museum of Natural History, University of Helsinki. The material examined consists of 5 syntypes : 2 males and 3 females, one male and one female mounted on micro-pins and the rest mounted on cards. The specimens are labelled “Finland, Lojo” and two of them bear handwritten labels “*Aulacidea macula* n. sp”. The female with label n° 10825 is here designated lectotype. I consider that this species is morphologically identical to *Aulacidea abdominalis* (Thomson, 1877) which was described from Sweden and recently redescribed (Nieves-Aldrey, 1994). The corresponding synonymy is hereby established : *Aulacidea abdominalis* (Thomson, 1877) (= *Aulacidea macula* Försius, 1921), **syn. nov.**

Aulacidea abdominalis is not conspecific with *Aulacidea laurae*, differing from that species as follows :

- Notauli relatively well impressed, visible in the anterior third of mesoscutum ; third antennal segment as long as fourth ; scutellar foveae relatively deep and rounded ; gaster orange or chestnut red contrasting in coloration with head and thorax. Host plant *Scorzonera humilis*. Distribution : North Europe *Aulacidea abdominalis* (Thomson) (= *Aulacidea macula* Försius)
- Notauli not well impressed, faint in anterior third of mesoscutum ; scutellar foveae shallow and narrower ; third antennal segment shorter than fourth ; Coloration variable, completely red or black but gaster not contrasting in colour with head+thorax. Host plant *Scorzonera laciniata*. Distribution : France, Spain *Aulacidea laurae* Nieves-Aldrey

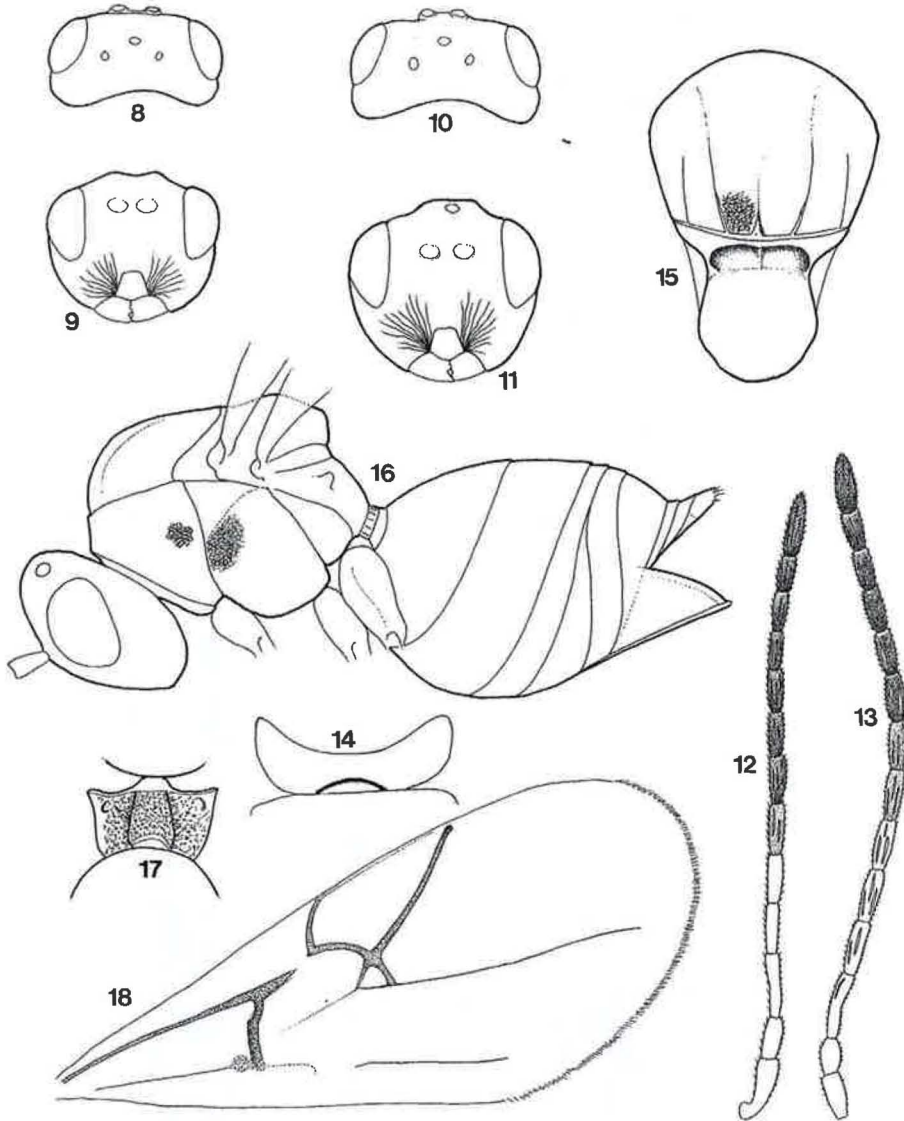
Phanacis zwölferi, sp. n. (figs. 8-18)

