

MELOIDAE FROM CANARY AND OTHER MACARONESIAN ISLANDS (COLEOPTERA)

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Meloidae from Canary and other Macaronesian Islands (Coleoptera).— Some new faunistical and taxonomical notes on Canary and Azores blister beetles are carried out. *Hycleus rufipalpis* (Escalera) and *Sitarobrachys thoracica* (Reitter) are cited for the first time of the Canary Islands; both genera are new for this archipelago. *Meloe mediterraneus* G. Müller, the first species of Meloidae for the Azores, is recorded also for Fuerteventura Island. *Meloe nudus* Wollaston, a species known only by the original description from Fuerteventura, is synonymized with *coelatus* Reiche & Saulcy, new for the Macaronesian fauna. *Meloe subcyaneus* Wollaston is regarded as a subspecies of *M. aegyptius* Brandt & Erichson. Other new faunistical records are given, a key for identification is carried out, and the check-list of the Meloidae from Macaronesia is revised.

Key words: Coleoptera, Meloidae, Macaronesian Islands.

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INTRODUCTION

The Meloidae fauna of the Canary Islands was studied for the first time by WOLLASTON (1864, 1865). New faunistical and taxonomical contributions were added by PIC (1902), ESCALERA (1921), PARDO ALCAIDE (1950, 1951, 1958, 1961), ISRAELSON et al. (1982), BOLOGNA (1988b) and BOLOGNA et al. (1989). The species previously recorded of this archipelago and other Macaronesian Islands, increased by some new records, were listed by BOLOGNA & MARANGONI (1990).

Recently some new material collected in the Canary and Azores Islands, and the type

of a "mysterious" endemic *Meloe* described by Wollaston were examined. Results of this study notably modified the knowledge on Macaronesian blister beetles fauna.

MATERIAL EXAMINED

The collections examined are indicated by the following abbreviations: BM. British Museum (Natural History), Dept. of Entomology, London, U.K.; CB. M. Bologna, Dipt. di Scienze Ambientali, Univ. della Tuscia, Viterbo, Italia; CP. J.D. Pinto, Dept. of Entomology, Univ. of California, Riverside, U.S.A.; MB. Természettudományi

Múzeum Allattára, Budapest, Hungria; MM. Inst. Español de Entomología, Madrid, España; MP. Muséum National d'Histoire naturelle, Lab. d'Entomologie, Paris, France; MR. Museo di Zoologia, Univ. di Roma "La Sapienza", Roma, Italia.

LIST OF SPECIES

Hycleus rufipalpis (Escalera, 1909)

Examined material: 1 ex., "Iles Canaries, 1897, C. Buchet leg.; 100" (MP).

This not detailed record needs confirmation. It is very significant, since no Mylabrini had previously been recorded from the Canary Islands. This is the first non-phoretic species of the Macaronesian Islands. Generally, all blister beetles of the oceanic islands have phoretic first instar larva; this specialization supports the dispersal from the continental areas (BOLOGNA & MARANGONI, 1990).

The genus *Hycleus* Latreille, 1829 (previously named *Coryna* Billberg, 1813, *Gorizia* Pardo Alcaide, 1950, etc.; see BOLOGNA, 1991), is largely diffused in Eurasia and Africa. *H. rufipalpis* belongs to a Maghrebian group of species and is endemic to the central Atlantic coasts of Morocco, from the Mamora forest (near Rabat), in the North, to Taroudant (Sous), in the South (PARDO ALCAIDE, 1954; KOCHER, 1956).

The presence of *H. rufipalpis* in the Canary Islands, could be only occasional, as consequence of a stochastic event of dispersal by flight or by wind. Nevertheless the presence of a permanent population of this species (no more collected), cannot be excluded, particularly in the Eastern Islands of Lanzarote or Fuerteventura. These two islands show many faunistic affinities with the Southern and Atlantic fauna of Morocco,

being the closest ones to the Morocco coasts, and having similar subdesertic climate and habitat.

Meloe (Eurymeloe) mediterraneus G. Müller, 1925

Examined material: 5 exx., "Azores, Santa Cruz, 19.II." (CP); 1 ex., "Madeira" (CP); 1 ex., "Canarias" (MP); 1 ex., "Canarias, Is. Fuerteventura, 1890" (MM, det. *Meloe nudus*).

