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Meloidae of Namibia (Coleoptera): taxonomy and faunistics with biogeographic and ecological notes

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Abstract

The blister beetle (Coleoptera: Meloidae) fauna of Namibia is studied. The species are arranged within a catalogue containing information on their general distribution, including a list of localities and brief taxonomic remarks. Zoogeographic and ecological analyses were carried out and a photographic appendix, with images and maps of almost all Namibian species, is included. According to a chorological analysis, the Namibian blister beetle fauna appears to be zoogeographically distinct because of the dominance of western southern African elements. The faunistic levels of similarity among distinct areas in Namibia are also analysed. Several of the endemic species are related to the xeric ecosystems referable to the Namib Desert, Succulent Karoo and Nama Karoo biomes, but the highest diversity is related to the ecosystems referable to the Savannah biome. A total of 148 species belonging to 28 genera, eight tribes and three subfamilies (Eleticinae, Meloinae, Nemognathinae) are recorded from this southern African country. Five new genera (*Namibeletica* **gen. nov.**, Eleticinae Eleticini; *Dilatilydus* **gen. nov.** and *Desertilydus* **gen. nov.**, Meloinae Lyttini; *Paramimesthes* **gen. nov.** and *Namylabris* **gen. nov**, Meloinae Mylabrini) and a total of 13 new species are described: 11 new species from Namibia (*Psalydolytta gessi* **sp.nov**., *Paramimesthes namibicus* **sp.nov**., *Namylabris adamantifera* **sp.nov**., *Hycleus arlecchinus* **sp.nov**., *H. planitiei* **sp.nov**., *H. dvoraki* **sp.nov**., *H. aridus* **sp.nov**., *H. san* **sp.nov**., *Nemognatha fluviatilis* **sp.nov**., *"Zonitoschema" deserticola* **sp.nov**., *Zonitoschema dunalis* **sp.nov.**); a new *Namibeletica* from the Angolan Namib (*N. angolana*) and a new *Afrolytta* Kaszab, 1959 from the S African Namaqualand (*A. namaqua*), both close to Namibian borders. Fourty-eight species and the genus *Apalus* Fabricius, 1775 are recorded for the first time from Namibia, and a few other species from South Africa (1), Zambia (1), Botswana (1) and Congo (1). The following new synonymies are proposed: *Lytta pleuralis* var. *inpleuralis* Pic, 1911 = *Lydomorphus (Lydomorphus) thoracicus* (Erichson, 1843), **syn. nov.**; *Lytta benguellana* Pic, 1911 = *Prionotolytta melanura* (Erichson, 1843), **syn. nov.**; *Actenodia amoena* ssp.*anthicoides* Kaszab, 1955b = *Hycleus amoenus* (Marseul, 1872), **syn. nov.**; *Decapotoma csikii* Kaszab, 1953 = *Hycleus benguellanus* (Marseul, 1879), **syn. nov.**; *Nemognatha capensis* Péringuey, 1909 = *Nemognatha peringueyi* Fairmaire, 1883, **syn. nov**. Several new combinations in the genus *Hycleus* Latreille, 1817 are also established.

Key words: blister beetles, southern Africa, biodiversity, distribution analysis, habitat preference

Introduction

Namibia is an African country of special interest because of its biodiversity richness (Barnard 1998). Namibian fauna is biogeographically and ecologically strictly related to South Africa, especially to the Cape region (Werger 1978; Bologna *et al.* 2008b; Allsopp *et al.* 2014), while the whole of this southern Africa area represents one of the most relevant hotspots of animal and plant diversity in the World (Meyers *et al* 2000).

Increasing the knowledge of Namibian animal taxonomy, distribution and ecology, particularly of invertebrates, contributes to a better understanding of African Biogeography and supports the efforts of biodiversity conservation in this still largely unexplored country. Meloidae (Coleoptera) is a common family of beetles in the Afrotropical Region and may represent a potential model group for biogeographic study of the continent. In particular, almost 10% of worldwide blister beetle genera appear to be endemic to the Cape region and Namibia (Bologna 1991; Bologna *et al.* 2008b). General information on this beetle family, mostly characterized by hypermetabolic larval development, parasitism on Aculeata and Caelifera, and production of cantharidin, are summarized by Selander (1964), Bologna (1991), Bologna *et al.* (2008c, 2010), and Bologna & Di Giulio (2011). The classification of this family was recently revised and updated by Bologna & Pinto (2001), and Bologna *et al.* (2008c).

Despite the importance of this area, faunistic knowledge remains scarce. Before the colonial period, among the very few data published on Namibian Meloidae, those of Marseul (1872) concern the coastal area around the Svakop river mouth. The same author (1879) studied Angolan blister beetles, describing some new species distributed also in the northern portion of Namibia. During the German (1884–1915: Deutsch Südwest Afrika) and especially the South African colonial period (1915–1990: South West Africa), the field research was extended to inner plateau, primarily near the capital Windhoek or in some northern mining areas, and after World War II also in the Namib Desert and near the main towns of the country. Records from the German period were published by Péringuey (1886, 1892, 1899, 1904, 1909), Pic (1908, 1911a, 1911b, 1915) and Borchmann (1928, 1940, 1942), who studied specimens housed in South African or European Museums (primarily Cape Town, Paris, Berlin, Hamburg). In the second half of the 20th century, Kaszab (1951, 1952, 1953b, 1953c,1954a, 1954b, 1955a, 1955b, 1956, 1967, 1969a, 1978, 1981) described several new species or cited Namibian records belonging to different

genera based on specimens housed in South African Museums (Pretoria, Cape Town), and in the National Museum of Namibia (Windhoek).

After the beginning of our study on the Namibian Meloidae (1996), we carried out five field expeditions (1997, 2001, 2003, 2004, 2005) in which a team of entomologists collected a rich variety of material with different techniques in the bloom seasons (January–April in most part of this country; September in the estreme south west). At the same time, we studied about four thousand specimens housed in several European, African and American Museums, most from the National Museum of Windhoek and the Berlin Museum (see Material and Methods).

A preliminary checklist of Namibian blister beetles was published by Bologna (2000a), who listed 92 species belonging to 20 genera. Additional records of some genera, namely *Actenodia* Laporte de Castelnau, 1840*, Australytta* Bologna, 2003*, Iselma* Haag-Rutenberg, 1879*, Meloe* Linné, 1758*, Mimesthes* Marseul, 1872*, Prolytta* Kaszab, 1959, were included in revisions with the description of some new species, mostly published thereafter (Bologna 2000b, 2003*,* 2009; Bologna *et al.* 2001; Bologna & Di Giulio 2002, 2003; Bologna *et al.* 2008a; Di Giulio & Bologna, 2007; Di Giulio *et al.* 2003; Pitzalis & Bologna 2008, 2010; Pitzalis *et al.* 2014, 2016).

After these revisions, one of us (MAB) continued the taxonomic work on the available material, and the present contribution includes descriptions of several new genera and species and a large number of new records. The catalogue includes 148 species belonging to 28 genera, some of which are new or hitherto unrecorded from Namibia. The revision of taxonomy and distribution of Namibian Meloidae allows us to develop a descriptive biogeographic study of this fauna based on chorotypes and to give general information on the ecological distribution of the species. Two masters theses (Amore 2005; Montalto 2005) and one doctoral dissertation (Pitzalis 2007) were completed during this project, and three preliminary studies were devoted to the ecological distribution and assemblage of species in the Namibian biomes (Pitzalis *et al*. 2014, 2016, 2017). The present paper focuses on comprehensive zoogeographic and ecological analyses.

A taxonomic key is not included here, but the key to the Old World Meloidae genera published by Bologna & Pinto (2002) is useful to identify the Namibian genera. It can be easily integrated by the comparative diagnoses of the new genera, which can be distinct from close genera by the diagnostic characters pointed out within the catalogue.

The aims of this paper are: (i) to publish a catalogue of Namibian species with all available records from both literature and collections; (ii) to describe new genera and species from Namibia and neighbouring countries; (iii) to uncover distributional models of genera and species of this country; (iv) to describe the ecological distribution of Namibian species; (v) to provide maps of distribution of all the species; (vi) to prepare plates of photographs of almost all Namibian species.

Material and methods

Faunistics and Taxonomy. Faunistic records were obtained from literature, museums and private collections (see Table 1), as well as from field samplings carried out in different seasons from 1997 to 2005. Field expeditions, aimed at collecting in most regions of Namibia, were carried out in the bloom period (February to April) in 1997 (M.A. Bologna, P. Audisio, M. Biondi, M. Zapparoli), 2001 (M.A. Bologna, P. Bombi), 2003 (M.A. Bologna, V. Amore, P. Bombi, F. Montalto, M. Pitzalis), 2004 (M.A. and M. Bologna, P. Bombi, C. Marangoni, M. Pitzalis), and in the small rain period (September–October) in 2005 in the southern portion of the country (M.A. Bologna, M. Pitzalis).

During field samplings, insects were net and hand-collected at day and night (light traps). Specimens were preserved in ethylic acetate or in alcohol (70–95%) for DNA studies. Records were registered in a database including information in specific sectors columns (e.g. taxonomy, source, geographical coordinates, phenology, habitat, host plant, etc.). This database (held on the M. A. Bologna' personal computer, University Roma Tre, Italy, and accessible only on written application), includes at the present more than 2700 collecting records. When possible, geographical coordinates were also assigned to data obtained from literature and collections. Geographical coordinates of records, georeferenced in the field, inferred from labels and gazetteers, were standardized as decimal degrees. Localities referring to Namibian topographic tables have been converted in latitude and longitude by maps elaborate by the software Map-info or by the Namibian gazetteer (National Geospatial-Intelligence Agency).

TABLE 1. Examined collections and related acronyms used in the text.

Acronym	Museum/Collection
AMG	Albany Museum, Rhodes University, Grahamstown, South Africa
AMNH	American Museum of Natural History, New York, NY, USA
BMNH	Natural History Museum, London, United Kingdom
CB	Coll. Marco A. Bologna, University Roma Tre, Rome, Italy
CK	Coll. Stanislav Krejcik, Unicov, Czech Republic
CP	Coll. Johannes Probst, Vienna, Austria
FLCA	Florida State Collection of Arthropods, Gainesville, FL, USA
HNHM	Hungarian Natural History Museum, Budapest, Hungary
JP	Coll. John D. Pinto, University of California, Riverside, CA, USA
MCZR	Museo civico di Zoologia, Roma, Italy
MNB	Museum für Naturkunde der Humboldt-Universität zu Berlin (Germany)
MNHN	Muséum National d'Histoire naturelle, Paris, France
MSNF	Museo di Storia naturale dell'Università di Firenze, Florence, Italy
MT	Museo Regionale di Storia naturale, Turin, Italy
NHP	Ditsong, National Museum of Natural History, Pretoria (late Transvaal Museum), South Africa
OSU	Oregon State University, Oregon State Arthropod Collection, Corvallis, OR, USA
PPRI	National Collection of Insect, ARC- Plant Protection Research Institute, Pretoria, South Africa
RMCA	Royal Museum for Central Africa, Tervuren, Belgium
SAMC	Iziko, South African Museum, Cape Town, South Africa
SMWN	National Museum of Namibia, Windhoek, Namibia

Data collected in the database were utilized to draw up the commented catalogue of Namibian species, and ecological and zoogeographic analyses. Photographs of almost all species are included in the text, and distribution maps of all species are provided in the Appendix 1.

After our research, the previous checklist of Namibian blister beetles (Bologna 2000a) was greatly improved. Five new genera subendemic to Namibia, with minor extensions in nearby countries (southwestern Angola, northwestern South African and northwestern Botswana) and eleven new species are described. Fourty-eight species previously uncited from Namibia are also recognized, as well as the genus *Apalus*.

In the commented catalogue, subfamilies, tribes and genera are arranged according to the phylogenetic hypotheses of Bologna & Pinto (2001, 2002) and Bologna *et al.* (2005, 2008c) based on morphological and molecular evidence. Subfamilies and tribes are listed in systematic order, and genera in alphabetic order. Species are ordered according to their phylogenetic relationships (subgenera or groups of species) or in alphabetic order if relationships are unknown. Groups of species are defined according to the literature or to personal taxonomic studies (Bologna unpublished). All new genera and new species are described and illustrated, and taxonomic remarks added for some genera, groups of species or species. References include original descriptions only of Namibian species. Synonymies and citations of papers with taxonomic updating are reported for each species; references concerning Namibian records published with names different than those adopted in the catalogue are also included.

The general distribution of each species and the complete list of Namibian localities, divided by regions and districts, are also provided. Geographical names, when possible, are standardized based on official maps. Georeferenced faunistic data are arranged geographically, north to south and west to east.

Types of all species described from Namibia and South Africa were examined and the collection in which they are housed is indicated. Types of the remaining species described from other African countries were examined, except some indicated in the text, but specimens compared with types were already studied. For the new combinations and new synonymies details on types are provided separately.

Biogeography and Ecology. Georeferenced data were utilized to define species distributions and also to design

common distributional patterns (chorotypes). The presence points of the species were utilized to infer the distribution area meant as extent of occurrence (EO: the boundaries of the polygon that describes the distribution range encloses the area in which an observer has a chance to find individuals of the species).

Zoogeographic analyses can be developed by different approaches and statistical support (e.g. Lamm & Redelings 2009; Morrone 2014, for recent reviews). In our paper we utilized the numerous records to describe the distribution of the species from a zoogeographic and ecological point of view. For the first purpose, to point out the relative abundance of species chorotypes (shared distribution pattern), permits to outline the influence of the Afrotropical components in the fauna structure and underline the relevance of the endemic species. The analysis of chorotypes is a method utilized especially by European researchers and it was recently well supported theoretically and utilized for African beetles (Biondi & D'Alessandro 2006). Moreover, this method enables us to compare our results with the only robust and comprehensive analysis of the South African distribution of biodiversity that has been previously published (Endrödy-Younga, 1978). In addition, our analysis, made on a rich taxon, can represent a general example to interpret the natural history of Namibian animals and plants distribution. In particular, the analysis of endemic taxa is very important for this purpose.

Distributions of both genera and species have been analysed. The wide chorotypes in most cases agree with the African models proposed by White (1983) for plants and with those of wingless southern Africa tenebrionids (Endrödy-Younga 1978). The narrow Namibian chorotypes are elucidated in this paper, this study being the first tentative chorological modeling of Namibia based on a homogeneous taxon characterized by high species diversity.

Species distribution maps were obtained by Quantum GIS 2.14 (http://qgis.org/it/site/forusers/download.html) using vectorial data from the Atlas of Namibia. To analyse the biodiversity distribution, a presence/absence matrix of species was created at the resolution of one-degree grid square (1°S x 1°E), and species richness and endemism richness in these squares were synthesized (see: Robertson *et al.* 1998; Sindaco *et al.* 2000). The distribution of species into biomes is also analysed. To evaluate the faunistic similarity among Namibian regions, we used the Baroni Urbani & Büser index of similarity, considered a better gauge of comparison than both the Jaccard's and the Sörensen's indexes (Biondi 1985), because it considers both co-presences and co-absences, given that the faunistic knowledge on Namibian blister beetles is relatively well known. The index was applied, using UPGMA method (software MVSP 3.13; http://www.softpedia.com/get/Science-CAD/MVSP.shtml), to the matrix of one-degree grid square (1°S x 1°E) described above.

Three studies on blister beetle assemblages in Namibian habitats were carried out (Pitzalis *et al.* 2014, 2016, 2017); these results are not included in the present paper. Instead, an analysis of habitat preferences is carried out here using Namibian biomes and vegetational types. We used the reviewed version of vegetional type (Mendelsohn 2002), which updated the information from the Giess' preliminary vegetation map (1971) and summarized other contributions.

To delineate ecological preferences of each species in the main habitats, a matrix of presence/absence was drawn up for those species with 15 or more records (a total of 43 species). As a whole, Namibian vegetational types can be recognized as falling into 28 categories: central desert (CD), northern desert (ND), southern desert (SD) of the Namib Desert (in general: D); succulent steppe (SS) of Succulent Karoo (SK); central-western escarpment and inselbergs (CWEI), desert/dwarf shrub transition (DDST), dwarf shrub savannah (DSS), dwarf shrub/southern Kalahari transition (DSSKT), Etosha grass and dwarf shrubland (EGDS), Karas dwarf shrubland (KDS), North-western escarpment and inselbergs (NWEI) are the vegetational types of Nama Karoo (NK); Caprivi Floodplains (CF), Caprivi mopane woodland (CMW), central Kalahari (CK), Cuvelai drainage (CD), eastern drainage (ED), highland shrubland (HS), karstveld (K), mopane shrubland (MS), north-eastern Kalahari woodlands (NEKW), northern Kalahari (NK), Okavango valley (OV), riverine woodlands and islands (RWI), southern Kalahari (SK), thornbush shrubland (TS), western highlands (WH), western Kalahari (WK) are the Savannah (S) vegetational types, and Pans (P) represent vegetational type of Salt Pan (SP). A similar matrix was drawn up referring to the four Namibian biomes (Desert, Nama-Karoo, Savannah, Succulent-Karoo), as macro ecological categories. Figs. 23 and 24 were arragend by using programs Keynote 1.6.5 (https://keynote.it.softonic.com/) and Numbers (see https://it.wikipedia.org/wiki/Numbers) respectively.

According to their occurrence in the different vegetational types of Namibia, species were grouped into the following three ecological categories: (1) Stenotopic species, habitat specialists, able to tolerate only a narrow range of environmental conditions, confined to relatively few and contiguous habitats (1–4 vegetational types); (2) Oligotopic species, showing a tendency towards ecological preferences, associated with more continuous and

similar habitats and can occupy up to 10 vegetational types; (3) Eurytopic species, with no definite ecological preferences, referring to species scattered over almost the entire territory (more than 10 vegetational types).

Species phenology was studied according to monthly frequency. Phenology concordance among habitats was tested by one-way Kendall correlation coefficient ($p< 0,05$) (Agresti 2010).

Results

1. Commented catalogue

As discussed above, the new catalogue greatly expandes the first checklist of Namibian Meloidae published about fifteen years ago (Bologna, 2000a) to include 148 species, 48 of which are recorded for the first time from this country, with 11 new species being described; another species (*Hycleus subarcuatefasciatus*) is listed in the catalogue all the same even though is unclear if the record refers to the Namibian or South African Namaqualand. All zoogeographic and ecological analyses outlined in this contribution are based on the faunistic data listed in the catalogue.

The classification is based on Bologna *et al.* (2008c) and includes three subfamilies (Eleticinae, Meloinae, Nemognathinae), and eight tribes. Among the 28 listed genera, five are newly described (*Namibeletica* **gen. n.**, *Dilatilydus* **gen. n**, *Desertilydus* **gen. n**, *Paramimesthes* **gen. n**, *Namylabris* **gen. n**); a possible new Nemognathinae genus similar to *Zonitoschema* is discussed. As noted above, 11 species are new (1 *Psalydolytta,* 1 *Paramimesthes,* 1 *Namylabris*, 5 *Hycleus*, 1 *Nemognatha*, 2 *Zonitoschema*), while some others were recently described by two of us (M. A. B. and M. P.) within the revisions of the genera *Australytta* (Bologna, 2003) and *Iselma* (Pitzalis & Bologna, 2008). *Namibeletica angolana* **sp. n.** from the Angolan Namib desert, and *Afrolytta namaqua* **sp. n.** from the South African Namaqualand, both close to Namibia, are also described. Other species are recorded for the first time from nearby countries such as Angola, Botswana, R.D. Congo, South Africa and Zambia. Four new synonymies are proposed in *Lydomorphus*, *Prionotolytta, Hycleus* and *Nemognatha*, and some species of Mylabrini have been referred for the first time to the genus *Hycleus* (new combinations). Infraspecific variations, common in mylabrine genera, are included in the nominate form, except for varieties described before 1960 clearly representing subspecies or distinct species.

Short introductory comments are reported for each subfamily, tribe, genera and group of species, particularly of Mylabrini. For each species the following are listed: (a) synomyms and names used in citations from Namibia; (b) general distribution; (c) material examined and, when available, literature records; (d) taxonomic or general remarks. Dates of collections are not detailed but summarized in the ecological analysis. Localities divided in regions (in square parentheses) and among them in districts, separated by points. All localities were accorded to the Namibian present names of cities and farms; farms are indicated officially with a name and a number (for example "Kos 28"). The national, regional and local roads are indicated by one letter (B, C and D or M, respectively) associated to a number, with official acronym. For each new species, type information, diagnosis, description and figures of morphological traits are provided. Figures of some species taxonomically poorly known are also supplied. All species but four (*Iselma kamanjabi* Pitzalis & Bologna, 2008*, Australytta namaqua* (Kaszab, 1953)*, Ceroctis ovamboana* Kaszab, 1981*, Hycleus stali* (Fåhraeus, 1870)) are photographed (Figs. 1–6). As addenda, maps of species with more than five records are provided (Appendix 1).

Subfamily Eleticinae

This subfamily of Meloidae (Bologna *et al.* 2008b) is mainly represented in Namibia by the tribe Derideini, genus *Iselma.* The new genus *Namibeletica*, a taxon *incertae sedis*, probably belongs to the tribe Eleticini, which is represented with certainty in Namibia by the genus *Eletica* Lacordaire, recognized for the first time in this study. Moreover, Bologna (2009) recorded two genera of the tribe Morphozonitini (*Mimiselma* Bologna, 2009 and *Morphozonitis* Pic, 1924) from southern Angola (in the Namib Desert and mopane savannah), just close to northern Namibia, which could be found in the extension of the same ecosystems in Namibia.

Tribe Derideini

Genus *Iselma* Haag-Rutenberg, 1879

The taxonomy of this genus was revised by Bologna *et al.* (2001), who described the first instar larva, and by Pitzalis & Bologna (2008) who published a key to the species and described several new species from Namibia and South Africa. Moreover, Pitzalis & Bologna (2010) defined phylogenetic relationships and groups of species.

***Iselma hobohmi* species group**

This group, as defined by Pitzalis & Bologna (2010), is endemic to western Namibia and includes only the following four species. It is greatly distinct from the remaining South African groups of species. The primary morphological characters defining this group of small-sized species are the short antennae, which reach only the base of pronotum, the subtrapezoidal antennomeres, and the bicoloured black and orange-brown legs.

Iselma deserticola Bologna, 2001 (Fig. 1A)

Distribution. Western Namibia (endemic).

Material examined and literature records. [Erongo] Arandis: 6 km N Arandis, 22.3667°S 14.9833°E (Bologna *et al.* 2001; SMWN); Lower Dome Gorge, 22.4667°S 15.0667°E (Bologna *et al.* 2001, type locality; Pitzalis & Bologna 2008; CB; SMWN); Upper Ostrich Gorge, 22.4833°S 14.9833°E (Bologna *et al.* 2001; SMWN); Lower Ostrich Gorge, 22.5000°S 14.9667°E (Pitzalis & Bologna 2008; SMWN).
Other records: Namib Sand Sea desert (Seely 2012).

Remarks. Holotype (SMWN) and 57 paratypes were examined (CB, SMWN).

This species is strictly related to the central Namib Desert ecosystem.

Iselma hobohmi Kaszab, 1952 (Fig. 1B)

Distribution. Western Namibia (endemic).

Material examined and literature records. [Kunene] Kamanjab: Kamanjab, 19.6333°S 14.8333°E (Bologna *et al.* 2001; Pitzalis & Bologna 2008; SMWN); Hoas 273, 19.9200°S 14.7500°E (Bologna *et al.* 2001; Pitzalis & Bologna 2008; SMWN). Outjo: Abachaus, 48 km N of Otjivarongo, 19.7167°S 16.5800°E (Kaszab 1952, loc. typ., 1953b, 1954c, 1966; Bologna *et al.* 2001; Pitzalis & Bologna 2008; JP, NHP). Khorixas: Skeleton Coast Park, Springbokwater, 20.3333°S 13.6333°E (Bologna *et al.* 2001; Pitzalis & Bologna 2008; NHP); main road Omaruru-Khorixas, near Terra Mea, 20.6950°S 14.8590°E (Bologna *et al.* 2001; Pitzalis & Bologna 2008; CB; SMWN). [Otjozondjupa] Omatako: Otjikango, 20.2833°S 16.8667°E (Bologna *et al.* 2001; Pitzalis & Bologna 2008; SAMC); Waterberg, 20.5500°S 17.1833°E (Bologna *et al.* 2001; CP); Waterberg, 20.5653°S 17.1872°E (Bologna *et al.* 2001; CP). Otjiwarongo: B1, 13.6 km N Otjiwarongo, 20.3728°S 16.7393°E (Pitzalis & Bologna 2008; 2010; CB); N of Kalkveld on road to Otjivarongo, 20.8333 16.2167 [on *Herbstaedia* sp. (Amaranthaceae)] (AMG). [Erongo] Omaruru: Otjongoro 20, 20.8833°S 15.6333°E (Bologna *et al.* 2001; SMWN); Walvis Bay Rural: Rostock, 23.3833°S 15.7500°E (Bologna *et al.* 2001; Pitzalis & Bologna 2008; SMWN). [Khomas] Windhoek Rural: Hochland, 22.6667°S 16.6667°E (Pitzalis & Bologna 2008; MNB); Kos 28, 23.2667°S 16.1333°E (Bologna *et al.* 2001; SMWN); Gausberg Pass, Hakosberge (CK).
Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Holotype and paratypes were examined (NHP).

It is the most euriecious species of the group, related to both Nama Karoo and dry Savannah ecosystems, and largely distributed in NW Namibia.

Iselma kamanjabi Pitzalis & Bologna, 2008

Distribution. Western Namibia (endemic).

Material examined and literature records. [Kunene] Kamanjab: Kamajab, 19.6166°S 14.81667°E (Pitzalis & Bologna 2008, type locality; HNHM).

Remarks. Holotype female (HNHM) was examined.

It is apparently endemic to a small area in the transitional zone between Namib and Nama Karoo ecosystems in northwestern Namibia (Kamanjab).

Iselma penrithae Kaszab, 1981 (Fig. 1C)

Distribution. Western Namibia (endemic).

Material examined and bibliographic data. [Kunene] Opuwo: C43, 18.6788°S 13.7135°E (Pitzalis & Bologna 2008; CB); main road Omaruru-Khorixas, near Terra Mea, 20.6950°S 14.590°E (Pitzalis & Bologna 2008; CB; SMWN doubtful record). Kamanjab: Distr. Grootfontein, Farm Klein Nosib, 19.4667°S 14.8333°E (Pitzalis & Bologna 2008; MNB). [Erongo] Karibib: Gokakoara 43, 21.9667°S 16.0167°E (Kaszab 1981, loc. typ.; Bologna *et al.* 2001; SMWN); C32, 42 km S Karibib, 22.2945°S 15.8351°E (Pitzalis & Bologna 2010; CB); Dudongua 22.3333°S 15.8333°E (Kaszab 1981; Bologna *et al.* 2001; Pitzalis & Bologna 2008; SMWN).[Hardap] Rehoboth Rural: 28.5 km S Rehoboth (Road B1), 23.5833°S 17.1500°E (Bologna *et al.* 2001; CB). Gibeon: Namib-Naukluft Park, Naukluft Camp Site, 24.2667°S 16.2500°E (Bologna *et al.* 2001; Pitzalis & Bologna 2008; PPRI).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Holotype (NMNH) was examined.

It is primarily related to the narrow area characterized by Nama Karoo vegetation in western Namibia.

Iselma brunneipes **species group**

This South African group includes seven species (Pitzalis & Bologna 2008, 2010), distributed in the Succulent Karoo and only one associated to the Strandveld (*I. endroedyyoungai*). This group is greatly heterogenous and is composed of large-sized species, with entirely reddish or partially black elytra and subserrate antennomeres. The Namibian distribution of both *I. brunneipes* and *I. piscatrix* is strictly related to the small portion of Succulent Karoo ecosystem extended in the extreme southwestern Namibia.

Iselma brunneipes Haag-Rutenberg, 1879 (Fig. 1D)

Distribution. Southwestern Namibia and western South Africa.

Material examined and literature records. [Karas] Lüderitz: Namuskluft 88, 27.8000°S 16.8667°E (Bologna *et al.* 2001; SMWN). Oranjemund: Boom River course, Kloof W, 22 km N of Orange River, 27.8330°S 17.0000°E (Pitzalis & Bologna 2008; SMWN).

Remarks. Types of this species, described generically from "Capland", were not examined, but we studied specimens compared with types at HNHM.

This species seems to be the most eriecious of the group, distributed primarily in the Succulent and Nama Karoo ecosystems, and marginally in the mountain Fynbos.

Iselma piscatrix Bologna, 2001 (Fig. 1E)

Distribution. Southwestern Namibia (endemic).

Material examined and literature records. [Karas] Karasburg: Gellap Ost 3, 23 km NW Keetmanshoop, 26.4060°S 18.0530°E (Pitzalis & Bologna 2008; MNB); Southern Fish River Canyon top, 27.6333°S 17.6167°E

(Bologna *et al.* 2001, type locality; CB; NHP); Karios 8 (Gondwana Canyon Park), Game Camp not fenced, 92 km S Keetmanshoop, 27.6765°S 17.8110°E (Pitzalis & Bologna 2008; CB; MNB); Karios 8 (Gondwana Canyon Park), Game Camp not fenced, 92 km S Keetmanshoop, 27.6767°S 17.8039°E (MNB); 100 km W from Noordoewer, 28.0708S 17.1280E (Pitzalis & Bologna 2008; SAMC); Rosh Pinah, 27.8800S 16.8300E (Pitzalis & Bologna 2008; HNHM).

Remarks. Holotype (NHP) and 9 paratypes (CB, NHP) were examined.

This species represents a micro-endemism of a small Namibian area around the terminal trait of the Fish River, characterized by Succulent Karoo ecosystem. Phylogenetically, it is strictly related to *I. rufipennis*, endemic to the southern Cape area.

Tribe Eleticini

Genus *Eletica* Dejean, 1834

The taxonomic revision of this genus was published by Kaszab (1955c) but the identification of several species remains extremely difficult due to the large variability of colour and the sexual dimorphism. Kaszab (1955c) defined four subgenera (*Meteletica* Kaszab, 1955; *Sibuteletica* Pic, 1913; *Proeletica* 1955, *Eletica* Dejean, 1834) distributed in Africa, except the first one which is Oriental, and divided the nominate subgenus in three main groups of species. The Namibian species belongs to the subgenus *Proeletica*, which includes 11 species.

Eletica (Proeletica) luteosignata Fåhraeus, 1870 (Fig. 1F)

Distribution. R.D. Congo, Malawi, Namibia (new species for this country), northeastern South Africa, Tanzania, Zambia, and Zimbabwe.

Material examined. [Otjozondjupa] Otavi, Khorab Memorial, 20.11°S 16.05°E (CB).

Remarks. Types of this species was not examined but specimens compared with types were studied at HNHM.

Being the taxonomy of the genus very complex, the identification of the single examined female needs confirmation by additional samplings.

Namibeletica Bologna gen. n.

Type species. *Cantharis elegantula* Péringuey, 1909, fixed by present designation.

Diagnosis. A very distinct eleticine blister beetles, endemic to Namib and Namaqualand deserts, with unclear phylogenetic relationships (see remarks), tentatively referred to the tribe Eleticini, because of the lacking of male elytral pit at apex, the male tergum VIII extensively sclerotized, mesepisterna broadly truncate, widely separate, without wide modified fore portions delimited by distinctly elevated ridge, differently than in other members of the tribe.

In common with *Eletica* Dejean, 1834 (which belongs to the Palaetropical subtribe Eleticina *sensu* Selander 1966) the new genus has bilobed tarsomeres I–IV (I–III on hind legs), stout and short gonocoxal plate, robust and short gonoforceps apically curved forwards, aedeagus with two apical hooks directed posteriad. Differs from *Eletica* primarily because of frons not swollen, eye greatly shorter than frontal interocular distance, elytra densely setate and without costae (raised venations), ventral blade of claws microsetate but not fringed at base, male sternum VIII not recessed in segment VII, sclerotized and undivided gonoforceps fused also dorsally.

In common with *Eospasta* Selander, 1966 and *Serrospasta* Selander, 1966 (both belonging to the Neotropical subtribe Eospastina *sensu* Selander 1966) the new genus has the frons not swollen between eyes, elytra setate and without ribbings, ventral blade of claws microsetate but not fringed at base, VIII male sternum well exposed, sclerotized and undivided. *Namibeletica* differs from both genera primarily because of eye smaller, male antennomeres subtrapezoidal but not distinctly subserrate or serrate, mesosternum anteriorly not angulate, protarsomeres bilobed (this condition is present in *Serrospasta*), male phallobase stout and short, gonoforceps stout and short apically curved, rather than slender and straight.

Description. Body black, but pronotum and femurs orange, only partially black, elytra almost completely ochre with black apex or completely black; body setation white. Body length 5–12.5 mm.

Head transverse, temples parallel in male, slightly widened posteriorly in female, frons not swollen between antennal base, depressed on both sides close to antennal base; surface with punctures more or less scattered and scarcely deep, setation more or less dense; eye length ca half as long as temple and less than half the inter-ocular diameter; clypeus subtrapeizoidal, fore third smooth; labrum widely emarginated in front; mandibles robust, curved on apical third, pointed at apex; maxillary palpi with four palpomeres not modified; 11 antennomeres (Fig. 7F), slightly slender and longer in male, antennomere I subcylindrical, slightly widened in apical half, about twice as long as II, II very short and subglobose, III–X subtrapeizoidal, particularly V–IX, more asymmetrical in male, last one subcylindrical in basal half, slightly widening from base, suddenly narrowing in apical half, not depressed.