Type Material. – **Holotype female** in Museum National d'Histoire Naturelle, Paris (MNHNP), card mounted. France, Mèze (Hérault) (near Montpellier), ex gall in stems of *Silybum marianum* (L.), 12-1994 (*G. Freese* leg.). **Paratypes** : 9 males, 11 females, same data as holotype ; 5 males, 6 females in MNHNP ; 4 males, 5 females in Museo Nacional de Ciencias Naturales, Madrid.

Description. – **Female.** Length 2.2-2.6 mm. Body completely black. Proximal half of antenna light brown, distal half dark brown to blackish. Legs brown ; proximal half of coxa, trochanter, base of femur and last segments of tarsi black. Veins of forewing dark brown.

Head viewed dorsally (fig. 10) two times broader than long ; viewed frontally (fig. 11) 1.1 times broader than high ; temples only slightly expanded behind eyes ; Ocelli small, POL : OOL as 12 : 8, posterior ocellus separated from inner orbit of eye by about four times its diameter ; transfacial line around 1.4 times height of eye ; clypeus slightly produced ; frons and vertex with sculpture finely alutaceous ; face laterally with radiating striae ; lower face medially slightly convex, without striae. Antenna (fig. 12) 0.7 times as long as body, with 13 antennomeres, scape

slightly longer than pedicel, pedicel broader than first flagellar segment, third antennal segment about 1.5 times as long as pedicel, 1.3 times as long as fourth; flagellar segments 4-12 progressively shortening, last segment about 1.4 times as long as 12th; first three antennal segments without sensillae, fourth to sixth with very few sensillae, sensillae dense from sixth segment and antenna appearing darker.

