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The Meloidae (Coleoptera) of Libya: an annotated catalogue and description of three new species

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Abstract. An annotated catalogue of the Meloidae of Libya is presented, including 64 species belonging to 17 genera (5 Lyttini, 1 Cerocomini, 5 Mylabrini, 1 Meloini, 5 Nemognathini). This fauna includes species representative of both the Mediterranean and Saharan subregions, two of the richest biogeographic areas in the World as concerns the Meloidae genus diversity. Three new Mylabrini are described; *Hycleus ringenbachi* **n. sp**., *Mylabris (Mylabris) poggii* **n. sp**., *Mylabris (Zitunabris) cyrenaica* **n. sp**. Also, *Alosimus mendax* (Fairmaire 1876) is resurrected as a distinct species. Sixteen species were unrecorded from Libya. Three previously cited species are excluded from the Libyan fauna and the doubtful presence of 5 others is discussed. Preliminary biogeographical remarks are carried out.

Resumé. Les Meloidae (Coleoptera) de la Lybie : catalogue commenté et description de trois nouvelles espèces. Un catalogue des Meloidae de Libye mis à jour est présenté. Celui-ci comprend des données faunistiques et des notes taxonomiques. Il inclut 64 espèces de 17 genres (5 Lyttini, 1 Cerocomini, 5 Mylabrini, 1 Meloini, 5 Nemognathini). Il s'agit d'un peuplement mixte avec un ensemble d'espèces surtout méditerranéennes et sahariennes. Trois nouvelles espèces sont décrites (*Hycleus ringenbachi* **n. sp**. de Tripolitaine, *Mylabris (Mylabris) poggii* **n. sp**. et *Mylabris (Zitunabris) cyrenaica* **n. sp**.), toutes deux de Cyrénaïque). *Alosimus mendax* (Fairmaire, 1876) est considéré à nouveau comme une espèce valide. Parmi les espèces traitées, 16 sont citées pou la première fois de Libye, 3 déjà signalées sont exclues de la faune de ce pays, et 5 sont considérées douteuses. Des annotations biogéographiques préliminaires sont aussi presentées.

Keywords: Faunistics, taxonomy, new species, Meloidae, Libya.

Meloidae is a family of Tenebrionoidea beetles that is relatively well studied from phylogenetic and biological points of view (Bologna 1991; Bologna & Pinto 2001, 2002; Bologna *et al.*. 2008b), but still scarcely known faunistically in several areas. The Mediterranean and Saharan regions harbor a rich diversity of Meloidae at the generic and species levels. Several genera are endemic to one subregion or the other, particularly the Mediterranean, whereas others occur in both reflecting a biogeographic similarity due to Cenozoic events which affected both northern Africa and southern Europe (e.g. Pardi 1949; Hsü *et al.*1977; Durand Delga 1980; Mantovani *et al.* 1981; Steininger *et al.* 1996). No comprehensive work has been published on the entire meloid fauna of these regions, rather there are only heterogenous faunal contributions focussing on the Iberian Peninsula (Pardo Alcaide 1952), Italy (Bologna 1991), Greece (Bologna 1994), Levant (Bologna 1988b), Western Sahara (Pardo Alcaide 1961), and Morocco (Pardo Alcaide 1954). Additional records have been published in local catalogues, i.e. for southern France (Caillol 1914; Sainte Claire Deville 1937), Algeria (Cros 1939), Tunisia (Normand 1936, 1949), and Egypt (Alfieri 1976). Other scattered records from other Saharo-Mediterranean regions exist in general taxonomic literature or documented in collections.

Libya is biogeographically significant because of the presence of both mediterranean and desert biomes, as well as its function as a bridge between western and eastern sectors of the Mediterranean and Saharan regions (e.g. Colosi 1923; Ghigi 1923, 1924; Zavattari 1934; Pardi 1949). Except for descriptions of a few new species (e.g. Guérin de Méneville 1842; Karsh 1881) and a single faunistic small contribution (Heyden 1890), our knowledge of the meloid fauna of Libya stems primarily from the Italian colonial period, ca. 1911–1943. Work during this period focussed almost completely on the northern regions of Tripolitania and Cyrenaica (Andreucci 1913; Ghigi 1913; Dodero 1922, 1925; Zanon 1922a, 1922b; Koch 1939). In addition, meloids were treated in several other works including that of Gridelli (1930), which summarizes all records from Cyrenaica in a rich synthesis of the "Giarabub's Oasis" beetles; Boselli's (1930) list of all Libyan insects considered dangerous, and a collation of the Libyan

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fauna by Zavattari (1934). The few relevant taxonomic contributions after the second World War included a study by Kuzin (1954), who described the mylabrine genus *Libycisca*, (a synonym of *Croscherichia* Pardo Alcaide 1950), surveys of the beetle communities of coastal and southern Tripolitania by Crovetti (1970) and Fiori & Crovetti (1972) and a contribution on the nocturnal insects of Tripolitania (Hessein & Kraim 1975, which cites a single undetermined "*Mylabrus*" (sic!)). Unfortunately, a biogeographical analysis of Fazzan beetles (Peyerimhoff 1948) did not consider Libyan Meloidae. Similarly, papers focussing on the desert oases of Fazzan and Cyrenaica (Awjilah, Jalu, Al Jaghbub, Al Kufra) (Gridelli 1933a, 1933b, 1937, 1939), while of general biogeographical interest, do not include Meloidae.

Our current knowledge of Libyan Meloidae should be considered preliminary. Genera such as *Epicauta* Dejean 1834, and *Oenas* Latreille 1802 in Meloinae, and *Allendesalazaria* Escalera 1910, *Euzonitis* Semenov 1893, *Leptopalpus* Guérin de Méneville 1834, *Nemognatha* Illiger 1807, and *Sitarobrachys* Reitter 1883 in Nemognathinae have yet to be recorded. Considering their presence in nearby Tunisa, Algeria and Egypt, it is likely that these groups also occur in Libya. In addition, the number of Libyan species will increase with additional collecting given that adjacent countries have documented a considerably greater diversity and the Saharan section of Libya remains virtually unsampled. Records of species not recorded from Libya were cited from neighbouring areas in Tassili d'Ajer (Algeria) by Peyerimhoff (1934, 1948) and Tibesti (Tchad) by Pardo Alcaide (1963).

In the recent Palaearctic Catalogue (Bologna 2008), most of the species herein were cited as "Libya" without further detail. I refer to that Catalogue for taxonomic updates and new synonymies, and to recent revisions of genera *Diaphorocera* Heyden 1863 and *Actenodia* Laporte de Castelnau 1840 (Turco & Bologna 2007; Bologna *et al.* 2008a). Herein, I present all published and museum records of Libyan Meloidae, and clarify the taxonomy of each species, including the description of three new species. An updated list of Meloidae from Libya is presented in the Ringenbach & Le-Quellec web-site (Bologna 2009). Finally, biogeographical remarks on Libyan blister beetles fauna are discussed.

Materials

The present work is based on the examination of museum specimens and a summary of all literature records. The list of collections, with associated acronyms are as follows: Natural History Museum, London, UK (BMNH); M.A. Bologna, University "Roma Tre", Roma, Italy (CB); Miroslav Dvořák, Praha, Czech Republic (C. Dvořák); S. Krejcik, Unicov, Czech Republic (C. Krejcik); J. Probst, Wien, Austria (C. Probst); J.-C. Ringenbach, Pau, France (C. Ringenbach); P. Weill, Pau, France (C. Weill); National Museum of Natural History, Budapest, Hungary (HNHM); Istituto Agronomico per l'Oltremare, Firenze (IAO); Institut royal de Sciences naturelles de Belgique (IRSB); J.D. Pinto, University of California, Riverside, USA (JP); Museo Civico di Storia Naturale "G. Doria", Genova, Italy (MCNG); Museo Civico di Storia Naturale, Venezia, Italy (MCNV); Dipartimento di Scienze e Tecnologie Agroambientali, Università di Bologna, Bologna, Italy (MEUB); Dipartimento di Entomologia e Zoologia agraria, Università di Napoli, Portici, Napoli (MEUN); Muséum National d'Histoire Naturelle, Paris, France (MNHN); Museo civico di Storia naturale, Milano, Italy (MSNM); Museo civico di Storia naturale, Trieste (MSNT); Museo Civico di Storia Naturale, Verona, Italy (MSNV); A. Pardo Alcaide, Universidad de La Laguna, Tenerife, Spain (MULL); Museo Zoologico dell'Università di Bologna, Bologna, Italy (MZUB); Museo Zoologico de "la Specola", Università di Firenze, Firenze, Italy (MZUF); Museo civico di Zoologia, Roma, Italy (MCZR); Zoölogisch Museum, Universiteit van Amsterdam, The Netherlands (MZUA); Dipartimento Scienze Ambientali, Università de l'Aquila, Italy (MZUQ); Naturhistorische Museum, Wien, Austria (NHMW); Servizio Fitosanitario Regione Emila-Romagna, Bologna, Italy (OSBO); Staatliches Museum für Naturkunde, Stuttgart, Germany (SMNS).

Subfamilies and tribes are ordered according to Bologna & Pinto (2002); genera (in some cases divided into subgenera or sections) and species are listed alphabetically. Available data on phenology and elevation are reported for each record along with collector name and collection acronym.

To facilitate easier appraisal, Libyan localities were divided according to main historical regions of the country rather than present administrative provinces: Tripolitania in the North-West, Fazzan in the South-West, and Cyrenaica in the East. Localities are transcribed according to the "Atlante Internazionale del Touring Club Italiano" (1977) and the site http://www.indexmundi.com/zp/ly/ and are listed in each main region from West to East and North to South. Recent Arabic names are listed below together with old names, in parentheses, used in the literature or on collection labels. The latter were the Italian names imposed during the colonial period.

Tripolitania: Sabratah (Sabrata, Sabratha); Sinawen (Sinauen); Gharyan (Garian); Janzur (Zanzur); Tarabulus (Tripoli); Gargaresh (Gargaresch); Al-Aziziyah (El Aziz, El Aziziya); Tarhunah (Taruna); Garabuli (Garabulli; Qasr El-Qarahbulli); El-Khoms (Homs); Suq al-Khamis (Sugh el-Cumis; Suq El Khemis); Wadi Suf Ajjin (Wadi Sofejjm); Misrata (Misurata); Es Sidra Desert (Deserto Sirtico).

Cyrenaica: Ajdabiya (Agedabia); Benghazi (Bengasi); El-Fuehat, now a suburb of Benghazi (Foyath, Foueat); Berka, now a suburb of Benghazi (Berca); Siret Sleaia (Sleaia); Al Marj (Barce, Merg, El Merj); Tulmeitha (Tolmeta); Salanta (Slonta); Al Bayda' (Beida; El Bejda); El-Mechili (Zavia Mechili); Al Qubbah (Guba, Gubba, El-Qubba); Darnah (Derna); Tobruq (Tobruk); Bardiya (Porto Bardia); Bir esc-Shaqqa (Scegga).

Fazzan: Brach (Brak).

Results

Subfamily Meloinae Gyllenhal 1810

Tribe Lyttini Solier 1851

Alosimus mendax (Fairmaire 1876) res. stat. ren.

Cantharis mendax Fairmaire 1876: 50

Distribution. West Mediterranean species; distributed in Algeria, Tunisia and Tripolitania. New for Libya.

Libyan records. **Tripolitania.** Yafran, 20.IV.2005 P. Weill coll. 3 exx. (C. Weill., CB); Sidi As Sa'ih, 9.IV.2005 P. Weill coll. 1 ex. (C. Weill); Al Aziziyah, 28.III.2008 P. Weill coll. 3 exx. (+ 24 spares) (C. Weill); 5 km W of Al Aziziyah, 32°29.298' N - 12°58.731' E, 26.III.2003 J.-C. Ringenbach coll. 3 exx. (C. Ringenbach).

Taxonomic remarks. Escherich (1896), prompted by previous catalogues, synonymized "*Cantharis mendax*" with "*Cantharis" cirtana* Lucas 1849. However, both Mařan (1942b) and Kaszab (1951) considered them as distinct species. After studying of specimens identified by Fairmaire, Bologna (1989) transferred *Alosimus mendax* to *A. cirtanus*. Upon examining new Libyan material, I now agree that they are distinct species and belongs to a group of 7 species that includes *A. syriacus* (L. 1758) (see Bologna 1989). *A. cirtanus* is a West Mediterranean element (Morocco, Algeria, Tunisia) closely related to *A. syriacus* based on the greatly modified male mesotarsomere I, although it is less curved than in *A. syriacus*. Bologna (1989) figured mesotarsomere I dorsally but not laterally, as is herein illustrated in fig. 2. *A. mendax* has mesotarsomere I less modified than *A. cirtanus* (fig. 1), and also differs in the pronotum being more rounded laterally and elytra green metallic vs. dark blue metallic. Specimens of *A. mendax* from Tripolitania possess an orange pronotum, whereas *A. cirtanus* is polymorphic with either a blue or red pronotum. Fairmaire (1876) described *A. mendax* as having the dorsal lobe of the claws smooth, but the studied specimens have regularly serrated claws as in all other *Alosimus*.