Pronotum unsetate, shiny, about as long as head, sub-pentagonal, slightly longer than wide, fore depression wide and deep, extended obliquely on sides, longitudinal depression extended from the middle to the base, widening at base; whole base and sides distinctly depressed; prosternum transverse, depressed in front. Visible portion of mesonotum (scutellum) sub-squared at apex more or less densely covered by setae; mesosternum transverse and narrow, scarcely angulate in front, triangular posteriorly; mesepisterna broadly truncate, widely separate, without wide modified fore portions delimited by strongly elevated ridge. Metasternum with unsetate longitudinal middle area. Legs black, but femurs orange except on apex and basal third more or less extensively black; protibiae almost straight externally, at apex scarcely more expanded in female, with two elongate and pointed spurs in both sexes; meso- and metatibial spurs both pointed and slender; protarsomeres II–IV bilobed (Fig. 7E), meso- and metarsomeres I–IV and I–III bilobed but less widened and protarsomeres. Elytra setate, only with track of low and unraised venations, lacking of male elytral pit at apex.

Ventrite VII widely emarginated in male, convex at middle and concave on both sides in female; male sternum VIII well exposed, sclerotized and undivided; male sternum VIII at base emarginated, depressed on sides at middle, deeply emarginated on posterior margin; female sternum VIII sclerotized on the basal and apical third, widely membranous in the middle; male tergum VIII extensively sclerotized, undivided; IX male sternum (*spiculum gastrale*) (Fig. 7D) T-shaped, robust and well sclerotized. Male genitalia (Figs. 7A-C) with stout and short gonocoxal plate, robust and short gonoforceps apically curved forwards, narrowed and almost pointed, dorsally fused in middle; aedeagus with two apical hooks directed posteriad, slerotized apical portion of ejaculatory ductus forming a wide sub-cordiform structure.

Etymology. The name of the new genus refers to Namibia, where the genus is mainly distributed, and to *Eletica*, the type genus of the tribe Eleticini to which we tentatively refer the new genus. Feminine genus.

Remarks. As pointed out by Bologna & Pinto (2002), "*Cantharis*" *elegantula* Péringuey, 1909 belongs to a new genus of the subfamily Eleticinae. The new genus includes another species from the southern Angola, which is described here.

The new genus actually shows a combination of features of both Eleticini lineages (*sensu* Selander 1966), the Palaeotropical subtribe Eleticina, which includes the genus *Eletica*, and the Neotropical subtribe Eospastina, which includes *Eospasta* and *Serrospasta*. The value of these subtribes need confirmation and is not discussed here. The first lineage is marginally spread also in southern Africa, in particular in north-eastern South Africa and in northern Namibia, with a few species of *Eletica*. *Namibeletica* is possibly associated to an undescribed genus from Yemen (Bologna & Geisthardt in preparation).

The shape of male genitalia is similar to that of *Eletica* and greatly differs from that of the Neotropical genera; protarsomeres I–IV are bilobed as in *Eletica* and *Serrospasta*, but this character is not distinctive of one lineage. The claw setation differs from *Eletica* because of the ventral blade of claws microsetate but not fringed at base, as in *Eospasta* and *Serrospasta*; elytra are setate and without visible raised costae as the last two genera, and the frons is not swollen between eyes. The well exposed VIII male sternum, which is sclerotized and undivided and the setate elytra are similar to *Eospasta* and *Serrospasta*, but *Namibeletica* differs from both by the eye smaller, with fore margin almost straight; mesepisterna are anteriorly only slightly angulate, as in *Eletica*, but without wide modified fore portion.

The two species belonging to the new genus *Namibeletica* can be distinguished by the following key:

1 Elytra brown-gray, fuscate at apex; pronotum orange with the following black colouration: a middle fore stripe, two basal lateral spots, and rarely two additional fore lateral spots (Fig. 1H); dorsal depressions on sides and at base of pronotum deep; head setae dense and robust. Western South Africa, southwestern Namibia . . . . . ***elegantula*** (Péringuey, 1909)

- Elytra black, pronotum orange with the following black colouration: a middle fore stripe and rarely two additional fore lateral spots (Fig. 1G); dorsal depressions on sides and at base of pronotum shallow; head setae dense but finer. Southwestern Angola . . . . . ***angolana*** Bologna sp.n.

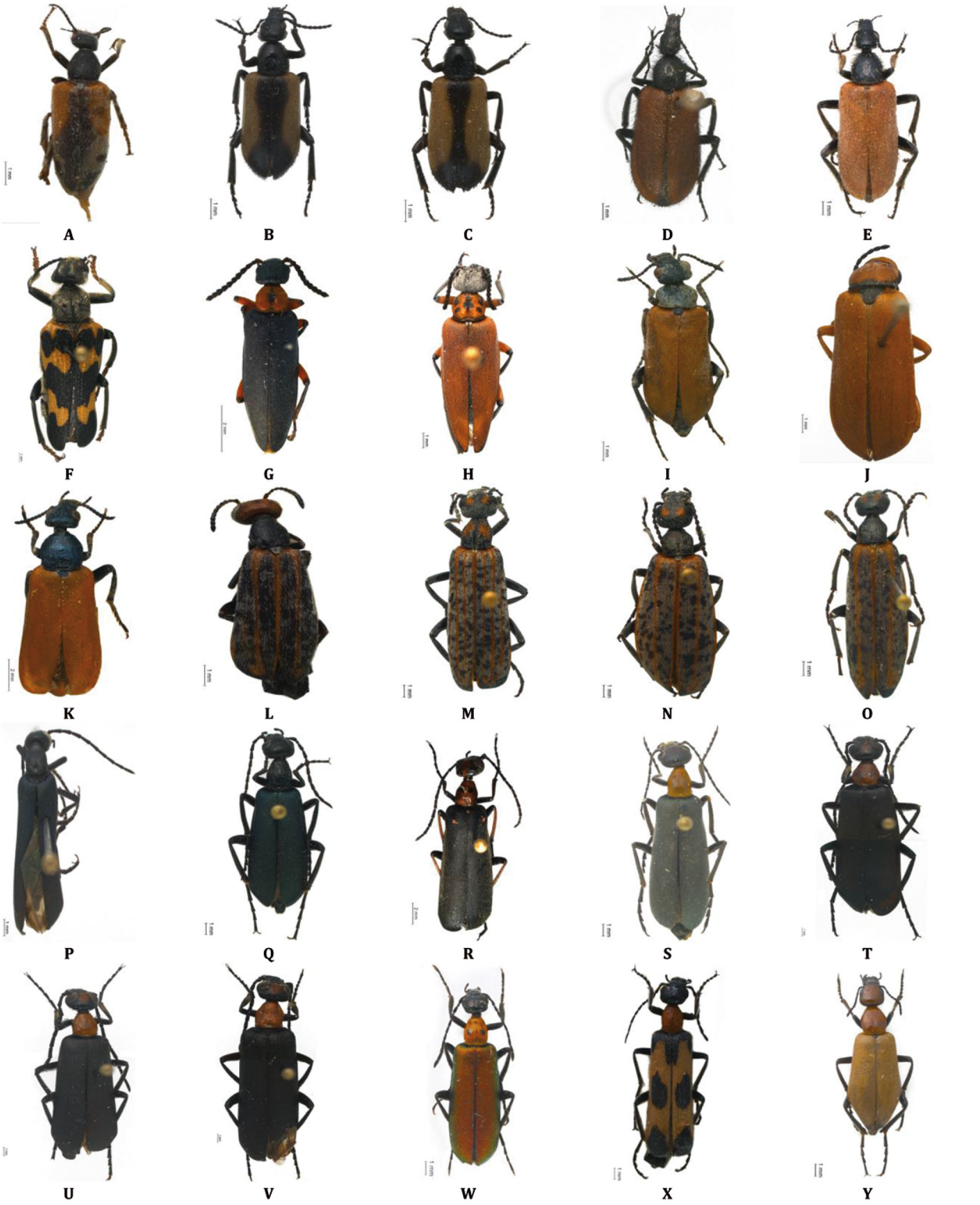

FIGURE 1. A. *Iselma deserticola*; B. *Iselma hobohmi*; C. *Iselma penrithae*; D. *Iselma brunneipes*. E. *Iselma piscatrix*; F. *Eletica luteosignata*. G. *Namibeletica angolana*; H. *Namibeletica elegantula*; I. *Afrolytta namaqua*; J. *Afrolytta amoena*; K. *Afrolytta carneola*; L. *Australytta maraisi*; M. *Australytta rubrolineata*; N. *Australytta szekessyi*; O. *Australytta vellicata*; P. *Lydomorphus chalybaeus*; Q. *Lydomorphus mimus*; R. *Lydomorphus bisignatus*; S. *Lydomorphus strangulatus*; T. *Lydomorphus karibibensis*; U. *Lydomorphus thoracicus*; V. *Lydomorphus tibialis*; W. *Lydomorphus bifoveiceps*; X. *Dilatilydus optatus*; Y. *Desertilydus mesembryanthemi*.

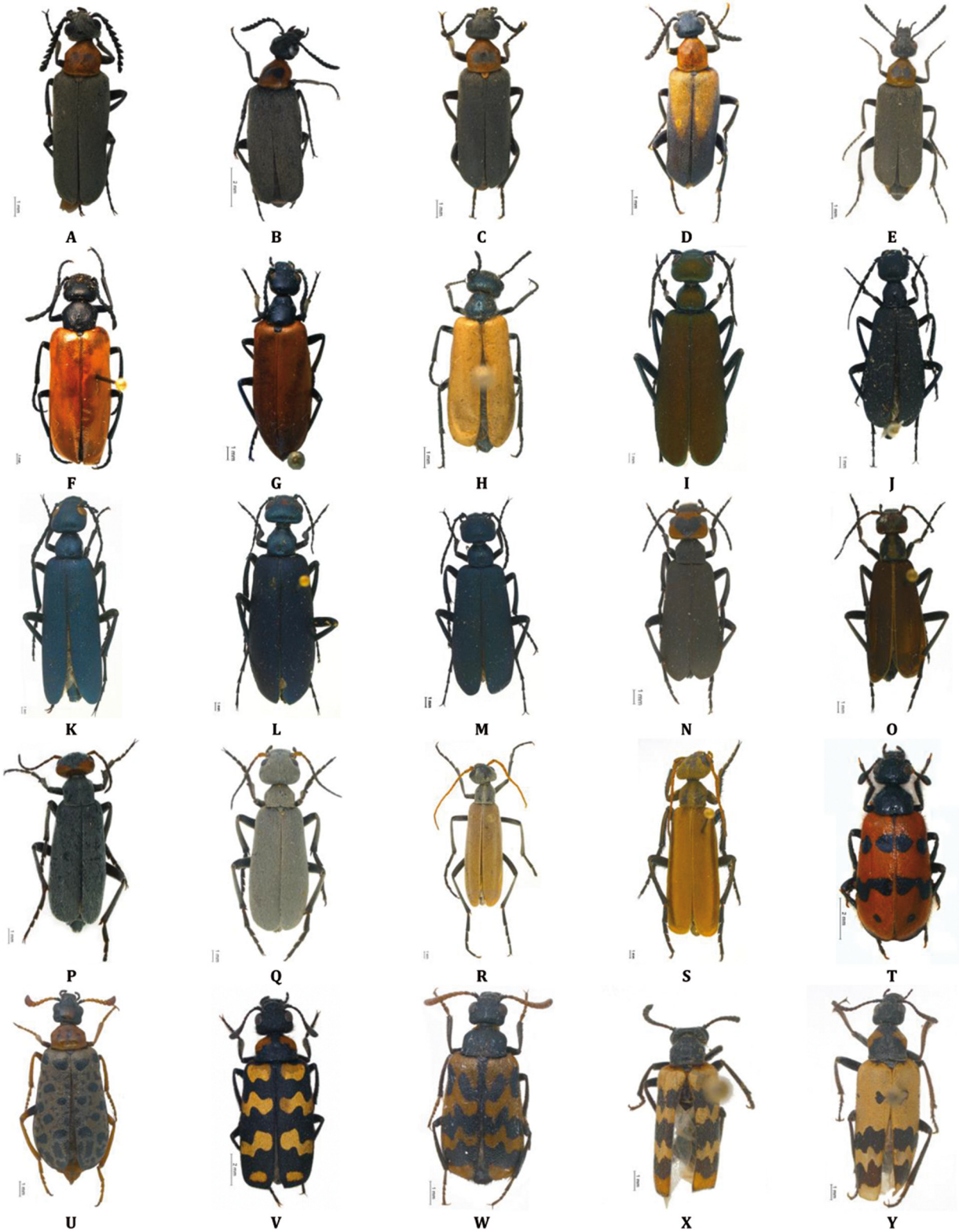

FIGURE 2. A. *Prionotolytta binotata*; B. *Prionotolytta eremita*; C. *Prionotolytta hayekae*; D. *Prionotolytta melanura*; E. *Prionotolytta streyi*; F. *Prolytta coriacea*; G. *Prolytta namibensis*; H. *Prolytta pseudolucida*; I. *Cyaneolytta affinis*; J. *Cyaneolytta depressicornis*; K. *Cyaneolytta granulipennis*; L. *Cyaneolytta maculifrons*; M. *Cyaneolytta resplendens*; N. *Epicauta designata*; O. *Epicauta ovampoa*; P. *Epicauta rufifrons*; Q. *Epicauta velata*; R. *Psalydolytta gessi*; S. *Psalydolytta lorigera*; T. *Actenodia chrysomelina*; U. *Actenodia mirabilis*; V. *Mimesthes maculicollis*; W. *Mimesthes nigricollis*; X. *Paramimesthes namibicus*; Y. *Namylabris adamantifera*.

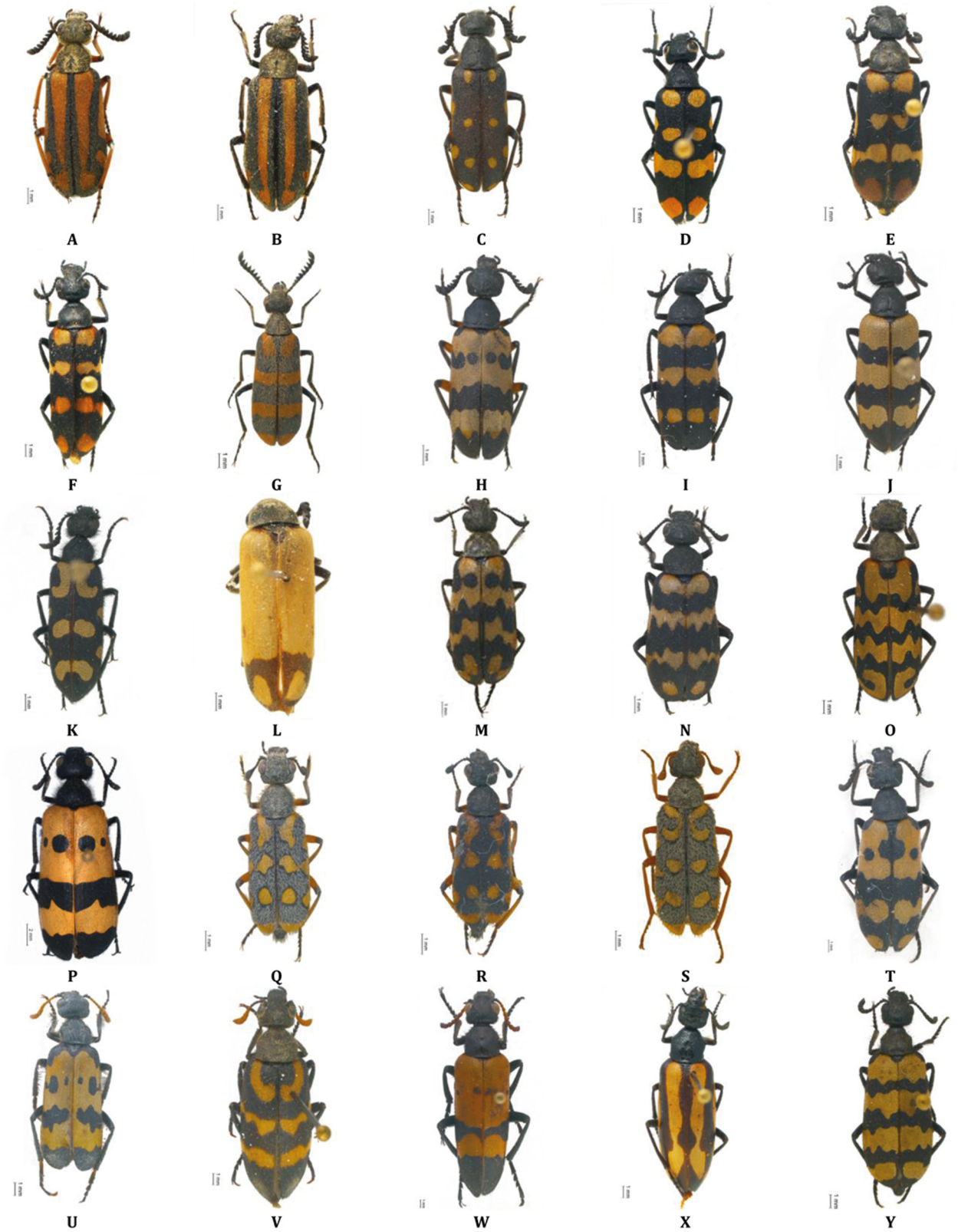

FIGURE 3. A. *Ceroctis angolensis*; B. *Ceroctis exclamationis*; C. *Ceroctis bohemani*; D. *Ceroctis aliena*; E. *Ceroctis peringueyi*; F. *Ceroctis trifasciata*; G. *Ceroctis blanda*; H. *Ceroctis amphibia*; I. *Ceroctis karroensis*; J. *Ceroctis korana*; K. *Ceroctis braunsiana*; L. *Ceroctis capensis*; M. *Ceroctis* cfr. *seabrai*; N. *Ceroctis spuria*; O. *Hycleus dentatus*; P. *Hycleus tripunctatus*; Q. *Hycleus jucundus*; R. *Hycleus peringueyi*; S. *Hycleus surcoufi*; T. *Hycleus brincki*; U. *Hycleus congoensis*; V. *Hycleus lunatus*; W. *Hycleus ertli*; X. *Hycleus arlecchinus*; Y. *Hycleus basibicinctus*.

FIGURE 4. A. *Hycleus bifucatus*; B. *Hycleus burmeisteri*; C. *Hycleus damarensis*; D. *Hycleus derosus*; E. *Hycleus mimulus*; F. *Hycleus pruinosus*; G. *Hycleus svakopinus*; H. *Hycleus transvaalicus*; I. *Hycleus adamantinus*; J. *Hycleus amoenus*; K. *Hycleus bushmanicus*; L. *Hycleus deserticolus*; M. *Hycleus devylderi*; N. *Hycleus kochi*; O. *Hycleus planitiei*; P. *Hycleus politus*; Q. *Hycleus hilaris*; R. *Hycleus villosus*; S. *Hycleus haemactus*; T. *Hycleus plagiatus*; U. *Hycleus lactimalus*; V. *Hycleus scalaris*; W. *Hycleus* complex *tricolor* (*kakamas*?); X. *Hycleus tricolor*; Y. *Hycleus versutus*.

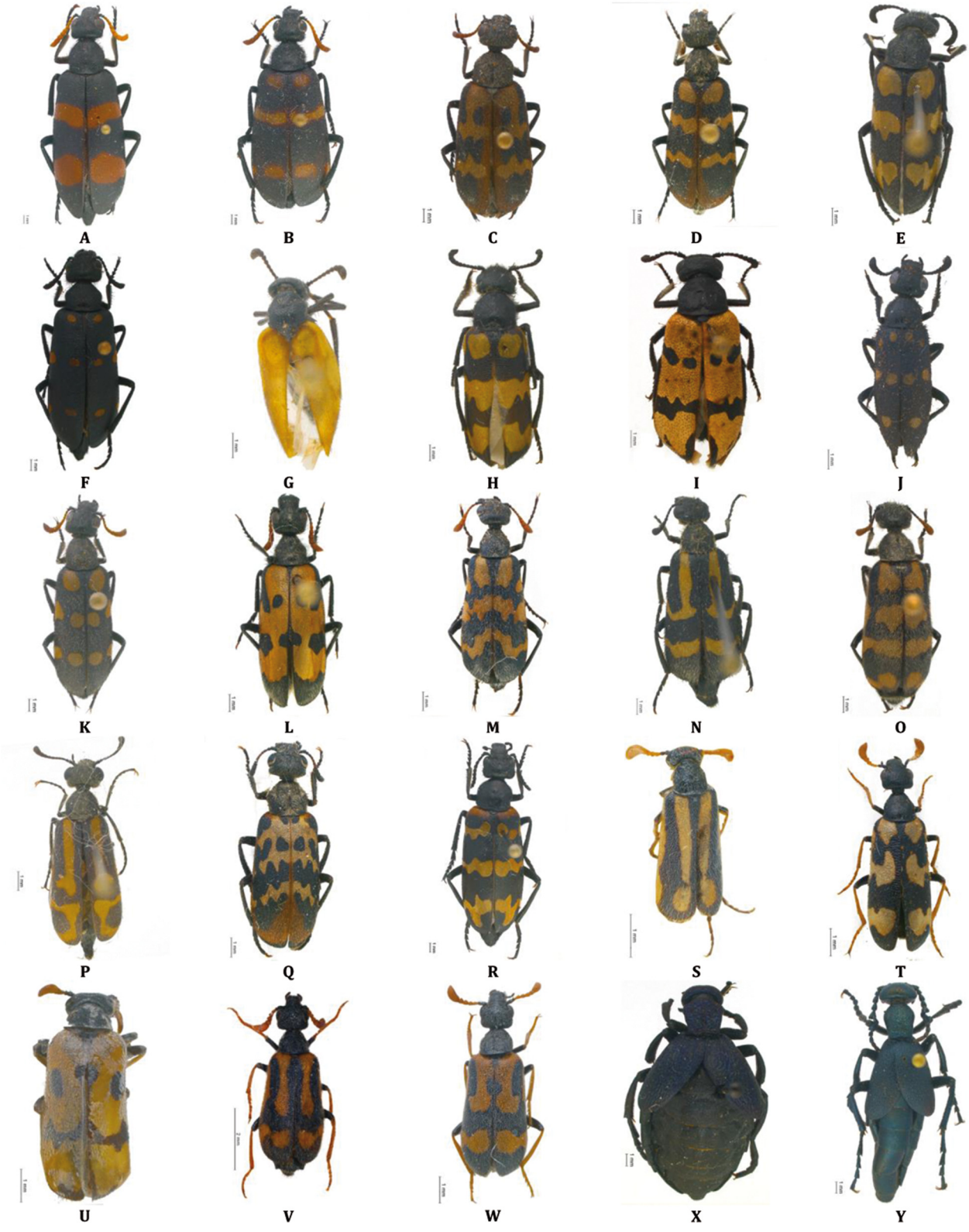

FIGURE 5. A. *Hycleus herero*; B. *Hycleus hybridus*; C. *Hycleus matabele*; D. *Hycleus tinctus*; E. *Hycleus* cfr. *africanus*; F. *Hycleus namaquus*; G. *Hycleus svakopensis*; H. *Hycleus dvoraki:* I. *Hycleus aridus*; J. *Hycleus benguellanus*; K. *Hycleus bissexguttatus*; L. *Hycleus decemguttatus;* M. *Hycleus decoratus*; N. *Hycleus* cfr. *overlaeti*; O. *Hycleus pilosus*; P. *Hycleus san*; Q. *Hycleus windhoekanus*; R. *Hycleus zigzagus*; S. *Paractenodia damarensis*; T. *Paractenodia freyi*; U. *Paractenodia glabra*; V. *Paractenodia namaquensis*; W. *Paractenodia parva*; X. *Meloe meridianus*; Y. *Meloe* sp. aff. *hottentotus*.

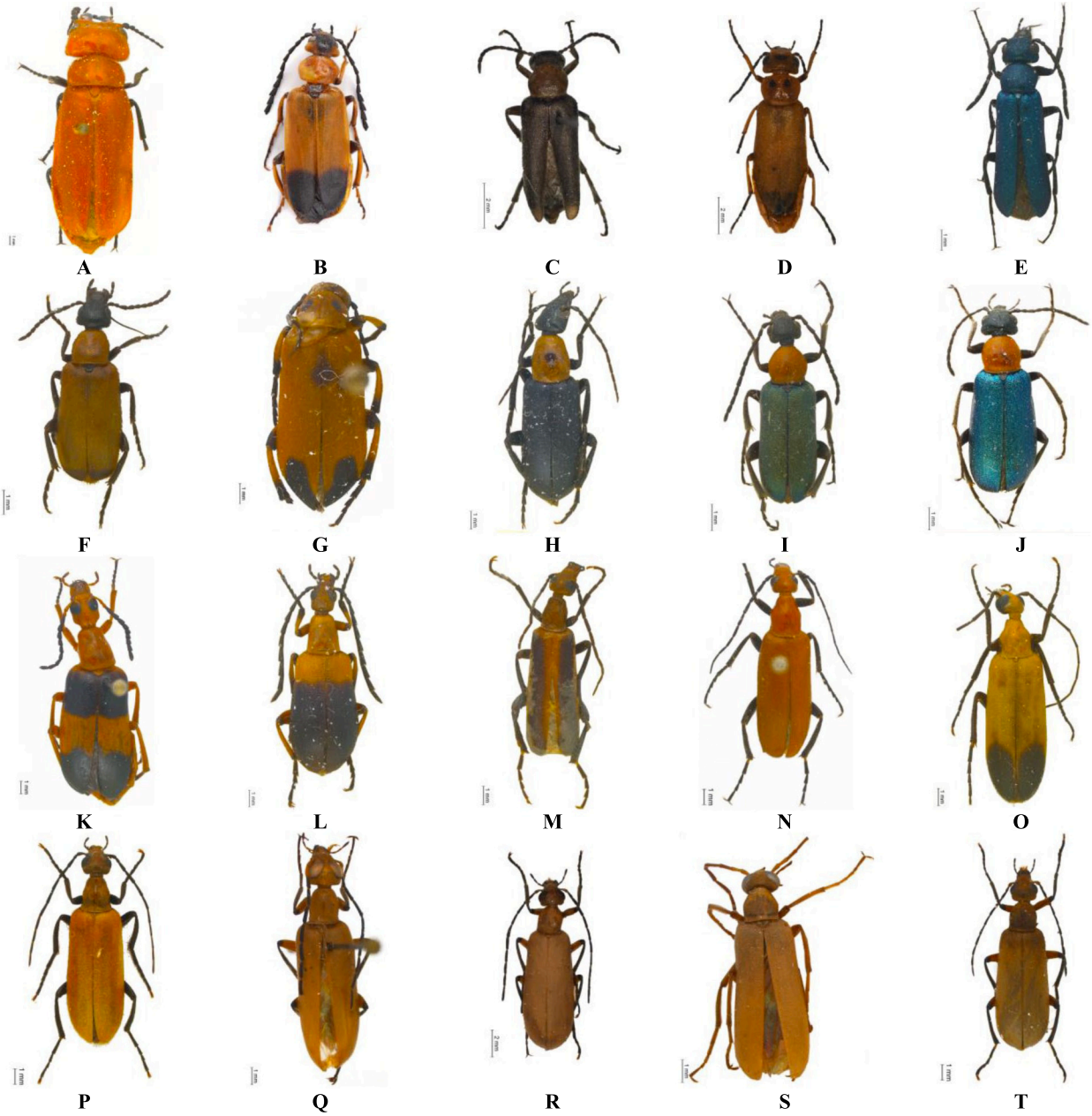

FIGURE 6. A. *Synhoria testacea*; B. *Apalus hilaris*; C. *Nemognatha fluviatilis*; D. *Nemognatha* cfr. *notaticeps*; E. *Nemognatha peringueyi*; F. *Nemognatha vansoni*; G. "*Zonitis*" *maculicollis*; H. "*Zonitis*" *notaticollis*; I. *Zonitodema posoka*; J. *Zonitodema viridipennis*; K. *Zonitomorpha costata*; L. *Zonitomorpha sellata*; M. "*Zonitoschema*" *bivittipennis*; N. "*Zonitoschema*" *deserticola*; O. "*Zonitoschema*" *posticalis*; P. *"Zonitoschema*" cfr. *testaceiventris*; Q. *Zonitoschema capensis*; R. *Zonitoschema* complex *cocccinea*; S. *Zonitoschema dunalis*; T. *Zonitoschema eborina*.

***Namibeletica angolana* Bologna sp. n.** (Fig. 1G)

Types. Holotype male, 3 males and 3 females paratypes labelled: "Pedras Aguas, Moçamedes Angola, SE 1412 Dc, 9 May 1974 (white, small, rectangular); H 19122 (white, small, rectangular); Namibian National Insect Collection State Museum, P.O. Box 1203, Windhoek Namibia (sky blue, small, rectangular); with added labels Holotypus and Paratypus respectively, *Namibeletica angolana* n. sp. M. Bologna det. 15" (red, rectangular, hanwritten and printed). Holotype and 4 Paratypes are housed at SMWN 1 male and 1 female paratypes at CB.

The holotype lacks left antennomeres III–XI; paratypes partially or completely lack some antennomeres and tarsomeres.

Type locality. "Angola, Moçamedes, Pedras Aguas". This locality is located in the Angolan province of Namibe, the late Moçamedes, and is positioned in the Namib Desert, a peculiar ecosystem distributed along the cost of southwestern Africa from the South African town of Port Nolloth, North to the Angolan town of Namibe (White 1983). Ecological characteristics of this ecosystem are described in the ecological part of the text.

Diagnosis. Distinct from the second species of the genus, *N. elegantula*, by the black elytra, the reduced black colouration of pronotum, the finer setae of head and elytra, the shape of gonoforceps apex.

Description. (Fig. 1G) Characters indicated above for the genus. Body length 7–11 mm. Body black, but pronotum shiny orange with one black narrow middle stripe, widened in middle, and in few individuals one small black spot on each side; antennomere I and sometimes II partially reddish; mandibles dark brown on external side; femurs black on extreme apex; setae white, relatively dense but not distinctly robust and quite short on elytra and legs, ventrally longer and denser.

Head sub-squared, densely setate with unsetate longitudinal middle line from frons to occiput; punctures denser and deeper on head capsule than on clypeus and particularly on labrum. Antennoemeres microsetate, except I–II and base of III, which have longer setae.

Pronotum shiny, almost nude with scarce microsetae, surface shagreend with very scattered and shallow punctures in front; fore depressions deep and visibly extended on sides obliquely. Scutellum slightly depressed in middle. Elytra with tracks of venations; densely but not deeply punctate, with setae direct forwards. Setae on femurs evidently shorter than on tibiae and tarsi.

Male gonoforceps acutely pointed at apex and distinctly curved; aedeagal apical hooks diverging laterally, long and pointed.

Distribution. Southwestern Angola.

Namibeletica elegantula (Péringuey, 1909) comb. n. (Fig. 1H, 7A–F)

Cantharis elegantula Péringuey, 1909
Namibiella elegantula, Bologna *in litteris*

Types. Male holotype of this species, examined at SAMC, is labelled "Clanwilliam" (white, printed); "Lytta elegantula Type Pr." (white, handwritten). It has both antennae partially damaged.

Distribution. Western Namibia and nothwestern South Africa.

Material examined and literature records. [Kunene] Kamanjab: Otjitambi, 19.8167°S 15.1667°E (SMWN; SAMC). Khorixas: Farm Bethanis, 20.4167°S 14.4000°E (HNHM; NHP). [Erongo] Dâures: Brandberg, Messum valley, 21.2215°S 14.5163°E (Bologna 2000a; SMWN; SAMC). Omaruru: 30–20 km N Karibib (road C33), 21.6833°S 15.9667°E (CB); Farm Omandumba 50–60 km SW von Omaruru, 21.5348°S 15.5448°E (MNB). Karibib: 30 km NNW Usakos (road D1935), 21.7833°S 15.5000°E (CB); Usakos-Karibib 16 km W of Karibib on B2, 21.9358°S 15.7056°E (CB). Arandis: 6 km N Arandis, 22.3667°S 14.9833°E (SMWN); Upper Ostrich Gorge, 22.4833°S 14.9833°E (SMWN); Upper Panner Gorge, 22.4833°S 15.0167°E (SMWN); Lower Ostrich Gorge, 22.5000°S 14.9667°E (SMWN). [Otjozondjupa] Omatako: Otjosondu Kub, 21.2641°S 17.8800°E (HNHM). Okahandja: Okahandja, 21.9833°S 16.9167°E (SMWN). [Hardap] Gibeon: Namib Naukluft Park: desert 47 km S Solitaire, 24.2650°S 15.7983°E (MNB); Gorrasis 99, 25.3184°S 15.9089°E (SMWN). Aandster Farm, 25.3500°S 16.1000°E (JP). [Karas] Lüderitz: Awasib dunes E, 25.2500°S 15.7167°E (HNHM). Karasburg: Warmbad 28.4500°S 18.7333°E (SAMC).

