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**Addenda to the Scydmaenid fauna of the  
Canary Islands (La Gomera, Gran Canaria)  
with emphasis on *Euconophron*  
(Coleoptera: Scydmaenidae, Cyrtoscydmini)**

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**ABSTRACT:** A male of *Euconnus specusus* Vit is quoted and figured and, on the basis of aedeagal characters, the species is transferred to the subgenus *Euconophron* Reitter. The type-species of the subgenus and several other data related to *Euconophron* are shortly discussed referring to the formerly published aedeagal characters. In addition *Euconnus (Napochus) campestris* (Schaufuss) is reported for the first time for the Canarian Archipelago. Key words: Coleoptera, Scydmaenidae, *Euconnus (Euconophron)*, aedeagus, male morphology, *Euconnus (Napochus) campestris*, La Gomera, Gran Canaria, Canary Islands.

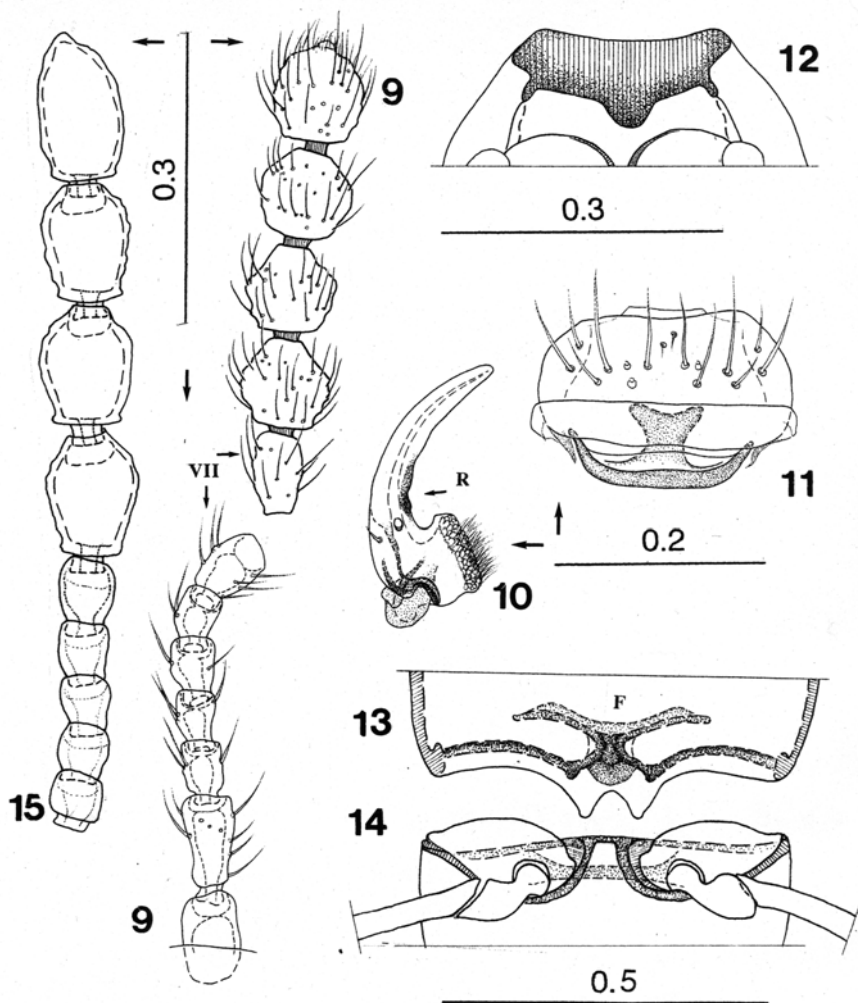
**RESUMEN:** Se describe y dibuja el macho de *Euconnus specusus* Vit y, a partir de caracteres del edeago, se transfiere la especie al subgénero *Euconophron* Reitter. Se discuten la especie tipo del subgénero y varios datos relacionados con *Euconophron* en relación con los caracteres del edeago inicialmente descritos. Además, se cita por primera vez la presencia de *Euconnus (Napochus) campestris* (Schaufuss) para el archipiélago Canario.