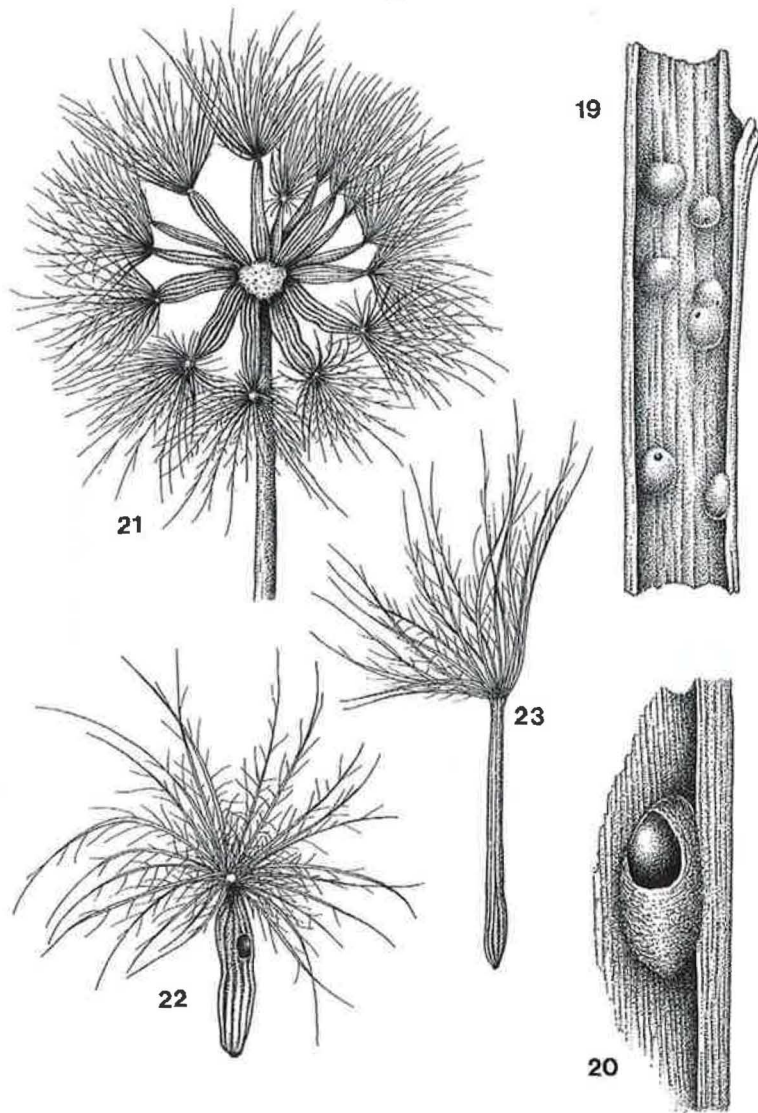


Figs. 8-18, *Phanacis zwölferti*, sp. n. – 8, head, dorsal view (male). – 9, head frontal view (male). – 10, head, dorsal view (female). – 11, head frontal view (female). – 12, antenna (female). – 13, antenna (male). – 14, pronotum. – 15, mesoscutum and scutellum. – 16, body, lateral view. – 17, lateral carina of propodeum. – 18, forewing (hairs omitted).

Thorax. Pronotum in anterodorsal view, only moderately long medially; submedial pits indistinct (fig. 14). Sculpture of pronotum minutely reticulate, laterally not much pubescent. Mesoscutum (fig. 15) 0.7 times as long as broad, 1.5 times as long as scutellum; notauli complete but very narrow and faintly impressed, especially anteriorly; median mesoscutal impression visible but short and weak; sculpture of mesoscutum reticulate; scutellum ovate, convex dorsally with rugose-reticulate sculpture; scutellar foveae broad, indistinctly closed posteriorly, its inner margins

confluent, without longitudinal striae, reaching posteriorly about 1/4 of the length of scutellum ; mesopleuron (fig. 16) reticulate ; lateral carinae of propodeum (fig. 17) slightly divergent ; median area rugulose. Forewing (fig. 18) slightly shorter than body, hyaline, and pubescent ; radial cell closed on the margin, but R1 weakly pigmented along the margin and the cell apparently open in distal half ; length of the radial cell about 2.3 times the width ; areolet distinct ; hair fringe on wing margins short. Gaster (fig. 16) as long as head + mesosoma ; third abdominal tergum basally bare, following segments not punctate ; ventral spine of hypopygium very short ; tarsal claws simple.

Male (figs. 8,9,13). Similar to female ; size slightly smaller (length 1.6-2 mm). Head viewed dorsally (fig. 8) about 1.8 times broader than long ; viewed frontally (fig. 9) 1.3 times broader than high ; antenna (fig. 13) with 14 antennomeres, third segment slightly curved in the middle.



Figs. 19-23, galls. – 19-20, galls of *Aulacidea freesei* and *Phanacis zwölferi* on *Silybum marianum*. – 21-22, galls of *Aulacidea laurae* on achenes of *Scorzonera laciniata*. – 23, normal achenes of *S. laciniata*.

Etymology. – Named in honour of Dr. Helmut Zwölfer for his prominent work on thistles and their associated insects.

Recognition. In the notauli being weakly impressed and the scutellar foveae confluent medially and indistinctly closed posteriorly the new species is similar to *Phanacis centaureae* Förster, 1860. Nevertheless, *Phanacis zwölferi* can be distinguished from the former on the longer and wider scutellar foveae, without longitudinal striae, the relatively longer antenna, clearly longer than head+thorax, the fully winged males and the association with *Silybum* instead of *Centaurea*. Other species included in *Phanacis* differ from the new species in having well impressed and complete notauli, more heavily impressed median mesoscutal impression, scutellar foveae closed posteriorly, a relatively shorter second antennal segment, and in being associated with other genus of Asteraceae.

Biological data. – Galls of this new species appear to be indistinguishable from those produced by *Aulacidea freesei* in the stems of *Silybum marianum*. The life-cycle is univoltine.

Remarks. – *Phanacis* Förster (*sensu* Nieves-Aldrey, 1994a) is a genus of distribution palaearctic that includes now five species in West Europe, all of them associated with Asteraceae. The known host plant genera were *Centaurea*, *Picris*, *Hypochoeris* and *Taraxacum*; *Silybum* can be added now to the list.

Acknowledgements. – I am most indebted to G. Freese and H. Stickroth for sending the material on which this study is based. I am also grateful to Dr. A. Albrecht (Zoological Museum, Univ. of Helsinki) for the loan of type material of *Aulacidea macula* Förster. Fredrik Ronquist and Gunter Freese made helpful comments and linguistic suggestions on the manuscript. Financial support was partly provided by the Research project "Fauna Iberica III", SEUI-DGICYT PB92-0121.

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