Other records: Namib Sand Sea desert (Seely, 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014). At SAMC is housed one specimen labelled "Warmbad, SWA, Kaokoveld", but Warmbad is a village of the southern Karas district and not from the northwestern Kookoland area.

Remarks. The male genitalia, never described, are presented in Figs. 7A-C, together with the *spiculum gastrale* (Fig. 7D), male fore tibia and tarsomeres (Fig. 7E), and antenna (Fig. 7F).

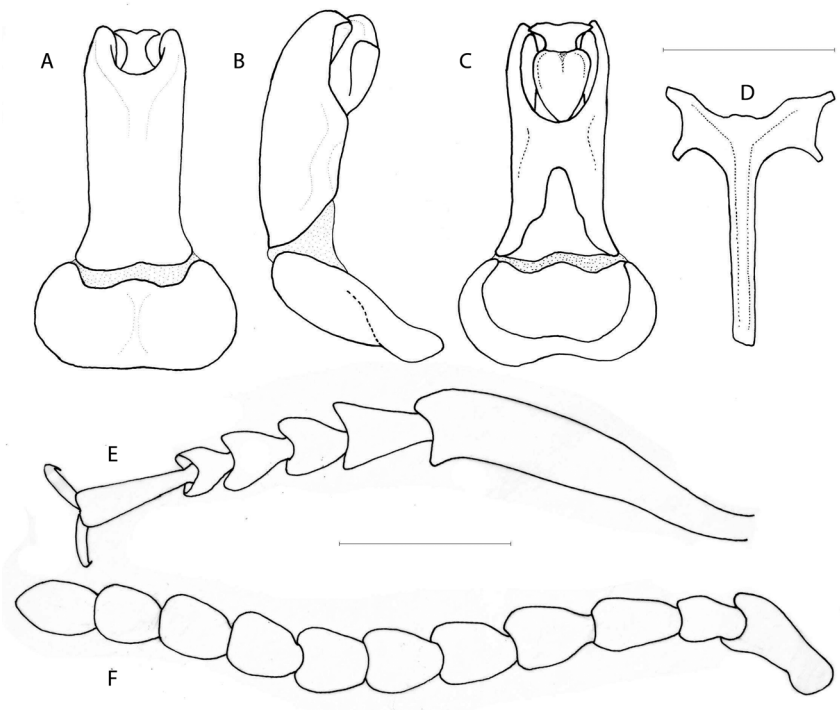

FIGURE 7. *Namibeletica elegantula*: male genitalia in ventral (A), lateral (B) and dorsal view (C); *spiculum gastrale* (D); male protibia and protarsomeres (E); male antenna (F). Bar = 1 mm.

Subfamily Meloinae

Tribe Lyttini

According to morphological (Bologna & Pinto 2001) and a preliminar molecular study (Bologna *et al.* 2008c), Lyttini appear to be a polyphyletic group. Additional molecular studies actually support the monophyly of the tribe with the inclusion of some genera referred to other tribes (Bologna *et al.* unpublished). In the present catalogue, we consider in this tribe the genera previously referred to Lyttini by Bologna (1991) and by Bologna & Pinto (2002), with the addition of *Cyaneolytta*.

Genus *Afrolytta* Kaszab, 1959

The genus is recorded for the first time from Namibia and it results endemic to both Namibian and South African Namaqualand. *Afrolytta* needs to be revised because Kaszab (1959) asssigned to it only three species (*A. amoena*, *A. carneola*, and *A. mashuna*). A new species from South African Namaqualand is described below, while *mashuna* (Péringuey, 1899), actually belongs to the eleticine genus *Morphozonitis* Pic, 1922 (Bologna 2009).

***Afrolytta namaqua* Bologna sp.n.** (Fig. 1K)

Type. Holotype female, labelled "R.S.A., Cape, Namaqualand, 11.X.99, Kamieskroon, Werner leg." (white, small, rectangular); H 19122 (white, small, rectangular); "*Afrolytta* sp. n. M.A. Bologna det. 2005"; "Holotypus ♀ *Afrolytta namaqua* n. sp. M. Bologna des. 2015" (CB).

The Holotype lacks both posterior legs and abdomen is sligthly damaged.

Type locality. "South Africa, Northern Cape, Kamieskroon". This locality is located in the late "Namaqualand", on the N7 national road, south of Springbok, ca 800 m a.s.l. in the typical Succulent Karoo biome

(White 1983). During the Spring (August–September) this area is characterized by an incredible blooming of Asteraceae and Mesembryanthemaceae, typical food for a lot of blister beetle species.

Diagnosis. An *Afrolytta* easily distinct from the other two species of the genus, *A. amoena* and *A. carneola,* because of its colouration. From the first species, which is more similar, differs because: head and pronotum black, less vaguely green metallic, abdominal last two urites and posterior third of previous urites orange, rather than completely black; pronotum with sides subrounded and not subtrapezoidal; external margin of elytra almost straigth and not emarginated. From *A. carneola* differs because this last species has both the head and pronotum dorsally widely orange as well as legs (except black coxae, trochanters and sometimes base of femurs), and only the last two urites orange, external margin of elytra emarginated.

Description. (Fig. 1K) Body length 13 mm. Body black, but elytra orange brown, last two urites and posterior third of previous urites orange, mandibles dark reddish on fore half. Body setation white-yellow, denser and longer on legs, labrum and ventral side, short and disperse on posterior part of head, pronotum and elytra, dense but short on antennomeres.

Head transversely rectangular, temples parallel, sligthly shorter than the longitudinal diameter of eye. Punctures not rugose, shallow and well distinct, more distanced on occiput. Eye sligthly bulging, anteriorly emarginated near antennal base. Clypeus subrectangular, transverse, shorter than labrum, which is scarcely emerginate in front. Maxillary palpomeres slender, last one not widened in front. Antennoemeres densely microsetate, except I–II, which have longer setae; I twice as long as II, which is subglobose, and sligthly longer than III which is subcylindrical; IV–X shortly cylindrical, similar in shape, about 1/4 shorter than III; XI sligthly shorter than IX–X together, apically conically narrowed.

Pronotum widely subrounded on sides, sligthly depressed at base in middle. Scutellum subsquared posteriorly, depressed in middle. Thoracic ventrites not modified. Elytra with vague and shiny tracks of venations; depressed on humeri, with dense but shallow and subrugose punctures; setae very short, erect anteriorly and directed posteriad on posterior half. Tarsomeres with pads of dense yellow setae; pro-mesofemurs with two pointed and slender spurs; setae of tarsal fringe long.

Margin of last ventrite rounded.

Remarks. Phenetically is similar to *A. amoena*, except for characters listed in the diagnosis, but lacking male of the new species, no relationships can be pointed out.

Distribution. Western South Africa.

Afrolytta amoena (Péringuey, 1892) (Fig. 1I)

Cantharis amoena Péringuey, 1892

Distribution. Southwestern Namibia (new species for this country) and northwestern South Africa.

Material examined. [Karas] Lüderitz: Klinghardt Mts., Diamond Area 1, 27.3000°S 15.6833°E (SMWN). Oranjemund: 10 km NW Rosh Pinah, 27.9000°S 16.7000°E (SMWN).

Remarks. The holotype of this species was examined at the SAMC.

Afrolytta carneola (Péringuey, 1892) (Fig. 1J)

Cantharis carneola Péringuey, 1892

Distribution. Southwestern Namibia (new species record for this country) and western South Africa.

Material examined and literature records. [Karas] Lüderitz: Klinghardt Mts., 27.3000°S 15.6833°E (SMWN); Klinghardt Mts., 27.3500°S 15.7000°E (SMWN); Sargdeckel, Klinghardt Mts., 27.4000°S 15.6833°E (SMWN); Obib dunes S, 28.1500°S 16.6500°E (CB); Obib dunes S, 28.1667°S 16.6833°E (SMWN). Oranjemund: Obib Dunes S, 28.1667°S 16.8000°E (CB; SMWN; HNHM); Brandkross, 28.28°S 16.40° (HNHM); 10 km NE Luderitz, 28.5500°S 16.4333°E (SMWN); Daberas Gate, 8 km E, Diamond Area 1, 28.5500°S 16.5000°E (SMWN).

Other records: Namib Sand Sea desert (Seely, 2012).

Remarks. The holotype of this species was examined at the SAMC.

Genus *Australytta* Bologna, 2003

This southern African genus, revised by Bologna (2003), is primarily distributed in Namibia. In that paper was described the first instar larva of *Austrolytta*.

Australytta maraisi Bologna, 2003 (Fig. 1L)

Distribution. Northwestern Namibia (endemic).

Material examined and literature records. [Kunene] Opuwo: Kaokoland, 18.8667°S 12.9833°E (Bologna 2003; SMWN).

Remarks. The holotype of this species was examined at the SMWN.

Australytta namaqua (Kaszab, 1953)

Lytta namaqua Kaszab, 1953

Distribution. Southern Namibia (endemic).

Material examined and literature records. [Karas] Berseba: Bethanie, 26.4833°S 17.1200°E (Kaszab 1953b, type locality; Bologna 2003; NHP).

Other records: Namibia (Bologna 2000a).

Remarks. The holotype of this species was examined at the HNHM.

Australytta rubrolineata (Kaszab, 1953) (Fig. 1M)

Lytta rubrolineata Kaszab, 1953

Distribution. Namibia (endemic).

Material examined and literature records. [Ohangwena] Ongenga: Elakalapwe, 17.4000°S 15.7333°E (Bologna 2003; CB; SMWN). Oshikango: Ohamwaala, 17.4167°S 16.0500°E (SMWN). Ondobe: Ohanvaala 17.4167°S 16.2167°E (Bologna 2003; SMWN). [Omusati] Tsandi: Tsandi, 17.7667°S 14.8667°E (Bologna 2003; SMWN). Ogongo: Iikango, 17.8500°S 15.2333°E (Bologna 2003; SMWN). [Oshana] Ondangwa: Ondangwa town, 17.9167°S 15.9500°E (Bologna 2003; CB). Ompundja: Onalonga, 50 km SW Ondangwa, 18.0000°S 15.6000°E (Kaszab 1953b; Bologna 2003). Uuvudhiya: Okaukuejo, 19.1500°S 15.9333°E (Bologna 2003; SMWN); Ethosa Pan, Okakuejo Camp, 19.1667°S 15.9167°E (Bologna 2003; NHP). [Oshikoto] Olukonda: Ondangwa, 17.9548°S 16.0322°E (CB). Omuthiyagwiipundi: Andoni Plains, 18.4833°S 16.8000°E (Bologna 2003; CB; SMWN); Etosha National Park, 19.0000°S 16.0000°E (SMWN). Guinas: Nakusib, 24 km SE Namutoni, 18.9333°S 17.1500°E (Kaszab 1953b; Bologna 2003; SAMC). [Karas] Berseba: between Farm Gavaams 6 and Bethanie, 26.4100°S 17.3870°E (Bologna 2003; NHP).

Other records: Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. The holotype of this species was examined at the SAMC**.**

Australytta szekessyi (Kaszab, 1953) (Fig. 1N)

Lytta szekessyi Kaszab, 1953

Distribution. Namibia and northern South Africa.

Material examined and literature records. [Kunene] Epupa: Kaokoveld, Ombuku, 16.9833°S 13.3667°E (CB; MNB); Kaokoveld, Otjitanga, 17.1500°S 13.5333°E (MNB); Kunene River, W Hartmbg, 17.2000°S 12.1667°E (Bologna 2003; CB; NHP); Kunene River, 17.4000°S 12.3000°E (Bologna 2003; NHP); Okambele,

17.6167°S 14.0500°E (Bologna 2003; SMWN). Opuwo: Orupembe, 18.1667°S 12.5667°E (Bologna 2003; SMWN); Orupembe, 18.1833°S 12.5167°E (Bologna 2003; CB; SMWN); 4 km E of Omungunda, 18.2333°S 13.4333°E (SMWN); Omungunda, 18.2448°S 13.4503°E (Bologna 2003; SMWN); 10 km NW of Giribes Vlakte, 18.9843°S 13.313°E (Bologna 2003; SMWN). Sesfontein: Sesfontein, 19.1333°S 13.6167°E (Kaszab 1953b; Bologna 2003; NHP; SAMC); Aub Area, 19.3333°S 13.8833°E (Bologna 2003; SMWN); Kaross, 19.5000°S 14.3333°E (Kaszab 1953b; Bologna 2003; NHP); Palmwag 702, 19.8333°S 13.8833°E (Bologna 2003; CB; SMWN). Kamanjab: Kamanjab, 19.6333°S 14.8333°E (Bologna 2003; NHP); Otjitambi Farm, 19.8167°S 15.1667°E (Bologna 2003, SAMC). Outjo: Outjo, 20.1167°S 16.1500°E (Bologna 2003; NHP). Khorixas: Springbokwater, 20.3333°S 13.6333°E (Bologna 2003; NHP); Khorixas, 20.3667°S 14.9667°E (Bologna 2003; NHP); Twyfelfontein, 20.5667°S 14.3667°E (Bologna 2003; SMWN). [Oshana] Ondangwa: Ondangwa town, 17.9167°S 15.9500°E (Bologna 2003; CB). [Oshikoto] Olukonda: Ondangwa, 17.9548°S 16.0322°E (CB). [Erongo] Dâures: Uis, 21.2168°S 14.8696 (CB); Uis, 21.2165°S 14.8639°E (CB). Omaruru: near Omaruru, 21.4333°S 15.9333°E (Bologna 2003; CB; CP). [Otjozondjupa] Okahandja: Okahandja, 21.9833°S 16.9167°E (Bologna 2003; CP); Okahandja, Gross Baren, 22.1000°S 16.7500°E (CB; CP). [Hardap] Gibeon: Sesriem 137, Maltahohe, 24.4833°S 15.8000°E (Bologna, 2003; SMWN). [Karas] Berseba: Mukorob 14, 25.5000°S 18.1667°E (Bologna 2003; CB; SMWN). Lüderitz: Aus, 26.6667°S 16.667°E (Bologna 2003; CP). Karasburg: Karasburg, 28.0167°S 18.7500°E (Bologna 2003; PPRI).

Other records: Jezfontein (Bologna 2003; NHP); Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. The holotype of this species was examined at the SAMC.

Australytta vellicata (Erichson, 1843) (Fig. 1O)

Lytta vellicata Erichson, 1843

Distribution. Southwestern Angola and northwestern Namibia.

Material examined and literature records. [Kunene] Sesfontein: Palmwag 702, 19.8333°S 13.8833°E (SMWN).

Other records: Namibia (Bologna 2000a).

Remarks. Types of this species were not examined.

Genus *Lydomorphus* Fairmaire, 1882

This genus was revised by Kaszab (1955a, 1978, as *Cylindrothorax*), while Selander (1988a as *Cylindrothorax*) summarized the distribution of all species. Bologna & Aloisi (1992) described the first instar larva, evidenced the priority of the name *Lydomorphus* over *Cylindrothorax* and improved the infrageneric classification by describing two new subgenera. We accept here, with few exceptions, the groups of species proposed by Kaszab (1955a) and the subgenera described by Bologna & Aloisi (1992). Most of the species of this genus, including the Namibian ones, are nocturnal or active also during the day.

Recent research, based on adult (Bologna & Pinto 2002) and larval morphology (Bologna *et al.* in preparation), and on molecular data (Pitzalis et *et al.* in preparation), pointed out the polyphyly of *Lydomorphus*. Actually, some Palaeotropical and Saharan species belong to an undescribed genus (Pitzalis *et al.* in preparation); one northern Namibian species (*L. optatus*) and another one from Namaqualand and Karoo (*L. mesembryanthemi*) are referable to two new genera described below (*Dilatilydus* and *Desertilydus*).

Lydomorphus Group VI (*sensu* Kaszab , 1955)

Lydomorphus (Lydomorphus) chalybaeus (Erichson, 1843) (Fig. 1P)

Lytta chalybea Erichson, 1843
Cantharis seminitens Marseul, 1879

Distribution. Southwestern Angola and northwestern Namibia (new species record for this country).

Material examined. [Omusati] Ruacana: Ruacana, 17.4333°S 14.3500°E (MNB). [Kunene] Epupa: Ovamboland, Okambele, 17.6167°S 14.0500°E (CB; SMWN); 4 km N Omahokwa, 17.7500°S 12.7500°E (SMWN). Kamanjab: Delhi 96, Outjo, 20.3780°S 15.7280°E (SMWN). [Khomas] Windhoek East: Windhoek, 22.5700°S 17.0835°E (MT).

Remarks. Types of this species were not examined.

Together with *L. mimus* (see below), it belongs to a small group, endemic to S Angola and Namibia (VI group as defined by Kaszab 1955a). Relationships with another Somalian species referred to this group by Kaszab, need clarification.

Lydomorphus (Lydomorphus) mimus (Péringuey, 1909) (Fig. 1Q)

Cantharis mima Péringuey, 1909

Distribution. Namibia (endemic).

Material examined and literature records. [Kunene] Epupa: Kaokoveld, Ombuku, 16.9833°S 13.3667°E (MNB); Hippo Pool on Kunene River 20 km W of Ruacana, 17.4092°S 14.2185°E (CB). Opuwo: Opuwo town, 18.0500°S 13.8333°E (CB); 16 km S Opuwo, 18.1500°S 13.8333°E (MNB); Opuwo, on D3710, 18.2011°S 13.8994°E (CB); 6 km NE Orumana, 18.2167°S 13.9500°E (SMWN). Sesfontein: Hobatere Lodge, 19.3317°S 14.3700°E (MNB). Outjo: C63, Outjo-Kalkfeld 22 km S of Outjo, 20.3240°S 16.1403°E (CB). Kamanjab: Delhi 96, Outjo, 20.3780°S 15.7280°E (SMWN). [Omusati] Ruacana: Ruacana, 17.4333°S 14.3500°E (CB); Outside Ruacana Town, 17.4500°S 14.3667°E (SMWN). Okahao: Kamanjab-Ruacana 25 km NW of Kamanjab on C35, 18.4775°S 14.6977°E (CB). [Oshikoto] Guinas: Tsumeb, Onguma 314, 18.7333°S 17.0500°E (SMWN). [Oshana] Uuvudhiya: W of Wolfsnes, Etosha Nat. Park, 19.0500°S 15.8667°E (SMWN); Ongava Lodge, Row III, Etosha Nat. Park, 19.3324°S 15.8725°E (SMWN). [Otjozondjupa] Otjiwarongo: 2 km N Kalkfeld (road C33), 20.8333°S 16.2000°E (CB). Omatako: 100 km N Okahandja, 21.0920°S 16.8280°E (CP). Okahandja: Ovita, 21.5228°S 16.2539°E (SMWN). [Erongo] Omaruru: C33, 6 km S Omaruru, 21.4824°S 15.9508°E (CB). [Hardap] Mariental Urban: 11 km W Mariental (road C19), 24.6167°S 17.8500°E (CB). Gibeon: Gibeon Siding, 25.1667°S 17.8333°E (SMWN).

Other records: Damaraland (Kaszab, 1955a); Northern Damaraland (Péringuey 1909, type locality; Selander 1988a); Namaqualand (Kaszab 1955a; Selander 1988a); Namib Sand Sea desert (Seely 2012); SW Afrika (MNB); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at SAMC.

Group XIV (sensu Kaszab, 1955)

Lydomorphus (Lydomorphus) bisignatus (Mäklin, 1875) (Fig. 1R)

Cantharis bisignata Mäklin, 1875
Lytta notaticollis Péringuey, 1888

Distribution. Botswana, Kenya, Namibia, South Africa, Zambia, and Zimbabwe.

Material examined and literature records. [Omusati] Ruacana: Ruacana falls, 17.4000°S 14.2833°E (CB). Ogongo: Iikango, 17.8500°S 15.2333°E (SMWN). Okahao: Kamanjab-Ruacana 25 km NW of Kamanjab on C35, 18.4775°S 14.6977°E (CB). [Ohangwena] Ongenga: Ovambo, 17.4000°S 15.7333°E (SMWN). Okongo: Ovambo, 17.6000°S 17.8833°E (SMWN). [Kavango] Rundu Rural: Rundu, 17.9333°S 19.7667°E (CP). Mukwe: Popa Falls, 18.1167°S 21.5833°E (MNB). [Oshikoto] Olukonda: Ondangwa, 17.9548°S 16.0322°E (CB). Onayena: Ondangwa-Tsumeb 26 km SE of Ondangwa on B1, 18.0402°S 16.2037°E (CB). Omuthiyagwiipundi: Andoni Plains, 18.4833°S 16.8000°E (SMWN); 30 km E Etosha N.P., Mokuti Lodge, 18.8°S 17.0333°E (CB); Etosha National Park, Namutoni Gate, 18.8000°S 17.0333°E (CB); Etosha Nat. Park, Galton Gate, 18.8667°S 17.0500°E (SMWN). Guinas: Oshivelo, 18.6167°S 17.1667°E (CB). [Kunene] Opuwo: 6 km NE Orumana, 18.2167°S

13.9500°E (SMWN); 4 km E of Omungunda, 18.2333°S 13.4333°E (SMWN); Okumutati, 18.8667°S 14.3500°E (SMWN); 10 km NW of Giribes Vlakte, 18.9843°S 13.313°E (SMWN). Kamanjab: 35 km NW Kamanjab (road C35), 19.5000°S 14.8000°E (CB); Outjo-Kamanjab 95 km N of Outjo, 19.8040°S 15.3290°E (CB); Rasputin 137, 20.2500°S 15.900°E (SMWN). Outjo: Outjo-Kalkfeld 22 km S of Outjo on C63, 20.3240°S 16.1403°E (CB). [Otjozondjupa] Grootfontein: Grootfontein, 19.5611°S 18.1022°E (CB); Grootfontein, 19.5667°S 18.1167°E (SMWN). Tsumkwe: Boesmanland, 19.6000°S 20.6833°E (SMWN); Nama Pan, Boesmanland, 19.9167°S 20.7167°E (SMWN); Gam, Hereroland-Oos, 20.2500°S 20.8167°E (SMWN). Otjiwarongo: Otjiwarongo town, 20.4167°S 16.6000°E (CB); C63, Outjo-Kalkfeld, 15 km N of Kalkfeld, 20.7537°S 16.2210°E (CB). Omatako: Waterberg (jct. roads C22-2512), 20.6333°S 17.15000°E (CB); Hamakari Sud 373, 20.6667°S 17.4000°E (SMWN); Waterberg Plateau Park: jct. C22-D512 roads, 20.6685°S 17.1755°E (CB); Sukses 62 km S Otjiwarongo, 21.0000°S 16.8000°E (CB); Mount Etjo Safari Lodge, 21.0167°S 16.4167°E (CB); Kalidona 277, Okahandja, 21.2833°S 18.0667°E (SMWN); Otjiamongombe West 44, 21.6098°S 16.9364°E (MNB). Okahandja: Okahandja, 21.9833°S 16.9167°E (SMWN); Okahandja, Gross Baren, 22.1000°S 16.7500°E (CP). [Erongo] Omaruru: Weissenfelds 35, 21.0667°S 15.9833°E (SMWN); C33, 6 km S Omaruru, 21.4824°S 15.9508°E (CB);C33, 3–9 km S of Omaruru, 21.4948°S 15.9705°E (CB). Karibib: D1935, 30 km NNW Usakos, 21.7833°S 15.5000°E (CB); Karibib town, 21.9333°S 15.8500°E (Selander 1988a; CB); B2, 16 km W Karibib, 21.9358°S 15.7056°E (CB). [Omaheke] Steinhausen: Owingi 246, Gobabis, 21.9000°S 18.8667°E (SMWN). Kalahari: E Gobabis, 22.3333°S 19.1333°E (MNB). Gobabis: 10 km W Witvley 1 km from B6-D1658, 22.4056°S 18.4037°E (CB); Gobabis, 22.4500°S 18.9667°E (CB); Gobabis, 22.4559°S 18.9659°E (CB). [Khomas] Windhoek Rural: Hochberg 158, 21.9167°S 17.7167°E (SMWN); Okaparakaha, Voigt's farm 90 km NE Windhoek, 22.3545°S 17.4415°E (MNB); Windhoek-Gobabis D1525 to Bodenhausen, 1 km N from B6, 22.3968°S 17.6600°E (CB); Windhoek Airport, 22.5333°S 17.2500°E (CB); Richtofen 126, 22.5667°S 17.7500°E (SMWN); C23, 38 km S Dordabis, 23.0715°S 18.0434°E (CB); D1228, 7 km ENE Rehoboth, 23.2833°S 17.2333°E (CB). Windhoek East: Windhoek, 22.5700°S 17.0836°E (Bologna, 1978; Selander, 1988a; CB). [Hardap] Rehoboth West Urban: Rehoboth town, 23.3167°S 17.0667°E (CB). Mariental Rural: Stampried, 24.3333°S 18.4000°E (SMWN). Mariental Urban: C19, 11 km W Mariental, 24.6167°S 17.8500°E (CB); Mariental town, 24.6167°S 17.9500°E (CB). [Karas] Keetmanshoop Rural: Koes, 25.9500°S 19.1167°E (SMWN); Wildheim Ost 384, 26.4833°S 19.5667°E (SMWN); Samehaling 277, 26.9833°S 19.5500°E (SMWN); Swartbaas West 276, 27.0167°S 19.7000°E (SMWN). Karasburg: Karios 8 (Gondwana Park), Game Camp not fenced, 92 km S Keetmanshoop (swartkoppie), 27.6539°S 17.8328°E (MNB); Karios 8 (Gondwana Canyon Park), Game Camp not fenced, 92 km S Keetmanshoop, 27.6837°S 17.8060°E (MNB).

Other records: Ovampoland (Péringuey, 1909; Selander, 1988a); N Ovampoland (Selander 1988a); Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. According to Kaszab (1955a), this species, as well as the following one, belong to a group (XIV) which includes some eastern and southern African, and one Indian species. The monophyly of this group need cofirmation.

Remarks. Types of this species were not examined but specimens compared with them were studied at HNHM.

***Lydomorphus (Lydomorphus) strangulatus* (Gerstäcker, 1854)** (Fig. 1S)

Lytta strangulata Gerstäcker, 1854
Lytta fulvicollis Fåhraeus, 1870

Distribution. Angola, Botswana, Burundi, Ethiopia, Ghana, Kenya, Malawi, Mozambique, Namibia, Nigeria, Rwanda, Somalia, South Africa, Sudan, Tanzania, and Zaire.

Material examined and literature records. [Caprivi] Katima Mulilo Urban: Katima Mulilo, 17.5000°S 24.2667°E (CB). Kabe: E Caprivi: 30 km SE Katima Mulilo, Zambezi-Altwasserarm, 17.5166°S 24.4167°E (MNB). [Kavango] Rundu Rural: Rundu, 17.9333°S 19.7667°E (CB). Mukwe: Popa Falls, 18.1167°S 21.5833°E (MNB); Mahango Game Res., 18.1500°S 21.7000°E (MNB). [Oshikoto] Guinas: Bezirk Tsumeb, Farm Wildernis, 64 km NW Tsumeb, 18.87330°S 18.0167°E (MNB). [Oshana] Uuvudhiya: Etosha N.P. Okaukuejo, 19.1667°S 15.9167°E (MNB). [Otjozondjupa] Otjiwarongo: D 2430,25 km N Otjiwarongo, 20.2667°S 16.6167°E (CB);

Otjiwarongo town, 20.4167°S 16.6000°E (CB). [Khomas] Windhoek Rural: Windhoek Airport, 22.5333°S 17.2500°E (CB).

Other records: Namibia (Bologna, 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were not examined but specimens compared with them were studied at HNHM.

Morhological differences are detectable among western, eastern and southern African populations and the monophyly of the species is uncertain.

Group XIII (sensu Kaszab, 1955)

Lydomorphus (Lydomorphus) karibibensis (Pic, 1915) (Fig. 1T)

Lytta karibibensis Pic, 1915

Distribution. Namibia (endemic).

Material examined and literature records. [Omusati] Ruacana: C46, Ruacana Falls, 17.4000°S 14.2833 °E (CB); Ruacana, 17.4333°S 14.3500°E (CB). [Kunene] Opuwo: Otjipemba, 17.3306°S 13.0080°E (SMWN). Kamanjab: C35, 35 km NW Kamanjab, 19.5000°S 14.8000°E (CB); C40, 26 km E Kamanjab, 19.6957°S 15.1046°E (CB); Otjitambi 25, Outjo, 19.8167°S 15.1667°E (SMWN); Mooihoek 376, 20.1333°S 15.8833°E (SMWN); Eendrag 110, Outjo, 20.3386°S 15.7749°E (SMWN). Outjo: C39, 10 km W Outjo, 20.0100°S 16.0100°E (CB); road Outjo-Kalkfeld, 162 km S Outjo, 20.3333°S 16.1500°E (CB). Khorixas: Khorixas, 20.3667°S 14.9667°E (SMWN); Khorixas, 20.4167°S 14.9833°E (SMWN). [Oshana] Uuvudhiya: Okaukejo, Etosha, 19.1500°S 15.9333°E (SMWN). [Otjozondjupa] Otjiwarongo: Garfield, 20.4450°S 16.0830°E (SMWN). Okahandja: Okahandja, 21.9833°S 16.9167°E (SMWN). [Erongo] Omaruru: Otjikoko-Sud 61, 21.2833°S 16.3667°E (SMWN); C33, 6 km S Omaruru, 21.4824°S 15.9508°E (CB). Dâures: Messum Mts., 21.3833°S 14.2167°E (SMWN); Pforte 65, 21.7833°S 15.3833°E (SMWN); Gross Spitzkoppe, 21.8167°S 15.1667°E (CB). Karibib: D1935, 30 km NNW Usakos, 21.7833°S 15.500°E (CB); Karibib, 21.9333°S 15.8333°E (Pic 1915; Kaszab, 1955a; Selander, 1988a; CB). Arandis: Blutkuppe, Namib-Naukluft Park, 23.0833°S 15.1667°E (SMWN). [Hardap] Gibeon: Ubussis 3, Namib-Naukluft Park, 24.3667°S 16.0667°E (SMWN); Gorrasis 99, Luderitz, 25.3184°S 15.9089°E (SMWN). Mariental Urban: 11 km W Mariental (road C19), 24.6167°S 17.8500°E (CB). [Karas] Berseba: Mukorob 14, 25.4833°S 18.1667°E (SMWN). Keetmanshoop Rural: Samehaling 277, 26.9833°S 19.5500°E (SMWN). Karasburg: 5 km NW Karasburg, 27.9667°S 18.7167°E (SMWN).

Other records: Namib desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. The holotype of this species was examined at MNHN.

This species and the following one belong to the XIII group, as defined by Kaszab (1955a). Probably also *Lydomorphus tibialis* (Kaszab 1955a) is referable to this group rather than to a distinct one (X group), even if male fore tibiae have a derived condition.

L. karibibensis is very similar to *L. thoracicus* (see below) and distinguishable only by male protarsi externally unsetate and the wider and deeper puncturation of head and pronotum. In middle western Namibia (near Karibib and Usakos), *L. karibibensis* is sympatric with a local phenotype of *L. thoracicus* [described as var. *inpleuralis* (Pic 1911), which actually is a synonym of the nominate form], which has a similar puncturation of head and pronotum. Females of this form are difficult to distinguish from those of *L. karibibensis*, except for her longer antennae.

Lydomorphus (Lydomorphus) thoracicus (Erichson, 1843) (Fig. 1U)

Lytta thoracica Erichson, 1843
Lytta pleuralis var. *inpleuralis* Pic, 1911b **syn. n.** (note that *pleuralis* is a name *in litteris*)

Types. The holotype of *Lytta pleuralis* var. *inpleuralis* Pic, 1911 was examined at MNHN.

Distribution. Angola, Namibia, South Africa.