Alosimus syriacus rauterbergi (Reitter 1907)

Halosimus syriacus rauterbergi Reitter 1907: 485

Distribution. This polytypic species is widely distributed from central Europe (Alsace, Western Switzerland) eastward to southern Russia and Ukraine, the Balkan Peninsula, Turkey, Iran, Levant, and the northern Arabian Peninsula. The subspecies *rautenbergi* is endemic to the coastal region of Egypt (also Fayum, CB), Sinai and Negev. Not surely known from Libya, but suspected to occur there.

Libyan records. Cyrenaica ? Bologna & Turco (2007) listed this species from Cyrenaica, based on a previous citation (Bologna 1991). Recently, the single male of this subspecies in the IAO,, which was listed by Beccari & Gerini (1979) as from "Libya", was re-examined. The label on this specimen is illegible, but possibly refers to "Sakkara", an Egyptian locality (see also *Hycleus apicipennis* and *H. brunnipes*).

Alosimus viridissimus (Lucas 1849)

Cantharis viridissimus Lucas 1849: 313

Distribution. Endemic to Maghreb; distributed in eastern Morocco, Algeria, Tunisia, West to Tripolitania. New for Libya.

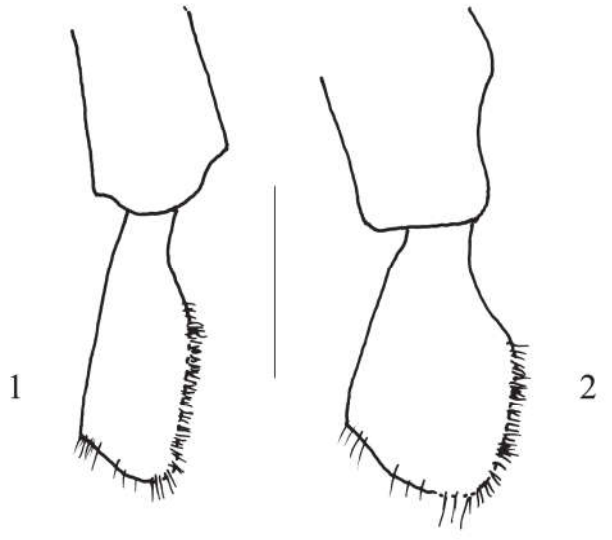
Libyan records. Tripolitania. 5 km W of Al Aziziyah, 32°29.298' N- 12°58.731' E, 26.III.2003 J.-C. Ringenbach coll. 2 exx. (C. Ringenbach); Al Aziziyah, 28.III.2008 P. Weill coll. 2 exx. (C. Weill).

Cabalia segetum (Fabricius 1792)

Lytta segetum Fabricius 1792: 84

Distribution. Western Mediterranean element; distributed in Sicily, Malta, Algeria, Tunisia and Cyrenaica. Also reported from Spain, Morocco and Egypt but records from at least the first and last countries probably refer to *Lagorina* or *Alosimus*.

Libyan records. Cyrenaica. Cyrenaica (Bologna 1991, 1995); Benghazi, 2 exx. (MZUB; Gridelli 1930); E- Fuehat (Zanon 1922b; Gridelli 1930; Zavattari 1934 as Bengasi); El-Mechili (Gridelli 1930; Zavattari 1934); Darnah (Dodero 1925; Gridelli 1930; Zavattari, 1934); Tobruq, 1913 1 ex. (MZUB).



Figures 1–2
Male mesotarsomere I, lateral view. **1,** *Alosimus mendax* (Fairmaire) (Libya, Tripolitania, Yafran); **2,** *Alosimus cirtanus* (Lucas) (Algeria, Sétif, Djemila). Scale bar = 0.5 mm.

Cabalia rubriventris (Fairmaire 1860)

Cantharis rubriventris Fairmaire 1860: 339

Distribution. Western sub-Saharan element, distributed from Morocco to Tunisia. Not currently known in Libya, but suspected to occur there.

Libyan records. Libya (Bologna 2008). This citation is based on the previously cited web-site list, according to an identification by Stanislav Krejcik, but probably this record refersto *C. rufiventris* (Walker, 1871) (see below).

Cabalia rufiventris (Walker 1871)

Cantharis rufiventris Walker 1871: 16

Distribution. Trans-Saharan element;, distributed from Morocco, Algeria, Tunisia, Libya and Sinai. New for Libya.

Libyan records. Tripolitania. Suq al Khamis, 13.V.2003 J.C. Ringenbach coll. 3 exx. (C. Ringenbach); Ain R'Zaia (Nalut), 21.V.2004 J.C. Ringenbach coll. 16 exx. (C. Ringenbach); Tarhunah, 4.V.2004 J.C. Ringenbach coll. 8 exx. (C. Ringenbach); Abu Zayyan, 03.VI.2005 P. Weill coll. 2 exx. (C. Weill).

"Lydomorphus" chanzyi (Fairmaire 1876)

Epicauta chanzyi Fairmaire 1876: 38

Distribution. The distribution of this species remains uncertain because of confusion with the eastern species *L. palaestinus* (see below). "*Lydomorphus" chanzyi* is likely a western Saharan element, distributed from Morocco to Tripolitania. New for Libya.

Libyan records. Tripolitania. NW Tarhunah, 18.III.2005 and 04.IV.2008 P. Weill coll. 21 exx. (CB., C. Ringenbach., C. Weill); Wadi Marsit, 10.IV.1953 1 ex. (MCNG).

Taxomomic remarks. Kaszab (1955, as *Cylindrothorax* Escherich 1896) synonymized *"Epicauta" chanzyi* with *Lydomorphus palaestinus* (Kirsch 1870), a species considered as Trans-Saharian. Afterwards, Kaszab (1983) suspected that the western Saharan populations could be a different species. Following the examination of a few specimens from the Sahara (Morocco, Algeria, Tunisia, Libya), Levant and Arabian Peninsula, some differences between the western Saharan specimens and the eastern Saharan, Arabian and Palestinian ones were evident. Pending a revision of this group, the western Saharan records are tentatively treated as *L. chanzyi* (Fairmaire 1876). This species is similar to *L. palaestinus*, but differs at least by a less rounded and less receeding male temples.

As indicated by Bologna & Pinto (2002) and Bologna & Turco (2007), *Lydomorphus* as defined by Bologna & Aloisi (1992) is not a monophyletic species assemblage. In particular, a Saharan group of six species (the *"Lydomorphus" palaestinus* group) named as "group XV" by Kaszab (1955) including: *L. femoralis* (Kocher 1955), *L. palaestinus* (Kirsh, 1870), *L. reymondi* (Selander 1988), *L. saharanus* (Kaszab 1961), *L. verrucicollis* (Karsh 1881), and *L.chanzyi* belongs to a distinct genus. Some other palaeotropical species also are distinguishable from *Lydomorphus* and may belong to yet another different genus. Morphological and molecular analyses to resolve these taxonomic issues are in progress (Bologna *et al., in lit.*), and this group of species is only tentatively retained as *Lydomorphus*.

"Lydomorphus" palaestinus (Kirsch 1870)

Lagorina palaestina Kirsch 1870: 390

Distribution. Considered to be a Trans-Saharan element, but possibly restricted to eastern Saharan region, Syro-Palestinian area and Saudi Arabia.

Libyan records. Tripolitania. Al-Aziziyah (Koch 1939; Selander 1988). This record is based on one specimen preserved in the Frey collection (Basel, Switzerland) and the identification has not been confirmed. The presence of "*L.*" *chanzyi* in two nearby localities (see above) supports the possibility that the record refers to the latter species. **Cyrenaica.** Tobruq (Gridelli 1930; Zavattari 1934; Selander 1988). This citation is based on one specimen preserved in the former Italian Royal Agricultural Office of Benghazi, which was not examined and could be lost; consequently, this record needs confirmation.

"Lydomorphus" saharanus (Kaszab 1961)

Cylindrothorax saharanus Kaszab 1961: 348.

Distribution. Western Saharan element, previously recorded only from Algeria. New for Libya.

Libyan records. Tripolitania. Sinawen [31.0283 N- 10.6028 E], 1958 L. Kudla coll. 1 ex. (C. Krejcik).

"*Lydomorphus" verrucicollis* (Karsh 1881)

Lytta verrucicollis Karsch 1881: 49
Sagitta atriventris Pic 1911a: 75
Mimovesperus pilosus Pic 1923a: 10

Distribution. Trans-Saharan species, widely distributed from Morocco to Egypt.

Libyan records. **Tripolitania.** Bir Milrha, Jabel Tarhunah (Karsh 1881: type locality; Escherich 1894; Ghigi 1913; Zavattari 1934; Selander 1988).

Erroneously cited from Cyrenaica, El-Kufra Oasis, by Borchmann (1917); see Selander (1988).

Lyttolydulus deserticolus Kaszab 1952

Lyttolydulus deserticolus Kaszab 1952: 92

Distribution. Western Saharan species, previously recorded from Morocco. New for Libya.

Libyan records. Tripolitania. Tas Wadi Mesri, Bin Chashir, 17.iv.1987 M. Badie (?) coll. 1 ex (C. Krejcik)

Taxonomical remarks. The single examined specimen lacks the red frontal spot, which has been described in Moroccan specimens.

Lyttolydulus rufulus (Fairmaire 1863)

Lydus rufulus Fairmaire 1863: 645

Distribution. Western Saharan species, distributed from Morocco to Tripolitania. New for Libya.

Libyan records. Tripolitania. Soauni, Ben Aden, 15.III.1936 A. Schatzmayr coll. 1 ex. (CB); Tarabulus (Koch 1939); 5 km W of Al Aziziyah, 9.III.2003 J.C. Ringenbach coll. 2 exx. (C. Ringenbach); Tarhunah, 8.V.2004 J. C. Ringenbach coll. 2 exx. (C. Ringenbach, CB); NW Tarhunah, 18.III.2005 P. Weill 2 ex. (C. Weill); As Saraj, 16.III.2002 J.C. Ringenbach 1 ex. (C. Ringenbach); Az Zahrah, 15.II.2003, J.C. Ringenbach coll. 2 exx. (C. Ringenbach); Regatta (Qarqarish), 23.III.2002 J.C. Ringenbach coll. 1 ex. (C. Ringenbach); South Surman, 02.III.2005 P. Weill coll. 2 exx. (C. Weill);. El-Khoms, III-IV.1913 G. Andreini coll. 2 exx. (MCNG).

Taxonomic remarks. The Tripolitanian specimens, as well as some from Tunisia (CB), have the abdomen partially red (last urites and basal pleurites), while in other western Saharan populations is completely black.

Lyttonyx bicolor (Walker 1871)

Epicauta bicolor Walker 1871: 17
Cantharis bilateralis Marseul 1876: 35
Cantharis myrmido Fairmaire 1876: 93

Distribution. Saharo-Sindian element, distributed throughout the Sahara from Morocco to Egypt, the Arabian Peninsula, north to Sinai and South Israel, and southern Iran.

Libyan records. Tripolitania. Tripolitania (Pic 1912).

Tribe Cerocomini Leach 1815

Diaphorocera chrysoprasis Fairmaire 1863

Diaphorocera chrysoprasis Fairmaire 1863: 644
Diaphorocera kerimii Fairmaire 1875: 530

Distribution. Western Saharan species, recorded from Mauritania, Algeria, Tunisia and Tripolitania.

Libyan records. Tripolitania. 5 km West of Al Aziziyah, 9.III.2003 J.C. Ringenbach coll. 4 exx. (CB, C. Ringenbach.; Turco & Bologna 2007); Tarhunah, 4.V.2004 J.C. Ringenbach coll. 8 exx. (CB); Suq al Khamis, 13.V.2003 J.C. Ringenbach coll. 2 exx. (C. Ringenbach); Suq-Al-Khamis (C. Krejcik; Turco & Bologna 2007); Al Aziziyah, 14.V.2005 P. Weill coll. 3 exx. (C. Weill); Al Aziziyah, 28.III.2008 P. Weill coll. 2 exx. (C. Weill).

Diaphorocera sicardi Bedel 1917

Diaphorocera sicardi Bedel 1917: 364

Distribution. Western Saharan species, distributed from Morocco to Tripolitania.

Libyan records. Tripolitania. Tasvadi-Mesari, Bin Ghashir (C. Krejcik; Turco & Bologna 2007).

Tribe Mylabrini Laporte de Castelnau 1840

Actenodia suturifera (Pic 1896)

Cor*yna suturifera* Pic 1896: 42
Coryna bleusei Chobaut 1896: 376

Distribution. Western Saharan species, recorded from Morocco East to Tripolitania.