This species was recorded from La Palma, Gomera, Hierro, Tenerife (PARDO ALCAIDE, 1951, as *rugosus*; BOLOGNA, 1988b; BOLOGNA & MARANGONI, 1990), Madeira and Porto Santo (LINDBERG, 1963; ERBER & HINTERSEHER 1988, both as *rugosus*; BOLOGNA, 1988b; BOLOGNA & MARANGONI, 1990).

No Meloidae were previously known from Azores (BORGES, 1990). *M. mediterraneus* is largely diffused in Southern and Atlantic Europe, in the Mediterranean countries and in Near East, and frequently populate also very small islands (BOLOGNA & MARANGONI, 1990). The presence of this species, probably not occasional, supports the hypothesis of a Mediterranean affinity in the Azorean Insects fauna, proposed by BORGES (1992).

Meloe (Eurymeloe) flavicomus Wollaston, 1854

Examined material: 1 ex., "Madeira, Porto Santo" (MP); 1 ex., "Canarias, Is. Gomera, alr. de Meriga, m 700, 20.III.1985, E. Colonnelli leg" (CB); 1 ex., "Canarias, Is. Gomera, Bosque del Cedro, m 900-1100, IV.1935 (MM, det. *Meloe murinus*); 1 ex., "Canarias, Is. Gomera, Camino Forestal de Fuensanta, 22.IV.1987, E. Colonnelli leg." (CB).

Macaronesian endemic species, close to some Mediterranean taxa of the subgroup *murinus* (sensu BOLOGNA, 1988b). Recorded

from Gomera, Hierro, Tenerife, Gran Canaria (ESCALERA, 1921, as *murinus*; PARDO ALCAIDE, 1951, as cfr. *murinus*; ISRAELSON et al., 1982; BOLOGNA, 1988b; BOLOGNA et al. 1989; BOLOGNA & MARANGONI, 1990), Madeira, Porto Santo, Desertas, Selvagens (WOLLASTON, 1854; BORCHMANN, 1917; MÜLLER, 1925, the last two as *murinus*; BOLOGNA, 1988b; ERBER & HINTERSEHER, 1988, as *murinus*; BOLOGNA & MARANGONI, 1990).

Recently some specimens of *Eurymeloe* from Morocco similar to *baudueri* Grenier and *flavicomus* Wollaston were examined; these specimens probably must be referable to the first species, diffused in Iberian peninsula and South West France.

Meloe (Coelomeloe) tucciuss tucciuss Rossi, 1792

Examined material: 1 ex., "Canarias, Is. Tenerife, Teno, entre Casa Blanca y la Punta de Teno, m 100, 28.III.1985, E. Colonnelli leg." (CB); 1 ex., "Canarias, Is. Tenerife, Teno, Casa Blanca, 13.II.1983, E. Colonnelli leg." (CB); 5 ex., "Canarias, Is. Tenerife, Teno, alr. Masca, m 700, 23.III.1985, P. Audisio leg." (CB, MR); 5 ex., "Canarias, Is. Tenerife, Anaga, Bajamar, 6.III.1984, E. Colonnelli leg." (CB); 29 ex., "Canarias, Is. La Palma, Tijarafe, m 800, 29.III.1992, T. Altea, M. Biondi, B. & M. Osella leg." (CB).

Species largely diffused from Central Asia to South Europe and North Africa, and in the Canary Islands. Previously recorded from Gomera, Hierro, Tenerife, Gran Canaria, Fuerteventura and Lanzarote (PARDO ALCAIDE, 1951; BOLOGNA & MARANGONI, 1990). Cited for the first time for La Palma Island.