Palabras clave: Coleoptera, Scydmaenidae, *Euconnus (Euconophron)*, edeago, morfología del macho, *Euconnus (Napochus) campestris*, La Gomera, Gran Canaria, islas Canarias.

## INTRODUCTION

The first strictly endogean species of the genus *Euconnus* Thomson (Cyrtoscydmini), *Euconnus specusus* Vit has been recently published (Vit & Oromí, 2004). After having postponed during 16 years the description of the species (primarily known only as a single female) *E. specusus* Vit was finally described from only three

females. Nearly in parallel with the issue of that paper, a first male and a supplementary female specimens were obtained in MSS (Mesocavernous Shallow Stratum) traps by the GIET team of the University of Laguna in September 2004.



Figs 9 - 14. *E. Euconophron specus* Vit : Fig. 9 - female antenna (two different specimens); Fig. 10 - left mandible dorsally; Fig. 11 - labrum; Fig. 12 - anterior foramen of prothorax ventrally (with deeply incised middle); Fig. 13 - posterior edge of metasternum (with bifidous median process and furca); Fig. 14 - basal edge of first sternite (with median ridge), coxae included; Fig. 15 - *E. (Euconophron) spissicornis* Coquerel: antenna (antennomeres 3 - 11). Scale as given; (F = furca, R = retinaculum, VII = seventh antennomere).

In absence of male, *E. specusus* Vit was tentatively attributed to *Euconnus* s. str. The now available males have proved to belong to the subgenus *Euconophron* Reitter, considering several features discussed below, namely the structure of the aedeagus. A highly derivate aedeagus of *specusus* allows to comment and illustrate here also the aedeagal morphology of several other West Palaearctic and one East-African representatives of the subgenus *Euconophron*, a valid subgenus of very loosely defined morphological limits (Reitter, 1909; Franz, 1957).

## MATERIAL AND METHODS

Abbreviations given for the collections and labelling: DZUL – Departamento de Biología Animal (Zoología) Universidad de La Laguna; POM - Pedro Oromí collection, Tenerife; GIET - Grupo de Investigaciones Espeleológicas de Tenerife; CSV - S. Vit collection, Geneva, Switzerland.

Abbreviations used in the description: A - antennae; b - basal; co. - combined; E - elytra; H - head; L - length; max. - maximum; P - pronotum; Ta - tarsi; Ti - tibiae; W - width. (also in combinations). Example of combined use: H.W. = Head Width; co.L.H.P. = combined Length of Head and Pronotum; A.L./E.W. = ratio of Antennal Length/Elytral Width

## RESULTS

### *Euconnus (Napochus) campestris* (Schaufuss)

*Scydmaenus campestris* Schaufuss 1866: 47.

Studied material. 1 ♀/Gr. Canaria, envs. de Moya, 31.12. 1977, au pied de *Quercus*, leg. S.Vit/ (CSV).

Species described originally from Chile (Schaufuss 1866), known from the Atlantic Islands under the now synonymized names *Euconnus (Napochus) unicus lindbergi* Franz (Madeira) and *Euconnus (Napochus) duboisi eksilis* Vit (Azores). The here mentioned plus other supplementary synonyms of *campestris* have been recently commented (Meybohm & Vit, 2005).

## COMPLEMENTARY DIAGNOSIS

### *Euconnus (Euconophron) specusus* Vit (Figs1-3, 9-14)

*Euconnus* (s.str.) *specusus* Vit 2004: 322

**Supplementary specimens studied:** 1 ♂, 1 ♀ /La Gomera, Reventón Oscuro, MSS, 30.IX 2004, P. Oromí leg./ (POM) 3 ♂♂, 3 ♀♀, 12-X-2004/ (CSV).

Holotype: ♀ La Gomera, El Cedro, 7.IX.87, GIET A.L. Medina/ MSS Cedro 17/, / G-C4-139/ (DZUL) Paratypes 2♀♀ /La Gomera, Reventón Oscuro, MSS, 16-XI-2003, P. Oromí leg./ (POM, CSV).