Libyan records. Tripolitania. 5 km West of Al Aziziyah, 9.V.2003, J.C. Ringenbach coll. 6 exx. (C. Ringenbach, C. Weill; Bologna *et al.* 2008a); Al Aziziyah, 14.V.2005, P. Weill coll. 1 ex. (C. Weill); NW Tarhunah, 06.V.2005, P. Weill coll. 3 exx. (C. Weill; Bologna *et al.* 2008a); Tarhunah, 8.III.2003, J.C. Ringenbach coll. 3 exx. (C. Ringenbach).

Actenodia peyroni (Reiche 1866)

Coryna peyronis (sic!) Reiche 1866: 630

Distribution. Eastern Mediterranean species, recorded form southern Turkey, Levant, Sinai and Cyrenaica.

Libyan records. **Cyrenaica.** Cyrenaica (Bologna 1988b); Ain Mara (Gridelli 1930; Zavattari 1934; Bologna *et al*. 2008a); Tobruq (MNHN; Gridelli 1930; Zavattari 1934; Bologna *et al*. 2008a).One specimen of *Coryna* sp. from Libya (Beccari & Gerini 1979) possibly refers to this species, but it was not located at IAO.

Ceroctis trizonata (Reiche 1866)

Mylabris trizonata Reiche 1866: 631
Mylabris corynoides Reiche 1866: 631
Mylabris coronata Marseul 1870: 556

Distribution. Sub-Saharan species, widely distributed from Morocco to Egypt, Sinai, Israel, Palestine and Jordan. New for Libya.

Libyan records. Tripolitania. Nalut, Ain R'Zaia, 8.V.2004 J.C. Ringenbach coll. 2 exx. (C. Ringenbach); Wadi Suf Ajjin, 8.V.2004 J.C. Ringenbach coll. 1 ex. (C. Ringenbach).

Croscherichia albilaena (Bedel 1899)

Zonabris albilaena Bedel 1899: 82

Distribution. Saharo-Arabian element, recorded from Algeria East to Egypt and Saudi Arabia.

Libyan records. Cyrenaica. Ajdabiya (Gridelli 1930; Zavattari 1934; Bologna & Coco 1991)

Croscherichia bedeli (Bleuse 1899)

Zonabris bedeli Bleuse 1899: 383

Distribution. Western Saharan species, recorded from Algeria and Tripolitania.

Libyan records. Tripolitania. Tripolitania, uncertain locality (Bologna & Coco 1991; cited as Tripoli by Ruiz & Lopez Colon 1996); NW Tarhunah, 6.V.2005 P. Weill coll. 1 ex. (C. Weill); Coronet Hanaff 1 ex. (MCNG; Bologna & Coco 1991).

Croscherichia fulgurita (Reiche 1866)

Mylabris fulgurita Reiche 1866: 640

Distribution. Trans-Saharan species, recorded from Mauritania, Mali, Western Sahara, Morocco, Algeria, Libya, Tchad and Egypt.

Libyan records. Libya (Bologna & Coco 1991).

Croscherichia gilvipes (Chevrolat 1840)

Mylabris gilvipes Chevrolat 1840: 273
Mylabris angulata Klug 1845: n. 18
Mylabris diffinis Abeille de Perrin 1880: 238
Mylabris lameyi Marseul 1885: CXLVII

Distribution. Trans-Saharan species, widely distributed from Morocco East to Egypt, Sinai, Israel and Jordan.

Libyan records. Libya (Kaszab 1983; Bologna & Coco 1991). Libya mobile dunes 28.V.1924 3 exx. (MCNG; Bologna & Coco 1991); probably this record refers to eastern Tripolitania. **Tripolitania.** Tripolitania (Bologna & Coco 1991); Sabratah, 10.VI.2005 P. Weill coll. 1 ex. (C. Weill); Gharyan, 4.VI.2004 J.C. Ringenbach coll. 1 ex. (C. Ringenbach); Janzur, 3.VIII.2002 J.C. Ringenbach coll. 4 exx. (C. Ringenbach); Tarabulus, 23.IV.1942 Heddergott coll. 1 ex., 11.V.1942 1 ex., 20.V.1942 1 ex., 27.V.1942 2 exx. (SMNS; Bologna & Coco 1991); Tarabulus env., VI.1963 Barbera coll. 1 ex. (MCZR); Sidi Mesri 19.V.1924 4 exx. (MEUN; Bologna & Coco 1991); idem, 6.V.1924 1 ex., 26.VI.1924 1 ex. (MCNG); Al Aziziyah, 5.VI.2004 J.C. Ringenbach coll. 1 ex. (C. Ringenbach); idem, 14.V.2005 P. Weill coll. 3 exx. (C. Weill); NW Tarhunah, 6.V.2005 P. Weill coll. 1 ex. (C. Weill); Bukamash, 13.V.2005, P. Weill coll. 3 exx. (C. Weill); Regatta (Qarqarish) P. Weill coll. 1 ex. (C. Weill); Az Zahara, 11.VI.2004 J.C. Ringenbach coll. some exx. (CB); Garabuli, 28-30.VI.1982 S. Bruno coll. 11 exx. (CB; Bologna & Coco 1991); Wadi Caàm (Crovetti 1970).

Croscherichia mozabita (Pic 1897)

Zonabris paykulli var. *mozabita* Pic 1897: 125

Distribution. Western Saharan species, distributed from Mauritania, Western Sahara and Morocco East to Tripolitania. New for Libya.

Libyan records. Tripolitania. Az Zahrah, 11.VI.2004 J.-C. Ringenbach coll. 3 exx. (CB, C. Ringenbach); El-Aziziya, 5.VI.2004, J.-C. Ringenbach coll. 1 ex. (C. Ringenbach).

Croscherichia paykulli (Billberg 1813)

Mylabris paykulli Billberg 1813: 63
Mylabris circumflexa Chevrolat 1840: 273
Mylabris goudoti Chevrolat 1840: 274
Mylabris trifasciata Chevrolat 1840: 275
Mylabris scapularis Chevrolat 1840: 278

Distribution. South-western sub-Mediterranean species, recorded from coastal or subcoastal localities of Morocco, Algeria, Tunisia and Tripolitania. A record from Spain needs confirmation, while other records from eastern Mediterranean or Saharan countries likely refer to other species (e.g *C. gilvipes* and *C. sanguinolenta*) and thus need confirmation.

Libyan records. Libya (Kaszab 1983). **Tripolitania**. Tripolitania (Soumacov 1930; Bologna & Coco 1991); Tarabulus (Bologna & Coco 1991); idem, IV.1982 B. Brenzina coll. 2 exx. (C. Probst); idem, 11.V.1942 Heddergott coll. 1 ex., 21.V.1942 1 ex., 23.IV.1942 2 exx. (SMNS); Sidi Mesri, 22.IV.1924 1 ex.; 12.V.1924 1 ex.; 20.V.1924 1 ex.; 31.V.1924 2 exx. (MCNG; Bologna & Coco 1991); 5 km West of Al-Aziziyah, 8-9.V.2003 J.C. Ringenbach coll. 25 exx. (C. Ringenbach); Al Aziziyah, 14.V.2005 P. Weill coll. 23 exx. (C. Weill); Tarhunah, 8.V.2004 J.C. Ringenbach coll. 4 exx. (C. Ringenbach); Wadi Caàm 170 km E Tripoli (Crovetti 1970; Bologna & Coco 1991); Suq al Khamis, 13.V.2003 J.C. Ringenbach coll. 1 ex. (C. Ringenbach); Wadi Suf Ajjin (Fiori & Crovetti 1972; Bologna & Coco 1991); Abu Zayyan, 3.V.2005 P. Weill coll. 2 exx. (C. Weill); South Surman, 15.V.2005 P. Weill coll. 2 exx. (C. Weill); Misrata, 10.VI.1988 H. Bacovskij coll. 1 x. (C. Krejcik).

Croscherichia quadrizonata (Fairmaire 1875)

Mylabris quadrizonata Fairmaire 1875: 530

Distribution. West-Saharan species, recorded from Algeria, Tunisia, and Libya. Records from Egypt are doubtful and those from Morocco erroneous (Bologna & Coco 1991).

Libyan records. Tripolitania. Wadi Burgrawigah (?), 16.V.1976 R. Kruseman coll. 1 ex. (MZUA; Bologna & Coco 1991); 5 km W of El-Aziziya, 32°29.298' N - 12°58.731' E, 9.V.2003, J.-C. Ringenbach coll. 1 ex. (C. Ringenbach); Wadi Suf Ajjin, 13.IV.1953 1 ex. (MCNG; Bologna & Coco 1991); Wadi Caàm (Crovetti 1970; Bologna & Coco 1991).

Croscherichia sanguinolenta sanguinolenta (Olivier 1811)

Mylabris sanguinolenta Olivier 1811: 95
Mylabris latreillei Billberg 1813: 36
Mylabris incerta Klug 1845: n. 17

Distribution. Saharo-Arabic species, widely distributed from Morocco to Egypt, Sinai, Syro-Palestinian area, Saudi Arabia and probably southern Iran. Also recorded from Western Sahara and Senegal.

Libyan records. Tripolitania. Tripolitania (Soumacov 1930; Bologna & Coco 1991); Tarabulus, IV.1982 Brezima coll. 1 ex. (C. Probst; Heyden 1890; Zavattari 1934; Crovetti 1970; Bologna & Coco 1991). **Cyrenaica.** Ajdabiya (MCNG; Gridelli 1930; Zavattari 1934); Ain Mara (MCNG; Gridelli 1930; Zavattari 1934; Crovetti 1970; Bologna & Coco 1991); Bardiya, 1925/1926, 12 exx. (MCNG; Gridelli 1930; Zavattari 1934; Crovetti 1970; Bologna & Coco 1991). The citation of *C. goryi* (Marseul) from "Libya" (Beccari & Gerini 1979) is based on one specimen of *C. sanguinolenta*. Re-examination of this specimen in the IAO, showed the label to be illegible and likely refers to an Egyptian locality (see *Alosimus syriacus, Hycleus apicipennis* and *H. brunnipes*).

Croscherichia tigrinipennis (Latreille 1827)

Mylabris tigrinipennis Latreille 1827: 16
Mylabris menthae Klug 1845: n. 11
Zonabris diversithorax Pic 1910: 18

Distribution. Trans-Saharan species, widely distributed from Morocco east to Egypt, Israel, Iraq and Saudi Arabia; south into the Sahelian zones of Senegal, Gambia, Mauritania, Sudan, Ethiopia and Yemen.

Libyan records. Libya (Kuzin 1954). **Tripolitania**. Tarabulus (Bologna & Coco 1991); 5 km West of Al Aziziyah, 9.V.2003 J.C. Ringenbach coll. 11 exx. (C. Ringenbach); Al Aziziyah, 14.V.2005 P. Weill coll. 5 exx. (C. Weill); Shakshuk, 21.V.2004 J.C. Ringenbach coll. 15 exx. (C. Ringenbach). **Fazzan.** Brach, Wadi Jizzah, 10.VI.1982 1 ex. (BMNH; Bologna & Coco 1991)

Hycleus aegyptiacus (Marseul 1870)

Mylabris aegyptiaca Marseul 1870: 142.

Distribution. South-eastern sub-Mediterranean species, recorded from Egypt and Cyrenaica.

Libyan records. *Cyrenaica*. Bardiya (Gridelli 1930; Zavattari 1934).

Hycleus apicipennis (Reiche 1866)

Mylabris apicipennis Reiche 1866: 635

Distribution. Eastern sub-Mediterranean species, recorded from Israel and Palestine, Sinai, and Egypt. Not currently known in Libya, but suspected to occur there.

Libyan records. Re-examination of the specimen of this species preserved at IAO, which was listed by Beccari & Gerini (1979) as from "Libya", clearly indicates the Egyptian locality "Sakkara" (see *Alosimus syriacus* and *Hycleus brunnipes*). The presence of this species in Libya is not yet confirmed.

Remarks. The affinities of this species, which belongs to the group of *H. bimaculatus* (Olivier 1811), were discussed by Bologna & Turco (2007).

Hycleus argentifer argentifer (Pic 1895)

Zonabris argentifer Pic 1895: 81
Mylabris (Decatoma) henoni Fairmaire 1897: 121

Distribution. Trans-Saharan polytypic species, recorded from Morocco, East to Saudi Arabia and Israel. The subspecies is mainly distributed in the Sahara.

Libyan records. Libya (Bologna & Turco 2007). **Tripolitania.** Sabratah, 27.VIII.2005 and 17.IX.2005, P. Weill coll. 11 exx. (C. Weill); Gharyan, 4.VI.2004 J. C. Ringenbach coll. 1 ex. (C. Ringenbach); Janzur, 3.VIII.2002 J. C. Ringenbach coll. 1 ex. (C. Ringenbach).

Remarks. The affinities of this species, which belongs to the group of *H. octodecimmaculatus* (Marseul 1870), were discussed by Bologna & Turco (2007).