Meloe (Mesomeloe) coelatus Reiche & Saulcy, 1857

Examined material: 1♂ (BM) with the following labels: a) dark brown, small

squared, without indication; b) white, sky-blue bordered, round, "Syntype" (printed, not original); c) white, red bordered, "Type" (printed, original?); d) white, rectangular, "The Canary Is., T.R. Wollaston, Brit. Mus. 1864-80" (printed, not original); e) white, "*Meloe nudus*" type Woll." (handwritten by Wollaston); f) white, "*Meloe caelatus* (sic!) Reiche ♂, Pardo Alcaide det. 1977" (printed/handwritten by Pardo Alcaide). Two more labels were added by me after the study; g) red, "Lectotypus *Meloe nudus* Wollaston, M. Bologna des. 1992" (printed/handwritten by me); h) white, "*Meloe coelatus* Reiche e Saulcy, M. Bologna det. 1992" (printed/handwritten by me).

Meloe nudus was described on the basis of three specimens collected in Fuerteventura Island, Eastern Canaries (WOLLASTON, 1864). All syntypes were not examined, but only one of those, indicated as Lectotypus; the other two syntypes, if conspecific, could be indicated as Paralectotypes.

The lectotypus of *nudus* has the abdomen partially emptied and stuffed by cotton. The left antenna is lacking of the XI and partially of X joints; the right anterior tarsi are lacking of the last segment; the left posterior tarsi are lacking of the last three segments; the right elytra is a little damaged near the pin hole.

The comparison of *nudus* Lectotype with some North African (Morocco, Algeria) and Palestinian (Sinai, Jordan) specimens of *coelatus* Reiche & Saulcy, clarified the synonymy of these taxa, based on the complete similarity of morphological characters: head, antennal and pronotum shape, head and pronotum punctures, elytral sculptures, legs shape, etc. Consequently a new synonymy is proposed:

Meloe nudus Wollaston, 1864 = *Meloe coelatus* Reiche & Saulcy, 1857

In the original description *M. nudus* was compared with *M. majalis* Linné, a West Mediterranean species greatly distinct and referred to the genus *Berberomeloe* by BOLOGNA (1988a). Afterward *nudus* was completely neglected in the literature and only quoted in the catalogues (BORCHMANN, 1917, etc.).

BOLOGNA (1988a) considered *nudus* as distinct species of the genus *Meloe*, and BOLOGNA & MARANGONI (1990) signalized them as *coelatus*, but without discussion of the synonymy. According with the labels of the Lectotype, also Pardo Alcaide examined this specimen in 1977, and referred it to *coelatus*, but did not publish this synonymy.

PARDO ALCAIDE (1961) completely clarified the specific value of *coelatus*, erroneously synonymized by many authors with *aegyptius* Brandt & Erichson, 1832, a Southern Mediterranean and Northern Saharan species of the nominate subgenus close to *proscarabaeus* Linné, 1758 (BOLOGNA, 1991).

Meloe coelatus is a typical Saharo-Sindian species, diffused in the desertic areas from Iran to Morocco, and till now recorded from Iran, Jordan, Israel, Northern Egypt, Saharan Algeria and Morocco, Western Sahara, Northern Mauritania. This eremic element is diffused both in the oasis and in completely desertic localities too; some Palestinian populations are recorded also from semidesertic localities. The record from Fuerteventura Island, never confirmed by other specimens, extends the geographic distribution of *coelatus* to the Eastern Canary Islands, and confirms the Saharian and Maghrebian characteristics of Fuerteventura and Lanzarote, as regards of other Canary Islands, with more Mediterranean features. These zoogeographical characteristics are emphasized by the

exclusive presence of *Meloe aegyptius*, and *Sitarobrachys thoracica* (and probably *Hycleus rufipalpis*).

M. coelatus is referred, with few other Turanian species, to the subgenus *Mesomeloe* Reitter, but it is greatly differentiated by some morphological characters (shape of antenna, pronotum, legs, etc.) and phenetically it is more similar to the nominate subgenus. Moreover this one is distinct by the autapomorphic condition of the male middle antennal joints, geniculate and greatly modified.

Meloe (Meloe) aegyptius subcyaneus Wollaston, 1864 n. comb.

Examined material: 1♂, 2♀♀, "Canarias, Is. Fuerteventura, Barranco de Pecanescal, m 20 (interior part of dune), 12.II.1991, E. Colonnelli leg." (CB); 1♂, "Canary Is., Pravost (?), 1903, coll. Elliot 36 ex. British Museum coll.; Claude Morley coll. B.M. 1952-59" (MB, det. *subcyaneus*); 1♂, "Canarias, Is. Fuerteventura, Jandia Risco del Paso, 20-31. I. 1991, A. Liberto leg." (CB).