**Diagnosis:** Apterous and anophthalmous in both sexes; colour from straw-yellowish to medium brown; integuments shiny, dorsum of elytra punctured, body length ♂ /1.63 - 1.70 mm, ♀ /1.76 - 1.83 mm; body width ♂ /0.68 - 0.76, ♀ /0.76 - 0.78mm; pronotum and head markedly smaller than elytra; elytra inflated, humeraless, base converging to that of the pronotum; pronotal base with five foveae; four-segmented antennal club (Fig. 9) well defined; segments 8, 9, and 10 shortly subpyriform, about as long as wide; apical segment relatively short, subspherical, apex mammilated; segments of the flagellum from oblong to slightly elongate.

**Description:** Head small, much narrower than the pronotal base, from slightly to distinctly longer than broad, ratio H.L./H.W.: 1.12 - 1.28; frons distinctly depressed in the middle; eyes absent also in male; vertex flattened, fairly setose; tempora slightly arched, bearing a coat of long setae directed backward. Mandibles (Fig. 10) falciform, rather short, exhibiting an internal channel provided dorsally with minute pore; retinaculum obliterated, reduced to a more strongly sclerotised area; molar area well developed, provided with papillate structure and a brush of fine, short setae.

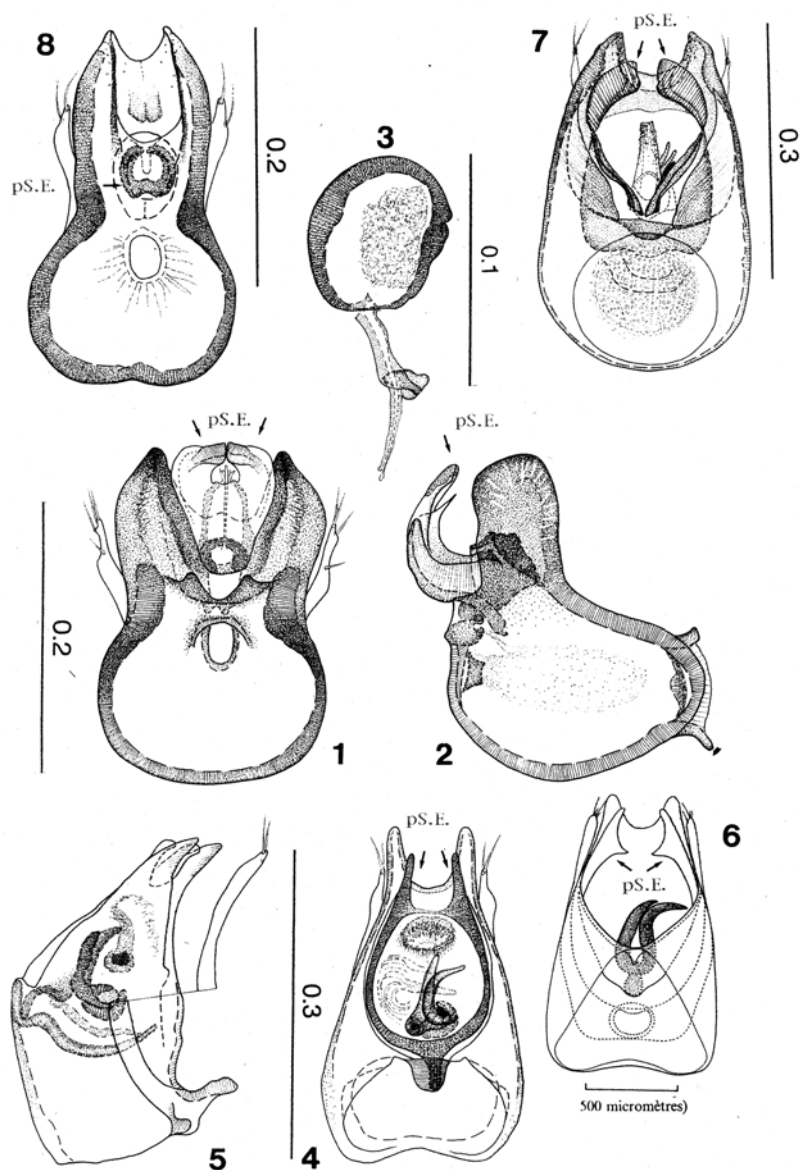
Antennae (Fig. 9) distinctly longer than the combined length of head and pronotum (ratio A.L./L.H.P.co.: ♂ /1.32 - 1.28; ratio A.L./L.H.P.co.: ♀ /1.15 - 1.26) and longer than the elytra combined width (ratio A.L./E.W.: ♂ /1.23 - 1.27; ratio A.L./E.W.: ♀ /1.12 - 1.14); 4-segmented antennal club distinctly longer than flagellomeres 3-7 combined (ratio Cl.L./Fl.L.: 1.34 - 1.45); apical segment unusually short, only slightly longer than pedicle, subspherical, apically mammilated; segment 7 slightly inflated, twice as long as wide in male; pedicle more than twice as long as wide, as long as the two following segments combined.