? *Hycleus brevicollis* (Baudi 1878)

Mylabris brevicollis Baudi 1878: 373

Distribution. West Mediterranean species, distributed with continuity from Morocco to southern Tunisia (Bologna 1991), while the record from southern Spain (Capo de Gata, Almeria) represents a relict population (Ruiz *et al*. 1994). Old records from coastal provence (France) and western Liguria (Italy) are uncertain (see Bologna 1991). Not currently known in Libya, but suspected to occur there.

Libyan records. Libya (Bologna 2008). **Cyrenaica.** Gridelli (1930) cited one specimen from Benghazi as close to *brevicollis*. This specimen, preserved in the former Italian Royal Agriculture Office of Benghazi, was not examined and may be lost. The presence of a western Mediterranean species in Cyrenaica needs confirmation; this specimen was likely misidentified.

Hycleus brunnipes (Klug 1845)

Mylabris brunnipes Klug 1845: 32

Distribution. Trans-Saharan species, distributed from Morocco East to the Arabian Peninsula and Israel. New for Libya.

Libyan records. Fazzan. Murzuq, Edeyen, 9.IV.2003 J.-C. Ringenbach coll. 3 exx. (C. Ringenbach). Recently, I re-examined the specimen of this species preserved at the IAO, which was listed by Beccari & Gerini (1979) as "Libya". The label is illegible, but possibly refers to "Sakkara" an Egyptian locality (see *Alosimus syriacus* and *Hycleus brunnipes*).

Remarks. The affinities of this species to a Saharo-Sindian group were discussed by Bologna & Turco (2007).

Hycleus ocellaris (Olivier 1795)

Cerocoma ocellaris Olivier 1795: 6

Distribution. Species with uncertain distribution, recorded from Senegal, Guinea, Eritrea, Egypt and Libya. Some Sahelian records may refer to other species of the same group, such as *H. argentatus* (Fabricius, 1792).

Libyan records. Cyrenaica. Bardiya (Gridelli 1930; Zavattari 1934).

Remarks. This species belongs to an Afrotropical group as discussed by Pardo Alcaide (1963), Bologna (1991), and Bologna & Turco (2007).

Hycleus octodecimmaculatus (Marseul 1870)

Mylabris octodecimmaculata Marseul 1870: 147
Zonabris melaini Escalera 1909: 249

Distribution. Trans-Saharan species, widely distributed from Morocco to Egypt and Israel.

Libyan records. Cyrenaica. Benghazi 2 exx. (MZUB; Zanon 1922b; Cros 1928; Gridelli 1930; Zavattari 1934).

Remarks. The affinities of this species were discussed by Bologna & Turco (2007).

Hycleus ringenbachi n. sp.

Type material. Holotype ♀, with the following labels: "Libya, Tripolitania, Janzur, 03.viii,2002, J.-C. Ringenbach" (both white, printed); Holotypus ♀, *Hycleus ringenbachi* n.sp.,

M. Bologna des. 2007" (red, printed and handwritten). The Holotype is currently preserved in the Ringenbach's collection and will be deposited at the MNHN. WGS coordinates of the locus typicus: Janzur, 32.818°N 13.011°E.

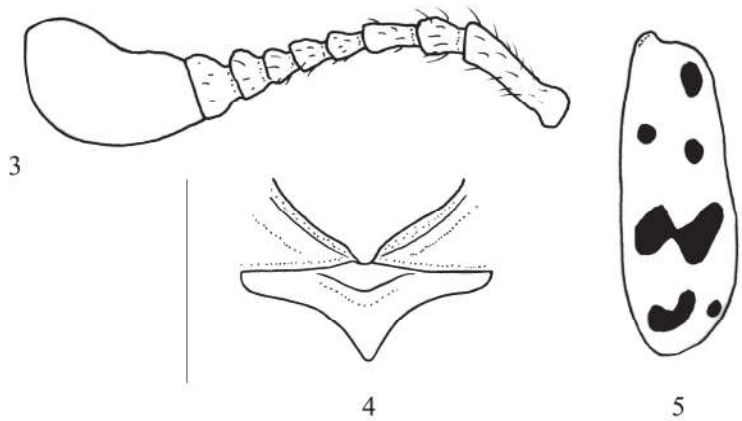
Diagnosis. A *Hycleus* species with a mesosternum as in the *Mesoscutatus*-type lineage (see Bologna & Pinto 2002, and Bologna & Turco 2007 for a recent discussion), closely related and phenetically similar to *H. allardi* (Marseul 1870) and *H. silbermanni* (Chevrolat 1840). The species is distinguished by its small size (length ~6 mm), 9 antennomeres, and reddish antennomeres IV-IX. The species differs from *H. silbermanni* by the number of antennomeres (9 vs. 11) and body setation colour (light yellow vs. black). From *H. allardi*, which has a variable number of antennomeres (9–11, the last three more or less fused), *H. ringenbachi* is distinguished by the last antennomere less narrowed apically, tibiae and femora reddish vs. black, antennomeres IV-IX reddish vs. black, humeral spot completely black and without a reddish shade, head more transverse and wider than maximal width of pronotum, temples shorter, eye more bulging, pronotal setation longer, mesosternum anteriorly slightly more curved, and elytral punctures deeper.

Description. Body black, except antennomeres IV-IX, tibiae and femora reddish, elytra testaceous with the following black markings: one humeral spot; two spots at anterior third, one close to suture and one more posterolateral; one large medial sinuate and incomplete transverse fascia; and two pre-apical spots, one subtransverse the second round and slightly oblique; apex uniformly testaceous (fig. 5); setation yellow light with sparsely distributed dark setae. Maximal body length: 6.1 mm.

Head greatly transverse, with maximum width at level of eyes. Punctures deep, large and quite dense, with a longitudinal medial narrow area almost impunctate. Eyes bulging, globose, with antero-dorsal margin slightly sinuate posterior to antennal insertion, inferior margin regularly rounded. Temples parallel, slightly curved posteriad, short, less than one-third as long as longitudinal diameter of eye. Clypeus transverse, narrower than interocular width, subparallel laterally, similarly punctured as head, but anteriorly smooth and slightly sloping; labrum about as wide as clypeus, rounded laterally, foremargin scarcely subconvex with same punctation as head. Maxillary palpomeres subcylindrical, mandibles curved, narrowed at apical third. Antennae (fig. 3) with 9 visible antennomeres, integuments of antennomeres I-VI shiny, VII-IX opaque; antennomere I slightly longer than II-III together; II subglobose; III-V slender and subcylindrical, III ~1.3 times as long as IV, which is ~1.1. times as long as V; V-VIII similar but progressively increasing in width from V to VIII; last antennomere (due to fusion of IX-XI), longer than V-VIII combined, bean shaped, widened in middle, and obtusely narrowed in apical third.

Pronotum short, narrower than head, slightly narrower than temples, subparallel laterally to midline then narrowing anteriad; anterior third depressed, punctation similar to head. Prosternum shagreened. Elytral pattern as in fig. 5. Mesosternum of the *Mesoscutatus*-type (fig. 4); mesepisterna shagreened, foremargins large, concave, depressed; modified anterior section of mesosternum wide, posterior margin largely concave, shagreened and highly distinct from remainder of sclerite, which has wide and dense punctures. Legs slender; protibiae with long distinct, black setae on the posterior side; protarsomeres on both sides; pro-, meso- and metatibial spurs slender.

Relationships. This species is included in the extremely speciose and heterogeneous lineage of *Hycleus* characterized by a mesosternum of the *Mesoscutatus* type, as defined by Pardo Alcaide (1954, 1969), Bologna (1991), Bologna & Pinto (2002) and Bologna & Turco (2007). Whitin this lineage, it belongs to a small and highly distinct Maghrebian group of species, which also includes *H. silbermanni* (Chevrolat 1840) and *H. allardi* (Marseul 1870). This group is well characterized (see Pardo Alcaide 1954) by the shape of mesosternum with central modified area small and not prominent, and the mesosternal suture laterally right. The number of antennomeres varies in this group of species as well as in single species such as *H. allardi*. Pardo Alcaide (1965) correctly concluded that "*Mylabris" punctofasciata* Fairmaire 1875 and "*Coryna" sefrensis* Pic 1896 are synonyms of *H. allardi*. This



Figures 3–5
Hycleus ringenbachi **n. sp.**, Holotype. **3,** antenna; **4,** mesosternum; **5,** elytral pattern. Scale bar = 0.5 mm.

group was never been studied in detail and possibly includes other western Mediterranean or northern African species.

Etymology. This species is named after Jean-Claude Ringenbach, a French geologist and entomologist, who discovered it and stimulated me to its description and to study Libyan blister beetles.

Hycleus tigripennis (Marseul 1870)

Mylabris tigripennis Marseul 1870: 173

Distribution. South-eastern sub-Mediterranean species, recorded from Israel, Egypt and Cyrenaica. New for Libya.

Libyan records. Cyrenaica. Darnah, Wadi Darnah, 31.V.2004, J.-C. Ringenbach 1 ex. (C. Ringenbach)

Mylabris (Ammabris) elegans Olivier 1811

Mylabris elegans Olivier 1811: 101

Distribution. Trans-Saharan species, distributed from Morocco to Egypt, Syro-palestianian area and Arabian Peninsula. New for Libya.

Libyan records. Fazzan. Edeyen Murzuq, 9.IV.2003 J.C. Ringenbach 1 ex. (C. Ringenbach); Takharkuri Pass, 31.VIII.2003 J.C. Ringenbach 1 ex. (C. Ringenbach).

Remarks. Bologna & Turco (2007) discussed the relationships of this species. The subgenus *Ammabris* was partially studied by Ruiz & García-París (2008), but its revision is necessary considering that the position of some Central Asian species remains uncertain and a species from Syria is undescribed (Bologna *in lit.*).

Mylabris (Chrysabris) hemprichi Klug 1845

Mylabris hemprichi Klug 1845: 3

Distribution. Southern sub-Mediterranean species, distributed in steppic areas from Morocco to Egypt, Sinai, Syro-Palestinian region and Iran.

Libyan records. Tripolitania. Tripolitania 1 ex. (MSNV; Andres 1911; Soumacov 1930); Tarabulus (Heyden 1890; Zavattari 1934); Sidi Mesri, 1.IV.1924 1 ex., 14.III.1924 1 ex. (MCNG); Sidi as Sa'ih, 27.II.2004 J.-C. Ringenbach coll. 4 exx. (CB, C. Ringenbach). **Cyrenaica.** El-Fuheat (Zanon 1922b; Gridelli 1930; Zavattari 1934, as Benghazi).

Mylabris (Mylabris) poggii n.sp.

Zonabris nigriplantis, Zanon 1922b: 128

Zonabris schreibersi, Falzoni 1923: 87

Zonabris quadripunctata, Dodero 1925: 11

Mylabris sinuata, Gridelli 1930: 170; Zavattari 1934: 463; Koch 1939: 252; Bologna 1979: 151

Zonabris quadripunctata, Boselli 1930: 304

Libycisca nigriplantis, Kuzin 1954: 370

Type material. **Holotype** ♂ (MCNG), labelled "R. U. Agrario [= Royal Agriculture Office], 7827, Ain Mara IV.1926 Geo C. Krüger"; " *Zonabris 4 punctata* ssp. nov. *Gridellii* (white, handwritten by M. Pic); "*Zonabris 4-punctata* ssp. *gridellii* nov. *Teste* M. Pic (white, printed and handwritten by R. Poggi); "*sinuata* Illig. det. E. Gridelli (white, printed and handwritten); "*Mylabris sinuata* Illig. det E. Gridelli" (white, printed and handwritten by R. Poggi); "Museo civico di Genova" (green, printed);"Holotypus *Mylabris* (s.str.) *poggii* n. sp. M. Bologna des. 2004" (red, printed and handwritten);"Holotypus *Mylabris* (s.str.) *poggii* n. sp. M. Bologna des. 2004". The right metatarsi and male genitalia are glued on a distinct label; the distal aedeagal hook is slightly damaged. WGS coordinates of the locus typicus Ain Marah, 32.750°N 22.383°E. **Paratypes** 2 ♂♂, 2 ♀♀ (MCNG) and 1 ♂ (CB), with the same labels as the Holotype, but those made by Pic and Gridelli, and with labels "7757" (CB), "7829", "7826", "7832", "7833" (MCGN). The following labels were added to each specimen: "Paratypus *Mylabris* (s.str.) *poggii* n. sp. M. Bologna des. 2004" and "Paratypus *Mylabris* (s.str.) *poggii* n. sp. M. Bologna des. 2004". The specimen "7833" has an additional label "var. nob. *Krugeri* ". Paratypes 1 ♀ (MCNG), labelled "Cirene [= Cyrene] 1928 Bolsi"; "*Mylabris sinuata* det. E. Gridelli" (white, printed and handwritten by R. Poggi); "Museo civico di Genova" (green, printed); 1 ♂, with the same labels, but VIII.1928, Anti leg. 1 ex. (MCNG). The following labels were added to each specimen: "Paratypus *Mylabris* (s.str.) *poggii* n. sp. M. Bologna des. 2004" and "Paratypus *Mylabris* (s.str.) *poggii* n. sp. M. Bologna des. 2004".