WOLLASTON (1864) described *subcyaneus* on the basis of few specimens from Lanzarote. PARDO ALCAIDE (1958) synonymized this species with *aegyptius* Brandt & Erichson, 1832, but afterwards (PARDO ALCAIDE, 1961) regarded it as differentiated on the basis of some Western Sahara specimens. ISRAELSON et al. (1982) signalized this species from Fuerteventura as *aegyptius*.

BOLOGNA (1991) discussed the taxonomy and variability of *aegyptius*, but did not distinguish *subcyaneus*. According to the few examined specimens, compared with some others from North Africa and Sicily, temporarily it is preferred to regard *subcyaneus* as a subspecies of *aegyptius*.

All Canarian specimens have some distinct blue metallic tints on lateral margins

of pronotum and elytra, and on antennae; the North African specimens are usually opaque, alutaceous black. In the male from Fuerteventura, the antennal joint VI is more parallel on sides, but this character is a little variable in *aegyptius*. PARDO ALCAIDE (1961) differentiated the Western Sahara specimens of *subcyaneus* on the basis of the pronotum, more elongate, narrower, and forward more rounded.

Sitarobrachys thoracica (Kraatz, 1862)

Examined material: 2♂♂, "Canarias, Is. Fuerteventura, Barranco de Pecanescal, m 20 (interior part of dune), 12.II.1991. E. Colonnelli leg." (CB); 1♀, "Canarias, Is. Fuerteventura, Barranco de Malnobre, m 440, 28.II.1991, E. Colonnelli leg." (CB).

The genus *Sitarobrachys*, was never recorded from the Canary Islands. BOLOGNA (in press) discussed the very complex taxonomy of this genus and synonymized *brevipennis* Reitter, 1883 with *thoracica* Kraatz, 1862, previously referred to the genus *Stenoria*.

This species is recorded from Bulgaria, Greece, Jordan, North Egypt, North Algeria, Northern, Southern and coastal Morocco. This Mediterranean-Saharan species is

living in subdesertic habitats in North Africa and Palestina, and probably in xeric Mediterranean habitats in South Balkans. In Fuerteventura it was collected under stones in subdesertic or dunal habitats (E. Colonnelli, in verbis). These records emphasized the suberic characters of the fauna of the Eastern Canary Islands.

The very scarce material examined (1♂ from Attica, MP; 10♂♂ and ♀♀ from Morocco, Mogador (=Essaouira), MP and MM, including the type series of *S. buigasi* Escalera and *S. proxima* Escalera, and the host bees), evidenced the great variability of this species and the scarce diagnostic value of the characters proposed for distinguish the other taxa synonymized with *brevipennis*: *buigasi* Escalera, 1909 (Morocco, Mogador), *alfierii* Pic, 1913 (North Egypt, Dekela near Alexandria), *proxima* Escalera, 1914 (Morocco, Mogador).

The Fuerteventura males have great differences in size (8-11mm length; 6mm the ♀): this confirms the intrapopulation variability, evidenced in the descriptions of the Mogador taxa (*buigasi* and *proxima*). The pronotum is more rounded in one male (like in the Attica specimen); the middle pronotal line is more or less extended, and the pronotum punctures are

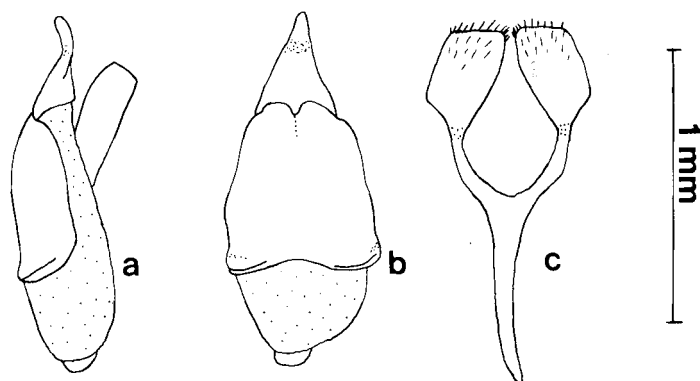


Fig.1. *Sitarobrachys thoracica* (Kraatz): a. Male genitalia in lateral view; b. Parameres and phallobasis in dorsal view; c. Spiculum gastrale.

more or less deep; the female head and pronotum are a little wider than in Mogador specimens; the extension of red colour of abdomen is very variable in this species; the metatibial spurs are very short and probably were not showed by Escalera in the original description of *buigasi*. In figure 1 the male genitalia of this species, never figured, are represented.