Material examined and literature records. [Kunene] Epupa: Kaokoveld, Ombuku, 16.9833°S 13.3667°E

(MNB); Hippo Pool on Kunene River, 20 km W of Ruacana, 17.4092°S 14.2185°E (JP). Opuwo: Opuwo, 18.0500°S 13.8333°E (CB; SMWN); Kaokoland, 18.1333°S 13.8333°E (SMWN); 6 km NE Orumana, 18.2167°S 13.9500°E (SMWN); Robbie's Pass, 18.6500°S 13.5333°E (SMWN); Kaokoveld: 50 km N Sesfontein, 18.8333°S 13.7500°E (MNB); Okumutati, 18.8667°S 14.3500°E (SMWN); C43, 18.9562°S13.7573°E (CB). Sesfontein: Ongongo fall, Warmbad, 19.1333°S 13.8167°E (MNB); Hobatere Lodge, 19.3317°S 14.3700°E (MNB); Kamanjab, D2650, 19.8087°S 14.5128°E (CB); Palmwag 702, 19.8333°S 13.8833°E (SMWN). Kamanjab: C35, 35 km NW Kamanjab, 19.5000°S 14.8000°E (CB); Otjitambi 25, 19.8167 °S 15.1667°E (SMWN); Rasputin 137, 20.2500°S 15.9000°E (SMWN). Khorixas: Pass Strasse, near Torrabaai, 20.2833°S 13.9667°E (MNB); Khorixas-Twyfelfontein (MNB); Twyfelfontein, 20.5667°S 14.3667°E (SMWN). [Omusati] Ruacana: C46, Ruacana Falls, 17.4000°S 14.2833°E (CB); Ruacana, 17.4333°S 14.3500°E (CB). Ogongo: Iikango, 17.8500°S 15.2333°E (SMWN). [Kavango] Kapako: Kapaku, 17.9000°S 19.5667°E (SMWN). Mukwe: Popa Falls, 18.1167°S 21.0667°E (SMWN). Ndiyona: Kaudom-Cwiba Junctio, Kaudom Game Reserve, 18.4667°S 20.8167°E (SMWN); Nhoma River, Kaudom Game Reserve, 19.0500°S 20.7167°E (SMWN). [Oshana] Uuvudhiya: Etosha N.P. Okaukuejo, 19.1667°S 15.9167°E (MNB). [Otjozondjupa] Tsumkwe: 2 km W Omatako, 19.2667°S 19.3000°E (SMWN); Ahaberge, Hereroland-Oos, 19.8000°S 21.0000°E (SMWN). Okahandja: Gross Barmen, 22.1000°S 16.7500°E (CP). [Erongo] Dâures: Brandberg, Wasserfallflache, 21.1793°S 14.5527°E (SMWN); Brandberg, Hungorob Valley, 21.1900°S 14.5282°E (Bologna, 2000a; SMWN); Brandberg Mason Shelter 21.1500°S 14.5833°E (MNB); Uis, 21.2165°S 14.8639°E (CB); Brandberg, Messum valley, 21.2215°S 14.5163°E (Bologna 2000a; SMWN); D2342, 12 km SE Messum valley, 21.3048°S 14.6574°E (CB); Gross Spitzkoppe, 21.8167°S 15.1667°E (CB); Pontok Mountains, Gross Spitzkoppe, 21.8283°S 15.2150°E (MNB). Omaruru: Erongo Wilderness Lodge, 5 km W Omaruru, 21.4167°S 15.9500°E (MNB); Omaruru, 21.4333°S 15.9333°E (CB); C33, 6 km S Omaruru, 21.4824°S 15.9508°E (CB); C33, 3–9 km S of Omaruru (Karibib-Omaruru), 21.4948°S 15.9705°E (CB); btw. Omaruru and Okahandja (MNB); Farm Omandumba, 50–60 km SW Omaruru, 21.5348°S 15.4844°E (MNB). Karibib: D1935, 30 km NNW Usakosad, 21.7833°S 15.5000°E (CB); Karibib, 21.9333°S 15.8333°E (CB; Pic 1911b, var. *inpleuralis,* type locality.; Selander 1988a, ssp. *inpleuralis*); B2, Usakos-Karibib, 16 km W of Karibib, 21.9358°S 15.7065°E (CB); B2, 16 km W Karibib, 21.9358°S 15.7056°E (CB); Karibib, 21.94167°S 15.85086°E (CB); D1935, 6 km E Usakos, 21.94311°S 15.5832°E (CB); Usakos, 22.0000°S 15.6000°E, (CB); B2, 66 km W Usakos, 22.2505°S 15.1368°E (CB); B2, 71 km W Usakos, 22.2866°S 15.1189°E (CB); C32, 54 km S Karibib,Swakop River, 22.3954°S 15.8343°E (CB); Arandis: 6 km N Arandis, 22.3667°S 14.9833°E (SMWN); Upper Ostrich Gorge, 22.4833°S 14.9833°E (SMWN); Namib Naukluft Park: Bloedkoppie, 22.8450°S 15.3783°E (MNB); C14, Kuiseb River, 23.3046°S 15.7718°E (CB). Walvis Bay Rural: Gorob Mine, Namib Desert Park, 23.5333°S 15.4167°E (SMWN). [Khomas] Windhoek Rural: Daan Viljoen, 22.4333°S 16.8833°E (MNB); Daan Park, 22.5333°S 16.9667°E (CP); Daan Viljoen, 22.5367°S 16.9469°E (CB); Wasservallei, 22.9167°S 16.3667°E (SMWN); 7 km ENE Rehoboth (road 1228), 23.2833°S 17.2333°E (CB); 8 km E of Namib Park Border, 23.3167°S 15.8667°E (SMWN); 10 km N Gaub Pass, 23.4183°S 15.8433°E (MNB); Solitaire, 23.8648°S 16.0585°E (CB). Windhoek East: Windhoek, 22.5700°S 17.0836°E (Bologna 1978; Selander 1988a; CB) (ssp. *inpleuralis:* Selander 1988a). [Hardap] Rehoboth West Urban: Rehoboth town, 23.3167°S 17.0667°E (CB). Rehoboth Rural: 8 km SE Kalkrand, 24.0667°S 17.5833°E (JP). Gibeon: Blässkranz/ Naukluft 5 km E, 24.1000°S 16.2833°E (MNB); Dunes NW Namib Restcamp, 24.1050°S 15.8917°E (MNB); Namib Restcamp, 24.1167°S 15.9050°E (MNB); Waltevrede Farm, 24.1779°S 15.9802°E (CB); 36 km S Solitaire, 24.2033°S 15.9617°E (MNB); C14 10 km S Waltevrede, 24.2377°S 15.9040°E (CB); Namib-Naukluft N.P., Tsamst Ost, 24.2400°S 16.1033°E (MNB); Namib-Naukluft N.P., Naukluft, 24.2628°S 16.2388°E (MNB); Namib-Naukluft N.P., Sesriem, 24.4833°S 15.7983°E (MNB); Sesriem 137, 24.4833°S 15.8000°E (SMWN); Namib Naukluft Park: Sesriem, 24.5500°S 15.7667°E (MNB); C14, 8 km N Maltahöhe, 24.7861°S 16.9616°E (CB); C14, 1 km W Maltahöhe, 24.8589°S 16.9751°E (CB); C19, W slope Tsaris Pass, 24.9346°S 16.4159°E (CB); Gorraris 99, Luderitz, 25.3184°S 15.9089°E (SMWN). Mariental Urban: Hardapdam, 24.4833°S 17.8333°E (MNB); Hardap Recr. Res., 24.4871°S 17.8445°E (CB); C19, 11 km W Mariental, 24.6167°S 17.8500°E (CB); Mariental town, 24.6167°S 17.9500°E (CB). Mariental Rural: M 29, 118 km S Mariental, 25.4479°S 18.6138°E (CB). [Karas] Keetmanshoop Rural: Koes, 25.9500°S 19.1167°E (SMWN); Khabus 146, 26.2833°S 18.2333°E (SMWN); Gellap Ost 3, 23 km NW Keetmanshoop, 26.4049°S 18.0116°E (MNB); Gellap Ost 3, 23 km NW Keetmanshoop, 26.4119°S 18.0124°E (MNB); Gellap Ost 3,23 km NW Keetmanshoop, 26.4500°S 18.0833°E (MNB); Howobees Slat, 26.7333°S 18.5000°E (SMWN); B4, 23 km W Keetmanshoop, 26.7533°S 17.9616°E (CB); Seeheim, 26.8134°S 17.7992°E (CB, alcohol); Naute Dam, 26.9333°S

17.9333°E (SMWN); Samehaling 277, 26.9833°S 19.5500°E (SMWN); D463, 27.2500°S 17.9167°E (CB); Noachabeb 97, 27.3833°S 18.4667°E (SMWN). Berseba: Nabaos 7 (Nuwe Fontein) 24 km NW Keetmanshoop, 26.3934°S 17.9955°E (MNB); Nabaos 7 (Nuwe Fontein), 24 km NW Keetmanshoop, 26.3951°S 18.0045°E (MNB); Nabaos 7 (Nuwe Fontein), 24 km NW Keetmanshoop, 26.4003°S 17.9975°E (MNB). Lüderitz: Plateau 38, 26.6667°S 16.5333°E (SMWN); Heinrichsfelde 10, 26.7000°S 16.2000°E (SMWN). Karasburg: Karios 8 (Gondwana Canyon Park), Game Camp not fenced, 92 km S Keetmanshoop, 27.6539°S 17.8328°E (MNB); Karios 8 (Gondwana Canyon Park), Game Camp not fenced, 92 km S Keetmanshoop (Gondwana Canyon Lodge), 27.6636°S 17.7797°E (MNB); Karios 8 (Gondwana Park), Game Camp not fenced, 92 km S Keetmanshoop, 27.6837°S 17.8060°E (MNB); Karios 8 (Gondwana Canyon Park), Game Camp not fenced, 92 km S Keetmanshoop, 27.6875°S 17.81305°E (MNB); 5 km NW Karasburg, 27.9667°S 18.7167°E (SMWN); Richtersveld, 55 km N Ariamsvlei-Velloorsdrift, 28.3333°S 19.4333°E (SMWN); 5 km S Warmbad, 28.4833°S 18.7667°E (SMWN). Oranjemund: Boom River Canyon, 19 km N of Orange River (ENE of Rosh Pinah), 27.8667°S 17.0667°E (SMWN); Fish River Canyon, Ai-Ais, 27.91667°S 17.48333°E (MNB); Richtersveld Boom River Course, 28.0000°S 17.0500°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a, also sub *Lydomorphus bohemani*; Ptzalis *et al.* 2014).

Remarks. Types of this species were not examined but specimens compared with them were studied at HNHM.

As indicated above, the ssp. *inpleuralis* is only a synonym of the nominate form.

Group X (sensu Kaszab, 1955)

Lydomorphus (Lydomorphus) tibialis (Kaszab, 1955) (Fig. 1V)

Cylindrothorax tibialis Kaszab, 1955a

Distribution. Angola and western Namibia.

Material examined and literature records. [Kunene] Epupa: Hartmann's Valley, 17.3833°S 12.2500°E (SMWN). Opuwo: 10 km NW of Giribes Vlakte, 18.9843°S 13.3130°E (SMWN). Sesfontein: Okambondevlakte, 19.2000°S 13.4833°E (SMWN); Hoanib River, Skeleton Coast Park, 19.4500°S 12.8667°E (SMWN). Khorixas: Khorixas, 20.4167°S 14.9833°E (SMWN); Beyhanis 514, 20.4280°S 14.3333°E (SMWN). [Erongo] Omaruru: Erongo Mts., 21.6667°S 15.6667°E (Selander 1988a); C33, 30–20 km N Karibib, 21.6833°S 15.9667°E (CB). Karibib: D1935, 30 km NNW Usakos, 21.7833°S 15.5000°E (CB). Karibib: Karibib, 21.9333°S 15.8333°E (Kaszab, 1955a, allotype and 2 paratypes; Selander 1988a; CB); 16 km W of Karibib on B2, 21.9358°S 15.7056°E (CB); B2, 16 km W Karibib, 21.9358°S 15.7056°E (CB). Dâures: Gross Spitzkoppe, 21.8167°S 15.1667°E (CB). *Other records:* Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at HMNH.

Lydomorphus (Somalolydus) bifoveiceps bifoveiceps (Fairmaire, 1897) (Fig. 1W)

Cantharis bifoveiceps Fairmaire, 1897

Distribution. Kenya, Mozambique, northeastern Namibia (new species record for this country), Tanzania, Zaire, Zambia, and Zimbabwe.

Material examined. [Kavango] Mukwe: Popa Falls, E. bank, Western Caprivi, 18.1167°S 21.5833°E (SMWN). [Oshikoto] Guinas: Ghaub 47, 19.4833°S 17.7833°E (SMWN). [Otjozondjupa] Otavi: Dakota 424, 19.4941°S 17.1287°E (SMWN).

Remarks. Types of this species were examined at MNHN.

The subgenus *Somalolydus* Bologna, 1992 is primarily distributed in eastern African, and *L. bifoveiceps* is the only species spread also in southern Africa. It probably represents a relic of the faunal component dispersed along the dry Pliocene corridor of East Africa (see Endrödy-Younga 1978).

Dilatilydus Bologna gen. n.

Type species. *Cantharis optata* Péringuey, 1892 fixed by monotypy and present designation.

Diagnosis. A monotypic lyttine genus (Fig. 1X), endemic to desert and semidesert regions of northen and western Namibia and northwestern Botswana, similar in shape to *Lydomorphus* Fairmaire, 1882 because of the slender body and pronotum, and eyes extended ventro-medially under the head, but greatly distinct because of male antennomeres III–V and VIII broadened out externally (see De Moor 1977), the male last ventrite lacking apical laminar expansions, and male gonostyli well sclerotized. Differs from the new genus *Desertilydus* because of its head sligthlyy convex dorsally, antennae longer, which reach the middle of elytra with male antennomeres modified, and male gonoforceps slender in the apical half, sligtly curved posteriad.

Description. Characters of the type species. Body black subopaque, but pronotum sligthly shiny orange, and elytra pale yellow-brown with base, apex and one middle rectangular spot black (Fig. 1X). Body setation white-yellow, very dense and longer ventrally and on elytra, Body slender, length 12–17 mm.

Head shortly suboval, with temples curved and converging posteriorly, particularly in male, as long as longitudinal diameter of eye. Mandibles longer than labrum, at apex wide and not pointed; maxillary and labial palpomeres not modified; clypeus greatly shorter than labrum, labrum at apex widely emarginated. Male antennomere I about as long than III and more than three times II; II very short and subglobose; III straigth on inner side, but dilated on external side, in middle and more at apex; IV subtrapezoidal, about 2/3 as long as III, greatly widened externally at apex; V about as long as IV but transversally dilated on external side, about twice as wide than long; VI cylindrical and shorter of both V and VII; VII slender and cylindrical; VIII about as long as VI but subtrapeizoidal and widely dilated apically; IX–X slender and cylindrical, about twice as long as VIII; XI cylindrical and slender, progressively narrowed in apical third, longer than X. Female antennomeres all cylindrical and slender, but II very short and subglobose; I and III longer, IV–VIII sligthly shorter than III, VI and VIII slightly shorter than IV–V; IX–X 1.5 as long than VIII, XI 1.5 as long as X.

Pronotum very narrow and slender, subparallel from base to middle, sligthly converging in front; one fore depresion on each side, base depressed also on laterally; thoracic ventrites not modified. Elytral margin, in lateral view, slightly emarginate in posterior half. Legs non modified in both sexes, male protarsomere I widener than in female; tarsomeres with ventral pad of dense yellow setae; pro- and metatibial spurs elongate and pointed, metatibial external spur spoon-like but pointed at apex.

Ventrites not modified; last male sterinte widely V-emarginated without laminar expansions, not evidently depressed medially, that of female not emarginated. Male genitalia with gonoforceps longer than gonocoxal base, slender and progressively narrower from middle to apex, slightly curved posteriad, dispersely setate, particularly on dorsal side of apical third; aedeagus with two pointed hooks both far from apex, proximal one longer.

Etymology. The name of the new genus refers to the dilated shape of male antennomeres III and V, unique in Lyttini, and to *Lydus*, the name of another lyttine genus. Masculine genus.

Remarks. Affinities of this genus are completely unkwnon. Other new lineages of Old World Lyttini, which are similar in shape to *Lydomorphus* (namely a new Saharo-Sahelian genus and *Desertilydus*), but lacking the shared condition of modified last ventrite (see above), are under molecular study to define relationships among Lyttini (Bologna et al. in preparation). The general shape of both pronotum and male genitalia seems more similar to that of *Lydomorphus* than other genera of Lyttini.

Kaszab (1955a) examined only females of the type species, but De Moor (1977) described and figured the greatly modified male antennomeres III–V. This male antennal autapomorphic condition, unkwnon to Kaszab (1955a) is one of the most diagnostic characters of the new genus.

As most *Lydomorphus* also *Dilatilydus optatus* is nocturnal and attracted by ligth.

Dilatilydus optatus (Péringuey, 1892) (Fig. 1X)

Cantharis optata Péringuey, 1892
Cylindrothorax optatus, Kaszab 1955
Lydomorphus optatus, Bologna 2000

Distribution. Botswana and Namibia.

Material examined and literature records. [Ohangwena] Ongenga: Elakalapwe, 17.4000°S 15.7333°E (SMWN). Ondobe: Mafa, 17.5000°S 16.0833°E (De Moor 1977; Selander 1988a). [Omusati] Outapi: Mahanene, 17.4333°S 14.7833°E (SMWN). Tsandi: Okakundu, 17.8167°S 14.9500°E (CB; SMWN). Ogongo: Iikango, 17.8500°S 15.2333°E (SMWN). [Oshikoto] Olukonda: Ondangwa, 17.9548°S 16.0322°E (CB). Omuthiyagwiipundi: Momtele, 18.3330°S 16.5000°E (De Moor 1977; Selander 1988a); Andoni Plains, 18.4833°S 16.8000°E (CB; SMWN); Andoni South, Etosha Nat. Park, 18.5167°S 16.7667°E (SMWN). [Kavango] Ndiyona: Kaudom-Cwiba Junctio, Kaudom Game Reserve, 18.4667°S 20.8167°E (SMWN). [Otjozondjupa] Tsumkwe: Bushmanland: Klein Dobe, 19.4167°S 20.3500°E (MNB). [Kunene] Khorixas: Khorixas, 20.3667°S 14.9167°E (PPRI). [Erongo] Dâures: Spitskoppe, 21.8518°S 15.1484°E (SMWN). [Khomas] Windhoek Rural: Nauchas 14, 23.6000°S 16.3500°E (SMWN). [Karas] Lüderitz: near Aus, 26.6667°S 16.2667°E (CP).

Other records: Ovamboland (Kaszab 1955a); N Ovampoland (Selander 1988a); Ovampoland (De Moor 1977); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. De Moor (1977) designated the lectotype of this species, we examined at SAMC.

Desertilydus Bologna gen. n.

Type species. *Lytta mesembryanthemi* Péringuey, 1888, fixed by monotypy and present designation.

Diagnosis. A monotypic lyttine genus (Fig. 1Y) similar in shape to *Lydomorphus* Fairmaire, 1882 particularly because of the slender body and pronotum, but greatly distinct because of the head dorsally almost flat, eyes ventrally not extended medianly under head, antennae very short in both sexes not reaching base of pronotum, male last ventrite lacking apical laminar expansions, male gonostyli well sclerotized, body setation reduced. *Desertilydus* differs from the new genus *Dilatilydus* because of the head almost flat dorsally and the antennae greatly shorter and male gonoforceps wider and narrowed only in apical third, not curved posteriad, and body scarcely setate.

The type species, endemic to Namibian and South African Namaqualand and to northern Karoo, was referred by Kaszab (1955a, as *Cylindrothorax*) to a distinct group (XXII). We herein refer it to a new genus, well distinct from *Lydomorphus* at least by the shape of last male ventrite without laminar expansion; eyes not extended ventrally, head dorsally very flat, antennae very short and robust.

Description. Characters of the type species. Body ochre, but ventral and lateral sides of head, antennae and mouthparts, legs and usually episternites and a narrow portion of elytral apex black (Fig. 1Y). Dorsal surface of head and pronotum glabrous, elytra with short and scattered dark setae, ventral surface with dark short setae denser than on dorsal surface, very dense on coxae and throchanters. Elytra not covering completely the abdomen, especially in female but also in some males. Body sligthly obtuse, length 11–15 mm.

Head shortly subrectangular, with temples parallel in both sexes widely curved posteriorly, sligthly shorter than longitudinal diameter of eye. Mandibles longer than labrum, at apex narrowed and pointed; maxillary and labial palpomeres not modified; clypeus greatly shorter than labrum, labrum at apex almost straigth or scarcely emarginated. Antennae short and not modified in both sexes. Male antennomere I sligthly shorter than III, more than two times II; II very short and subglobose; III–XI cylindrical, III about 1.5 times as long as IV, IV–X similar in length; XI cylindrical but greatly narrower in apical third and pointed at apex with dense small yellow setae. Female antennomeres similar to those of male, just scarcely more submoniliform, but last antennomere slightly less narrowed. Pronotum narrow and slender, suboval, slightly converging in fore third, without dorsal depressions. Thoracic ventrites not modified. Elytral external margin in lateral view sligthly emarginated in middle. Legs non modified in both sexes; tarsomeres without ventral pads; pro- and metatibial spurs elongate and pointed, metatibial external spur spoon-like not pointed at apex.

Ventrites not modified; last male sternite V-emarginated, longitudinally depressed in middle, without laminar expansions, that of female not emarginated. Male genitalia with gonoforceps longer than gonocoxal base, wider and parallel in the basal 2/3, narrowed at apex, with a wide depressed oval area on dorsal fore portion, not curved posteriad, dispersely setate, particularly on dorsal side of apical third, and with spiniform setae on ventral side at apex; aedeagus with two pointed and thin hooks both far from apex, subequal in length.

Etymology. The name of the new genus refers to its ecological relation to southern African desert ecosystems (mainly Namib, Nama and Succulent Karoo), and is composed also by *Lydus*, the name of another lyttine genus, in assonance with the name of two subgenera of *Lydomorphus* and to *Dilatilydus*. Masculine genus.

Remarks. Kaszab (1955a) pointed out the very distinct position of this species. Affinities of this genus are completely unkwnon, even if, according to molecular analyses (Pitzalis *et al.* in preparation), it appears isolated and very distinct from *Lydomorphus* and from another Saharo-Sahelian new lineage of Lyttini similar in shape to *Lydomorphus*. As both this last taxon and *Dilatilydus*, it lacks the shared condition of modified last ventrite (see above). The general shape of pronotum and male genitalia seems more similar to that of *Lydomorphus* than to other genera of Lyttini

This genus is diurnal, differently than *Lydomorphus* and *Dilatilydus*.

Desertilydus mesembryanthemi (Péringuey, 1888) (Fig. 1Y)

Lytta mesembryanthemi Péringuey, 1888
Cylindrothorax mesembryanthemi, Kaszab 1955

Distribution. Southern Namibia (new species for this country) and northwestern South Africa.

Material examined and literature records. [Karas] Lüderitz: near Aus, 26.6667°S 16.2667°E (CB; CP); Klinghardt Mts., 27.3500°S 15.7°E (SMWN); Heioab, 27.4167°S 15.9667°E (SMWN); Namuskluft 88, 27.8000°S 16.8667°E (HNHM). Keetmanshoop Rural: 20 mil SE Keetmanshoop, 26.7212°S 18.8390°E(AMNH); 30 mil SE Keetmanshoop, 26.7718°S 18.5364°E(AMNH); D608, 87 km S Keetmanshoop, 27.32571°S 18.27616°E (CB); D608, 95,5 km S Keetmanshoop, 27.37944°S 18.22418°E (CB). Berseba: Churutabis 108, Bethanien, 27.4167°S 17.4167°E (HNHM). Karasburg: Geiaus 6, 27.6667°S 17.7333°E (CB; SMWN); Ortmansbaus 120, Warmbad, 28.3000°S 18.7000°E (SMWN; HNHM). Oranjemund: C13, 40km S Rosh Pinah, 115 km N Noordoewer, 28.04668°S 17.039580°E (CB); C13 45 km S Rosh Pinah, 28.07076°S 17.12799°E (CB); C13 25–30 km S Rosh Pinah, 129 km N Noordoewe, 28.07315°S 16.94231°E (CB); Obib Mts./Dunes, 28.0833°S 16.7500°E (SMWN).
Other records: Namibia (Pitzalis *et al.* 2014). The citation from Namaqualand (Kaszab 1955a) probably refers to the South African Namaqualand.

Remarks. The holotype of this species was examined at SAMC.

Genus *Prionotolytta* Péringuey, 1909

The taxonomy of this genus, studied by Kaszab (1955b, 1981), remains not completely clarified and possibly some species could be synonymized. Bologna & Di Giulio (2003) described the first instar larva.

Prionotolytta binotata (Péringuey, 1888) (Fig. 2A)

Lytta binotata Péringuey, 1888

Distribution. Botswana, Namibia, western South Africa, and southern Zimbabwe.

Material examined and literature records. [Caprivi] Kongola: Singalamwe, 17.6500°S 23.4167°E (SMWN). [Kavango] Mukwe: Kavango, Popa Falls, 18.1167°S 21.5833°E (MNB); Tondoro, Okavango, 17.78°S 18.79°E (Kaszab, 1955b). [Oshikoto] Omuthiyagwiipundi: Grootfontein: Etosha Pan N.P., Namutoni, 18.7667°S 16.9500°E (MNB). [Kunene] Outjo: Ike 346, 19.7533°S 16.6244°E (SMWN). Kamanjab: Otjitambi 19.8167°S 15.1667°E (SMWN). [Otjozondjupa] Omatako: Waterberg, C22-D2512, 20.6333°S 17.1500°E (CB). Okahandja: Okahandja, 21.9833°S 16.9167°E (Kaszab 1955b; SMWN). [Erongo] Omaruru: C33, 30–20 km N Karibib, 21.6833°S 15.9667°E (Bologna & Di Giulio 2003; CB); Karibib: B2, 16 km W Karibib, 21.9358°S 15.7056°E (CB); Karibib, D1953, 100 m jct. C32, 21.9552°S 15.8493°E (CB). [Khomas] Windhoek Rural: Excelsior 286, 22.4500°S 17.4667°E (SMWN); Richthofen 126, 22.5667°S 17.7500°E (SMWN); (Rehoboth) D1228, 7 km ENE Rehoboth , 23.2833°S 17.2333°E (CB). Windhoek East: Windhoek, 22.5700°S 17.0836°E (SMWN). [Omaheke]

Aminius: C20, Gobabis-Leonardville 5 km S of Aais, 23.2593°S 18.7237°E (CB). [Hardap] Mariental Rural: M29, 25 km E Mariental, 24.7825°S 18.1612°E (CB); Viljoenskroon 507, 25.1667°S 19.9667°E (SMWN). [Karas] Keetmanshoop Rural: Wildheim Ost 384, 26.4833°S 19.5667°E (SMWN); Naute Dam, 26.9333°S 17.9333°E (SMWN); Karas district, 27.1352°S 19.4941°E (CB). Karasburg: 50 km E of Karasburg, bridge on Oab River, 28.0500°S 19.2333°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at SAMC.

Prionotolytta eremita Kaszab, 1955 (Fig. 2B)

Distribution. Western Botswana, central Namibia, and western Zambia.

Material examined and literature records. [Caprivi] Katima Mulilo, 17.50°S 26.27°E (Kaszab, 1955b). [Kavango] Tondoro, 17.78°S 18.79°E (Kaszab, 1955). [Kunene] Outjo: Abachaus, 19.7167°S 16.5800°E (Kaszab 1955b, type locality). [Khomas] Windhoek East: Windhoek, 22.5700°S 17.0836°E (SMWN).

Other records: Namibia (Bologna 2000a).

Remarks. Types of this species were examined at NHP.

Prionotolytta hayekae Kaszab, 1955 (Fig. 2C)

Distribution. Northwestern Namibia (endemic).

Material examined and literature records. [Omusati] Okahao: C35, 25 km NW of Kamanjab, 18.4775°S 14.6977°E (CB); C35, 77 km NW of Kamanjab, 19.2528°S 14.4442°E (CB). [Otjozondjupa] Otjiwarongo: Kalkfield, 20.8833°S 16.1833°E (Kaszab 1955b, type locality). [Erongo] Omaruru: Omaruru, 21.4333°S 15.9333°E (Kaszab 1955b).

Other records: Namibia (Bologna, 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at NHP.

Prionotolytta melanura (Erichson, 1843) (Fig. 2D)

Oenas melanura Erichson, 1843
Lytta benguellana Pic, 1911a **syn. n.**

Types. The holotype of *Lytta benguellana* Pic, 1911 was examined at MNHN.

Distribution. Southern Angola and western Namibia.

Material examined and literature records. [Kunene] Epupa: Hartmann's Valley, 17.3833°S 12.2500°E (SMWN); Kaokoveld (Kaszab 1955b); Kaokoland Dunes, 17.4500°S 12.2000°E (CB; SMWN). Opuwo: Opuwo town, 18.0500°S 13.8333°E (CB). Kamanjab: Kamanjab, 19.6333°S 14.8333°E (CB; SMWN); C39, 25 km E Khorixas, 20.3061°S 15.1867°E (CB). Sesfontein: Kamanjab on D2650, 19.8087°S 14.5128°E (CB). [Omusati] Okahao: C35, 77 km NW of Kamanjab, 19.2528°S 14.4442°E (CB). [Otjozondjupa] Otavi: Otavi, 19.6500°S 17.3333°E (Kaszab, 1955b). Okahandja: Okahandja, 21.9833°S 16.9167°E (Kaszab, 1955b); Gross Barmen, 22.1000°S 16.7500°E (JP). [Erongo] Dâures: Brandberg, Messum valley, 21.2215°S 14.5163°E (Bologna 2000a; CB; SMWN); C35, 2 km E Uis, 21.2325°S 14.8973°E (CB). Omaruru: Omaruru, 21.4333°S 15.9333°E (CB); C33, 3–9 km S of Omaruru, 21.4948°S 15.9705°E (CB). Karibib: Karibib, Okahandja, 21.9333°S 15.8333°E (JP); B2, Usakos-Karibib, 16 km W of Karibib, 21.9358°S 15.7056°E (CB); Usakos: D1935, 6 km N jct. B2, 21.9475°S 15.5851°E (CB); D1953, near Karibib, 100 m jct. C32, 21.9552°S 15.8493°E (CB); B2, 8 km W Usakos, 21.9876°S 15.5057°E (CB); B2, 2 km W Usakos, 21.9992°S 15.5696°E (CB); Usakos, 22.0000°S 15.6000°E (Kaszab 1955b); C32, 42 km S Karibib, 22.2945°S 15.8351°E (Bologna *vidit*); C32, 54 km S Karibib, Swakop River, 22.3954°S 15.8343°E (CB).

Other records: Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of *Oenas melanura* Erichson, 1843, were not examined, but specimens compared with type were studied at HMNH.

After the examination of the Type of *Lytta benguellana* Pic, 1911 (MNHN), described from the extreme south-western Angola (Benguela), we propose here its synonymy with *P. melanura*. *Lytta benguellana* remained unknown in the literature after its description and the type specimen was identified as *P. melanura* by Kaszab only in 1962, buth the Hungarian specialist did not publish the new synonymy.

Prionotolytta streyi Kaszab, 1955 (Fig. 2E)

Distribution. Northern Botswana (Kasane, CB; new species record for this country) and northeastern Namibia.

Material examined and literature records. [Kavango] Tondoro, 17.78°S 18.79°E (Kaszab 1955, type locality). [Otjozondjupa] Omatako: near Otjahevita road to Grootfontein, 20.3400°S 17.5500°E (CB).
Other records: Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. The holotype of this species was examined at NHP.

Genus *Prolytta* Kaszab, 1959

The genus *Prolytta*, endemic to southern Africa, was partially studied by Kaszab (1967) and completely revised by Bologna & Di Giulio (2002), who defined two groups of species, clarified some synonymies and described the first instar larva. Whitin the Namibian species, *P. coricea* and *P. namibensis* belong to the group of *P. pallidipennis*, endemic to western southern Africa, while *P. pseudolucida* belongs to the group of *P. lucida*, which is widely distributed also in southern and eastern South Africa

Prolytta coriacea Kaszab, 1967 (Fig. 2F)

Prolytta lucidicollis Kaszab, 1967

Distribution. Southwestern Namibia and western South Africa.

Material examined and literature records. [Karas] Oranjemund: Boom River course, kloof W, 21 km N of Orange River (ENE of Rosh Pinah), 27.8500°S 17.0333°E (Bologna & Di Giulio 2002; SMWN); Boom River Canyon, 4 km N Orange R. (ESE Rosh Pinah), 28.0083°S 17.0500°E (Bologna & Di Giulio 2002; SMWN; PPRI).

Remarks. The holotype and paratypes of both *P. coriacea* and its synonym *P. lucidicollis* were examined (HMNH, NHP).

This species is widely spread in western South Africa and marginally also in the extreme southern Namibia. Both these areas are characterized by Succulent Karoo ecosystem. We collected P. *coriacea* also in one locality with Nama Karoo vegetation (South Africa, Van Vyksvlei, CB).

Prolytta namibensis Kaszab, 1967 (Fig. 2G)

Distribution. Angola and Namibia.