Base of pronotum unbordered lacking the transverse groove, provided with 5 prebasal foveae, the median and paramedian ones well developed, the lateral ones strongly reduced in size in both sexes.

Elytra inflated, strongly convex, distinctly longer than wide, ratio E.L./E.W.: ♂ /1.32 - 1.42, ratio E.L./E.W.: ♀ /1.32 - 1.35, ratio A.L./E.W.: /1.31 - 1.36; less than one and a half longer than broad: ratio E.L./H.P.co.: ♂ /1.39 - 1.47; ratio E.L./H.P.co.: ♀ /1.42 - 1.47; dorsum provided with shallow but dense punctures, which are obliterated at the sides.

Venter. Anterior edge of the prosternum deeply incised medially then notched on the notosternal sutures (Fig.12); sternal lamina raised, ventral edge distinctly pigmented, gently tooth-like produced anteriorly then weakly concave; metasternum more than one and a half times longer than the sternal lamina and nearly as long as the five following abdominal segments combined, provided with scarce, very minute and ill-impressed punctures, only moderately flattened in male, distal intercoxal process broad, deeply notched medially in both sexes (Fig. 13).

Legs thin, elongate, stick-like; apex of tibiae with strongly reduced apical spurs in both sexes; apical third of the protibia flattened mesially, provided with a densely setose area (probably a cleaner); apex of the meso- and metatibiae distinctly constricted preapically; ratio L.mt.Ti./L.ms.Ti.: 1.12.



Figs 1-8 - Copulatory organs. *E. Euconophron specus* Vit : Fig. 1 - aedeagus in sternal aspect, Fig. 2 - idem. lateral aspect (paramerae omitted), Fig. 3 - spermatheca; *E. Euconophron spissicornis* Coquerel: Fig. 4 - aedeagus in sternal aspect, Fig. 5 - idem. lateral aspect (paramera removed), Fig. 6 - aedeagus of holotype in sternal aspect (as given by Orousset); Fig. 7 - *E. Euconophron* sp.? (East-Africa): aedeagus in sternal aspect; Fig. 8 - *E. Euconophron* sp.? (Israel): aedeagus in sternal aspect; (pS.E. = paired sclerites of endophallus). Scale as given

**Spermatheca** (Fig. 3). Subspherical, minute (fairly under 0.1 mm), thick-walled, strongly sclerotised.

**Aedeagus** (Fig. 1, 2). Strongly sclerotised basal capsula exhibiting an entirely closed dorsal membranous opening, deeply bilobed apex of ventral lamina; structures of endophallus (pS.E) fixed externally and fully developed; short parameres, provided with two apical, one subapical and one lateral sensilla.

**Secondary sexual characters.** Antennae and legs free of notable sexual characters, metasternum only slightly more markedly flattened in male. Nevertheless several subtle differences in body shape: body size/body width, ratio E.L./E.W., antennal length (see ratios A.L./L.H.P.co and A.L./E.W.) and shape of elytra (see ratio E.L./E.W.) attest the biometric differences between males and females.

**Biology:** Species infested to deep layers of soil or mesovoid shallow substratum; it can be obtained probably only in the MSS traps (see Vit & Oromí, 2004). A much larger series of specimens including also several male individuals were obtained only after 2004.

**Distribution:** La Gomera (Canary Islands); all known captures always in the primitive laurel forest of El Cedro.

## DISCUSSION

The Catalogue of Palaearctic Coleoptera (Davies, 2004) retained as valid 14 taxa of *Euconophron* from South Europe and North Africa, but in the discussion here below I prefer not systematically attribute the species names to the here figured and discussed aedeagi.