Additional material. *Cyrenaica*. Cyrenaica 1 ex. (MNHN, coll Pic); Jardas al' Abid, 19.IV.2003 J.-C. Ringenbach coll. 1 ex. (C. Ringenbach); Wadi al Kuf, 24.V.2005 P. Weill coll. 1 ex. (C. Weill); Al Bayda', 31.V.1980, D. Őzkanang coll. 1 ex. (CB); Wadi Kuf, 28.III.2005, P. Weill coll. 1 ex. (C. Weill). A topotypic specimen labelled "*Mylabris quatuordecimsignata*, Cyrenaica I. Agrario 7830, Geo C. Kruger v.1926 Ain Mara", "*sinuata* E. Gridelli", which belongs to this new species was examined in the MNHN several years ago. This specimen was not re-examined.

Diagnosis. A mid-sized *Mylabris* belonging to the nominate subgenus, which is distinguishable from other related species by the following combination of characters: habitus short and broad; antennomeres black; elytra short and wide, narrowly black at apex, but with apical fascia narrowed in the middle and enlarged on the suture and external margin; pronotum with 3 dimples at midline.

Description. Body black with vague metallic reflection; frons with a small red spot; mandibles reddish; elytra yellowish-red with the following black markings (fig. 8): a very narrow basal border, scarcely visible, under base of pronotum; each elytron with two pairs of relatively large round to oval maculae, which may be more or less extended and rarely fused, one pair at anterior third with the lateral macula twice as wide, more elongate and extending more anteriorly than medial macula; a second pair of maculae at posterior third with medial macula slightly more anterior than lateral one, both smaller and more rounded than external anterior one; narrow crescent shaped fascia at apex, fascia narrowest in middle and widened laterally, extending from suture to lateral margin. Body short and wide, elytra distinctly convex. Maximum body length: 11.5–17.9 mm; maximum head width at eyes, 2–2.4 mm; maximum pronotal width 2.5–2.9 mm.

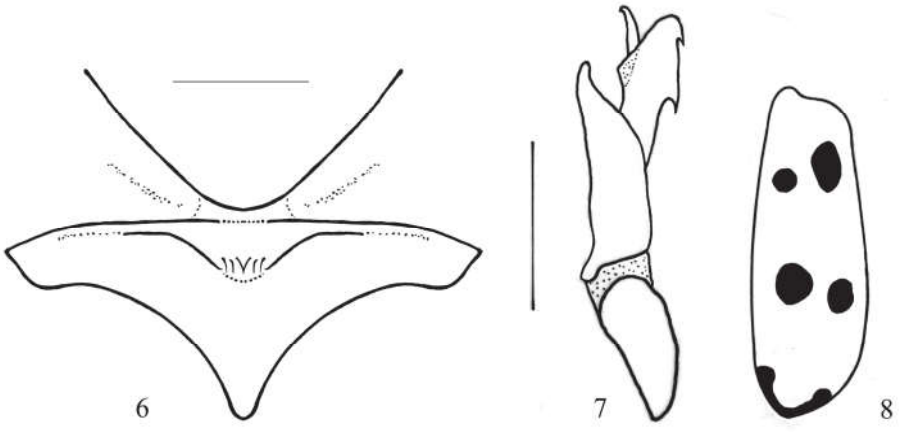
Head short, transverse, wider than long, maximal width at level of eyes, which are slightly bulging and not anterodorsally

emarginate. Frons wide, convex with a slight medial longitudinal depression and two small lateral depressions; punctures variable in density, small, relatively shallow but distinct, interspaces ~1.5–1.7 times as wide as puncture diameter, almost smooth, but shagreened on frons and occiput. Temples subparallel, slightly curved, about as long as longitudinal diameter of eye. Frontal suture subrectilinear, well-delineated. Clypeus with sides subparallel and slightly rounded and smooth anteriorly; labrum enlarged anteriorly, anterior margin slightly sinuate. Mandibles robust, parallel at basal third, curved, convergent and narrowed to apex. Maxillary and labial male palpomeres unmodified, maxillary palpomeres II and IV slightly enlarged anteriorly; labial palpomere II slightly enlarged and III cylindrical. Antennae with 11 antennomeres: antennomere I shorter than III and with long setae, three times as long as II, which is short and subglobose with long setae; III elongate, subparallel, with few long setae, more than twice as long as II, ~1.5 times as long as IV; IV-VI similar in shape, decreasing slightly in length, progressively less parallel laterally and slightly enlarged at apex; VII longer than both VI and VIII, sligthly enlarged at apex, VIII distinctly more enlarged, subtrapezoidal in male, more slender in female; IX-X subcylindrical, longer than previous, densely covered by short setae, IX more enlarged apically; XI ~2 times as long as X in male (shorter in female), cylindrical in basal half, asymmetrically narrowed apically, slightly wider than X.

Pronotum about as wide as long, slightly sinuate anterior to base, divergent to middle and broadly rounded at apex. Two rounded fore depressions laterally, two small depressions lateral to midline, one wide rounded depression at middle and another along base. Punctures more dense than on head, less dense posteriorly, interspaces with shagreened surface. Mesonotum apically rounded and attenuate. Mesosternum (fig. 6) with suture scarcely visible at middle, modified anterior section of mesosternum small, impunctate anteriorly, but with a posterior area with long distinct setae, lateral portions of sternite densely setose; mesepisterna anteriorly not depressed, narrow, without carinae. Legs short and robust; protibiae slightly curved externally at apical one-third, with pointed spurs, outer spur apex longer in female, protarsomeres short and robust, male tarsomeres robust and with dense, short setae ventrally; mesotibial inner spur slightly shorter and more obtuse than outer; both metatibial spurs stick-like. Elytra (fig. 8) subopaque, more shiny on black surface, densely punctured, punctures superficial and adjacent.

Penultimate visible abdominal sternite on both sexes vaguely emarginate; last male sternite with a V-shaped emargination, female terminal sternite rounded. Male gonostyli cylindrical, more than twice as long as phallobase, laterally (fig. 7) robust and parallel in the basal two-thirds, apical lobes robust and distinctly curved; gonocoxal piece widened in dorsal view; aedeagus with two acute hooks with oblique inclination, distal hook close to the apex and smaller than proximal hook; endophallic hook curved; spiculum gastrale Y-shaped, greatly curved at apex.

Relationships. The metasternal and male genitalic features support the inclusion of this new species in the subgenus *Mylabris*. This subgenus includes 19 other species, as listed by Bologna (2008), including *M. desertica* Bologna 2007 (Bologna & Turco 2007). A revision of the nominate subgenus is underway (Bologna *et al.*, *in lit.*). Phenetically, this species is similar to others by possessing a red-brown elytra with a black apex. The species was compared by Gridelli (1930) to *M. schreibersi* Reiche 1866, which also has a very narrow black apical border. However, the aedeagal hook structure, e.g. the position of the distal hook, is similar to other Maghrebian species, specifically *M. guerini* Chevrolat 1840 and *M. tricincta* Chevrolat 1840. Both of these species have highly variable elytral patterns, including forms with four spots as in *M. poggii*, but with a wider black crescent at the apex. Also, the body and gonostyli are slender and aedeagal hooks different in shape (Pardo Alcaide 1954; Bologna 1991).



Figures 6–8
Mylabris (*Mylabris*) *poggii* **n. sp.**, Paratype (Libya, Cyrenaica, Cyrene). **6,** mesosternum; **7,** gonocoxal piece, gonostyli and aedegaus, lateral view; **8,** elytral pattern. Scale bar = 0.5 mm, (fig. 6), 1 mm (fig. 7)

Remarks. This new species was recorded from some Libyan localities under different names (see synonyms): El-Fuehat (Zanon 1922b); El- Fetejah, Tulmeitha Darnah (Falzoni 1923); Al Marj and Benghazi (Dodero 1925). Several citations refer to *M. sinuata* Klug 1845, which actually is a Levantine species belonging to the subgenus *Micrabris* (Bologna 2008), as well as to *M. nigriplantis*, a Sahelo-Arabian taxon belonging to *Hycleus* Latreille 1817 and referable to an Afrotropical group (Bologna 1990).

The name *gridellii* Pic (see "Type material") is only a *nomen in litteris*.

Etymology. This new species is named after Roberto Poggi, Director of the Museo civico di Storia naturale di Genova "Giacomo Doria" (MCNG), coleopterologist, friend, and supporter of my adolescent entomological interests. He devoted his life to preserving the enormously relevant Genova collections.

Mylabris (Mauritabris) tenebrosa Laporte de Castelnau 1840

Mylabris tenebrosa Laporte de Castelnau 1840: 270
Zonabris mohtari Martinez de la Escalera 1910: 284

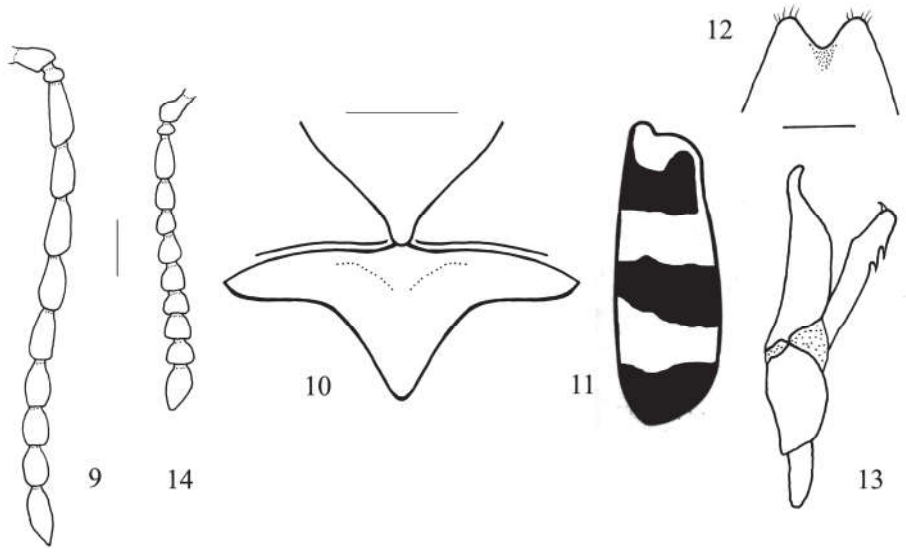
Distribution. Southern Mediterranean species, distributed in North Africa from Morocco to Egypt, and perhaps to Sinai.

Libyan records. Tripolitania. Tripolitania (Soumacov 1930); Tarabulus (Heyden 1890; Zavattari 1934); Sidi Mesri, 31.III.1924 5 exx. (MEUN; MCNG); Tarhunah, 8.V.2004 J. C. Ringenbach coll. 4 exx. (CB; C. Ringenbach); Kseia, 2.V.1961 Eckerlein 1 ex. (NHMW); Angila ?, VI.1964 1 ex. (MCNV). **Cyrenaica.** Cyrenaica (Boselli 1930); Benghazi, 4.IV.1922 (MCNG; Falzoni 1923; Dodero 1925; Gridelli 1930; Zavattari 1934; Koch 1939); idem, V.1916 1 ex. V. Zanon (MZUF); El-Fuehat (Zanon 1922b; Falzoni 1923; Gridelli 1930); Lete (Falzoni 1923; Gridelli 1930); 25 km N of Benghazi, 7.IV.1980, B. Massa coll. 3 exx. (CB); El-Guarscià, 4.IV.1922 (MCNG); Siret Sleaia, V.1935 (MEUN); Lamtaniyah, 5.V.2004 J.C. Ringenbach coll. 25 exx. (CB; C.Ringenbach,); Cyrene, V.1919 3 exx. (MCNV); El-Qubba, V.1939 Barbera 2 exx. (CB; MCZR;); Ain Mara (Gridelli 1930; Zavattari 1934); Tobruq (Gridelli 1930; Zavattari 1934); Goth Sultan, 22.IV.1983 D. J. Roggema 2 exx. (IRSB).

Mylabris (Zitunabris) cyrenaica n. sp.