Material examined and literature records [Kunene] Epupa: Hartmann's Valley, 17.3833°S 12.2500°E (Bologna & Di Giulio 2002; SMWN); Engo River Valley, 17.8000°S 12.4000°E (Bologna & Di Giulio 2002; CB; NHP). Opuwo: Oljitundua, 18.6500°S 14.2333°E (Kaszab 1967, Holotype, 7 Paratypes; SMWN). [Oshikoto] Tsumeb: Omaramba R. (Bologna & Di Giulio 2002; SMWN). [Kavango] Rundu Rural: 10 km S Rundu, 18.0000°S 19.6833° (Bologna & Di Giulio 2002; SMWN). [Otjozondjupa] Otjiwarongo: Garfield, 20.4450°S 16.0830°E (Bologna & Di Giulio 2002; SMWN). Okahandja: Okahandja, 21.9833°S 16.9167°E (Bologna & Di Giulio 2002; SMWN). [Erongo] Dâures: Brandberg Plateau, 21.1333°S 14.5833°E (Bologna & Di Giulio 2002; NHP); Spitzkoppe, 21.8500°S 15.0500°E (Bologna & Di Giulio 2002; SMWN); Kleine Spitzkoppe, 21.8500°S 15.0500°E

(Kaszab 1967, 4 Paratypes; Bologna & Di Giulio 2002); Spitzkoppe, 21.8518°S 15.1484°E (SMWN). Omaruru: Omaruru, 21.4333°S 15.9333°E (SMWN). Karibib: D1935, 30 km NNW Usakos, 21.7833°S 15.5000°E (Bologna & Di Giulio 2002; CB); 10 km W Usakos, 21.59S 15.29E (AMG). [Khomas] Windhoek East: Windhoek, 22.5700°S 17.0836°E (Kaszab 1967, 2 paratypes; Bologna & , Di Giulio 2002; FLCA) [Hardap] Mariental Urban: C19, 11 km W Mariental, 24.6167°S 17.8500°E (Bologna & Di Giulio 2002; CB). Gibeon: Zaris 103, 24.9333°S 16.4000°E (Bologna & Di Giulio 2002; SMWN). [Karas] Lüderitz: S Namib, Klinghardt Mts., 27.2667°S 15.7000°E (Bologna & Di Giulio, 2002; NHP); Namuskluft, 27.8000°S 16.8667°E (Bologna & Di Giulio 2002; SMWN); Rooilepel, Diamond Area 1, 28.2000°S 16.6667°E (Bologna & Di Giulio 2002; SMWN). Karasburg: 3 km NNE Stormberg, 28.2000°S 17.2333°E (Bologna & Di Giulio 2002; SMWN).

Other records: Otjendure (Bologna & Di Giulio 2002; SMWN); Kaokoveld (Kaszab 1967, 1 paratype; Bologna & Di Giulio 2002); Namib Sand Sea desert (Seely 2012); Namibia (Kaszab 1967; Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. The holotype and three paratypes of this species were examined at HMNH.

Prolytta pseudolucida Kaszab, 1981 (Fig. 2H)

Distribution. Southwestern Namibia and northwestern South Africa.

Material examined and literature records. [Karas] Lüderitz: Anusi 73, 27.2833°S 16.5667°E (Kaszab 1981; Bologna & Di Giulio 2002; MNM, Holotype); Namuskluft 88, 27.8000°S 16.8667°E (Kaszab 1981; HNHM, Paratype); Rooilpel, Diamond Area 1, 28.2000°S 16.6333°E (SMWN). Oranjemund: Boom River course, kloof W, 21 km N of Orange River (ENE of Rosh Pinah), 27.8500°S 17.0333°E (Bologna & Di Giulio 2002; CB; SMWN; PPRI).

Other records: Namibia (Kaszab 1981; Bologna 2000a).

Remarks. The male holotype (SMWN) and two female paratypes (HMNH) were examined.
This species, belonging to the widely distributed group of *P. lucida*, represents a typical Namaqualand endemism, distributed from Springbok (Northern Cape, South Africa) to the extreme southwestern Namibia.

Genus *Cyaneolytta* Péringuey, 1909

Kaszab (1953a) studied the taxonomy of this genus and clarified several synonymies, while Selander (1986) reviewed the distribution of the species. We accept here all groups of species proposed by Kaszab (1953a).
Bologna & Pinto (2001) referred *Cyaneolytta* to the tribe Epicautini because of its larval morphology, even if their first instar larvae are extremely distinct and specialized to phoresy on carabid beetles and possibly on bees (Bologna *et al.* 1990; Di Giulio *et al.* 2003). According to adult morphology, this genus was previously referred to Lyttini, and this tribal assignment seems to be confirmed by recent molecular studies (Pitzalis *et al.* in preparation).

Cyaneolytta affinis (Haag-Rutenberg, 1880) (Fig. 2I)

Lytta affinis Haag-Rutenberg, 1880

Distribution. Ethiopia, northeastern Namibia (new species record for this country), Somalia, South Africa, and Tanzania.

Material examined and literature records. [Kavango] Mukwe: Omega, 18.0500°S 22.1833°E (SMWN); Popa Falls, eastern Bank, 18.1167°S 21.5833°E (SMWN).

Remarks. Types of this species were not examined but specimens compared with them were studied at HMNH.

The distribution of this species refers to a disjunct model, including separate populations in eastern and southern Africa, and previously discussed (see *Lydomorphus bifoveiceps*).

Cyaneolytta depressicornis (Laporte de Castelnau, 1840) (Fig. 2J)

Lytta depressicornis Laporte de Castelnau, 1840
Cantharis subrugulosa Mäklin, 1875

Distribution. Angola, Botswana, Ethiopia, Kenya, Mozambique, northeastern Namibia, Nigeria, Senegal, Somalia, South Africa, Tanzania, Zambia, and Zimbabwe.

Material examined and literature records. [Kavango] Mpungu: Tuguva, 17.4333°S 18.4500°E (SMWN). [Caprivi] Kongola: Manywa Valley, 17.8167°S 23.1500°E (SMWN). [Kunene] Outjo: Otijwarongo, 20.4611°S 16.6550°E, 1600 m (CK); Outjo, m 1200, road Outjo-Kalkfeld, 16–20 km S Outjo, 20.3333°S 16.1500°E (Di Giulio *et al.* 2003). [Otjozondjupa] Grootfontein: Halberstadt's farm 212, 19.6833°S 18.2833° (SMWN). Tsumkwe: Hereroland-Oos, 20.3333°S 20.8000°E (SMWN). Okakarara: Okakarara, 20.5833°S 17.4333°E (SMWN). Omatako: 100 km N of Okahandja, 21.0920°S 16.8280°E (CB).

Other records: Damaraland (Kaszab 1956; Selander 1986) (as ab. *subcoriacea*, ab. *nearei*: Kaszab 1956); Ovampoland (Péringuey 1909) (ssp. *subrugulosa*: Selander 1986); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species are lost.
This species is polytypic, but the taxonomy of subspecies still needs additional studies. For this reason, we do not refer the Namibian populations to particular subspecies.

Cyaneolytta granulipennis pectoralis **(Gerstäcker, 1854)** (Fig. 2K)

Lytta granulipennis Laporte de Castelnau,1840
Lytta pectoralis Gerstäcker, 1854

Distribution. Angola, Botswana, Ethiopia, Kenya, Mozambique, Namibia, Somalia, South Africa, Sudan, Tanzania, Uganda, Zaire, Zambia, and Zimbabwe.

Material examined and literature records. [Kavango] Mpungu: Tuguva, 17.4167°S 18.4333°E (SMWN). Mukwe: 8 km E. Omega, 18.0333°S 22.2667°E (SMWN); Popa Falls, 18.1167°S 21.5833°E (MNB). Rundu: 10 km W Rundu, Hakusembe R. Lodge, 17.8499°S 19.6694°E (MSNF). Ndiyona: Segeretti, 19.0500°S 20.7167°E (SMWN). [Omusati] Ruacana: Ruacana, 17.4333°S 14.3500°E (Di Giulio *et al* 2003; CB). [Caprivi] Kongola: Manywa Valley, 17.8167°S 23.1500°E (SMWN); Manywa, 17.8500°S 23.2500°E (JP). Linyandi: Nkasa Island, 18.4500°S 23.6000°E (SMWN). [Kunene] Opuwo: Ohopoho, 18.0667°S 13.8500°E (SMWN). [Oshikoto] Omuthiyagwiipundi: Etosha Pan Sueda, 18.8333°S 16.3333°E (JP). [Oshana] Uuvudhiya: Etosha N.P., Okaukuejo, 19.1667°S 15.9167°E (MNB). [Otjozondjupa] Tsumkwe: Klein Dobe, 19.4333°S 20.5500°E (SMWN); Tsumkwe, 19.6000°S 20.5000°E (SMWN). Grootfontein: Grootfontein, 19.5667°S 18.1167°E (MNB). Omatako: Waterberg Plateau Park, 20.4167°S 17.2500°E (SMWN); Waterberg Plateau Park, Camp Bernabé de la Bat, 20.5000°S 17.2333°E (MNB); Waterberg Plateau Park, 28.33896°S 17.3271°E (CB); Okosomingo 149, 20.6167°S 17.1333°E (SMWN); Sukses, 21.0333°S 16.8167°E (SMWN). Okahandja: Okahandja, 21.9833°S 16.9167°E (ssp. *pectoralis*: Kaszab 1956; Selander 1986). [Omaheke] Otjombinde: Eiseb River, 10 km W of Theronsvallei, 20.6167°S 20.3500°E (SMWN); Epukiro River, 6 km S of Elands laagte, 21.1333°S 20.6667°E (SMWN). Steinhausen: Owingi 246, 21.9000°S 18.8667°E (SMWN). [Khomas] Windhoek Rural: Windhoek, 22.3400°S 17.0500°E (SMWN); Opembamewa-Sud, 22.500°S 17.5000°E (SMWN). Windhoek East: Windhoek, 22.5700°S 17.0836°E (SMWN) (ssp. *pectoralis*: Bologna 1978; Selander 1986). [Erongo] Karibib: Otjimbingwe Leutnt, 22.3500°S 16.1333°E (MNB). [Hardap] Mariental Rural: Haruchas 156, 24.9500°S 18.8500°E (SMWN).

Other records: Northern Damaraland (Péringuey 1909; Selander 1986: ssp. *pectoralis*); Ovampoland (Péringuey 1909; Selander 1986: ssp. *pectoralis*); Hereroland (Selander 1986: ssp. *pectoralis*:); Namib Sand Sea desert (Seeely 2012); Namibia (Kaszab 1953a; Selander 1986: both ssp. *pectoralis*; Bologna 2000a; Pitzalis *et al.* 2014); South West Africa (MNB).

Cyaneolytta maculifrons (Mäklin, 1875) (Fig. 2L)

Cantharis maculifrons Mäklin, 1875

Distribution. Angola, Kenya, Mali, Mauritania, Mozambique, northern Namibia (new species for this country), Niger, Senegal, Somalia, Tanzania, Zaire, and Yemen.

Material examined. [Omusati] Ruacana: C46, Ruacana Falls, 17.4000°S 14.2833°E (Di Giulio *et al*, 2003; CB). [Kavango] Mpungu: Tuguva, 17.4333°S 18.4500°E (SMWN). [Caprivi] Linyandi: Nakatwa, Mudumu Nat. Park, 18.1833°S 23.4167°E (SMWN).

Other records. Namibia (Pitzalis *et al.* 2014).

Remarks. Types of this specis were not examined but specimens compared with them were studied at HMNH.

Cyaneolytta resplendens (Laporte de Castelnau,1840) (Fig. 2M)

Lytta resplendens Laporte de Castelnau,1840

Distribution. Angola, Botswana, Ethiopia, Kenya, Malawi, Mozambique, Namibia, Niger, Nigeria, Senegal, Somalia, Sudan, South Africa, Uganda, Tanzania, and Zimbabwe.

Material examined and literature records. [Ohangwena] Ongenga: Elakalapwe, 17.4000°S 15.7333°E (SMWN). [Omusati] Ruacana: Ruacana, 17.4333°S 14.3500°E (Di Giulio *et al.* 2003; CB). [Kavango] Mukwe: Omega, 18.0500°S 22.1833°E (SMWN); Ndiyona: Leeupan, Kaudom Game riserve, 18.6667°S 20.8667°E (SMWN). [Kunene] Opuwo: Ohopoho, 18.0667°S 13.8500°E (SMWN). [Oshikoto] Omuthiyagwiipundi: Namutoni, Lichtfalle, 18.8000°S 16.9833°E (SMWN). [Otjozondjupa] Tsumkwe: Trekkersboom, 19.3000°S 20.6667°E (SMWN). Omatako: Sukses, 21.0333°S 16.8167°E (SMWN). [Omaheke] Otjinene: Eiseb River, 51 km W of Western Veterinay fence, 20.6500°S 19.7167°E (SMWN). Otjombinde: Epukiro River, 6 km S of Elands laagte, 21.1333°S 20.7667°E (SMWN). [Khomas] Windhoek Rural: Hochberg 158, 21.9167°S 17.7167°E (SMWN). Windhoek East: Windhoek, 22.5700°S 17.0835°E (Bologna 1978; Selander 1986; MT). [Erongo] Karibib: Karibib, 21.9333°S 15.8333°E (CB). [Hardap] Rehoboth town, 23.31°S 17.06°E (Di Giulio *et al.*, 2003, CB).

Other records: Damaraland (Péringuey 1909; Selander 1986: ssp. *subcoriacea*); Ovampoland (Péringuey 1909; Selander 1986: ssp. *subcoriacea*); Namib Sand Sea desert (Seely, 2012); SW Africa (MNB); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species are lost.

This species seems to be polytypic, but the taxonomy of subspecies still needs clarification. For this reason, we do not refer the Namibian populations to particular subspecies.

Tribe Epicautini

Genus *Epicauta* Dejean, 1834

The Afrotropical species of this genus, all belonging to the nominate subgenus, were taxonomically revised by Kaszab (1953c), who divided them in phenetic groups of species that we prefer do not consider here, being the phylogenetics of this genus totally unclarified.

Epicauta (Epicauta) designata (Péringuey, 1892) (Fig. 2N)

Cantharis designata Péringuey, 1892

Distribution. Angola, Mozambique, northern Namibia, and northern South Africa.

Material examined and literature records. [Caprivi] Katima Mulilo Urban: Katima Mulilo, 17.5000°S

24.2667°E (CB). [Omusati] Anamulenge: (Uutapi) 100 km ESE Ruacana (road C46), 17.5333°S 15.1167°E (CB). Ogongo: C46, Ruacana-Oshakati 5 km E of Ombalantu (=Uutapi), 17.5405°S 15.0403°E (CB). [Oshikoto] Oniipa: (Tsumeb) B1, 20 km SE Ondangwa, 17.9833°S 16.1333°E (CB). [Otjozondjupa] Okahandja: Okahandja, 21.9833°S 16.9167°E (ab. *breyeri*: Kaszab, 1953c).

Other records: Damaraland (Kaszab 1956) (ab. *breyeri*: Kaszab 1956); Ovampoland (Péringuey 1909); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at SAMC.

This species belongs to the group "III. *oculata*", as defined by Kaszab (1953c).

Epicauta (Epicauta) ovampoa (Péringuey, 1899) (Fig. 2O)

Lytta ovampoa Péringuey, 1899
Lytta damarina Péringuey, 1904

Distribution. Northern Namibia (endemic).

Material examined and literature records. [Oshikoto] Guinas: Brakpan, Outjo, 18.7833°S 17.8167°E (SMWN). [Kunene] Opuwo: C35, 110 km NW Kamanjabroad, 18.9167°S 14.3833°E (CB). [Otjozondjupa] Grootfontein: Grootfontein, 19.5333°S 18.10°E (SMWN); Grootfontein, 19.5667°S 18.1167°E (SMWN). Otavi: Askavold 316. Kombat, 19.7052°S 17.5923°E (SMWN). Otjiwarongo: D2430, 25 km N Otjiwarongo, 20.2667°S 16.6167°E (CB). Omatako: Okosongomingo 148, 20.6167°S 17.1333°E (SMWN). [Okahandja] Ovita: 21.5228°S 16.2539°E (SMWN).

Other records: Northern Damaraland (Péringuey 1904, 1909); Ovampoland (Péringuey 1899, type locality, 1909); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at SAMC.

As the previous one, also this species belongs to the group "III. *oculata*", as defined by Kaszab (1953c).

Epicauta (Epicauta) rufifrons (Fåhraeus, 1870) (Fig. 2P)

Lytta rufifrons Fähraeus, 1870

Distribution. Northeastern Namibia (new species for this country), northeastern South Africa, and Zimbabwe.

Material examined. [Kavango] Ndiyona: Kaudom-Camp, 18.5167°S 20.7167°E (CB; MNB).

Remarks. Types of this species were not examined but specimens compared with them were studied at HMNH.

This species belongs to the group "I. *canescens*", as defined by Kaszab (1953c).

Epicauta (Epicauta) velata **(Gerstäcker, 1854)** (Fig. 2Q)

Lytta velata Gerstäcker, 1854

Distribution. Botswana, Ethiopia, Mozambique, northeastern Namibia (new species for this country), Tanzania, Somalia, South Africa, Zambia, and Zimbabwe.

Material examined. [Caprivi] Katima Mulilo Urban: Katima Mulilo, 17.5000°S 24.2667°E (CB). Kabe: Maningimanzi, 17.5333°S 24.4667°E (SMWN). [Kavango] Rundu Rural: Kavango, 12 km of Rundu, River Okavango, 17.9333°S 19.7667°E (CB); Rundu, 17.9333°S 19.7667°E (CB). Mukwe: Popa Falls on Kavango, 18.1167°S 21.5833°E (MNB); Okavango River, Popa Falls, Bagani, 18.1167°S 21.6333°E (CB); Mahango Park, 18.1500°S 21.7000°E (MNB). [Otjozondjupa] Otavi: Grootfontein: Askavolt Farm 20 km E Otavi, 19.6667°S 17.5500°E (MNB); Askavold 316. Kombat, 19.7052°S 17.5923°E (SMWN); Tsumkwe: Gautscha Pan, 19.8000°S 20.5833°E (SMWN).

Remarks. Types of this species were not examined but specimens compared with them were studied at HMNH.

This species belongs to the group "II. *velata*", as defined by Kaszab (1953c).

Genus *Psalydolytta* Péringuey, 1909

Palaeotropical genus, with disjunct distribution in the Afrotropical Region, Pakistan and India. Species were taxonomically revised by Kaszab (1954b), who divided them in several groups, we accepted here. Selander (1988b) summarized the distribution of the species and described the larval morphology (Selander & Laurense 1987).

Psalydolytta gessi Bologna sp. n. (Fig. 2R)

Type. Holotype male, labelled "Namibia, Opuwa, 18.03S-13.91E, 25.iii.2004 F.W. & S.K. Gess; 03/04/242 to ligth" (AMG).

Type locality. The official name of the type locality is Opuvo rather than Opuwa. This town is located in the northwestern Namibian Kaokaland, characterized by dry Mopane savannah.

Diagnosis. This species belongs to the group of *P. atripes* (*sensu* Kaszab 1954b) and is phenetically similar to *P. bequaerti* (Pic). It differs from this central African species (R.D. Congo and Zambia) because of male antennomeres more robust and less slender, antennomere III not twice but 1.5 times as long as IV, male temples converging posteriad and not parallel, elytral chestnut ground colour clearer and setation with less evident longitudinal stripe.

Description. Body black, but fore part of clypeus, labrum, maxillary and labial palpi, labium, galeae, and antennae orange, elytra uniformely clear chestnut (Fig. 2R). Setation of whole body white, dense, robust and short, forming a scarcely distinguishable longitudinal stripe on pronotum and in middle, external margin and suture of each elytron; only ventral side of femurs unsetate. Body length (apex mandibles-apex elytra): about 22.5 mm.

Head transversely subrectangular, temples progressively and widely converging posteriad, largely rounded on vertex, about 1.2 as long as longitudinal diameter of eye. Eyes moderately large and only sligtly convex, below extended to maxillary stipes base, both anterior and posterior margins almost no emarginated. Frons posteriorly wider than anteriorly, about twice as wide as eye on posterior part, scarcely convex anteriorly and almost flat posteriorly, with a rounded unpunctate and shagreened area between eye and antennal base. Surface closely punctate, punctures very approached but not deep, intermediate surface microreticulate. Frontal suture largely concave in middle. Clypeus suboval, narrowed and depressed anteriorly; punctures similar than on front in posterior half; clypeus anteriorly shiny and almost unpunctate. Labrum cordiform, anteriorly emarginated; surface subrugose. Mandibles strong, inferiously bent, unpunctate dorsally on fore half. Maxillary palpi with segment II-IV progressively enlarged at apex, last one greatly subsecuriform and sligthly depressed at apex. Segment two of labial palpi very narrowed at base and strongly enlarged at apex, last segment subcylindrical; setae of both palpi finer than other of the body. Antennae almost elongate to middle of elytra. Antennomere I robust, about 2.5 times as long as II, narrowed only at base; II subcylindrical; III–XI cylindrical, slender; III more than twice as long as II, longer than IV–VIII, sligthly longer tha IX–XI; VI slightly curved on inner side; XI sligthly narrowed at apex.

Pronotum narrower than head, the maximal width on anterior third, sides a little widened from base to anterior third and afterward greatly narrowed toward anterior margin; basal margin not rebordered; surface scarcely depressed in middle of the base; anterior half depressed, particularly on sides; punctures finer than on head; setae more robust on fore third, sides, base and in middle. Prosternum posteriously not prolonged; scutellum suboval at apex; mesosternum very short, extended on sides; metasternum very large, unsetate on posterior and middle parts, with one oval basal lateral area. Elytra elongate, covering abdomen and wings, uniformly subrugose; metathorax wings normally developed. Femur, tibia and tarsi elongate and slender, meso- and metatibaie very slender in basal third and afterwards progressively widened; meso- and metatarsal segment I very elongate, twice as long as II, II longer than III, III–IV similar in length, V a little longer than II; tarsomeres not modified, with inferior pad of clear setae; claws smooth and slightly bent. Fore femur with inner depressed area covered by very thick and short yellow setae. Two spurs on tibiae; fore and middle tibial spurs both elongate and obtusely pointed, fore external spur

slightly slender; metatibial external spur spatuliform and dorsally concave, not greatly enlarged, obtusely pointed at apex.

Abdomen elongate, slightly rugose; posterior margin of penultimate segment largely arcuated, that of last segment slightly emarginated in middle. Penultimate ventrite greatly arcuated; posterior margin of last ventrite V-emarginated in middle. Phallobase on ventral view quite large and short, parameres fused only on basal third, slender, more than two times as long as phallobase (Fig. 8A), afterward base slightly narrowed, apically convergently narrowed with one small terminal lobe; tegmen in lateral view with parameres subcylindrical and slender, narrowed at apex with terminal lobe elongate and obtuse (Fig. 8B); aedeagus in lateral view with one apical hook slightly inclined and subobtuse (Fig. 8B); endophallus hook very elongate and curved. *Spiculum gastrale* well sclerotized in middle, basally arcuated, lateral arms short.

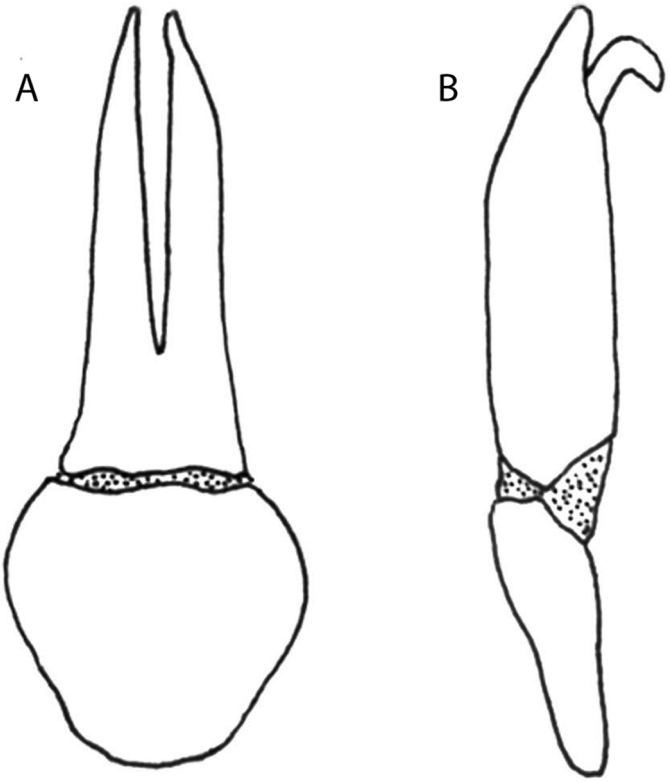

FIGURE 8. *Psalydolytta gessi*: tegmen in ventral view (A); tegmen and aedeagus in lateral view (B). Bar = 1 mm.

Etymology. The new species is named after Dr Friedrich Wolfgang (Fred) Gess, hymenopterologist and Curator Emeritus at the Albany Museum (South Africa), who discovered the larval biology of a few interesting southern African blister beetles (*Australytta, Ceroctis, Zonitoschema*) and collected the single specimen of the new species.

Remarks. The single specimen was collected at ligth and probably the species is nocturnal, as possible adaptation to dry habitat, while most other *Psalydolytta* are diurnal.

Distribution. Northwestern Namibia.

Psalydolytta lorigera (Gerstäcker, 1854) (Fig. 2S)

Lytta lorigera Gerstäcker, 1854

Distribution. Botswana, Mozambique, Namibia, Tanzania, Zambia, and Zimbabwe.

Material examined and literature records. [Caprivi] Katima Mulilo Urban: Katima Mulilo, 17.5000°S 24.2667°E (CB). [Otjozondjupa] Tsumkwe: Bushmanland: Klein Dobe, 19.4167°S 20.35°E (MNB); Klein Dobe, 19.4333°S 20.5°E (SMWN). Grootfontein: Grootfontein, 19.5667°S 18.1167°E (MNB). [Oshikoto] Guinas: Ghaub

47, 19.4551°S 17.7514°E (SMWN). [Karas] Oranjemund: Skorpion Hill, 27.8253°S 16.5997°E (SMWN) [This record needs confirmation].

Other records: Otavitali (SMWN); Namib Sand Sea desert (Seely 2012); Namibia (Kaszab 1954b; Selander 1988b; Bologna 1978, 2000a).

Remarks. Types of this species were not examined but specimens compared with them were studied at HMNH.

Species belonging to the group "*lorigera*", as defined by Kaszab (1954b).

Tribe Mylabrini

Phylogenetic studies on this tribe, based on molecular markers (Bologna *et al.* 2005, 2008c; Pan *et al.* 2013; Salvi *et al.*, in preparation), highlighted the relationships among most genera. The two new genera described in the present paper, were not examined from a molecular point of view and their possible relationships are here discussed according to morphological evidences.

Genus *Actenodia* Laporte de Castelnau, 1840

The genus was revised by Bologna *et al.* (2008a), and we refer to that study for taxonomical and phylogenetic details. Actually, recent molecular studies (Salvi *et al.*, in preparation) pointed out that probably the Palaearctic and the Afrotropical phyletic lines distinct in that revision (Bologna *et al.* 2008a) represent two distinct genera or subgenera.

The two Namibian species belong to very distinct groups: *A. chrysomelina* to a group which includes five species distributed from Ethiopia to South Africa and Namibia; *A. mirabilis* refers to a greatly distinct monotypic group, distributed only in the Succulent Karoo desert of both SW Namibia (Diamond area) and northwestern South Africa (Richtersveld).

Actenodia chrysomelina (Erichson, 1843) (Fig. 2T)

Mylabris (Actenodia) chrysomelina Erichson, 1843
Actenodia wahlbergi Fåhraeus, 1870
Actenodia schultzei Pic, 1908
Actenodia discrepans Péringuey, 1909
Actenodia multimaculata Pic, 1932

Distribution. Angola, Botswana, Mozambique, Namibia, and northern South Africa.

Material examined and literature records (all the following Namibian records were cited by Bologna *et al.* 2008). [Kunene] Epupa: Okakatuwo, 17.4000°S 12.7333°E (SMWN); Hippo Pool on Kunene River 20 km W of Ruacana, 17.4092°S 14.2185°E (CB); Okakatuwo, 17.4500°S 12.7000°E (SMWN). Opuwo: Opuwo town, 18.0500°S 13.8333°E (CB); 6 km NE Orumana, 18.2167°S 13.9500°E (SMWN); C35, Kamanjab-Ruacana 46 km S of cross-road for Opuwo, 18.3280°S 14.3035°E (CB); Okumutati, 18.8667°S 14.3500°E (SMWN); C35, Kamanjab-Ruacana, 18.9027°S 14.3903°E (CB). Sesfontein: Warmquelle, 19.1833°S 13.8167°E (SMWN); D2650, near Kamanjab, 19.8087°S 14.5128°E (CB). Kamanjab: Beulah 256, 19.6000°S 14.9167°E (SMWN); Kamanjab, 19.6333°S 14.8333°E (SMWN); C40, 26 km E Kamanjab, 19.6957°S 15.1046°E (CB); Outjo-Kamanjab, 95 km N of Outjo, 19.8040°S 15.3290°E (CB); Otjitambi, 19.8167°S 15.1667°E (SMWN); C39, 25 km E Khorixas, 20.3061°S 15.1867°E (CB). [Omusati] Ruacana: C46, Ruacana Falls, 17.4000°S 14.2833°E (CB); outside Ruacana Town, 17.4500°S 14.3667°E (SMWN); Ekango, 18.6833°S 14.3167°E (SMWN). Outapi: Mahanene Agric. Research Station, 17.4333°S 14.7833°E (SMWN). Ogongo: C46, Ruacana-Oshakati 5 km E of Ombalantu (=Uutapi), 17.5405°S 15.0403°E (CB); Ogongo Agric. College, 17.6833°S 15.2833°E (SMWN). Elim: C46, near Uutapi, 15 km NW Oshakatioad, 17.6833°S 15.5167°E (CB). Etayi: C46, Ruacana-Oshakati, 20 km W of Oshakati, 17.6937°S 15.5476°E (CB). Okahao: C35, Kamanjab-Ruacana, 25 km NW of Kamanjab, 18.4775°S

14.6977°E (CB); Etosha N.P., site 5/Row D, 18.9797°S 15.1128°E (SMWN); C35, Kamanjab-Ruacana 77 km NW of Kamanjab, 19.2528°S 14.4442°E (CB). [Oshana] Okatana: D3609, Oshakati-Ongenga 3 km N of jct. with C46, 17.7377°S 15.6727°E (CB). [Kavango] Kapako: Fontein Omuramba, 17.8833°S 19.7000°E (SMWN). Rundu Rural: Rundu, 17.9333°S 19.7667°E (CB); West Okawango, 18.50°S 19.50°E (SMWN). Mukwe: Shadikongoro, 18.0167°S 21.3667°E (SMWN). [Caprivi] Linyandi: 100 km SW Katima Mulilo, 17.6082°S 24.2324°E (CP). [Oshikoto] Oniipa: B1, 20 km SE Ondangwaroad), 17.9833°S 16.1333°E (CB). [Onayena]: B1, Ondangwa-Tsumeb 26 km SE of Ondangwa, 18.0402°S 16.2037°E (CB). Omuthiyagwiipundi: Okashana Agric. Exper. Sta., 18.4167°S 16.65°E (SMWN); 30 km E Etosha N.P., Mokuti Lodge, 18.8000°S 17.0333°E (CB). [Otjozondjupa] Tsumkwe: C44, 52 km jct. B8, 19.2428°S 19.0481°E (CB); Dobe, 19.4167°S 20.6000°E (SMWN); Bakara pan, 19.6500°S 20.7833°E (SMWN); 10 km SE Tsumkwe, 19.6833°S 20.6167°E (SMWN); 3 km W Kuru, 19.933°S 20.6330°E (SMWN). Otavi: Dakota 424, 19.4941°S 17.1287°E (SMWN). Okakarara: Okakarara, 20.5833°S 17.4333°E (SMWN). Omatako: Hamakari Sud 373, 20.6667°S 17.3833°E (SMWN); Hamakari Sud 285, 20.6667°S 17.4000°E (SMWN); B1, 28 km S Otjiwarongo, 20.6806°S 16.7787°E (CB); 100 km N Okahandja, 21.0920°S 16.8280°E (CP); D2414, Etjo-Kalkfeld 38 km SE of Kalkfeld, 21.1288°S 16.3883°E (CB). Otjiwarongo: C63, Outjo-Kalkfeld 15 km N of Kalkfeld, 20.7537°S 16.2210°E (CB). Okahandja: B2, Okahandja 35 km W, 21.9340°S 16.5563°E (CB); Okahandja, 21.9833°S 16.9167°E (CP; SMWN); Gross Barmen, 22.1000°S 16.7500°E (CP). [Erongo] Omaruru: C33, 6 km S Omaruru, 21.4824°S 15.9508°E (CB); C33, 3–9 km S of Omaruru, 21.4948°S 15.9705°E (CB).[Khomas] Windhoek Rural: Hochberg 158, 21.9167°S 17.7167°E (SMWN); Excelsior 286, 22.4500°S 17.6333°E (SMWN); Daan Park, 22.5333°S 16.9667°E (CP); Richthofen 126. 22.5667°S 17.7500°E (SMWN); Arnhem 222, 22.7000°S 18.1167°E (SMWN); C23, 26 km S Dordabis, 23.0575°S 17.9329°E (CB). [Omaheke] Steinhausen: Gobabis, C22, 23 km jct. B6, 22.2533°S 18.9966°E (CB); Geiersberg, Omitara 109, 22.3213°S 18.0331°E (SMWN). Kalahari: Gobabis, C22, 12 km N jct. B6, 22.3613°S 19.0034°E (CB); C20, Gobabis-Leonardville 16 km S of Gobabis, 22.9500°S 18.9422°E (CB). Gobabis: Gobabis, C22, 2 km N jct. B6, 22.4205°S 19.0037°E (CB); C20, Gobabis-Leonardville 69 km S of Gobabis, 22.9725°S 18.7375°E (CB); C20, Gobabis-Leonardville 10 km N of Aais, 22.9742°S 18.7280°E (CB); 10 km E Witvlei, 22.4826°S 18.4939°E (AMNH). Aminius: C20, Gobabis-Leonardville 5 km S of Aais, 23.2593°S 18.7237°E (CB). [Hardap] Mariental Rural: Gobabis, Aranoss, 24.1333°S 19.1167°E (CP); Haruchas 156, 24.9500°S 18.8500°E (SMWN). Gibeon: C14, 1 km W Maltahöhe, 24.8589°S 16.9751°E (CB).[Karas] Keetmanshoop Rural: Wildheim Ost 384, 26.4833°S 19.5667°E (SMWN); Karas distr., 27.1352°S 19.4941°E (CB). Berseba: B4, 73 km W Keetmanshoop, 26.7809°S 17.4657°E (CB).