**Taxonomy.** According to the current taxonomic limits accepted for the West Palaearctic subgenera of *Euconus* Thomson including their aedeagus particularities, *E. specus* Vit - in spite of a number of adaptive characters - belongs to the subgenus *Euconophron* Reitter. The external morphology of *specus* Vit satisfies to the diagnosis of *Euconophron* in: head provided with long tempora covered with a coat of stiff setae; structure of antennae; pronotum exhibiting more or less rounded sides and prebasal foveae, base lacking the median basal keel; absence of secondary sexual characters and finally the shape of aedeagus, where that of *specus* represents a highly evolved type, impossible to be weighted within the data published hitherto for *Euconophron*.

A more modern diagnosis of the subgenus given by Franz (1957) included for the first time the shape of aedeagus, defined as bilobed apically ("apex penis stets zweispitzig, nicht dreieckig") and provided with largely open ostium (dorso-distal opening through which internal sac (endophallus) is everted during copulation). The Monograph of the West European *Euconus* (Franz, 1957) reports for West Mediterranean region the species: *hispanicus* Franz, *hospes* Saulcy, *nebulosus* Reitter, *promptus* Coquerel, *pseudopromptus* Franz, *spissicornis* Coquerel, then later (Franz, 1964) *otini* Peyerimhoff (and its synonym *pseudopromptus* Franz) and *koziorowiczi* Croissandeau. Unfortunately based on the specimens and names found in the collection of Croissandeau, the designation of *E. (Euconophron) promptus* (Coquerel)

as the type species of the subgenus (ibid. 1957: 246) did not set satisfactorily neither the taxonomic status of the name *Euconophron* Reitter nor the real identity of the taxon *promptus*. The holotype of the species being a female (Orousset, 1998), the aedeagus of *promptus* Coquerel (1860) remains hitherto unknown. The only type-specimen aedeagus controlled by Orousset (1998), that of the holotype of *E. (Euconophron) spissicornis* (Coquerel) was nevertheless figured (cf. Fig. 6). The aedeagus of the same *spissicornis* figured by Franz (1957: 258) - obtained from various specimens from Morocco (mainly 25 specimens from the Croissandeau collection) - and stated as not different from that of *E. hospes* (Saulcy) - does not fit the statement of Orousset's type revision (l.c.).

Moreover, still following Franz (1980: 75) the genus-groupe name *Euconophron* is only a "Sammelname" or junk-room for species of various polyphyletic origin, exhibiting in common just the basic external features (sic.), which means a similar habitus. This is not exactly the case of *specusus*, where the antennae and humeri are not of the basic type. In this constellation, a most appropriate systematic feature remains the aedeagus.

**Aedeagus.** For a species confined to marked specific isolation - insular and subterranean - the aedeagus of *specusus* (Figs 1, 2) proves surprisingly hyperevolved in: atrophy of the dorsal opening, complete closure of ostium and permanent eversion of the endophallus. Nevertheless, it exhibits several basic characters of *Euconophron* encountered in other Mediterranean and African species: deeply bifidous apex of ventral lamina, endophallus provided with paired sclerotized structures and well developed, short parameri, provided with apical with sensilla. A thick-walled and strongly sclerotised basal capsula, exhibiting a markedly atrophied dorsal membranous opening, as well as the constriction of the opening of the ostium, are found also in a species reported here from Israel (Fig. 8), which agrees with *E. (Euconophron) ganglbaueri* Reitter from Lebanon (sensu Franz, 1975: 44, Fig. 2). The permanently everted paired structures of endophallus (pS.E.), fixed externally of the nearly closed ostium of *specusus*, appear as unique. But homologous structures are present also in other species with normally opened ostium, like *spissicornis* Coquerel (Figs 4, 5, 6), or the here reported species from East-Africa (Fig. 7). In the figured species these are more markedly dissociated into two large lateral sclerites of internal sac, or quite the reverse, reduced in size and probably fused inside of the endophallus, as in the species from Israel (Fig. 8).

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