Mylabris oleae, Gridelli 1930: 173; Zavattari, 1934: 463

Type material. **Holotype** ♂, 4 ♂♂ and 9 ♀♀ Paratypes, "Cirenaica, El Guba, [L.] Barbera [coll.] V.[19]39" (MCNG); 1 ♂, 1 ♀ Paratypes, idem (CB); 2 ♂♂ Paratypes, idem (MULL); 1 ♂, 4 ♀♀ Paratypes, idem (MCZR). 15 ♂♂, 24 ♀♀ Paratypes, "Cirenaica, Cirene, [C.] Anti [coll.], IX.1929" (MCNG; cited as *Mylabris oleae* by Gridelli 1930; Zavattari 1934; Bologna 1991); 1 ♀ Paratype, idem (CB). 1 ♀ Paratype, "Cirene, maggio [= May], Geo. C. Kruger [coll.]" (MCNG, coll. Dodero). 1 ♂ Paratype, "Cirene, VIII-IX.1927, C. Anti [coll.]" (MCNG, identified by E. Gridelli as "*Mylabris oleae* var. *diversedivisa* Pic?"); 3 ♂♂, 5 ♀♀ Paratypes, "Cirene, estate [Summer] 1927, C. Anti [coll.]" (MCNG, identified by E. Gridelli as "*Mylabris oleae* var. *diversedivisa* Pic?"). 4 ♂♂ Paratypes (one lacking both rigth and left antennomeres III-XI), "Cirene, VIII.1927, C. Anti [coll.]" (MCNG, identified by E. Gridelli as "*Mylabris oleae* var. *diversedivisa* Pic?"). 1 ♀ Paratype (lacking rigth antennomeres III-XI), "Tobruch, Barce, VI.1942, Bacci [coll.]" (MCNG). 1 ♀ Paratype, Darnah, VII.1926, A. Falzoni [coll.], ex coll. Fiori (MCNG). 1 ♂<, 3



Figures 9–14
Mylabris (*Zitunabris*) *cyrenaica* **n.sp.** (Libya, Cyrenaica, El Golea) (9-13). **9,** antenna; **10,** mesosternum; **11,** elytral pattern; **12,** male VI sternite; **13,** gonocoxal piece, gonostyli and aedegaus , lateral view. **14,** *Mylabris* (*Zitunabris*) *oleae* (Morocco, Tilouguitte): antenna. Scale bars = 1 mm.

♀♀ Paratypes, 1 ♂ Paratype, "K.N.P. [?] Beida, 31.V.1980, D. Özkanang coll. (CB). WGS coordinates of the locus typicus: Al Kubba 32.766°N 22.233°E.

Additional material. **Cyrenaica.** Cyrenaica (MSNV); Qasr Libya, 28.V.2003 J.-C. Ringenbach coll. 9 exx. (C. Ringenbach); Wadi al Kuf, 24.V.2005, P. Weill coll. 18 exx (C. Weill); Al Bayda', 22.V.2005 P. Weill coll. 2 exx. (C. Weill); Dariyanah, 27.VI.2003 J.-C. Ringenbach coll. 19 exx. (C. Ringenbach); Wadi Darnah, 31.V.2003 J.-C. Ringenbach coll. 12 exx. (C. Ringenbach); Darnah, 6.VI.1936 (MEUN); idem, 28.VI.2003 J.-C. Ringenbach coll. 1 ex. (C. Ringenbach); idem, 25.V.2005, P. Weill coll. 1ex. (C. Weill); Al Marj, 1942 (MEUN); Al Marj XI.1928 (MEUN); Al Qubbah, 23 and 28.VIII.2003 J.-C. Ringenbach coll. 4 exx. (C. Ringenbach); idem, 25.V.2005 P. Weill coll. 2 exx. (C. Weill).

Diagnosis. A large sized *Mylabris* of the subgenus *Zitunabris* with close affinities to *M. oleae*, but distinct from it by the following characters: antennomeres IV-X slender, subcylindrical and more parallel, distinctly longer than wide (vs. subequal), particularly VII-X (see Figs. 13 and 14 for comparison); anterior margin of mesosternum slightly curved in the middle (vs greatly curved), male gonostili cylindrical but narrow in basal two-third (vs widely cylindrical) (see Pardo Alcaide 1954 for comparison). Differs from other species of the subgenus in the following characters: *M. baulnyi* has the pronotum more narrow and sides more parallel, antennomere I as long as III (vs. shorter), antennomeres VII-X more cylindrical; *M. filicornis* has temples more narrow and parallel, pronotum more narrow and less pentagonal, antennomeress VI-X cylindrical at base (vs. narrowed), elytral punctures deeper; *M. rimosa* has antennomeres similar to *M. oleae* and anterior modified portion of mesosternum with a longitudinal deep concavity; *M. syriaca, M. suturalis, M. interrupta,* and *M. atrofasciata* have the pronotum wider and more pentagonal, anterior transverse depression deeper, more finely punctate.

Description. Body black, frons with small bilobed red spot, elytra yellow-brown with apex broadly black and two additional wide black, transverse fasciae (fig. 11), anterior most fascia positioned at basal one-third and not reaching lateral margin, hind margin straight, anterior margin subarcuate and extending anteriorly along suture to elytral base, middle fascia with both margins straight and not reaching suture in several specimens, posterior margin typically suboblique. Maximum body length: 22–31 mm.

Head transverse, wider than long, maximum width at level of eyes, which are large, slightly bulging, not evidently emarginate along anterodorsal margin. Frons transversally depressed; punctures dense, shallow, interspaces shiny and shagreened; frontal suture well-developed. Temples subparallel, broadly curved at occiput. Clypeus transverse, wider than long, widened at middle, narrowed anteriorly, punctation same as head; labrum ~0.8 times as long as clypeus, enlarged from base to middle, convergent in front, anterior margin broadly emarginate. Mandibles robust, curved and narrowed anteriorly, slightly longer than clypeus and labrum combined. Maxillary and labial palpi unmodified, last maxillary palpomere slightly enlarged apically; male labial palpomere II with long, thickened setae on apex. Antennomere I 3 times as long as II; II short and subglobose; III elongate, subparallel, more than 3 times as long as II, ~1.2 times as long as both I and IV; IV-VI similar in shape and size, slender, subcylindrical, narrowed at base; VII-X progressively shorter, slightly narrowed at base; XI 1.5 times as long as X, cylindrical in basal half and slender in apical half, subobtuse at apex (fig. 9).

Pronotum subpentagonal, ca. 1.2 as long as wide, slightly enlarged from base to middle, distinctly narrowed to apical margin; anterior third with wide, deep, transverse depression, vaguelydepressed at base. Sternites and pleurites with same punctation as head. Mesosternum (fig. 10) with anterior margin slightly curved; modified anterior section of mesosternum small, impunctate, scarcely delimited posteriorly; lateral portions of sternite vaguely punctate. Mesepisterna not depressed anteriorly. Pro- and mesotibiae with two slender and acute elongate spurs, metatibial external spur acute, inner spur stout, tibiae and tarsi densely setose with scattered long setae laterally; female with anterior protibial external expansion short; claws smooth on ventral side, curved in apical third. Elytra (fig. 11) subopaque, shiny on black surface, densely punctured, punctures superficial and dense, deeper on black surface.

Male with posterior margin of penultimate visible abdominal sternite emarginate in middle, almost straight in female; last visible sternite (fig. 12) deeply V-shaped with long and dense setae at apex. Male gonostyli about two times as long as phallobase, laterally (fig. 13) slender and parallel in basal two-thirds, apical lobes slender and slightly curved; aedeagus with two long and slender subapical hooks; *spiculum gastrale* slender and elongate.

Relationships. This species, endemic to Cyrenaica, belongs to the subgenus *Zitunabris* as defined by Pardo Alcaide (1969). The following species, all endemic to small geographic areas, are included in this subgenus (Bologna 2008): *M. atrofasciata* (Pic 1921) (Iran: Abadeh, Yazd), *M. baulnyi* Marseul 1870 (Saharan Morocco and Algeria), *M. filicornis* Marseul 1870 (East Egypt, Jordan and Israel), *M. interrupta* Olivier 1801 (Iran: Fars, Lorestan), *M. oleae* Chevrolat 1840 (Mediterranean and sub-Mediterranean Morocco, Algeria and Tunisia), *M. rimosa* Marseul 1870 (Saharan Morocco, Algeria and Tunisia), *M. suturalis* (Pic 1898) (southern Turkey, Syria, northern Iran?), and *M. syriaca* Klug 1845 (polytypic: the nominate subspecies from Greece East to Trancaucasia, Turkey, Levant, Iraq and Iran?; the ssp. *panjaoensis* Kaszab 1953, endemic to Afghanistan).

Relationships have never been tested cladistically within this subgenus. Because of the short and more subtriangular antennomeres this new species appears greatly distinct from all *Zitunabris*; also the gonostyli are narrower and more curved apically than in other species. According to phenetic similarities, *M. cyrenaica* appears to be related to *M. oleae*, although its antennae, mesosternum and male genitalia are quite distinct.

Remarks. This new species was recorded as *M. oleae* by Gridelli (1930) and Zavattari (1934) from Cyrene.

The discovery of this new species was indirectly stimulated by the late Anselmo Pardo Alcaide, Melilla-Spain, who several years ago, just before his death, wrote to me about a new *Mylabris* species from Libya.

I examined two specimens of *M. cyrenaica* identified by him with a *nomen in litteris*, but which was never published.

Etymology. The specific epithet refers to Cyrenaica, the nort-eastern region of Libya, where this species is distributed.

Mylabris (Zitunabris) oleae Chevrolat 1840

Mylabris oleae Chevrolat 1840: 269 (nec Laporte de Castelnau 1840: 270)
Zonabris rotroui Pic 1933: 13 (nec Pic 1930:1)

Distribution. Maghrebian species, distributed in mediterranean habitats from Morocco to Tunisia, and possibly in Tripolitania, with some populations in subdesertic area. Uncertain records were reported from southern Spain, while the Near East citations refer to other species.

Libyan records. Two specimens from Tripolitania, Gharyan (22. IV.1953), were examined in MEUB, and were identified as *M. oleae*. During preparation of this manuscript, these specimens were requested but not found; consequently, I cannot confirm if they belong to *M. oleae*, or to *M. cyrenaica*. The presence of this West Mediterranean species in Tripolitania is probable.

Mylabris (Eumylabris) calida (Pallas 1782)

Meloe calida Pallas 1782: 85
Mylabris maculata Olivier 1795: n. 47
Mylabris bimaculata Olivier 1811: 93
Mylabris decora Olivier 1811: 94 (nec Frivaldszky 1835)
Mylabris maura Chevrolat 1840: 273
Mylabris niligena Reiche 1865: 638
Zonabris maroccana Escherich 1899: 107
Zonabris bimaculaticeps Pic 1920: 9
Zonabris tlemceni Pic 1930: 3

Distribution. Turano-Mediterranean species, distributed in central Asia (east to China and Korea), Caucasus and Transcaucasia, southern Balkan Peninsula, Near East, Levant and Arabian Peninsula, northern Africa.

Libyan records. Tripolitania. Tripolitania (Soumacov 1930, as *M. tlemceni*); Angila?, VI.1964 1 ex. (MCNV). **Cyrenaica.** Cyrenaica (MSNV); Wadi El Magrum, VII.1942, Bacci 14 exx. (MCNG); Benghazi (Dodero 1922, 1925; Gridelli 1930; Zavattari, 1934); El-Fuehat (Zanon 1922b; Dodero 1922, 1925; Gridelli 1930); palms cultivation N of Benghazi (Gridelli 1930); Berka, Spring 1923 (MEUN); Siret Sleaia, V.1928 (MEUN); El-Merj, XI.1928 (MEUN); Messa (Dodero 1925; Gridelli 1930; Zavattari 1934); S of Abu Zayyan, 3.VI.2005 P. Weill coll. 5 exx. (C. Ringenbach; C. Weill); Goth Sultan, VII.1981 D. J. Roggema 4 exx. (IRSB); Ain Mara (Gridelli 1930; Zavattari 1934); Tobruq (Gridelli 1930; Zavattari 1934); Bardiya (Gridelli 1930; Zavattari 1934).

Mylabris (Eumylabris) cincta Olivier 1795

Mylabris cincta Olivier 1795: 98
Mylabris tiflensis Billberg 1813: 13
Mylabris matthesi Faldermann 1837: 120
Mylabris bicolor Waltl 1838: 465
Mylabris taeniata Waltl 1838: 465
Mylabris tricingulata Redtenbacher 1850: 49
Mylabris jugatoria Reiche 1865: 633
Zonabris diversepunctata Pic 1921: 5
Zonabris soubironi Pic 1921: 5

Distribution. Turano-Mediterranean species, distributed in central Asia (east to Kazakhstan), from Near East and Levant to Pakistan, Caucasus and Transcaucasia, southern Balkan Peninsula, Near East, northern Africa.

Libyan records. Cyrenaica. Ain Mara (Gridelli 1930, as *Mylabris* sp.; Zavattari 1934, as *M. jugatoria*); Bardiya (Gridelli 1930, as *Mylabris* sp.; Zavattari 1934, as *M. jugatoria*).

Tribe Meloini

Meloe (Eurymeloe) affinis schatzmayri Bologna 1988

Meloe (Eurymeloe) affinis schatzmayri Bologna 1988: 272

Distribution. Polytypic Western Mediterranean species distributed from Morocco to Tripolitania, where the endemic subspecies *schatzmayri* occurs.

Libyan records. **Tripolitania.** Tripolitania (Bologna 1991). Tarabulus (Heyden 1890; Zavattari 1934, both as *M. affinis*); Gharyan, 23/24.III.1926 Holotype and 11 Paratypes (CB, MSNM; Bologna 1988a); Jebel Nafusah, Elfren, 18.II.2005 M. Sarà coll. 1 ex. (CB). Bologna (1991) reported the possible presence of this subspecies also in Sirtica and Cyrenaica.