Other records: W Okavango (SMWN); Damaraland (Kaszab 1956, as ab. *anticetripunctata* and ab. *erikssoni*); Namib Sand Sea desert (Seely 2012); SW Africa (SMWN); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. The holotype of this species was examined at MNB.

As pointed out by Bologna *et al.* (2008a), the elytral pattern and the antennal colour (from completely black to red-orange) of this species are very variable, and consequently numerous synonyms have been described.

Actenodia mirabilis Kaszab, 1952 (Fig. 2U)

Distribution. Namibia (new species for this country) and northwestern South Africa.

Material examined and literature records (all the following Namibian records were cited by Bologna *et al.* 2008). [Karas] Lüderitz: Sargdeckel, Klinghardt Mts., Diamond Area 1, 27.3255°S 15.7498°E (SAMC); Sargdeckel, Klinghardt Mts., 27.3300°S 15.7500°E (SMWN); Klinghardt Mts., Diamond Area 1, 27.3500°S 15.7000°E (SMWN); Sargdeckel, Klinghardt Mts., Diamond Area 1, 27.4000°S 15.6833°E (SMWN); Obib dunes N, 27.9833°S 16.5500°E (SMWN); Obib dunes E, 28.0333°S 16.6167°E (SMWN); Obib dunes, Diamand Area, 28.1500°S 16.6500°E (SMWN); Obib dunes, Diamond Area, 28.1667°S 16.6833°E (SMWN). Oranjemund: Obib dunes, Diamand Area, 27.8833°S 16.5333°E (SMWN); 10 km NW Rosh Pinah, 27.9000°S 16.7000°E (SMWN); Obib Mts./dunes, Diamond Area, 28.0833°S 16.7500°E (SMWN); Obib dunes S, 28.1667°S 16.8000°E (SMWN); Daberas Gate, 8 km E, Diamond Area 1, 28.5500°S 16.5000°E (SMWN).

Other records. Namib Sand Sea desert (Seely 2012). We examined also one specimen from Keetmanshoop (ix.1925: AMNH). Being this species strictly related to Succulent Karoo, probably this old record refers generically to the Ketmanshoop district more than to the town, which is positioned in the Nama Karoo ecosystem.

Remarks. The holotype and two paratypes of this species were examined at NHP.
The maintenance of this very distinct species in the genus needs support by molecular analyses.

Genus *Mimesthes* Marseul, 1872

The genus was revised by Bologna (2000b), who described also the first instar larvae. The two Namibian species belong to two distinct groups.

Mimesthes maculicollis Marseul, 1872 (Fig. 2V)

Distribution. Southern Namibia and western South Africa

Material examined and literature records. [Karas] Lüderitz: Aus, 26.6667°S 16.2667°E (JP); near Aus, 26.6667°S 16.2667°E (JP); C13, 20 km S Aus, 26.84238°S 16.31281°E (CB); Kaukasib Riverbed, Diamond Area 1, 26.8833°S 15.4167°E (Bologna 2000b; CB; SMWN); Namukluft 88, 27.8000°S 16.8667°E (Bologna 2000b; SMWN); Obib dunes E, 28.0333°S 16.6167°E (Bologna 2000b; SMWN). Keetmanshoop Rural: D608, 95.5 km S Keetmanshoop, 27.37944°S 18.22418°E (CB). Karasburg: C12, 33 km W Grunau, 27.71095°S 18.33073°E (CB); Warmbad, Ortmansbaus 120, 28.3000°S 18.7000°E (Bologna 2000b; SMWN); 3 km S of Gamchab River, 28.3167°S 17.4000°E (Bologna 2000b; SMWN); C10, 23 km N Velloorsdrif, 28.52194°S 19.18402°E (CB); Eendoorn 106, 28.7333°S 18.9667°E (Bologna 2000b; SMWN). Oranjemund: Boom River course, kloof W, 21 km N of Orange River (ENE of Rosh Pinar), 27.8500°S 17.0333°E (SMWN); Rosh Pinah, 27.8833°S 16.8333°E (Bologna 2000b; NHP); 10 km NW Rosh Pinah, 27.9000°S 16.7000°E (Bologna 2000b; SMWN); Rosh Pinah, 27.9333°S 16.7833°E (Bologna 2000b; SMWN); 2 km ENE Rosh Pinah, 27.9333°S 16.7833°E (SMWN); 3 km NW Rosh Pinah, 27.9667°S 16.7833°E (SMWN); Boom River course, 4 km N of Orange River (ENE of Rosh Pinah), 28.0083°S 17.0500°E (SMWN); Sendelingedrift, Diamond Area 1, 28.1167°S 16.8333°E (Bologna 2000b; SMWN); Obib Dunes, 28.1667°S 16.8000°E (Bologna 2000b; NHP; SMWN); Daberas, Diamond Area 1, 28.2000°S 16.8167°E (SMWN); Skilpadberg, Diamond Area 1, 28.4500°S 16.6500°E (SMWN); Skilpadberg, Diamond Area 1, 28.4333°S 16.6500°E (Bologna 2000b; SMWN); Hohenfels, Diamond Area 1, 28.5000°S 16.6167°E (Bologna, 2000b; SMWN).

Other records: Namib Sand Sea desert (Seeely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Probable syntypes of this species were examined at MNHN.

Mimesthes nigricollis Kaszab, 1981 (Fig. 2W)

Distribution. Southwestern Namibia (endemic).

Material examined and literature records. [Karas] Lüderitz: Sargdeckel, Klinghardt Mts., 27.4000°S 15.6833°E (Bologna 2000b; CB; NHP; SMWN); Obib Dunes E, 28.0333°S 16.6167°E (Kaszab 1981; Bologna 2000b; SMWN); Rooilpel, Schakalsberge, 28.2500°S 16.6500°E (SMWN). Oranjemund: South Namib, Obib Dunes, 28.1667°S 16.8000°E (Kaszab 1981; Bologna 2000b; CB; NHP; SMWN).

Other records: Namibia (Bologna 2000a).

Remarks. Several paratypes of this species were examined at NHP and CB.

Genus *Paramimesthes* Bologna gen. n.

Type species. *Paramimesthes namibicus* Bologna sp. n.

Diagnosis. A mylabrine genus (Fig. 2X), very similar to *Mimesthes* and *Namylabris,* but distinct by the combination of the following characters: antennae less widened apically, neither clearly subclavate nor VIII–XI so compressed to form a club, but only progressively widened apically; pronotum not distinctly transverse; male protarsomeres widened internally; male claw ventrally angulate; aedeagus apically incised and hook apical, large and subaxiform.

Description. Head subtransverse, rectangular, temples shorter than longitudinal diameter of eye; frons about twice as wide as the transverse diameter of eye, dorsally flat; eyes bulging. Clypeus only slightly shorter than labrum, which is widely emarginated anteriorly. Galeae, maxillary and labial palpi not modified. Eleven antennomeres, V–X progressively widened but not forming a club, only X–XI slightly widened anteriorly, basal six antennomeres with black setae, remaining with a very short and dense clear microsetation.

Pronotum (Fig. 9E) slightly wider than long, subcampaniform, subparallel in basal half, progressively narrower after middle; rebordered at base, with a basal depression in middle and three subrounded depressions just before middle. Mesosternum (Fig. 9F) without clearly modified fore area, but only with a shagreened and umpunctate triangular fore part; anterior edge of mesepisternum lacking furrowed border. Elytra subplanate and subsquared at apex. Male protarsomeres slightly widened on the internal side; female protibia and protarsomeres with robust different setae; pro-mesotarsomeres with ventral pad; male claws ventrally angulate (as in the eleticine genus *Eletica*) and not regularly curved as in female. Tibial spurs elongate and pointed.

Male penultimate ventrite widely arcuate; last one triangularly emarginated. Male gonostyli ventrally subcylindrical, apically narrowed (Fig. 9A), laterally (Fig. 9B) with one apical shallow depression; gonocoxal piece suboval, wide in ventral view; aedeagus (Fig. 9C) apically with one short apical incision, and one single, distal hook, very robust and curved at apex, subaxiform, which dorsally (Fig. 9D) appears slightly emerging from the surface; endophallic hook very small, inconspicous.

Etymology. The name of the new genus refers to its great resemblance to *Mimesthes*. Masculine genus.

Remarks. This new genus, endemic to Namibia (Kunene, Hardap, Karas districts) and SW Angola (Namibe province) is morphologically similar and apparently related to *Mimesthes* Marseul, particularly because of the elytra planate and with apical margin trasverse, the general structure of mesepisterna without furrowed border, and of aedeagus with one single hook, but it is well distinct by the antennal apical shape and the position of the aedeagal hook, not very far from apex.

Paramimesthes is closely related to the biome of Namib Desert of which it represents an endemism.

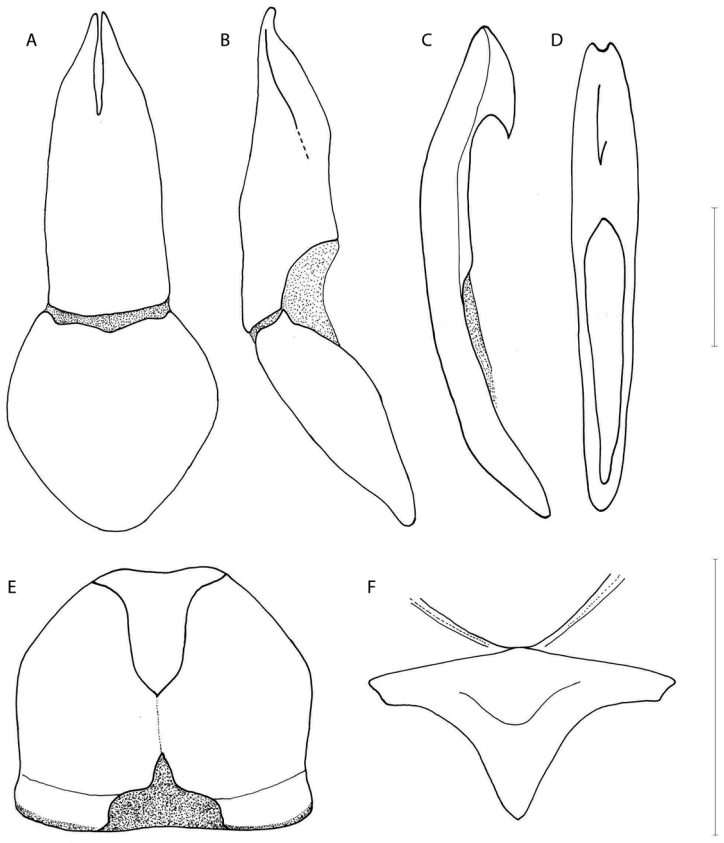

FIGURE 9. *Paramimesthes namibicus*: tegmen in ventral (A) and lateral view (B); aedeagus in lateral (C) and dorsal view (D); pronotum (E); mesosternum (F). Bar = 2 mm.

***Paramimesthes namibicus* Bologna sp. n.** (Fig. 2X)

Types. Holotype male (NHP) labelled "S.W. Afrika N Namib, Samanab Dunes, 20.02 S 13.18 E; 26.8.1982, E-Y. 1925, dry river bed leg Endroedy-Younga. 1 female paratype (SMWN), labelled "Samanab R., Skeleton Coast Park, 20°02'S 13°E, 2–5.8.1982, M. L. Penrith S. Braine". 1 male paratype (SMWN), labelled "Sarusas waterhole, 25/29.10.1978, SE 1812 Cd, S. Louw, M.L. Penrith, T. Schoueman". 1 male and 1 female paratypes (SMWN), labelled "Hoanib floodplain Area, 19°24'S 12°56'E, 9/10.1982 S. Braine". 1 female paratype (SMWN), labelled "Hoanib floodplain, Opuvo Distr., 19°22'S 13°01'E, 25.2.1996 E. Marais, A. Kirk-Spriggs". 1 male paratype (SMWN), labelled "Hoanib River, Skeleton Coast Park, 19°27'S 12°52'°E.5–6.4.1979, S. Louw, R. Wharton". 1 male and 6 females paratypes (SMWN), labelled "6 km N Arandis, 22°22'S 14°59'E, Damarand, 12.2/11.3.1985, J. Irish H. Rust". 6 males (4 SMWN, 2 CB) and 2 females paratypes (SMWN), *idem* but "8–10.4/6–8.5.1984, J. Irish H. Liessner". 4 males (3 SMWN, 1 CB) and 1 female paratypes (SMWN), *idem* but "8.5/5.6.1984". 2 males and 2 females paratypes (SMWN), *idem* but "5.6/31.7.1984". 4 males and 1 female paratypes (SMWN) *idem* but "3–31.7.1984". 1 female paratype (SMWN), labelled "Rössing Mine, 22°28'S-15°02'E, Swakopmund Distr., 13.3/10.4.1984, J. Irish H. Liessner". 1 male and 1 female paratypes (SMWN) *idem* but "8.5/5.6.1984". 1 male paratype (SMWN) *idem* but "10.4/8.5.1984". 1 female paratype (SMWN), labelled "Lower Dome Gorge, 22°28'S 15°04'E, Swakopmund District, 9.4/6.5.1984, J. Irish H. Liessner". 1 male and 6 females paratypes (SMWN), labelled "Upper Ostrich Gorge, 22°29'S 14°59'E, Swakopmund District, 12.2/11.3.1985, J. Irish H. Rust". 1 male paratype (SMWN) *idem* but "13.3/10.4.1984". 2 males and 3 females paratypes (SMWN), *idem* but "10.4/8.5.1984, J. Irish H. Liessner". 2 males paratypes (SMWN), *idem* but "9.4/6.5.1985 J. Irish H. Rust". 2 males and 1 female paratypes (SMWN), *idem* but "8.5/5.6.1984, J. Irish H. Liessner". 1 male paratype (SMWN), labelled "Upper Panner Gorge, 22°29'S 15°01'E, Swakopmund District, 22.2/8.3.1985, J. Irish H. Rust". 1 female paratype (SMWN), *idem* but "11.3/9.4.1985". 1 male and 2 females paratypes (SMWN), *idem* but "10.4/8.5.1984, J. Irish H. Liessner". 1 female paratype (SMWN), *idem* but "8.5/5.6.1984". 1 female paratype (SMWN), *idem* but "9.4/6.5.1985, J. Irish H. Rust". 3 males and 1 female paratypes (SMWN), labelled "Lower Ostrich Gorge, 22°30'S 14°58'E, Swakopmund District, 12.2/11.3.1985, J. Irish H. Rust". 2 males (CB) and 5 females paratypes (1 CB, 4 SMWN), *idem* but "13.3/10.4.1985 J. Irish H. Lisssner". 1 male and 4 females paratypes (SMWN), *idem* but "10.4/8.5.1984". 1 male paratype (SMWN), *idem* but "9.4/16.5.1985 J. Irish H. Rust". 1 female paratype (SMWN), *idem* but "8.5/5.6.1984". 2 females paratypes (SMWN), labelled "Kuiseb delta, SE 2314 Ba, 9–16.8.1976, S. Louw M.L: Penrith". 1 male paratype (NHP), labelled "SW Afric., Namib des., Sossus vlei, 24°20S 15°24'E; 14.8.1989; E-Y: 2649; dunes day, Endrödy & Klimaszew". 7 males and 1 female paratypes (SMWN), labelled "Entrance to Kaukasib River, Diamond Area I, SE 2615, 1/12.11.1986, G. Griffith, Pres. pitf. traps".

Other material examined: Angola Moçamedes (HNHM). Namibia, Gobabeb, 70 km SE of Walvis Bay (HNHM).

Several paratypes have faint colouration because were collected by pitfall traps in very arid and hot conditions and dried. Most have damaged antennae and legs.

Type locality. The type locality is located in the Namib Desert, in a very dry habitat.

Description. Characters described for the genus (Fig. 2X). Body black; head with two small frontal red spots; antennae black; pronotum uncommonly totally red or totally black, usually red with a middle subtriangular black spot on the fore margin slightly extended longitudinally and on fore sides, and sometimes also a basal subtriangular black-brown spot. Body setation white-yellow, longer and denser on ventral side. Punctures of head and pronotum distanced, wide, scarcely deep, that on elytra shallow and subrugose. Elytra orange, reddish on the sutura, lateral and apical margins, with vanished black pattern composed by three wide, transverse and laterally incomplete fascia on the anterior third, in the middle and on posterior third; sometimes these fasciae, particularly fore one, fragmented in spots; posterior fascia more undulate. Body length: 11.5–14.0 mm.

Etymology. The name of this species refers to its distribution in the Namib Desert.

Distribution. Western Namibia.

Genus *Namylabris* Bologna gen. n.

Type species. *Namylabris adamantifera* Bologna sp. n.

Diagnosis. A mylabrine genus similar to *Mimesthes* and *Paramimesthes* (Fig. 2Y), but with some mixed characters of other mylabrine genera, distinct by the combination of the following characters: temples elongate and parallel, mandible elongate, greatly longer than labrum, sharped; antennae slender, progressively and sligthly widened apically, neither subclavate nor VIII–XI so approached to form a club, but only progressively widened apically, antennomeres III–XI red or dark brown; pronotum not distinctly transverse, only few wider than maximal width of head, subcampaniform; mesosternum without modified fore portion, mesepisternum without furrowed border; male protarsomeres not widened internally; male claw ventrally regularly curved, not angulate; male margin of penultimate ventrite widely emarginated and depressed; aedeagus similar tho that of the genus *Mimesthes,* apically not incised with both hooks very far from apex, the proximal one smooth and short.

Description. Head elongate, parallel, temples parallel, particularly in female, about as long as longitudinal diameter of eye; frons dorsally flat, about twice as wide as transverse diameter of eye; eyes only slightly convex. Clypeus about as long as labrum, which is slightly emarginated anteriorly. Galeae, maxillary and labial palpi not modified; mandibles elongate and sharp. Eleven antennomeres (Fig. 10G), VI–X progressively few widened but not forming club, III–VII subcylindrical, X–XI only slightly wider than VIII–IX, XI slightly narrower than X; basal six with distinctly longer setae, remaining with a very short and dense clear microsetation.

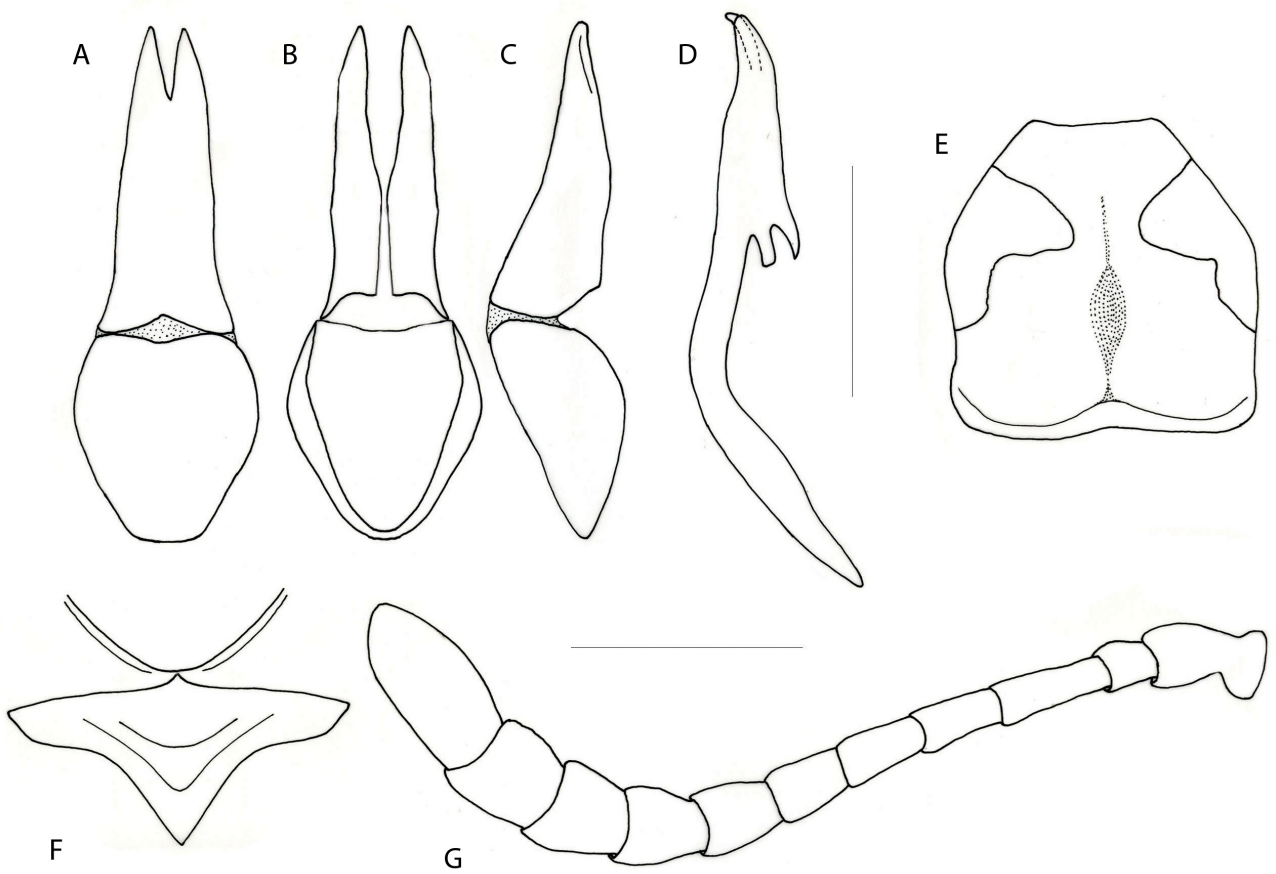

FIGURE 10. *Namylabris adamantifera*: tegmen in ventral (A), dorsal (B) and lateral view (C); aedeagus in lateral view (D); pronotum (E); mesostsernum (F); antenna (G). Bar = 1 mm.

Pronotum (Fig. 10E) only slightly wider than long, subcampaniform, subparallel in basal half, progressively narrowed after middle; rebordered at base, with a basal depression in middle and three subrounded depressions just before middle. Mesosternum (Fig. 10F) without clearly modified fore area, but only with a shagreened and umpunctate triangular fore part; mesepisterna smooth, anterior edge lacking furrowed border. Elytra subplanate and subsquared at apex. Male protarsomeres slender; female protibia and protarsomeres with robust distinct setae; female protibia not distinctly elongate or pointed on external apex; pro-mesotarsomeres with small ventral pad; male claws ventrally progressively curved in both sexes. Pro-mesotibial spurs elongate and pointed; metatibial spurs both narrow and stick-like.

Male penultimate ventrite widely emarginated and depressed posteriorly in middle, where is present an unpunctate and unsetate shiny area; last ventrite triangularly emarginated. Male gonostyli ventrally (Fig. 10A) and dorsally (Fig. 10B) subcylindrical and slender, apically narrowed; laterally (Fig. 10C) slender and narrowed at apex; gonocoxal piece suboval in ventral view; aedeagus (Fig. 10D) apically with a short incision, at apex curved posteriad, with distal hook extremely far from apex, pointed and curved, and a small residual proximal hook, smooth at apex similar than in the genus *Mimesthes*; endophallic hook very small and not easily visible.

Etymology. The name refers to the Namaqualand desert, where the genus is distributed (in both Northern Cape and Namibia) and to its general similarity with the genus *Mylabris*. Feminine genus.

***Namylabris adamantifera* Bologna sp. n.** (Fig. 2Y)

Types. Holotype female**,** 1 male, 1 female (SMWN) and 1 male paratypes (CB) labelled "Grillental, 26°59' S 15°22' E Diamond area 1, 29–30 sept. 1982 M. L. Penrith –J. Irish". 1 female paratype (SMWN) "Sargdeckel, Klinghardt Mts., Diamond area 1, 27°24'S 15°41' E, 1–2 Oct. 1982 M. L. Penrith-Irish". 1 female paratype (SMWN) "Diamond area 1, 27°45'S 16°30'E, 05–07.xi.1986 E. Griffin, Pres. pitf.-traps". 2 females paratypes (SMWN) "Obib Mts./Dunes, SE 2816 Ba, Diamond area 1, 28–30 Oct. 1977, Coll. S. Louw M-L. Penrith; H35148" (one paratype with antennomeres X–XI almost fused).

1 female paratype, "Northen Cape, 70 km E Porth Nolloth, XI" (CB); 1 female paratype, "Northern Cape, on rd. to Richtersveld NP betw. Amis and Ooble, 28.20S 16.55E, 20.ix.1997 F.W. & S.K. Gess; visiting pink flowers Mesembryanthemaceae; 97/98/21" (AMG).

Some types have damaged parts of body, mostly legs.

Other material examined: [Karas] Aurus Mts., 27.6500°S 16.3167°E (SAMC); Obib, 28.0833°S 16.7500°E (SAMC).

Type locality. The type locality is in the Karas region, district of Luderitz; coordinates in decimal degrees are: 26.9833°S 15.3667°E. The species is distributed in a narrow area extended in both SW Namibia and NW South Africa, and characterized by Namib desert and Succulent Karoo ecosystems.

Description. Characters described for the genus (Fig. 2Y). Integuments shiny; body setation white-yellow, denser and longer on ventral side and legs, shorter and more scattered on head and pronotum, very short and scattered on elytra. Body length: 12.0–14.0 mm.

Head black, antennae variable in colour, black or antennomeres III–XI reddish or dark reddish; punctures deep and approached.

Pronotum (Figs. 2Y, 10E) black with one orange triangular spot on each side, extended on dorsal surface, one another separate by black midle colouration; punctures as on head. Elytra (Fig. 2Y) orange with black pattern composed by two small spots on the anterior third, inner one sometimes reduced or absent, one middle biundulate fascia, and another wider biundulate fascia on posterior third. Tibiae and tarsi reddish.

Abdomen with last two urites black, previous urites orange or more or less extensively black on sides.

Etymology. The name of this species refers to its distribution in the Diamond area and to the curious fact that most specimens of this species, living on sand dunes, are covered by granite sand grains, similar to minute diamonds.

Distribution. Southwestern Namibia, northwestern South Africa.

Genus *Ceroctis* Marseul, 1870

According to recent molecular phylogenetic studies (Bologna *et al.* 2005, 2008c; Salvi *et al.* in preparation.), *Ceroctis* resulted a subunit of the *Hycleus* Latreille, 1817 lineage, as well as *Paractenodia* Péringuey, 1909 (see below). These molecular evidences, as well as larval (Di Giulio & Bologna 2005) and adult characters of antennae and male genitalia (Bologna in preparation), could support the hypothesis that *Ceroctis* represents a subgenus of *Hycleus*, even if the monophyly of this taxonomic unit needs confirmation after a general study of *Hycleus*. Waiting for a clarification of the relationshis whitin the very speciose *Hycleus* genus (about 450 species), we maintain distinct both *Ceroctis* and *Paractenodia*.

Relationships among *Ceroctis* species remain unknown and the Namibian species are divided into phenetic groups, here defined, which are based on elytral patterns or male genitalia shape.

Ceroctis angolensis species group

All species belonging to this group are easily distinguishable by the elytral longitudinally vittate pattern and by male genitalia with one single aedeagal distal hook. This group includes at least the following eastern and southern African species: *C. angolensis* (Gemminger & Harold, 1870); *C. callicera* (Gerstäcker, 1870); *C. delagoensis* (Pic, 1909); *C. exclamationis* (Marseul, 1872); *C. matetsiensis* Kaszab, 1951; *C. pilosicollis* Borchmann, 1940; *C. pubicollis* Borchmann, 1940; *C. ruficrus* (Gerstäcker, 1854) (variously evaluated in the literature); *C. trifurca* (Gerstäcker, 1854); and *C. tripunctata* Borchmann, 1940. Possibly also the following species could belong to the same group: *C. bilineata* (Marseul, 1879); *C. bunkeyana* (Pic, 1909); *C. foveithorax* (Pic, 1912); *C. vittata* Borchmann, 1910.

Ceroctis angolensis (Gemminger & Harold, 1870) (Fig. 3A)

Mylabris phalerata Erichson, 1843 nomen praeoccupatum
Mylabris angolensis Gemminger & Harold, 1870

Distribution. Angola, Botswana, Namibia, and South Africa.