CHEK-LIST OF MACARONESIAN BLISTER BEETLES

According to the new records, the check-list of Macaronesian blister beetles published by BOLOGNA & MARANGONI (1990) must be modified as follows. The Azores fauna includes one species, Madeira Islands four species, Selvagens one species, Canary Islands ten species, Cabo Verde three species: *Hycleus rufipalpis* (Escalera, 1909) - Canaries.

Cyaneolytta fryi (Wollaston, 1867) - Cabo Verde: São Vicente, Fogo, San Tiago, Boa Vista, Maio.

Meloe (Eurymeloe) austrinus Wollaston, 1854 (?=*brevicollis* Panzer, 1793) - Madeira: Madeira.

Meloe (Eurymeloe) mediterraneus G. Müller, 1925 - Azores: Azores; Madeira: Madeira, Porto Santo; Canaries: La Palma, Hierro, Gomera, Tenerife, Fuerteventura.

Meloe (Eurymeloe) fernandezi Pardo Alcaide, 1951 - Canaries: La Palma, Tenerife.

Meloe (Eurymeloe) flavicomus Wollaston, 1854 - Madeira: Madeira, Porto Santo, Desertas; Selvagens: Selvagens; Canaries: Gomera, Hierro, Tenerife, Gran Canaria.

Meloe (Coelomeloe) tucciuss tucciuss Rossi, 1792 - Canaries: La Palma, Gomera, Hierro, Tenerife, Gran Canaria, Fuerteventura, Lanzarote.

Meloe (Mesomeloe) coelatus Reiche & Saulcy, 1857 - Canaries: Fuerteventura.

Meloe (Meloe) aegyptius subcyaneus Wollaston, 1864 - Canaries: Fuerteventura, Lanzarote.

Sitarobrachys thoracica (Kraatz, 1862) - Canaries: Fuerteventura.

Sitaris (Sitaris) solieri solieri Pecchioli, 1839 - Canaries: Tenerife; ssp. *moralesi* Pardo Alcaide, 1958 - Cabo Verde: Santo Antão, São Nicolau.

Stenoria canariensis Pic, 1902 - Canaries: Tenerife.

Zonitis fogoensis Kaszab & Geisthardt, 1985 - Cabo Verde: Fogo.

Euzonitis quadrimaculata (Pallas, 1782) - Madeira: Madeira, Porto Santo; Canaries (?): Canaries (probably erroneously recorded by KASZAB, 1968).

KEY TO THE MACARONESIAN SPECIES OF MELOIDAE

1. Antennae filiform; median lobe of aedeagus semimembranous, without hooks, and usually without hook of endophallus, parameres completely coalescing; maxillary galeae elongate or a little modified; upper blade of claws with double row of teeth along lower margin 2
 - Antennae not filiform; median lobe of aedeagus strongly sclerotized, with 2-1 hooks, hook of endophallus well sclerotized, parameres coalescing only in basal half; maxillary galeae not modified or elongate; upper blade of claws smooth along lower margin 7
2. Galeae more or less elongate and often filiform, usually longer than mandibles; labrum longer than wide; elytra completely covering abdomen or at most slightly dehiscent 3
 - Galeae normal; labrum short, wider than long; elytra apically dehiscent 4
3. Outer spur of posterior tibiae only a little longer than inner one; pronotum elongate; body shiny; elytra yellow-red with black base and apex
 - *Zonitis fogoensis* Kaszab & Geisthardt
 - Outer spur of posterior tibiae much longer than inner one and wider, rather spatulate, pronotum wide; body subopaque; elytra usually red with