Remarks. This subspecies is greatly distinct from the nominate form and possibly it could be evaluated as a distinct species, after the examination of more specimens.

Meloe (Eurymeloe) mediterraneus G. Müller 1925

Meloe mediterraneus G. Müller 1925: 22
? *Meloe bilineatus* Aragona 1830: 20

Distribution. Species widely distributed in Mediterranean (including Macaronesia) and some termophilic regions of western and south-eastern Europe, east to Turkey, Transcaucasia and Iran. Some Libyan citations of *M. rugosus* Marsham 1802, an Euro-Turanian species absent from northern Africa, actually refer to *M. mediterraneus*; some others likely refer to *M. affinis schatzmayri* Bologna 1988.

Libyan records. Tripolitania. Tripolitania (MSNV); Gharyan, Tebedeuth (Andreucci 1913; Zavattari 1934, both as *M. rugosus*, possibly referable to *M. affinis schatzmayri*). According to these records, Bologna (1988) reported as doubtful *M. mediterraneus* in Tripolitania and cited its probable presence in Libya (Bologna 1991). **Cyrenaica.** Cyrene archeological area, 29.XII.2000 B. Osella 1 ex. (MZAQ); Darnah (Dodero 1925, as *M. rugosus*; Gridelli 1930; Zavattari 1934, as *rugosus*). Gridelli (1930) noted that this specimen is similar to the Italian ones previously referred to *M. rugosus* and now to *M. mediterraneus*.

Meloe (Eurymeloe) murinus Brandt & Erichson 1832

Meloe murinus Brandt & Erichson 1832: 127
? *Meloe cinereus* Brandt & Ratzenburg 1833: 111
? *Meloe ovilis* Mulsant 1857: 82

Distribution. Western Mediterranean species, distributed in the Iberian Peninsula, Sicily, Sardinia, Crete, and in northern Africa, from Morocco, Tunisa, and possibily Cyrenaica.

Libyan records. Cyrenaica. Cyrenaica (Bologna 1994); Tulmeitha (Dodero 1925; Gridelli 1930; Zavattari 1934); Darnah (Dodero 1925; Gridelli 1930; Zavattari 1934). These records need confirmation and probably refer to *M. nanus*. Bologna (1988a) cited the species from Hanifia, but this locality is actually in Algeria. The presence of *M. murinus* in Cyrenaica is doubtful, although it could occur in Tripolitania.

Meloe (Eurymeloe) nanus Lucas 1849

Meloe nanus Lucas 1849: 400
Meloe murinus Reitter 1895: 12 (pars, nec Brandt & Erichson, 1832)

Distribution. Southern Mediterranean species, distributed in the Iberian Peninsula, northern Africa from Morocco to Egypt, Synai and Israel, Jordan and Palestine.

Libyan records. Libya (Bologna 1991). **Tripolitania.** Nalut (Koch 1939); Sabratah, 21.XI.2001 J.-C. Ringenbach coll. 1 ex. (C. Ringenbach); Yafran, 30.XI.2007 P. Weill coll. 1 ex. (C. Weill). **Cyrenaica**. El-Fuehat, 1 ex. (MCNV det. as *murinus*; Zanon 1922b, as *Meloe* sp. *prope murinus*; Zavattari 1934 as Bengasi, as *Meloe* sp.; Bologna 1988a); Darnah, Martuba, I.1940 Andreini 2 exx. (MSNT; MZUF as *M. baudueri*; Bologna 1988a).

Meloe (Coelomeloe) tuccius tuccius Rossi 1792

Meloe tuccius Rossi 1792: 283

Distribution. The nominate form of this polytypic species is widely distributed in the Macaronesian archipelagos, from the Iberian Peninsula through southern Europe, Near East, Caucasus and Central Asia, East to Afghanistan, Tajikistan and Western China, from Morocco through northern Africa, east to Egypt, Levant and Iran. The subspecies *corrosus* Brandt & Erichson 1832 is endemic to southern Italy and Sicily.

Libyan records. Libyan coasts (Schmidt 1913). **Tripolitania.** Tripolitania, 3 exx. (MCNG; MSNM; Schmidt 1913); El-Khoms (Gridelli 1930; Zavattari 1934; Bologna 1991). **Cyrenaica.** Cyrenaica 1 ex. (MCGN; Schatzmayr 1941; Bologna 1991); Benghazi 12.II.1931 1 ex. (MCZR; Gridelli 1930; Zavattari 1934); El-Fuehat (Dodero 1925; Gridelli 1930); Ra's al Hilal, 27.III.2005, P. Weill coll. 1 ex. (C. Weill); Salantah, 28.III.2005 P. Weill coll. 2 exx. (C. Weill); 5 km Lamluda, 14.IV.1967 G. Dellacasa coll. 2 exx., P. Maifredi coll. 1 ex. (MGNG); Marsa Susa, arab cemetery, 19.IV.1967 G. Dellacasa & P. Maifredi coll. 1 ex. (MGNG); Ras El-Hilal, 27.III.2005, P. Weill coll. 1 ex. (C. Weill); Apollonia, 28.XII.2001 B. Osella coll. 1 ex. (CB); Tobruq (MCNG; Zavattari 1934); Tobruq, Forte Mduar (Gridelli 1930).

Meloe (Taphromeloe) foveolatus Guérin de Méneville 1842

Meloe foveolatus Guérin de Méneville 1842: 133
Meloe roubali Mařan 1942a: 56

Distribution. Uncommon western Mediterranean species, distributed from Tripolitania to Algeria, recorded rarely from coastal Spain, and from Apulia (not recently).

Libyan records. Tripolitania. Tarabulus, 1 ex. (HNHM; MNHN; Guérin de Méneville 1842; Borchmann 1917; Mařan 1942a; Bologna 1991; Bologna & Pinto 1992).

Meloe (Meloegonius) rufiventris rufiventris Germar 1817

Meloe rufiventris Germar 1817: n. 6
? *Meloe sulcicollis* Latreille 1804: 391
Meloe hoffmansnseggi Germar 1817: n. 6 *nomen nudum*
Meloe coriarius Brandt & Erichson 1832: 131
Meloe reticulatus Brandt & Ratzenburg 1833: 108

Distribution. Turanian-European species, widely distributed from East France (Alsace) through central Europe to Russia, south to northern Italy (probably extinct) and northern Greece; in the Near East and central Asia, from Kazakhstan to Afghanistan, Tajikistan and Kirghizstan. In North Africa recorded in isolated localities from Algeria and Cyrenaica.

Libyan records. Cyrenaica. Cyrenaica (Bologna 1991, 1994); Tobruq (Gridelli 1930; Zavattari 1934); Bardiya, III.1927 1 ex. (MCGN; Gridelli 1930); Bir esc-Shaqqa, Ridotta Maddalena (Gridelli 1930; Zavattari 1934).

Meloe (Treiodus) autumnalis autumnalis Olivier 1792

Meloe autumnalis Olivier 1792: 65
Meloe cyaneus Fabricius 1801: 589
Meloe punctatus Marsham 1802: 483
Meloe glabratus Leach 1815: 43
Meloe hiemalis Gredler 1866: 289
Meloe carnicus Katter 1883: 41

Distribution. European species, marginally distributed in Maghreb (from Morocco to Cyrenaica) and Near East (Turkey and Levant). The nominate subspecies is distributed through central and southern Europe and England, from the Iberian Peninsula to southern Russia and Caucasian Region; the subspecies *heydeni* Escherich, 1889 is endemic to Sicily. New for Libya.

Libyan records. **Tripolitania.** Gharyan, XI.1951 2 exx. (MCNG; OSBO as *Meloe affinis* det M. Magistretti). **Cyrenaica.** Cyrenaica, XI.1928 (MEUN); Al Marj, XI.1928 (MEUN).

Meloe (Meloe) aegyptius aegypytius Brandt & Erichson 1832

Meloe aegypytius Brandt & Erichson 1832: 119
Meloe plicatipennis Lucas 1849: 400
Meloe siculus Baudi 1878: 352

Distribution. Polytypic southern Mediterranean species, distributed in the Eastern Canary Islands, Western Sahara, from Morocco East to Egypt, and Sicily (not recorded recently).

Libyan records. **Tripolitania.** Tripolitania 4 exx. (MSNM; MSNV); northern Tripolitania (Bologna 1991); Sabratah, 11.III.1926 A. Schatzmayr coll. 2 exx. (MSNM); Tarabulus, 2 exx. (JDP; MSNM); Al Aziziyah, 13.II.2003 J.-C. Ringenbach coll. 1 ex. (C. Ringenbach); Leptis Magna, 6.IV.1953 1 ex. (OSBO). **Cyrenaica.** Darnah (Dodero 1925; Gridelli 1930; Zavattari 1934); Tobruq (Gridelli 1930, Zavattari 1934) (all these citations as *M. violaceus* var. *siculus* Baudi 1878); Marmarica coast (Bologna 1991).

Meloe (Lampromeloe) cavensis Petagna 1819

Meloe cavensis Petagna 1819: 40
Meloe purpurascens Germar 1834: 12
Meloe sardous Gené 1836: 198
Meloe aeneus Laporte de Castelnau 1840: 278
Meloe latreillei Marseul 1867: 89
Meloe specularis Gredler 1877: 518 (doubtful synonymy)
Meloe stellatus Pliginskij 1923: 143 (doubtful synonymy)

Distribution. Mediterranean species, distributed from the Iberian Peninsula, southern France, southern Italy (and Tyrrhenian islands) to Greece, Anatolia, Cyprus and Levant, from Morocco East to Egypt, Iraq and western Iran.

Libyan records. Libya (Boselli 1930; Schatzmayr 1941). **Tripolitania.** Tripolitania (MSNM; Bologna 1991); Tarabulus, 1917 Neri coll. 1 ex. (MCNG); idem, 1956 1 ex. (BMNH; Karsch 1881; Zavattari 1934); Gargaresh (Andreucci 1913; Zavattari 1934); Bir Milhra (Andreucci 1913; Ghigi 1913); Tarhuna, IV-V.1957 M. J. Tink coll. 1 ex. (BMNH; Karsh 1881; Zavattari 1934); Gharyan, II.1993 20 exx. (MEUB; Koch 1939); idem, 1953 (MCNG); idem, II.1954 1 ex. (OSBO); idem, 1 ex (MCNG); Misrata, 2 exx. (MCNG); Es Sidra Desert, I.1942 1 ex. (MSNV). **Cyrenaica.** Cyrenaica, 1 ex. (MZUB; Bologna 1991); Benghazi, V.1916 V. Zanon 1 ex. (MZUF); idem, 2 exx. (MCNG; Dodero 1925; Gridelli 1930); El-Fuehat, 3 exx. (Museo di Storia Naturale di Livorno, according to G. Rallo *in litteris*; Zanon 1919, 1922a, 1922b; Dodero 1922; Gridelli 1930; Marinelli 1931; Zavattari 1934 as Bengasi); El-Merj, XI.1928 1 ex. (MEUN); Marsa Susa, arab cemetery, 19.IV.1967 G. Dellacasa, P. Maifredi 1 ex. (MGNG); Darnah (Dodero 1925; Gridelli 1930; Zavattari 1934).

Remarks. As discussed by Bologna (1991), the synonymies of *M. specularis* Gredler, 1877 from the extreme southern Sudan and *M. stellatus* Pliginskij 1923 from the Iranian Kouzestan, proposed by some Authors, need confirmation after the examination of types. In the first case, the presence of one species of the Palaearctic subgenus *Lampromeloe* in a humid tropical area is ecologically difficult to explain, and suggest the possibility of an error of labelling. The presence of *M. cavensis* in subdesertic areas of southern Morocco or norther Egypt supports the possibility of its presence also along the middle Nile Valley of Sudan.

Subfamily Nemognathinae Laporte de Castelnau 1840

Tribe Nemognathini Laporte de Castelnau 1840

Apalus bimaculatus (L. 1761)

Meloe bimaculatus L. 1761: 288

Distribution. Asiatic-Euro-Mediterranean species, widely distributed throughout Europe, North to the Scandinavian Peninsula, western and central Asia, east to Siberia and Japan, and in northen Africa from Morocco to Cyrenaica.

Libyan records. Cyrenaica. Northern Cyrenaica (Bologna, 1991); El-Fuehat, Raaba (Zanon, 1922b, as *Hapalus* sp. n.? *prope necydaleus*; Gridelli, 1930 as *Hapalus bimaculatus* var. *vittatipennis* n.; Zavattari, 1934, as Bengasi).

Remarks. Examination of specimens from Cyrenaica is necessary to confirm the presence of this species.

Apalus guerini (Mulsant 1858)

Criolis guerini Mulsant 1858: 240

Distribution. Uncommon western Mediterranean species, distributed in Spain, south France, central and southern Italy and Sicily, Morocco and possibly Cyrenaica.