Material examined and literature records. [Kunene] Epupa: Okakatuwo, 17.4000°S 12.7333°E (SMWN); Hippo Pool on Kunene River 20 km W of Ruacana, 17.4092°S 14.2185°E (CB); Okakatuwo, 17.4500°S 12.7000°E (SMWN); Omunwindi, 17.7833°S 12.8500°E (SMWN). Opuwo: Opuwo town, 18.0500°S 13.8333°E (CB); 6 km NE Orumana, 18.2167°S 13.9500°E (SMWN); C35, Kamanjab-Ruacana 46 km S of cross-road for Opuwo, 18.3280°S 14.3035°E (CB); C35, 110 km NW Kamanjab, 18.9167°S 14.3833°E (CB). Kamanjab: Beulah 256, 19.6000°S 14.9167°E (SMWN); Kamanjab, 19.6333°S 14.8333°E (SMWN); C40, 26 km E Kamanjab, 19.6957°S 15.1046°E (CB); Otjitambi 25, 19.8167°S 15.1667°E (SMWN); Mooihoek 376, 20.1333°S 15.8833°E (SMWN); Delhi 96, 20.3780°S 15.7280°E (SMWN). Outjo: Ike 346, 19.7533°S 16.6244°E (SMWN); road Outjo-Kalkfeld 16–20 km S Outjo, 20.3333°S 16.1500°E (CB). Khorixas: Fransfontein, 20.1833°S 15.0167°E (SMWN); Duineveld 529, 20.7833°S 14.6333°E (SMWN). [Omusati] Outapi: Mahanene Agric. Research Station, 17.4333°S 14.7833°E (SMWN); Mahanene Res. Station, 17.4500°S 14.8000°E (SMWN). Ogongo: Ogongo Agric. College, 17.6667°S 15.2833°E (SMWN); Ogongo Agric. College, 17.6833°S 15.2833°E (SMWN); Ogongo Agric. College, 17.6833°S 15.3000°E (SMWN). Elim: C46, 15 km NW Oshakati, 17.6833°S 15.5167°E (CB). Tsandi: Tsandi, 17.8333°S 14.9000°E (SMWN). Okahao: C35, Kamanjab-Ruacana 25 km NW of Kamanjab, 18.4775°S 14.6977°E (CB); SW of Dorsland, Etosha N.P., 18.7667°S 14.7333°E (SMWN); Northern border, Bitterwater Firebreak, Etosha N.P., 18.9667°S 15.1500°E (SMWN); Duikersdrink, Etosha N.P., 19.0667°S 14.7167°E (SMWN); Rateldraf, Etosha N.P., 19.0833°S 14.5000°E (SMWN); Otjivasandu, Etosha N.P., 19.2500°S 14.5000°E (SMWN); Kaross, Etosha N.P., 19.3833°S 14.5333°E (SMWN). Ruacana: Ekango, 18.6833°S 14.3167°E (SMWN); NW Etosha N.P., 18.7167°S 14.5833°E (SMWN). [Ohangwena] Okongo: Onamihongwa, 17.6000°S 17.0333°E (SMWN); Etudilondjaba, 17.6000°S 17.6000°E (SMWN). [Kavango] Mpungu: Nangera, 17.6167°S 18.1333°E (SMWN). Mukwe: Popa Falls, 18.1167°S 21.0667°E (SMWN); Popa Falls eastern bank, 18.1167°S 21.5833°E (SMWN); West Caprivi Nature Reserve, 18.1500°S 21.2100°E (SMWN). Ndiyona: Kaudom River, Kaudom Game Reserve, 18.4833°S 20.9333°E (SMWN); Kaudom Camp, Kaudom Game Reserve, 18.5000°S 20.7333°E (SMWN); Kaudom Game Reserve, 18.9333°S 20.9500°E (SMWN); Kaudom Game Reserve, 19.0667°S 20.8000°E (SMWN). [Caprivi] Kongola: Singalamwe, 17.6500°S 23.4167°E (SMWN); Kwando R., 17.7833°S 23.3333°E (SMWN); Manywa Valley, 17.8167°S 23.1500°E (SMWN). Linyandi: Mudumu Nat. Res., 18.1333°S 23.4333°E (SMWN); Mudumu Nat. Res., 18.1667°S 23.4167°E (SMWN); Sangwali, 18.2333°S 23.6000°E (SMWN); 9 km SE Sangwali, 18.3000°S 23.6833°E (SMWN). [Oshana] Okatana: D3609, Oshakati-Ongenga 3 km N of C46 jct.,17.7377°S 15.6727°E (CB). Uuvudhiya: Natukanaoka Pan, Etosha N.P., 18.5833°S 15.7500°E (SMWN); N. of Okandeka, Etosha N.P., 18.9500°S 15.8333°E (SMWN); W of Wolfsnes, Etosha N.P., 19.0500°S 15.8667°E (SMWN). [Oshikoto] Oniipa: B1, 20 km SE Ondangwa, 17.9833°S 16.1333°E (CB). Onayena: B1, Ondangwa-Tsumeb 26 km SE of Ondangwa, 18.0402°S 16.2037°E (CB). Engodi: 19 km ESE Omupaunda, 18.3333°S 16.9333°E (SMWN); 30 km W Oshivelo, 18.4870°S 17.0000°E (CB). Omuthiyagwiipundi: Okashana Rossing Agricultural Centre, 18.4167°S 16.6500°E (SMWN); Fisher Pan, Etosha Nat. Park, 18.7833°S 16.9167°E (SMWN); Gabaub, Etosha N. P., 19.3000°S 16.4167°E (SMWN). Guinas: Operet

312. 18.7333°S 17.2000°E (SMWN); Oshivelo 10 km S on B1, 18.7556°S 17.2420°E (CB); C38, 1 km jct. B1, 18.7725°S 17.2491°E (CB); Ulthoek 770, 19.3300°S 17.6600°E (SMWN). Tsumeb: 5 km E Tsumeb, 19.2600°S 17.7500°E (CB). [Otjozondjupa] Grootfontein: C44, 27 km jct. B8, 19.2428°S 18.7814°E (CB); 10 km NO Grootfontein, 19.5093°S 18.2073°E (CP). Tsumkwe: C44, 52 km jct. B8, 19.2428°S 19.0481°E (CB); 2 km W Omatako, 19.2667°S 19.3000°E (SMWN); Bushmanland, 19.3667°S 19.6000°E (SMWN); Dode, 19.4167°S 20.6000°E (SMWN); Tsumkwe, 19.6000°S 20.5000°E (SMWN); Boesmanland, 19.6000°S 20.6833°E (SMWN); Bushmanland, Aha hills, 19.6167°S 20.9667°E (SMWN); 5 km W Makuri, 19.6667°S 20.6667°E (SMWN); 10 km SE Tsumkwe, 19.6833°S 20.6167°E (SMWN); Naye Naye Pan, 19.7721°S 20.4820°E (SMWN); 2 km NE Namtsoha, 19.7833°S 20.4000°E (SMWN); Gautscha Pan, 19.8000°S 20.5833°E (SMWN); Kremetarkop, 19.8667°S 20.9167°E (SMWN); 3 km W Kuru, 19.9333°S 20.6333°E (SMWN). Otavi: Aigamas 471, 19.4667°S 17.2833°E (SMWN); 5 km E Kombat (road B8), 19.7167°S 17.8000°E (CB). Omatako: Waterberg Pl. Park, 20.3167°S 17.3167°E (SMWN); near Otjahevita road to Grootfontein, 20.3400°S 17.5500°E (CB); Waterberg, Wabi lodge, 20.3429°S 17.5321°E (CP); Waterberg Plateau Park, 20.3667°S 17.3500°E (SMWN); Waterberg Plateau Park, 20.3833°S 17.3000°E (SMWN); Waterberg Plateau Park, 20.4000°S 17.2500°E (SMWN); Waterberg Plateau Park, 20.4167°S 17.2500°E (SMWN); Waterberg Plateau Park, River Omatako, 20.4167°S 17.2500°E (CB); Waterberg Plateau Park, 20.4167°S 17.3333°E (SMWN); Waterberg Plateau Park, 20.4833°S 17.2500°E (SMWN); Rodenstein 307, 20.5626°S 17.2418°E (SMWN); Hamakari 285, 20.5833°S 17.3333°E (SMWN); Hamakari S 373, 20.5833°S 17.4000°E (SMWN); Okosongomingo 149, 20.6167°S 17.1333°E (SMWN); Hamakari 285, 20.6167°S 17.3500°E (SMWN); Otjiwarongo distr., 20.6167°S 17.3500°E (SMWN); Waterberg, jct. roads C22-D2512, 20.6333°S 17.1500°E (CB); Hamakari Sud 373, 20.6667°S 17.3833°E (SMWN); Hamakari 285, 20.6667°S 17.3833°E (SMWN); Hamakari sud 373, 20.6667°S 17.4000°E (SMWN); B1, 28 km S Otjiwarongo, 20.6806°S 16.7787°E (CB); Okonjima 128, 20.8650°S 16.6670°E (SMWN); Okahandja Townlands, 21.6667°S 17.3333°E (SMWN). Otjiwarongo: Cleveland 17. 20.4050°S 16.6590°E (SMWN); Otjowarongo Townlands, 20.4500°S 16.6500°E (SMWN); C63, Outjo-Kalkfeld 15 km N of Kalkfeld, 20.7537°S 16.2210°E (CB). Okakarara: Hereroland West, 20.5167°S 17.4833°E (SMWN); Hereroland West, 20.5500°S 17.4667°E (SMWN); Okakarara, 20.5833°S 17.4333°E (SMWN). Okahandja: Okahandja, 21.9833°S 16.9167°E (CB; SMWN); Damaraland (Okahandja), 21.9833°S 16.9167°E (Péringuey, 1909); Gross Barmen, 22.1000°S 16.7500°E (CP). [Omaheke] Otjombinde: northern Veter. fence on Game Road, 20.5167°S 20.7000°E (SMWN); Botswana-Namibia border, 2 km northem Veter. fence SWA, 20.5167°S 20.9833°E (SMWN); Eiseb River, 20.6500°S 20.0833°E (SMWN); Confluence Eiseb and Otjinoko Rivers, 20.6667°S 20.1500°E (SMWN); M119 10 km E Helena, 21.8362°S 20.28434°E (CB). Steinhausen: C30, 8 km S jct. C29, 21.8207°S 18.3307°E (CB); Oostenwald, 21.8667°S 19.6333°E (SMWN); Alkm ar 512. 21.8700°S 19.8800°E (SMWN); Owingi 246, 21.9000°S 18.8667°E (SMWN); Kororo Noord 185, 21.9667°S 18.7167°E (SMWN); Eava 383, 22.0833°S 18.9333°E (SMWN); Omitara, C29,15 km jct. D1535, 22.2168°S 18.0407°E (CB); Gobabis, C22, 23 km jct. B6, 22.2533°S 18.9966°E (CB); Geiersberg, Omitara 109, 22.3213°S 18.0331°E (SMWN). Kalahari: M119, 10 km S Botswana border, 22.0238°S 19.9767°E (CB); B6, 20 km W Botswana border, 22.3093°S 19.7964°E (CB); Gobabis, C22, 12 km N jct. B6, 22.3613°S 19.003°E (CB). Gobabis: Gobabis, C22, 2 km N jct. B6, 22.4205°S 19.0037°E (CB); C20, Gobabis-Leonardville 10 km N of Aais, 22.9742°S 18.7280°E (CB). Aminius: Leonardville, 23.5000°S 18.8000°E (SMWN). [Erongo] Dâures: Brandberg, Hungorob Valley, 21.1833°S 14.5167°E (Bologna, 2000a; SMWN). Omaruru: Otjikoko-Sud 61, 21.2833°S 16.3667°E (SMWN); Omaruru, D2329, 21.4333°S 15.9333°E (CB); C33, 3–9 km S of Omaruru, 21.4948°S 15.9705°E (CB); 20 km SE Omaruru, 21.6250°S 16.1250°E (JP); C33, 30 km jct. B2, 21.6681°S 15.9799°E (CB); C33, 30–20 km N Karibib, 21.6833°S 15.9667°E (CB). Karibib: D1935, 30 km NNW Usakos, 21.7833°S 15.5000°E (CB); C33, 17 km jct. B2, 21.839°S 15.9233°E (CB); B2, Usakos-Karibib, 16 km W of Karibib, 21.9358°S 15.7056°E (CB); Karibib, D1953, jct. C32, 21.9552°S 15.8493°E (CB); Okakoara 43, 21.9667°S 16.0167°E (SMWN); C32, 54 km S Karibib, Swakop River, 22.39537°S 15.83432°E (CB). Arandis: 6 km N Arandis, 22.3667°S 14.9833°E (SMWN). [Khomas] Windhoek Rural: Windhoek, vic. Heroes Acre, (OSU); Orumbo 198, 22.3833°S 17.7833°E (SMWN); Windhoek distr., 22.3833°S 17.8333°E (SMWN); Brakwater, 20 km N Windhoek, 22.4000°S 17.0667°E (CB); Richthofen 126, 22.4500°S 17.6000°E (SMWN); Excelsior 286, 22.4500°S 17.6333°E (SMWN); Windhoek Airport, 22.5333°S 17.2500°E (CB); Richthofen 126, 22.5667°S 17.7500°E (SMWN); Alt-Seeis 133, 22.6167°S 17.6333°E (SMWN); Arnhem 222, 22.7000°S 18.1167°E (SMWN); Regenstein 32, 22.7178°S 17.0317°E (SMWN); Gocheganas 26, 22.8333°S 17.1833°E (SMWN); C23, 26 km S Dordabis, 23.0575°S 17.9329°E (CB); C23, 38 km S Dordabis, 23.0715°S

18.0434°E (CB); Kos 28, 23.2667°S 16.1333°E (SMWN); D1228, 7 km ENE Rehobothoad, 23.2833°S 17.2333°E (CB). Windhoek East: Windhoek, 22.5700°S 17.0836°E (CB; SMWN). [Hardap] Rehoboth West Urban: Rehoboth town, 23.3167°S 17.0667°E (CB); Rehoboth, 23.3500°S 17.0667°E (SMWN). Rehoboth Rural: B1, km 21, 23.49991°S 17.12837°E (CB); B1, 28.5 km S Rehobothd, 23.5833°S 17.1500°E (CB); Garies Oos 489, 23.9500°S 16.5500°E (SMWN). Mariental Rural: Stampried, 24.3333°S 18.4000°E (SMWN); Haruchas 156, 24.9500°S 18.8500°E (SMWN); Viljoenskroon 507, 25.1667°S 19.9667°E (SMWN). Gibeon: Wereldend 115, 25.1500°S 16.2333°E (SMWN). [Karas] Berseba: Mukorob 14, 25.5000°S 18.1667°E (SMWN). Keetmanshoop Rural: Koes 202, 25.9500°S 19.1167°E (SMWN); Khabus 146, 26.2833°S 18.2333°E (SMWN); Khabus 146, 26.3000°S 18.2167°E (SMWN); Wildheim Ost 384, 26.4833°S 19.5667°E (SMWN); Karas distr., 27.1352°S 19.4941°E (CB). Lüderitz: near Aus, 26.6667°S 16.2667°E (CP); Diamond Area 1, 27.2500°S 15.7500°E (SMWN).

Other records: Swakop River (CB); Ovampoland (Péringuey 1909); Damaraland (Kaszab 1956) (ab. *damarensis*: Kaszab 1956, Holotype); Namib Sand Sea desert (Seeely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were not examined.

In the checklist of Namibian Meloidae (Bologna 2000a), as in most literature, this species is named *phalerata*. Actually this name is preoccupied by that of an Oriental species now referred to the genus *Hycleus* (Pan *et al.* 2014).

Ceroctis exclamationis (Marseul, 1872) (Fig. 3B)

Mylabris (Ceroctis) exclamationis Marseul, 1872
Mylabris (Ceroctis) bivittata Marseul, 1872
Mylabris (Ceroctis) *ngamensis* Pic, 1924

Distribution. Angola, Botswana, Mozambique, northeastern Namibia (new species record for this country), South Africa, and Zimbabwe.

Material examined. [Caprivi] Katima Mulilo Urban: Caprivi Katima Mulilo, 17.5000°S 24.2667°E (CB). Kongola: Singalamwe, Eastern Caprivi, 17.6500°S 23.4167°E (SMWN); Kwando R., W Caprivi, 17.7833°S 23.3333°E (SMWN); 26 km W Kongola, western Caprivi, 17.8000°S 23.0833°E (SMWN); Maywa Valley, westerrn Caprivi, 17.8167°S 23.1500°E (SMWN). [Kavango] Mukwe: westerrn Caprivi, 18.0333°S 22.3000°E (SMWN); Omega, westerrn Caprivi, 18.0500°S 22.1833°E (SMWN); Popa Falls, Eeastern Bank, westerrn Caprivi, 18.1167°S 21.5833°E (SMWN); Okavango River, Bagani, Popa Falls, 18.1167°S 21.6333°E (CB; CP).[Oshikoto] Ondangwa-Tsumeb, B1, 45 km NW Oshivelo Andoni plains, 18.4430°S 16.7342°E (CB). [Otjozondjupa] Tsumkwe: 3 km W Kuru, 19.9333°S 20.6333°E (SMWN).

Other records: Namibia (Pitzalis *et al.* 2014).

Remarks. Types of this species and those of their synonyms were examined at MNHN.

Synonymies must be confirmed after the revision of the genus.

***Ceroctis aurantiaca* species group**

Two Namibian species, namely *C. bohemani* (Fähraeus, 1870) and *C. ovamboana* Kaszab, 1981, belong to this group, easily distinguishable by the extended black elytral ground colouration with dense silver setae and a series of large yellow spots sometimes confluent. This group, partially studied by Pardo Alcaide (1958b), includes also the following three eastern African species: *C. aurantiaca* (Fairmaire, 1885); *C. paolii* (Pardo Alcaide, 1958); *C. rufimembris* (Thomas, 1897). This lineage represents another example of the disjunct eastern/southern African distribution model, previously described (see *Lydomorphus bifoveiceps*).

Ceroctis bohemanii (Fåhraeus, 1870) (Fig. 3C)

Mylabris bohemanii Fåhraeus, 1870
Mylabris (Ceroctis) bohemani, Marseul 1872

Distribution. Angola, northern and central Namibia, northern South Africa, and Zimbabwe.

Material examined and literature records. [Kavango] Ndiyona: Kaudom-Cwiba Juction, Kaukom Game Reserve, 18.4667°S 20.8167°E (SMWN). [Oshikoto] Guinas: Oshivelo, Etosha N.P., 18.6167°S 17.1667°E (SMWN). [Otjozondjupa] Otavi: Algamas 471, 19.4667°S 17.2833°E (SMWN). Otjiwarongo: 20 km S Otjiwarongo, 20.6365°S 16.6414°E (RMCA); Otjiku, 20.2667°S 16.8167°E (SMWN). Omatako: Waterberg Plateau Park, 20.3167°S 17.3167°E (SMWN); Waterberg N.P., 20.4167°S 17.2500°E (CB); Waterberg Plateau Park, 20.4167°S 17.3333°E (SMWN); Waterberg Plateau Park, 20.4833°S 17.2500°E (SMWN); Hamakari 285, 20.5833°S 17.3333°E (SMWN); Okosomingo 149, 20.6167°S 17.1333°E (SMWN); Kalidona, 21.2833°S 18.0667°E (SMWN). Okakarara: Hereroland West, 20.5500°S 17.4667°E (SMWN). Okahandja: Okahandja, 21.9833°S 16.9167°E (SMWN). [Khomas] Windhoek Rural: Excelsior 286, 22.4500°S 17.6333°E (SMWN); Richthofen 126. 22.5667°S 17.7500°E (SMWN); Doabib Ost 57, Rehoboth, 23.2059°S 17.6535°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a).

Remarks. Types of this species were not examined but specimens compared with them were studied at HMNH.

Ceroctis ovamboana Kaszab, 1981

Distribution. Southern Angola and northern Namibia (new species record for Namibia).

Material examined and literature records. [Kunene] Epupa: Ondorusu Falls, 17.4000°S 13.9167°E (SMWN).

[Omusati] Ruacana: Ruacana Falls, 17.4333°S 14.35°E (SMWN; Kaszab 1981, Holotype. Actually this locality refers to the Angolan side of the River Kunene, on the boundary with Namibia).

Other records: Namibia (Bologna 2000a).

Remarks. The holotype of this species was examined at SMWN.

The Namibian record represents the second known locality of this species.

***Cercotis gyllenhalli* species group**

The following three species are phenetically similar and even if their relationships were never studied, we tentatively included them in a phenetic group, endemic to southern African, together with *C. gyllenhalli* (Billberg, 1813), which is distributed in South Africa

Ceroctis aliena (Péringuey, 1892) (Fig. 3D)

Mylabris aliena Péringuey, 1892

Distribution. Namibia, western and northern South Africa.

Material examined and literature records. [Kavango] Kapako: Fontein Omuramba, 17.8833°S 19.7000°E (SMWN). [Kunene] Sesfontein: D265, near Kamanjab, 19.8087°S 14.5128°E (CB). [Otjozondjupa] Omatako: 100 km N Okahandja, 21.0920°S 16.8280°E (CB); Okahandja Townlands, 21.6667°S 17.3333°E (SMWN). [Erongo] Dâures: D3716, Spitzkoppe, 21.8267°S 15.2074°E (CB). Karibib: Noab 69, Karibib, 22.1333°S 15.5667°E (SMWN); C32, 54 km S Karibib, Swakop River, 22.39537°S 15.83432°E (CB). Walvis Bay Rural: Damaraland, Walvis Bay, 22.9167°S 14.4667°E (Péringuey, 1909). [Khomas] Windhoek Rural: Dudeabib Ost 57, Rehoboth, 23.2059°S 17.6535°E (SMWN). [Hardap] Mariental Rural: C25, 25 km E Derm, 23.5903°S 18.2574°E (CB); Haruchas 156, Mariental, 24.9500°S 18.8500°E (SMWN). Gibeon: Hauchabfontein 5, 24.5000°S 16.0833°E (SMWN); Alwynkop, 24.9167°S 16.2333°E (SMWN). [Karas] Berseba: Hoagces, 25.9167°S 17.9333°E (SMWN). Keetmanshoop Urban: B1, 3.8 km SE Keetmanshoop, 26.61692°S 18.17825°E (CB). Lüderitz: B4, 4 km W Aus, 26.64473°S 16.23154°E (CB); Aus, 26.6667°S 16.2667°E (CP); Plateau 33, Luderitz, 26.6667°S 16.5333°E (SMWN). Keetmanshoop Rural: D608, 35 km S Keetmanshoop, 26.90790°S 18.26411°E (CB). Oranjemund: Boom River course, Kloof W, 22 km N of Orange River (ENE of Rosh Pinah), 27.8333°S 17.0000°E

(SMWN); Obibwasser, 28.0833°S 16.7500°E (SMWN); Obib Mts./Dunes, Diamond Area 1, 28.0833°S 16.7500°E (SMWN). Karasburg: M21, 4km N Warmbad, 28.39832°S 18.75766°E (CB); C13, 44,5km N Noordoewer Grape Valley, 28.41803°S 17.44408°E (CB); C10, 23 km N Velloorsdrif, 28.52194°S 19.18402°E (CB).

Other records: Ovampoland (Péringuey 1909); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at SAMC.

Ceroctis peringueyi (Voigts, 1902) (Fig. 3E)

Mylabris distincta Péringuey, 1886, *nomen praeoccupatum*
Zonabris peringueyi Voigts, 1902

Distribution. Namibia and northwestern South Africa.

Material examined and literature records. [Kunene] Epupa: Dunes, 17.3833°S 12.2500°E (SMWN). Opuwo: 30 km WNW Orupembe, 18.1167°S 12.3500°E (SMWN). Khorixas: Krone 721, 20.5373°S 13.9799°E (SMWN); Duineveld 529, 20.7833°S 14.6333°E (SMWN). [Oshana] Uuvudhiya: Okaukuejo, Etosha, 19.1500°S 15.9333°E (SMWN). [Erongo] Dâures: Tsisab River, Brandberg, 21.0167°S 14.6833°E (SMWN); Brandberg, 21.1333°S 14.5833°E (SMWN); Gross Spitzkoppe, 21.8167°S 15.1667°E (CB); Spitskoppe, 21.8518°S 15.1484°E (SMWN). Karibib: B2, 16 km W Karibib, 21.93584°S 15.70561°E (CB); 12 km W of Usakos, 21.9972°S 15.4879°E (SMWN); 46 km W Usakos (AMNH); Bloemhof 109, 22.4733°S 15.2533°E (SMWN). Arandis: 6 km N Arandis, 22.3667°S 14.9833°E (SMWN); Rossing Mine, 22.4667°S 15.0333°E (SMWN); Lower Dome Gorge, 22.4667°S 15.0667°E (SMWN); Upper Ostrich Gorge, 22.4833°S 14.9833°E (SMWN); Upper Panner Gorge, 22.4833°S 15.0167°E (SMWN); Lower Ostrich Gorge, 22.5000°S 14.9667°E (SMWN); C14, Kuiseb Pass, 23.3045°S 15.7526°E (CB); C14, Kuiseb River, 23.30457°S 15.77184°E (CB). Walvis Bay Rural: Gorob Mine, Namib Desert Park, 23.5333°S 15.4167°E (SMWN). [Khomas] Windhoek Rural: Windhoek, 22.3400°S 17.0500°E (SMWN); C14, 41 km N Solitaire, 23.5223°S 15.7832°E (CB). [Hardap] Gibeon: C14, 10 km S Waltevrede, 24.23774°S 15.90401°E (CB); Sesriem 137, River, 24.4833°S 15.95°E (SMWN); Gibeon, 25.1667°S 17.6833°E (SMWN); Asab, 25.4667°S 17.9500°E (SMWN). [Karas] Keetmanshoop Rural: Koes 202, 25.9500°S 19.1167°E (SMWN); Khabaus 146, 26.2833°S 18.2333°E (SMWN); Khabaus 146, 26.3°S 18.2167°E (SMWN); Khabaus 146, 26.3167°S 18.25°E (SMWN); Wildheim Ost 384, 26.4833°S 19.5667°E (SMWN); Swartbaas West 276, 27.0167°S 19.7000°E (SMWN); Karas distr., C11, 1 km jct. M26, 27.0915°S 19.5372°E (CB); Karas distr., 27.1352°S 19.4941°E (CB); Naochabeb 97, 27.3833°S 18.4667°E (SMWN). Lüderitz: Plateau 38, 26.6667°S 16.5333°E (SMWN). Karasburg: Granau, Warmbad, 27.7333°S 18.3833°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at SAMC.

Ceroctis trifasciata Pic, 1948 (Fig. 3F)

Distribution. Namibia (endemic).

Material examined and literature records. [Kunene] Opuwo: 30 km WNW Orupemde, 18.1167°S 12.3500°E (SMWN); D3710, near Opuwo, 18.1589°S 13.9173°E (CB); D3710, Opuwo, 18.2011°S 13.8994°E (CB); D3709, near Opuwo, 18.5986°S 14.2007°E (CB); Kunene distr., C43, 18.6788°S 13.7135°E (CB); Kaokaland, 18.8667°S 12.9833°E (SMWN). Sesfontein: Khowarib River, 19.2667°S 13.8667°E (SMWN); D2650, near Kamanjab, 19.8087°S 14.5128°E (CB). Kamanjab: C40, 26 km E Kamanjab, 19.6957°S 15.1046°E (CB); C38, 40 km N Outjo, 19.80883°S 15.91281°E (CB); C39, 23 km W Outjo, 20.1798°S 15.9480°E (CB); C39, 29 km W Outjo, 20.19834°S 15.8831°E (CB); Delhi 96, 20.3780°S 15.7280°E (SMWN). Outjo: Ike 346, 19.7533°S 16.6244°E (SMWN); road Outjo-Kalkfeld 16–20 km S Outjo, 20.3333°S 16.1500°E (CB). [Oshikoto] Guinas: C38, 1 km jct. with B1, 18.7725°S 17.2491°E (CB). Omuthiyagwiipundi: 30 km E Etosha N.P., Mokuti Lodge, 18.8000°S 17.0333°E (CB). [Oshana] Uuvudhiya: Okaukuejo/Leeubron, Etosha N.P., 19.0667°S 15.8167°E (SMWN). [Otjozondjupa] Otavi: Etosha N.P., 19.2378°S 17.0878°E (SMWN); 5 km N Otavi vs. Tsumeb, 19.6239°S 17.3777°E (CB); B8, 10 km E Otavi, 19.6500°S 17.4167°E (CB). Grootfontein: Grootfontein, 19.5667°S 18.1167°E (SMWN). Omatako: Onjoka, Wateberg Plateau Park, 20.4167°S 17.2500°E (SMWN);

Waterberg Plateau Park, 20.5167°S 17.2333°E (CB); D2414, Etjo-Kalkfeld, Dinosaurus Tracks, 21.1156°S 16.4161°E (CB); Okahandja Townlands, 21.6667°S 17.3333°E (SMWN). Otjiwarongo: C33, 2 km N Kalkfeld, 20.8333°S 16.2000°E (CB). Okahandja: Ovita, 21.5228°S 16.2539°E (SMWN); Okahandja, 21.9833°S 16.9167°E (SMWN). [Erongo] Omaruru: Omaruru, 21.4333°S 15.9333°E (SMWN). Karibib: D1935, 30 km NNW Usakos, 21.7833°S 15.5000°E (CB); C28, Boshua Pass, 22.7000°S 16.0333°E (CB). [Omaheke] Steinhausen: C30, 8 km S jct. with C29, 21.8207°S 18.3307°E (CB); Kehoro Sud 939, 22.0833°S 18.6167°E (SMWN); C29, Omitara, 15 km jct. D1535, 22.2168°S 18.0407°E (CB); B6, 8 km Witvlei, 22.3836°S 18.4078°E (CB). Gobabis: Otjiwarumendu 119, 22.3576°S 18.2870°E (SMWN); Gobabis, C22, 2 km N jct. B6, 22.4205°S 19.0037°E (CB); Swart Nossob River Gobabis, 23.1333°S 18.7000°E (SMWN). Kalahari: Gobabis, C22, 12 km N jct. B6, 22.3613°S 19.0034°E (CB). [Khomas] Windhoek Rural: D1535, near Omitara, 11 km jct. B6, 22.3460°S 17.7240°E (CB); Windhoek (Pic, 1948, type locality); D1535, Windhoek, 5 km jct. B6, 22.3681°S 17.6675°E (CB); B6, 68 km E Windhoek, 22.3913°S 17.8234°E (CB); Excelsior 286, 22.4500°S 17.6333°E (SMWN); Neudamm 63, 22.5000°S 17.3500°E (SMWN); Opembamewa Sud, 22.5000°S 17.5000°E (SMWN); Richthofen 126, 22.5667°S 17.7500°E (SMWN); Arnhem 222, 22.7000°S 18.1167°E (SMWN); Gocheganas 26, 22.8333°S 17.1833°E (SMWN); Kos 28, 23.2667°S 16.1333°E (SMWN); D1228, 3 km E Rehoboth, 23.2909°S 17.2012°E (CB). Windhoek East: Windhoek, 22.5700°S 17.0836°E (Kaszab, 1960, as ab. *zumpti*) (CB; SMWN); 30 km N Rehoboth, 23.0468°S 17.1063°E (CB). [Hardap] Rehoboth Rural: B1, km 21, 23.4999°S 17.1284°E (CB); B1, 28.5 km S Rehobothroad, 23.5833°S 17.1500°E (CB); Bullsport, 24.1495°S 16.36336°E (Kaszab 1960, as ab. *zumpti*). Gibeon: C14, Bullsport-Solitaire, 5 km W of Bullsport, 24.1040°S 16.3093°E (CB); Sesriem 137: River, 24.4667°S 15.9500°E (SMWN); C14, 1 km W Maltahöhe, 24.8589°S 16.9751°E (CB); C19, western slope Tsaris Pass, 24.9346°S 16.4159°E (CB). Mariental Urban: C19, 11 km W Mariental, 24.6167°S 17.8500°E (CB).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at MNHN.

***Ceroctis interna* species group**

Only the following Namibian species belongs to this group, mainly distributed in central Africa, phenetically well distinct by the elytral pattern characterized by the unicolour red apex of elytra and transverse fasciae. The group includes at least: *C. angolana* Borchmann, 1940 (which could be a symomym of *C. blanda*); *C. blanda* (Péringuey, 1892); *C. congoana* (Duvivier, 1890); *C. interna* (Harold, 1879).

Ceroctis blanda (Péringuey, 1892) (Fig. 3G)

Mylabris blanda Péringuey, 1892

Distribution. Angola, Botswana, northern Namibia, northwestern South Africa, and Zaire.

Material esamine and literature records. [Kavango] Ndiyona: Niangana, 18.0000°S 20.6833°E (SMWN). [Otjozondjupa] Okahandja: Okahandja, 21.9833°S 16.9167°E (SMWN).

Other records: Ovampoland (Péringuey 1909, type locality; Pardo 1958b); Namibia (Bologna 2000a).

Remarks. The holotype of this species was examined at SAMC.

***Ceroctis korana* species group**

The validity of this heterogeneous assemblage, based only on phenetic similarities, needs confirmation. It is apparently endemic to the southwestern Africa.

Ceroctis amphibia (Marseul, 1872) (Fig. 3H)

Mylabris (Ceroctis) amphibia Marseul, 1872
Ceroctis amphibia ssp. *rudebecki* Kaszab, 1956

Distribution. Western Angola and western Namibia.

Material examined and literature records. [Kunene] Epupa: Ondundujengo River, 17.8000°S 12.3167°E (SMWN); S Omatjinguma, 17.8750°S 12.3750°E (SMWN). Opuwo: 30 km WNW Oruoembe, 18.1167°S 12.3500°E (SMWN); Namib, Kakoveld, 15 miles S Anabib (Orupenbe), 18.1833°S 12.5167°E (ssp *rudebecki*, Kaszab, 1956); 100 miles W Ohopoho, 18.1833°S 12.5167°E (Kaszab 1956). Sesfontein: Khowarib Schlucht, 19.3000°S 13.9167°E (SMWN). Khorixas: N of Doros Crater, Skeleton Coast Park, 20.3667°S 14.1333°E (SMWN); 60 km Twyfelfontein, 20.5667°S 14.3667°E (SMWN). [Erongo] Dâures: Brandberg Messum Valley, 21.2215°S 14.5163°E (Bologna 2000a; CB; SMWN); D2342, 9,5 km S Messum Valley, 21.2999°S 14.5406°E (CB); D2342, 17 km SE Messum Valley, 21.3048°S 14.6574°E (CB); D3716, Spitzkoppe, 21.8267°S 15.2074°E (CB); Spitskoppe, 21.8518°S 15.1484°E (SMWN). Karibib: B2, 16 km W Karibib, 21.9358°S 15.7056°E (CB); B2, 8 km W Usakos, 21.9876°S 15.5057°E (Bologna *vidit*); B2, 2,6 km W Usakos, 21.9989°S 15.5647°E (CB); Naob 69, 22.1333°S 15.5667°E (SMWN); B2, 56 km W Usakos, 22.1763°S 15.1722°E (CB). Arandis: 6 km N Arandis, 22.3667°S 14.9833°E (SMWN); Rossing Mine, 22.4667°S 15.0333°E (SMWN); Lower Dome Gorge, 22.4667°S 15.0667°E (SMWN); Upper Ostrich Gorge, 22.4833°S 14.9833°E (SMWN); Upper Panner Gorge, 22.4833°S 15.0167°E (SMWN); Lower Ostrich Gorge, 22.5000°S 14.9667°E (SMWN). [Hardap] Gibeon: Waltevrede G. Farm, 24.1779°S 15.9802°E (CB); C14 10 km S Waltevrede, 24.2377°S 15.9040°E (CB). [Karas] Keetmanshoop Rural: Khabus 146, 26.3000°S 18.2167°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at MNHN.

The taxonomy of this species was discussed by Bologna (2000a), who synonymized the ssp. *rudebecki* Kaszab, 1956 with the nominate form.

The phylogenetic position of *C. amphibia* is unclear, but we suggest possible relationships with *C. korana* and *C. karrooensis,* due to the common shape of the wide pronotum with similar puncturation, and the similar shape of antennomeres. Actually, *C. amphibia* is well distinct from the remaining species at least because of the partial red colour of femours.

Ceroctis karroensis Péringuey, 1909 (Fig. 3I)

Distribution. Namibia and western South Africa.

Material examined and literature records. [Kunene] Epupa: Okakatuwo, Kaokoland, 17.4000°S 12.7333°E (SMWN). [Omusati] Okahao: C35, Kamanjab-Ruacana 77 km NW of Kamanjab, 19.2528°S 14.4442°E (CB). [Khomas] Windhoek Rural: Windhoek, D1535, 5 km jct. B6, 22.3681°S 17.6675°E (CB); C23, 26 km S Dordabis, 23.0575°S 17.9329°E (CB); Solitaire, 23.8648°S 16.0585°E (CB). [Omaheke] Steinhausen: Kehoro Noord 185, 21.9667°S 18.7167°E (SMWN). Aminius: C20, Gobabis-Leonardville 5 km S Aais, 23.2593°S 18.7237°E (CB). [Hardap] Gibeon: C14, Maltahohe-Bullsport, after Fish River, 24.4022°S 16.8172°E (CB). [Karas] Keetmanshoop Urban: C16, Keetmanshoop, 6 km jct. B1, 26.5809°S 18.1925°E (CB). Lüderitz: near Aus, 26.6667°S 16.2667°E (CB); Obib Mts./Dunes, Diamond Area 1, 28.0500°S 16.6000°E (SMWN). Keetmanshoop Rural: Karas distr., 27.1352°S 19.4941°E (CB); Namaqualand, Rek Vlatke, 27.4000°S 16.5833°E (Kaszab 1955b, as ab. *bisbiinterrupta*). Oranjemund: Boom River Canyon, 19 km N of Orange River (ESE of Rosh Pinah), 27.8667°S 17.0667°E (SMWN).