- two more or less extended spots and black apex
 *Euzonitis quadrimaculata* (Pallas)
4. Wingless; elytra reduced and covering only abdominal terga I-III; metasternum short; posterior coxae partially covered by middle ones
 *Sitarobrachys thoracica* (Kraatz) ♀
 – Winged; elytra well developed, even dehiscent and more or less covering abdomen past abdominal tergum III; metasternum long; posterior coxae not covered by middle ones 5
5. Elytra not lyriform, almost completely covering abdomen, rather dehiscent at apex 6
 – Elytra lyriform, not completely covering abdomen, strongly dehiscent along suture and slightly shortened and narrowed at apex, strongly curving inwardly behind anterior third of outer margin and more or less curving outwardly at apex, distance between elytra at middle 1.5-2 times or more width of one elytron at same point; body black, abdomen apically red, elytra yellow with black posterior third *Sitaris solieri* Pecchioli
6. (Sexual dimorphism reduced); elytra slightly sinuated and shortened on outer margin, dehiscent after middle, slightly divaricate at apex; both posterior spurs small and slender; elytra yellow-brown with black apex
 *Stenoria canariensis* Pic
 – (Great sexual dimorphism); elytra almost straight on outer margin, slightly dehiscent only in apical portion; metatibial spurs very short, outer almost as long as inner one and of equal width; pronotum very transverse and narrowed basally; elytra unicoloured yellow-brown
 *Sitarobrachys thoracica* (Kraatz) ♂
7. Elytra short and basally imbricate, not completely covering abdomen, metathoracic wings absent, metasternum short 8
 – Elytra normally developed and basally nonimbricate, covering abdomen, metathoracic wings developed, metasternum elongate 14
8. Antennal segments V-VII neither enlarged nor geniculate 9
 – Antennal segments V-VII enlarged, in male geniculate and strongly modified; body subalutaceous blue-black
 .. *Meloe (Meloe) aegyptius subcyaneus* Wollaston
9. Pronotum not transverse, flat or convex, longer than wide 10
 – Pronotum transverse, slightly convex, wider than long, sides not parallel and obtusely rounded, posterior angles broadly rounded 11
10. Body subalutaceous black; antennae elongate; pronotum convex, more or less rounded on sides, finely punctate; elytra smooth or finely punctate
 *Meloe (Mesomeloe) coelatus* Reiche
 – Body subopaque black; pronotum dorsally flat, sides straight and obtusely angulate, subparallel, broadly depressed in middle of base, with dense and broad punctures similar to pits; puncturation of elytra either foveolate or with indistinct rugosity *Meloe (Coelomeloe) tucci* Rossi
11. Antennae short and robust, submoniliform, segments IV-VI as long as wide or slightly longer; puncturation of head not rugose; body finely setate
 *Meloe (Eurymeloe) austrinus* Wollaston
 – Antennae slender, I segment elongate, segments IV-VI much longer than wide 12
12. Male antennal segments IV-IX externally subdentate at apex; body setation black and sparse; pronotal surface with fine rugosities more or less undulate, with broad and deep sparse punctures; elytral rugosities shiny and longitudinally undulate
 *Meloe (Eurymeloe) fernandezi* Pardo Alcaide
 – Male antennal segments IV-IX externally not enlarged at apex 13
13. Body dull grey, last antennal segment brownish, setation yellow-brown, thick and dense, particularly on head and pronotum; head and pronotum surface shagreened with finer punctures
 *Meloe (Eurymeloe) flavicomus* Wollaston
 – Body black, more or less opaque, last antennal segment dark, setation black; head and pronotum surface coarsely punctate
 *Meloe (Eurymeloe) mediterraneus* G. Muller
14. Antennae slightly enlarged and subclaviform apically; mesosternum with a distinct scutum; antennae, palpi and legs red, metasternum unicoloured black, elytra orange with four transverse series of black spots or bands; small and short species (5-10mm)
 *Hycleus rufipalpis* (Escalera)
 – Antennae neither enlarged nor subclaviform, more or less flattened; mesosternum without scutum; body blue-black, with a red frontal spot and a middle longitudinal red strip on mesosternum; large and elongate species (16-21mm)
 *Cyaneolytta fryi* (Wollaston)

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