Libyan records. Cyrenaica. Cyrene (Falzoni, 1923). Gridelli (1930) considered this record doubtful and possibly referable to *A. necydaleus*, which is known to occur in the region. Both Zavattari (1934) and Bologna (1991), transferred the citation to *A. necydaleus*. However, considering the great morphological differences between these two species, the Falzoni's record could be correct.

Apalus necydaleus (Pallas 1782)

Meloe necydaleus Pallas 1782: 92
Apalus rufipennis Gebler 1830: 142
Apalus spectabilis Frivaldszky 1835: 265

Distribution. Turano-Anatolian species, recorded from Hungaria, Greece and Crete, Anatolia and Caucasus, Iran, from Ukraine through southern Russia to Kazakhstan, and in Cyrenaica**.**

Libyan records. Cyrenaica. Cyrenaica (Bologna 1994); Benghazi, II.1920 V. Zanon coll. 1 ex. (MCNG; Gridelli 1930; Zavattari 1934); Cyrene (Zavattari 1934); El-Merj (Gridelli 1930; Zavattari 1934).

Stenoria analis Schaum 1859

Stenoria analis Schaum 1859: 51
Stenoria adusta Schaum 1859: 51
Sitaris colletis Mayet 1873: 198

Distribution. The distribution of this species appears fragmented, but this is probably due to the paucity of records; in fact, adults are uncommon outside of host nests and are active for a short period. In Europe, the species is recorded from the Iberian Peninsula through central Europe to southern Russia and Turkey, in Italy and Croatia, and is also cited from Morocco (Pardo Alcaide 1958). The Iranian record needs confirmation. New for Libya.

Libyan records. Tripolitania. Est of Gharyan, 14.V.2005 P. Weill coll. 1 ex. (C. Weill).

Taxonomic remarks. *Stenoria plagiata* (de la Escalera 1914), from the southwestern coast of Morocco, and *S. canariensis* (Pic 1920) from the Canary Islands are close related to, and possibly synonyms, of *S. analis*.

Sitaris (Sitaris) muralis (Foerster 1771)

Necydalis muralis Foerster 1771: 48
Necydalis humuralis Fabricius 1775: 209
Cantharis attenuatus Fourcroy 1785; 154
Necydalis humeralis Fabricius 1787: 170
Sitaris splendidus Schaufuss 1861: 49
Sitaris nitidicollis Abeille de Perrin 1869: 42

Distribution. Euro-Mediterranean species, widely distributed in southern, central and eastern Europe, from the Iberian Peninsula to southern Russia, and from Baltic to Mediterranean coasts, also in northern Africa, from Morocco to Fazzan; doubtfully recorded from Egypt. The citations from Turkestan need confirmation.

Libyan records. Fazzan. Fazzan (Bologna 1991, 1994); Guado (= Ghodduwa?), Laghetto, E. Zavattari coll. 1 ex. (MCNG).

Sitaris (Filalia) cerambycinus (Martinez de la Escalera 1906)

Filalia cerambycina Martinez de la Escalera 1906: 161

Distribution. Western Mediterranean species, recorded from coastal Morocco and Tripolitania.

Libyan records. Sabkhat Karkurau, 9.X.1999 R. Sehnal coll. 1 ex. (C. Krejcik) This locality was not found in any gazeteer. **Tripolitania.** Tarabulus, X.1982 C. Březine coll. 1 ex. (C. Dvořák; Bologna & Pinto 2002).

Zonitis (Zonitis) bellieri Reiche 1860

Zonitis bellieri Reiche 1860: 731
Zonitis turcica Frivaldszky 1877: 104

Distribution. South Mediterranean species, recorded from Sicily and Morocco to Tripolitania; cited as *Z. turcica* Frivaldszky 1877 from the Aegean area of Turkey.

Libyan records. Tripolitania. Sabratah, 11.III.1926 A. Schatzmayr coll. 1 ex. (MSNV; Bologna 1991).

Zonitis (Zonitis) flava Fabricius 1775

Zonitis flava Fabricius 1775: 127
Mylabris testacea Fabricius 1781: 331
Lytta afra Rossi 1790: 240
Zonitis praeusta Fabricius 1792: 48
Zonitis nigripennis Fabricius 1794: 103
Zonitis scutellaris Motschulsky 1870: 52
Zonitis nigripes Motschulsky 1873: 52
Zonitis impressicollis Motschulsky 1873: 53

Distribution. Widely distributed in southwestern Palaearctic Region, from southern Europe to southern Russia and central Asia, east to Chinese Turkestan; Turkey, Transcaucasia, Cyprus, Levant and Iran; North Africa, at least from Morocco to Cyrenaica. Some Asian records likely refer to other species.

Libyan records. Cyrenaica. Cyrenaica (Magistretti 1962; Bologna 1991, 1994); Benghazi (Dodero 1925; Gridelli 1930; Zavattari 1934); Wadi al Kuf, 24.V.2005 P. Weill coll. 1 ex. (C.Weill); Darnah, 25.V.2005 P. Weill coll. 1 ex. (C.Weill).

Taxomomic remarks. The taxonomy of this species remains unresolved. The most common phenotypes in Maghrebian populations have an entirely black body, but rarely may be totally or partially reddish, which is common in northern Mediterranean populations. The single specimen examined has the metatibial spur more slender than in northern Mediterranean populations.

Zonitis (Zonitis) ruficollis Frivaldszky 1877

Zonitis ruficollis Frivaldszky 1877: 107
Zonitis rubricollis Abeille de Perrin 1880: 256
Zonitis abeillei Bedel 1892: 248
Zonitis thoracica Escherich 1891: 237 (pars) (nec Laporte de Castelnau, 1840)

Distribution. Mediterranean species, recorded from Turkey, Crete, Levant, Cyrenaica, Algeria and doubtfully from Morocco. New for Libya.

Libyan records. Cyrenaica. Al Qubbah, 28.VI.2003 J.C. Ringenbach coll. 2 exx. (C. Ringenbach); Wadi al Kuf, 24.V.2005 P. Weill coll. 1 ex. (C.Weill).

Zonitoschema pallidissima (Reitter 1908)

Stenodera pallidissima Reitter 1908: 50

Distribution. Saharan species, distributed from Morocco to Egypt, in southern Israel and Saudi Arabia. New for Libya.

Libyan records. Tripolitania. Wadi Caàm, 17.IX.1954 1 ex., 20.IX.1954 4 exx. (MCNG).

Biogeographical discussion

Since the faunistical exploration of Libya is greatly incomplete, only preliminar annotations on the blister

beetles biogeography of this country can be proposed. As previously indicated, during the Italian colonial period some biogeographical contributions on the Libyan fauna have been published (e.g. Colosi 1923; Ghigi 1923, 1924; Zavattari 1934; Pardi 1949). According to these studies, biogeographically Libya is relevant because of its central position in the Mediterranean basin, between south Mediterranean and Sahara, then representing a biogeographical hinge.

From an ecological point of view, few ecosystems are represented in Libya: the mediterranean maquis in both northern Tripolitania and northern Cyrenaica; the mediterranean steppe in the Cyrenaican Barca; and desert ecosystems, variously shaped as concerns substrate and bioclimate, in almost 90% of the country, particularly in southern and central Libya (Fazzan and Libyan Desert), but extended towards north to the sea in the Sirtica region, which shares western and eastern Mediterranean costs. The Saharan oases represents a special xeric habitat, scarcely explored.

The previous biogeographical studies showed a clear distinction between the fauna of Tripolitania and Cyrenaica. The first region in the northernmost part is faunistically closely related to the Maghreb, and in the southern portion to Western Sahara. The fauna of Cyrenaica is well distinct from that of Egypt and more related in the northermost part to Levant and Turkey, and to Saharo-Arabian area in its southern portion. Special attention was focused on the biogeographical pattern of Cyrenaica, evidencing some peculiarities due to the presence of endemisms and Syro-Anatolian elements. These characteristics were explained respectively by the Miocenic isolation of the Barca plateau in comparison with the Quaternary formation of the northern Egyptian lands, and by possible ecological connections along the northern costs afterwards lost as a consequence of the recent desertification.

In the analysis of blister beetles fauna, six species whitin 64 recorded are excluded from the study because of the uncertainty of their presence or possible errors of identification: *Alosimus syriacus, Cabalia rubriventris, "Lydomorphus" palaestinus, Hycleus apicipennis, H. brevicollis, Apalus guerini*. The generic citation from Libya of *Croscherichia fulgurita*, a widely spread Saharan element, was assigned to all three main regions of this country.

The examination of main chorotypes (*sensu* Vigna Taglianti *et al.* 1992, 2000) of Libyan blister beetles (tab. 1), firstly evidenced two aspects: (a) the predominance of chorotypes belonging to Mediterranean and Saharan sets; (b) a great divergence between the Tripolitanian and Cyrenaican fauna composition. The paucity of Fazzan's fauna does not permit to make comments, even if it is interesting the presence of a species widely distributed (*Sitaris muralis*), belonging to an Euro-Mediterranean chorotype, together with four trans-Saharan elements.

The predominance of Mediterranean and Saharan chorotypes is clearly related to the geographical position of Libya and its ecological characteristics. Among Mediterranean chorotypes, are prevalent those W-Mediterranean and S-Mediterranean; among the Saharan chorotypes, outnumber the Saharan ones, usually with extension in the Arabian Peninsula or to the Sind, and the W-Saharan.

Most interesting is the analysis of the difference between the blister beetle fauna of Tripolitania

Table 1. Percentages of chorotypes of Lybian Meloidae

Chorotypes	%	%	%	%
	Tripolitania	**Cyrenaica**	**Fazzan**	**Libya**
Olo-Mediterranean	2.56 (1)	7.41 (2)	0	3.45 (2)
W-Mediterranean	15.38 (6)	7.41 (2)	0	12.07 (7)
E-Mediterranean	0	11.11 (3)	0	6.90 (4)
S-Mediterranean	15.38 (6)	14.81 (4)	0	10.34 (6)
Euro-Mediterranean	7.71 (3)	7.41 (2)	20.00 (1)	6.90 (4)
Turano-Mediterranean	2.56 (1)	11.11 (3)	0	3.45 (2)
Turano-Euro-Mediterranean	2.56 (1)	11.11 (3)	0	6.90 (4)
W-Palaearctic	0	3.70 (1)	9	1.72 (1)
Saharan (-Sindian)	25.64 (10)	14.81 (4)	80.00 (4)	24.14 (14)
W-Saharan	25.64 (10)	0	0	17.24 (10)
Sahelian	0	3.70 (1)	0	1.72 (1)
Endemic (see text)	2.56 (1)	7.41 (2)	0	5.17 (3)
N species	**39**	**27**	**5**	**58**

and Cyrenaica. Studying in detail the chorotype composition, the Cyrenaican fauna clearly results most diversified, and includes three chorotypes not present in Tripolitania, namely the E-Mediterranean, W-Palaerctic and Sahelian, while lacks a very relevant chorotype represented in Tripolitania, the W-Saharan. Additionally, it greatly differs in the percentages of chorotypes which represent species eastward distributed in the Turanian Basin.

Libyan endemic species are only three. Obviously, endemisms can not be considered as chorotypes, because they do not represent generalized model of wide distribution and need a different analysis based on their phylogenetic relationships. *Hycleus ringenbachi* is endemic to Tripolitania and is strictly related to two other species, namely *H. silbermanni* and *H. allardi*, both distributed in xeric sub-Mediterranean regions of Morocco, Algeria and Tunisia. Consequently *H. ringenbachi* reveals W-Mediterranean affinities. As concerns both endemisms of Cyrenaica, *Mylabris poggii* and *M. cirenaica*, their affinities are not completely clarified, but according to morphological relationships preliminarly evidenced, both appear related to W-Mediterranean species. *M. poggii*, belonging to the nominate subgenus, seems to be close to a complex of Maghrebian species which includes *M. tricincta* and *M. guerini*, and possibly other undescribed species, even if relationships whitin the subgenus are not defined cladistically. A similar situation concerns *M. cyrenaica*, belonging to the subgenus *Zitunabris*, which seems close to the W-Mediterranean species *M. oleae*, more than other E-Mediterranean species, waiting for the revision of the subgenus.

In synthesis, the Cyreneaican fauna appears more characterized by species distributed in the Levant, Anatolia, Transcaucasia and Western Central Asia, while the Tripolitanian fauna is characterized by species esclusive of SW-Mediterranean or W-Saharan region. These results greatly match with previous literature information. Saharan species seems more distributed in Tripolitania than in Cyrenaica and, as well as W-Saharan elements, in Tripolitania they are extensively distributed to North, probably due to the extension of the desert to the Mediterranean costs in Sirtica, associated to the narrowness of the Mediterranean ecosystems in the Tripolitania mountains, where desert elements are common. The paucity of Saharan species in Cyrenaica probably is strictly due to the scarce research in the southern part of this region.

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