Other records: Namibia (Bologna 2000a; Pitzalis *et al.* 2014). Kaszab (1955b as ab. *bisbiinterrupta*) cited the species from southern Kalahari, but probably this record refers to the South African portion of this desert.

Remarks. Types of this species were examined at SAMC.

The elytral pattern is variable, due to the extension of the black colouration. Orange-yellow spots are usually estended and partially coalescent, forming transverse irregular fasciae. Small and round spots without fasciae are present in few specimens (E of Windhoek, Diamond Area, Boom River; South Africa, Richtersveld), which appear distinct from the most common phenotype. Male antenna, pronotum and male genitalia are illustrated in Figs 11A-E.

Ceroctis korana (Péringuey, 1886) (Fig. 3J)

Mylabris korana Péringuey, 1886

Distribution. Western Namibia (new species record for this country) and western South Africa.

Material examined. [Hardap] Gibeon: C19, 8 km S Solitaire, 23.9774°S 16.0063°E (CB); Waltevrede G. Farm, 24.1779°S 15.9802°E (CB); Gorraris 99, Luderitz, 25.3184°S 15.9089°E (SMWN). [Karas] Lüderitz: Awasib, dunes E, 25.2500°S 15.7167°E (SMWN); Numabis Pan Diamond Area 2, 25.5167°S 15.5167°E (SMWN). Keetmanshoop Rural: Khabus 146, 26.2833°S 18.2333°E (SMWN); Khabus 146, 26.3000°S 18.2167°E (SMWN). Berseba: C14, 51 km N Bethanienm, 26.2919°S 17.0535°E (CB); B4, 73 km W Keetmanshoop, 26.7809°S 17.4657°E (CB); 15 km ESE of Goageb, 26.8000°S 17.3667°E (SMWN). Oranjemund: C13, 50 km S Rosh Pinah, 28.07076°S 17.12799°E (CB); C13, 25–30 km S Rosh Pinah, 28.07315°S 16.94231°E (CB). Karasburg: M21, 4 km N Warmbad, 28.39832°S 18.75766°E (CB); C13, 44,5 km N Noordoewer Grape Valley, 28.41803°S 17.44408°E (CB); C10, 23 km N Velloorsdrif, 28.52194°S 19.18402°E (CB); Noordoewer, 28.6667°S 17.6667°E (SMWN); Noodoewer, 28.7500°S 17.6167°E (SMWN).

Other records. Namib Sand Sea desert (Seely 2012); Namibia (Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at SAMC.

This species is similar to *C. karrooensis*, but distinct because of the following characters: shiny integuments, deeper and more distanced punctures of head and pronotum, male antennomeres IV–IX less serrate, wider extension of lemon yellow colouration, particularly on the fore fascia.

We suspect that *C. gariepina* (Péringuey, 1888) from northwestern South Africa could represent only an elytral variation of *C. korana*.

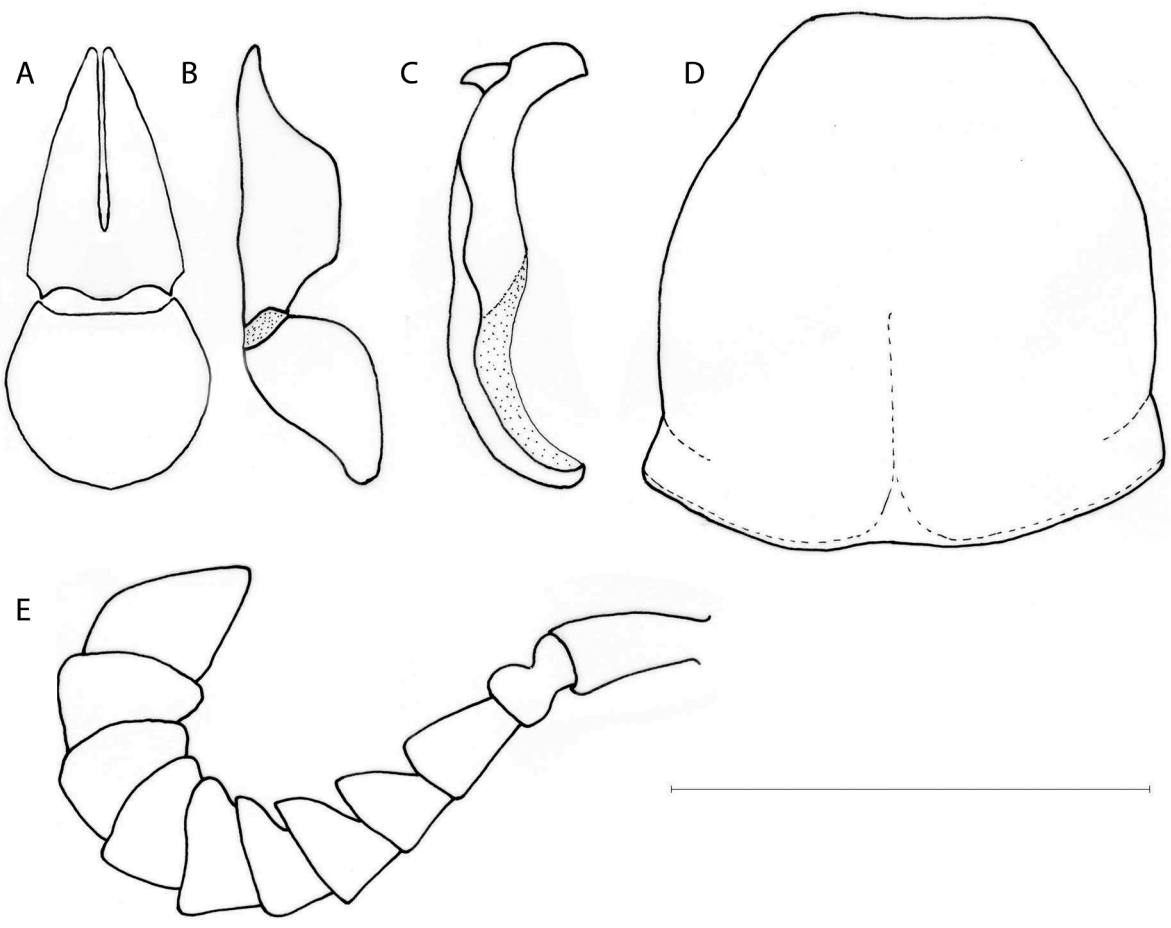

FIGURE 11. *Ceroctis karroensis*: tegmen in ventral (A), and lateral view (B); aedeagus in lateral view (C); pronotum (D); antenna (E). Bar = 1 mm.

Ceroctis capensis species group

Until now only *C. capensis* can be referred to this assemblage, apparently endemic to southen Africa.

Ceroctis capensis (Linné, 1767) (Fig. 3K)

Meloe capensis Linné, 1767

Distribution. Southwestern Namibia (new species for this country) and South Africa.

Material examined. [Karas] Lüderitz: Aus, 26.6667°S 16.2667°E (SMWN). Karasburg: 30 mil SE Keetmanshoop (AMNH).

Remarks. Types of this species were not examined.

It is phenetically very distinct from all others species of the genus because of the elytral pattern. Some South African specimens from southern Karoo, Eastern Cape and Free State have red-orange rather than yellow colouration of elytra; the taxonomic value of this form needs morphological and molecular studies.

Ceroctis subtrinotata species group

This group, here defined, needs a clear definition and possibly includes some central African species such as *C. subtrinotata* (Pic, 1915), *C. trispila* Marseul, 1878, *C. bisbilunulata* (Pic, 1908), *C. seabrai* Pic, 1936.

Ceroctis cfr. *seabrai* Pic, 1936 (Fig. 3L)

Distribution. Angola and northern Namibia (new species record for this country).

Material examined. [Otjozondjupa] Omatako: Waterberg Plateau Park, 20.4167°S 17.3333°E (SMWN). Okakarara: Hereroland-West, 20.5167°S 17.4833°E (CB).

Remarks. Types of *seabreai* were examined at MHNH.

The description of *C. seabrai* agrees completely with the Namibian specimens. The deep examination of types of this Angolan species is necessary to resolve the identification of Namibian specimens. *C. seabrai* is phenetically similar to some central African taxa, particularly to *C. subtrinotata* (Pic, 1915), described from Tanzania but distributed also in Congo (Voka, CB), and could represent only a colour variation of this species.

Incertae sedis species groups

Are here included some species the relationships of which are still unclear.

Ceroctis braunsiana Kaszab, 1958 (Fig. 3M)

Ceroctis braunsi Kaszab, 1952 *nomen praeoccupatum*

Distribution. Namibia and South Africa.

Material examined and literature records. [Kunene] Opuwo: Kunene distr., C43, 18.6788°S 13.7135°E (CB). Outjo: Ike 346, 19.7533°S 16.6244°E (SMWN); Damaraland, Abachaus, 19.7167°S 16.5800°E (Kaszab 1955b, as ab. *bisquadrimaculata* and ab. *hiemalis*). [Oshana] Uuvudhiya: Okaukuejo, Etosha, 19.1500°S 15.9333°E (SMWN). [Otjozondjupa] Okahandja: Okahandja, 21.9833°S 16.9167°E (SMWN). [Omaheke] Steinhausen: B6, 8 km E Witvlei, 22.38356°S 18.40779°E (CB). [Khomas] Windhoek Rural: Excelsior 286, 22.4500°S 17.6333°E (SMWN); Daan Park, 22.5333°S 16.9667°E (CB; CP); Arnhem 222, 22.7000°S 18.1167°E (SMWN); Nauchas-Rehoboth (road 1261) 0–40 km NW Nauchas, 23.5763°S 16.4588°E (CB). [Hardap] Gibeon:

Hoogland 132, Maltahohe, 24.7333°S 16.2167°E (SMWN); C14, 1 km W Maltahöhe, 24.8589°S 16.9751°E (CB); C14, 9 km W Maltahöhe, 24.9025°S 16.8963°E (CB); C19, western slope Tsaris Pass, 24.9346°S 16.4159°E (CB). [Karas] Keetmanshoop Rural: Koes, Keetmanshoop, 25.9500°S 19.1167°E (SMWN); Wildheim Ost 384, Keetmanshoop, 26.4833°S 19.5667°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Holotype and two paratypes of this species were examined at HMNH.
Distinct by its unique elytral pattern.

Ceroctis spuria (Fåhraeus, 1870) (Fig. 3N)

Mylabris spuria Fåhraeus, 1870
Decatoma vexator Péringuey, 1904

Distribution. Eastern Namibia (new species record for this country) and northern South Africa.

Material examined. [Omaheke] Steinhausen: C30, 8 km S jct. C29, 21.8207°S 18.3307°E (CB). Gobabis: C22, Gobabis, 2 km N jct. B6, 22.4205°S 19.0037°E (CB).

Other records: Namibia (Pitzalis *et al.* 2014).

Remarks. Types of this vey characteristic species were not examined, but studied types of its synonym at SAMC.

This species is well distinct from all others by its very transverse pronotum. The elytral pattern is similar to that of *C. peringueyi*, but it is greatly differing because of its pronotum.

Genus *Hycleus* Latreille, 1817

The value of the speciose genus *Hycleus* (about 450 species) was debated for a long time and it was recently supported by both morphological (see for a synthesis: Bologna 1991; Bologna & Pinto 2002) and molecular evidences (Bologna *et al.* 2005, 2008c; Pan *et al.* 2013; Salvi *et al.,* in preparation). Three sections of the genus were described in the literature (Pardo Alcaide,1954, 1955), primarily based on the shape of the mesosternum: without (*Mesogorbatus*), or with a small (*Mesotaeniatus*) or wide (*Mesoscutatus*) modified fore area, usually named "mesosternal scutum". These sections are greatly heterogeneous and were not considered as subgenera by Bologna & Pinto (2002) and Bologna & Turco (2007), who preferred consider them as phyletic macro-lineages. In particular, the distinction between the species having a wide (*Mesoscutatus*) or a narrow (*Mesotaeniatus*) modified fore area of mesosternum is very scarce.

Several well defined groups of species can be recognized inside each macro-lineage according to the shape of head and mandibles, that of male maxillae and palpomeres, the structure of antennomeres, pronotum and mesopleures, the number and position of penis hooks. Some Palaerctic and Afrotropical groups of species were defined and discussed by Pardo Alcaide (1954, 1955, 1958a, 1958b, 1963, 1966, 1968, 1969), Bologna (1978, 1979, 1990, 1991, 1994), and Bologna & Turco (2007). We define here new Afrotropical groups of species.

Most African species of *Hycleus* have been described as *Mylabris, Zonabris, Coryna, Decapotoma*. In a preliminary checklist of the Namibian Meloidae, Bologna (2000a) defined several new combinations of *Hycleus* species and only new combinations are here provided.

A) *Mesogorbatus* lineage

Within this lineage are included some greatly distinct groups of species differing in several features of body setation, antennal structure (number and shape of antennomeres), mesosternum shape and male genitalia (number and length of aedeagal hooks). Bologna & Turco (2007) analysed in detail some Afrotropical and Palaearctic groups of species of this lineage.

Aa) *Hycleus dentatus* species group

Hycleus dentatus (Olivier, 1811) (Fig. 3O)

Mylabris dentata Olivier, 1811
Mylabris tortuosa Erichson, 1843
Coryna dentata, Bologna 1978

Distribution. Angola, Congo (new species record for this country: Boma, AMNH), and Namibia. Cited also from Senegal and Sierra Leone, but these western African citations need confirmation.

Material examined and literature records. [Omusati] Ruacana: Ruacana Falls (road C46), 17.4000°S 14.2833°E (CB). Outapi: Mahanene Res. Station, 17.4500°S 14.8000°E (SMWN). Okahao: C35, Kamanjab-Ruacana 25 km NW of Kamanjab, 18.4775°S 14.6977°E (CB); Otjiovasandu, Etosha N.P., 19.2500°S 14.5000°E (SMWN); Kaross, Etosha N.P., 19.3833°S 14.5333°E (SMWN). [Kunene] Epupa: Hippo Pool on Kunene River, 20 km W Ruacana, 17.4092°S 14.2185°E (CB); Okakatowo, 17.4500°S 12.7000°E (SMWN); Okambele, 17.6167°S 14.0500°E (SMWN). Opuwo: Opuwo town, 18.0500°S 13.8333°E (CB); 30 km WNW Orupembe, 18.1167°S 12.3500°E (SMWN); D3710, near Opuwo, 18.1589°S 13.9173°E (CB); D3710, near Opuwo, 18.2011°S 13.8994°E (CB); Kunene distr., C43, 18.7599°S 13.7489°E (CB); C35, Kamanjab-Ruacana, 18.9027°S 14.3903°E (CB). Sesfontein: Beisebvlakte, Etosha N.P., 19.0167°S 14.0833°E (SMWN); Kamanjab, D2650, 19.8087°S 14.5128°E (CB). Kamanjab: C40, 26 km E Kamanjab, 19.6957°S 15.1046°E (CB); Outjo-Kamanjab 95 km N of Outjo, 19.8040°S 15.3290°E (CB); Otjitambi, 19.8167°S 15.1667°E (SMWN); C39, 25 km E Khorixas, 20.3061°S 15.1867°E (CB). [Oshikoto] Engodi: Okashana Agric. Experimental Station, 18.2500°S 16.6667°E (SMWN); 30 km W Oshivelo, 18.4870°S 17.0000°E (CB). Omuthiyagwiipundi: Okashana Experimental Station, 18.5833°S 16.6500°E (SMWN). Guinas: Tsumeb, Onguma 314, 18.7333°S 17.0500°E (SMWN). [Otjozondjupa] Otjiwarongo: D2430, 25 km N Otjiwarongo, 20.2667°S 16.6167°E (CB); Cleveland 17, 20.4050°S 16.6590°E (SMWN); Garfield, 20.4450°S 16.0830°E (SMWN); C63, Outjo-Kalkfeld 15 km N of Kalkfeld, 20.7537°S 16.2210°E (CB). Omatako: Waterberg, jct. roads C22-2512, 20.6333°S 17.1500°E (CB); Hamakari S 373, 20.6667°S 17.3833°E (SMWN); Hamakari S 373, 20.6667°S 17.4000°E (SMWN); Mount Etjo Safari Lodge, 21.0167°S 16.4167°E (CB); 100 km N Okahanjia, 21.0920°S 16.8280°E (CP); D2414, Etjo-Kalkfeld, Dinosaurus Tracks, 21.1156°S 16.4161°E (CB); D2414, Etjo-Kalkfeld 38 km SE of Kalkfeld, 21.1288°S 16.3883°E (CB); Okahandja Townlands, 21.6667°S 17.3333°E (SMWN). Okahandja: Ongambeanavita, 21.5800°S 16.5900°E (SMWN); 25 km N of Okahandja, 21.7619°S 16.8743°E (CB); B2, 31 km W Okahandja, 21.9157°S 16.6199°E (CB); D2192, 4 km jct. B2, 21.9490°S 16.5763°E (CB); Okahandja, 21.9833°S 16.9167°E (Péringuey, 1909; CP; SMWN). [Erongo] Dâures: Otjihorongo Reserve, 20.9000°S 15.2000°E (SMWN). Omaruru: Otjikoko-Sud 61, 21.2833°S 16.3667°E (SMWN); C33, 6 km S Omaruru, 21.4824°S 15.9508°E (CB); C33, 3–9 km S of Omaruru, 21.4948°S 15.9705°E (CB); 20 km SE Omaruru, 21.6250°S 16.1250°E (JP); C33, 30 km jct. B2, 21.6681°S 15.9799°E (CB); C33, 30–20 km N Karibib, 21.6833°S 15.9667°E (CB). Karibib: D1935, 30 km NNW Usakos, 21.7833°S 15.5000°E (CB); C33, 17 km jct. B2, 21.8390°S 15.9233°E (CB); Karibib, 21.9333°S 15.8333°E (CB); B2, Usakos-Karibib, 16 km W Karibib, 21.9358°S 15.7056°E (CB); B2, 16 km W Karibib, 21.9358°S 15.7056°E (CB); D1953, 100 m jct.. C32, 21.9552°S 15.8493°E (CB); B2, 8 km W Usakos, 21.9876°S 15.5057°E (CB); D1953, 45 km jct. C32, 22.2963°S 16.0658°E (CB). Arandis: Upper Panner Gorge, 22.4833°S 15.0167°E (SMWN). [Khomas] Windhoek Rural: D1525, Windhoek-Gobabis,to Bodenhausen, 1 km N from B6, 22.3968°S 17.6600°E (CB); C23, 26 km S Dordabis, 23.0575°S 17.9329°E (CB); C23, 38 km S Dordabis, 23.0715°S 18.0434°E (CB); D1228, 7 km ENE Rehoboth, 23.2833°S 17.2333°E (CB). Windhoek East: Windhuk, 22.5700°S 17.0836°E (CB); Windhoek, 22.5700°S 17.0836°E (JP). [Omaheke] Aminius: Leonardville, Gobabis, 23.5000°S 18.8000°E (SMWN). Steinhausen: 10 km E Witvlei, 25.ii.1977 (AMNH). [Hardap] Rehoboth Rural: B1, km 21, 23.4999°S 17.1284°E (CB); Garies Oos 489, 23.9000°S 16.5500°E (SMWN). Gibeon: Harmonie, 24.7167°S 16.3833°E (SMWN). [Karas] Berseba: Helshoogte, 25.6667°S 16.8000°E (SMWN); C14, 51 km N Bethanien, 26.2919°S 17.0535°E (CB).

Other records: Swakop (Marseul 1872); Damaraland (Kaszab 1956); Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species, very distinct by its elytral pattern, are lost, but we examined specimens in the Marseul's collection (MNHN) which have been probably compared with types.

Species greatly isolated in a possible monotypic group. It is well characterized by 11 antennomeres, dense silver setation on the body, but on elytra, mesosternum completely and densely setate, and unique elytral pattern (see Péringuey 1909).

Ab) *Hycleus tripunctatus* species group

Hycleus tripunctatus (Thunberg, 1791) **comb. n.** (Fig. 3P)

Meloe tripunctata Thunberg, 1791

Types. Types of this species were not examined.

Distribution. Southern Namibia (new species record for this country) and western South Africa.

Material examined and literature records. [Karas] Karasburg: 3 km S of Warmbad, 28.4833°S 18.7667°E (SMWN).

Remarks. This species is well distinct by its mesosternum, anteriorly more elevated and with a clear prominent line which divides this narrow area, but without forming a clear "scutum". Actually, this structure of mesosternum appears intermediate between that of the lineages *Mesogorbatus* and *Mesotaeniatus*. A such mesosternum is common to *H. coecus* (Thunberg, 1791) and *H. connexus* (Marsel, 1872) (see Pardo Alcaide 1963), both from South Africa, but in these two species there is a tuft of very long setae on the posterior margin of the elevated fore area, lacking in *H. tripunctatus*. Relationships among these three species need to be tested molecularly.

Ac) *Hycleus argentatus* species group

This group, defined by Pardo Alcaide (1963) and by Bologna (1990), includes: (a) at least three southern African species listed below (*H. jucundus, H. peringueyi, H. surcoufi* with their synonyms); (b) seven species from the Sahelo-Saharan area [*H. argentatus* (Fabricius, 1792), *H. bicoloricornis* (Pic, 1924) (a *nomen praeoccupatum* and possible synonym of *H. argentatus*), *H. egregius* (Voigts, 1902), *H. gabonensis* (Pic, 1913), *H. guineeensis* (Marseul, 1872), *H. ocellaris* (Olivier, 1811), *H. quadrinotatus* (Pic, 1948)]; (c) three species from eastern and central Africa [(*H. amabilis* (Fairmaire, 1887), *H. salaamensis* (Pic, 1913), *H. upembanus* (Kaszab, 1957)]. This group of species is easily distinguishable by the reduced number of antennomeres (nine, rarely eigth in some specimens) and the silver setation very dense and short on the body.

Hycleus jucundus (Erichson, 1843) (Fig. 3Q)

Mylabris (Actenodia) jucunda Erichson, 1843

Distribution. Angola and Namibia.

Material examined and literature records. [Omusati] Ruacana: C46, Ruacana Falls, 17.4000°S 14.2833°E (CB). Ogongo: C46, Ruacana-Oshakati 5 km E of Ombalantu (=Uutapi) , 17.5405°S 15.0403°E (CB). Okahao: C35, Kamanjab-Ruacana 25 km NW Kamanjab, 18.4775°S 14.6977°E (CB); Site 7/Row B, 18.9497°S 14.5600°E (SMWN); Duikersdrink, Etosha N.P., 19.0667°S 14.7167°E (SMWN); C35, Kamanjab-Ruacana 77 km NW of Kamanjabn, 19.2528°S 14.4442°E (CB). [Kunene] Epupa: Hippo Pool on Kunene River 20 km W of Ruacana, 17.4092°S 14.2185°E (CB). Opuwo: C35, Kamanjab-Ruacana 46 km S of cross-road for Opuwo, 18.3280°S 14.3035°E (CB); C35, Kamanjab-Ruacana, 18.9027°S 14.3903°E (CB). Kamanjab: Otjitambi, 19.8167°S 15.1667°E (SMWN). [Oshana] Okatana: D3609, Oshakati-Ongenga 3 km N jct. C46, 17.7377°S 15.6727°E (CB). [Oshikoto] Onayena: B1, Ondangwa-Tsumeb 26 km SE of Ondangwa, 18.0402°S 16.2037°E (CB). [Otjozondjupa] Otjiwarongo: C63, Outjo-Kalkfeld 15 km N of Kalkfeld, 20.7537°S 16.2210°E (CB). Omatako: 100 km N Okahandja, 21.0920°S 16.8280°E (CP). [Erongo] Omaruru: C33, 3–9 km S of Omaruru(Karibib-Omaruru), 21.4948°S 15.9705°E (CB). Dâures: Gross Spitzkoppe, 21.8167°S 15.1667°E (CB). Karibib: Karibib, 21.9333°S 15.8333°E (CB); B2, Usakos-Karibib 16 km W of Karibib, 21.9358°S 15.7056°E (CB); Karibib, D1953, jct. C32, 21.9552°S 15.8493°E (CB). [Karas] Lüderitz: near Aus, 26.6667°S 16.2667°E (CP).

Other records: Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were not examined.

Hycleus peringueyi (Pic, 1953) (Fig. 3R)

Actenodia jucunda Péringuey, 1909 (*nec* Erichson, 1843)
Actenodia peringueyi Pic, 1953

Distribution. Botswana, Namibia, South Africa, and Zimbabwe.

Material and literature records. [Omusati] Outapi: Mahanene Agric. Research Station, Ovambo, 17.4333°S 14.7833°E (SMWN). Anamulenge: C46, 100 km ESE Ruacana, 17.5333°S 15.1167°E (CB). Elim: C46, 15 km NW Oshakati, 17.6833°S 15.5167°E (CB). Tsandi: Tsandi, Ovamboland, 17.7667°S 14.8667°E (SMWN). Ogongo: Iikango, Ovamboland, 17.8500°S 15.2333°E (SMWN). Ruacana: Ekango, Kaokoland, 18.6833°S 14.3167°E (SMWN). [Caprivi] Kongola: Horseshoe, West Caprivi, 17.8833°S 23.2833°E (SMWN). [Kunene] Kamanjab: Kamanjab, 19.6333°S 14.8333°E (SMWN). Khorixas: Fransfontein, Damaraland, 20.1833°S 15.0167°E (SMWN). [Erongo] Dâures: northern end Tsisab, Brandberg, 21.0833°S 14.6667°E (SMWN). Karibib: Karibib, D1953, jct. C32, 21.9552°S 15.8493°E (CB). [Karas] Oranjemund: 10 km NW Rosh Pinah, 27.9000°S 16.7000°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at SAMC and that of its synonym at MNHN.

Hycleus surcoufi (Pic, 1932) (Fig. 3S)

Coryna surcoufi Pic, 1932
Coryna sororia Borchmann, 1940
Coryna argentata De Moor, 1978 (nec Fabricius, 1801)

Distribution. Botswana, Mozambique, northwestern Namibia, South Africa, and Zambia.

Material and literature records. [Oshikoto] Oniipa: B1, 20 km SE Ondangwa (road), 17.9833°S 16.1333°E (CB). Onayena: B1, Ondangwa-Tsumeb 26 km SE of Ondangwa, 18.0402°S 16.2037°E (CB). [Erongo] Karibib: Karibib, 21.9333°S 15.8333°E (SMWN).

Other records: Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at MNHN.

Ad) *Hycleus brincki* species group

Hycleus brincki (Kaszab, 1956) (Fig. 3T)

Mylabris brincki Kaszab, 1956

Distribution. Namibia (new species record for this country) and northwestern South Africa.

Material examined. [Otjozondjupa] Omatako: Hamakari sud 373, 20.6667°S 17.3833°E (SMWN). [Omaheke] Gobabis: C22, 2 km N jct. B6, 22.4205°S 19.0037°E (CB). [Hardap] Mariental Rural: C42, Leonardville 5 km S Hoagosbeis, 23.8399°S 18.8307°E (CB); Kalahari Farm Chulon, Narib Ost, 24.1667°S 17.7000°E (CB; NHP); Stampried, 24.3333°S 18.4000°E (SMWN). [Karas] Berseba: Mukorob 14, 25.4833°S 18.1667°E (SMWN). Keetmanshoop Rural: Koes, 25.9500°S 19.1167°E (SMWN); Wildheim Ost 384, 26.4833°S 19.5667°E (SMWN).

Other records. Namib Sand Sea desert (Seely 2012); Namibia (Pitzalis *et al.* 2014). Bologna (2000a) recorded one damaged specimen, possibly referable to this species, also from the Brandberg massif.

Remarks. Types of this species were not examined, but specimens compared with them were studied at HMNH.

This species is very isolated among the *Meogorgatus*-type lineages because of the slightly widened intermediate antennomeres, which in male resembles those of *Ceroctis* female.

Ae) *Hycleus congoensis* species group

Hycleus congoensis (Pic, 1909) **comb. n.** (Fig. 3U)

Zonabris (Decatoma) congoensis Pic, 1909

Types. The holotype of this species was examined at MNHN.

Distribution. Northeastern Namibia (new species for this country), South Africa, and R. D. Congo.

Material examined. [Kavango] Mukwe: Popa Falls, eastern bank, W. Caprivi, 18.1167°S 21.5833°E (SMWN). [Otjozondjupa] Omatako: Okosongomingo 148, 20.6167°S 17.1333°E (SMWN).

Remarks. In this species the mesosternum is smooth and without distinct "scutum". The elytral pattern is similar to that of *H. arabicus* (Pallas, 1872), a species from the Arabic peninsula, belonging to the same macro-lineage (see Bologna & Turco 2007). Possible relationships between these two species need additional study.

B) *Mesotaeniatus* lineage

This lineage, pointed out by Pardo Alcaide (1955), is difficult to distinguish from *Mesoscutatus*. In fact, the shape of mesosternum in some Afrotropical species is intermediate between these two types. Most species are distributed in eastern and central Africa.

Ba) *Hycleus lunatus* species group

We refer to this group *H. lunatus* and, at least, *H. bissexnotatus* (Pic, 1910), distributed in NE South Africa, Zimbabwe, Zambia and southern Congo. Both species are characterized by ten visible antennomeres and the fore inner yellow spot semilunar in shape.

Hycleus lunatus (Pallas, 1781) **comb. n.** (Fig. 3V)

Meloe lunata Pallas, 1781
Mylabris lunata, Pardo Alcaide 1958
Coryna lunata, Bologna 1978

Type. The type of this very common and characteristic species is lost.

Distribution. Angola, Malawi, Mozambique, northeastern Namibia (new species for this country), South Africa, Tanzania, and Zimbabwe.

Material examined. [Otjozondjupa] Tsumkwe: Kremetartkop, 19.8667°S 20.9167°E (SMWN); 3 km W Kuru, 19.9333°S 20.6333°E (SMWN).

Bb) *Hycleus tristigmus* species group

This group of species was partially studied by Pardo Alcaide (1955, 1958b), and includes some species distributed in the sub-Saharan Africa hardly to identify and frequently confused, because of the elytral convergent pattern, with species belonging to unrelated groups with *Mesoscutatus*-type mesosternum, such as the groups of *dubiosus* and of *dilloni*.

Hycleus ertli (Voigts, 1903) **comb. n.** (Fig. 3W)

Zonabris ertli Voigts, 1903
Mylabris ertli, Pardo Alcaide 1955

Types. The holotype of this species was not studied, but specimens compared with it were studied at MNHN.

Distribution. Malawi, northeastern Namibia (new species for this country), Tanzania, Zaire, and Zambia.

Material examined. [Caprivi] Katima Mulilo Urban: Caprivi Zipfel Katima Mulilo, 17.5000°S 24.2667°E (CB; CK). [Kavango] Mukwe: Okavango River, Bagani, Popa Falls, 18.1167°S 21.6333°E (CB).

Remarks. The identification of this species is provisional, waiting for the revision of the group.

Bc) *Incertae sedis* Groups

The species listed below are now not referable to well defined groups and need further investigations. Most of them are greatly distinct because of their elytral pattern or the number of antennomeres and were never studied in the literature after the description.

Hycleus arlecchinus Bologna sp. n. (Fig. 3X)

Types. Holotype male (SMWN) labelled "Aurus Mts., S., SE 2716 Cd, Diamond Area 1, 26–27 Oct. 1977, Coll. S. Louw M.L. Penrith; H35099". 1 female paratype (CB) labelled "Namibia, Hoogstepunt, Aurus Mts., 25 Oct. 1977, V.S. Whitehead". 1 male and 2 females paratypes (SMWN), labelled "Heioab, Diamond Area 1, 25-26 Oct. 1977, Coll. S. Louw M.L. Penrith, H35062". The male paratype of this last locality has one broken antenna and the second one broken and glumed on a separate label.

Type locality. The type locality (27.6500°S 16.3167°E) and all other known sites are located in the Karas region, Lüderitz district, Diamond Area 1, in the Namibian extension of the Succulent Karoo biome.

Diagnosis. One *Hycleus* species with 10 black antennomeres and the mesosternum intermediate in shape between the *Mesotaeniatus* and *Mesoscutatus* types, with narrow and small fore modified area, labial palpomere II scarcely modified, with a unique black elytral pattern composed by two longitudinal undulate stripes connected to apex.

Description. Body shiny and unicolor black, ventrally with very vague dark blue reflexions, elytra shiny anteriorly and subopaque posteriorly, brown-orange with black pattern (Fig. 3X) composed by two longitudinal stripes, one humeral and one sutural, connected to the wide black apex, the humeral one widened on the posterior third, forming a subrounded inclined spot, sutural one widened on fore third and on posterior third. Body setation black, denser and longer on ventral side of head, pronotum and metanotum and on fore legs; elytra glabrous with sparse microsetae. Maximal body length: 15–24 mm.

Head transverse, subrectangular, temples as wide as the maximum width at level of eyes; punctures deep, wide and relatively dense, denser and subrugose on frons, intermediate surface microreticulate; frons and occiput almost flat; eye subglobose, with antero-dorsal margin not sinuate; temples parallel, about as long as longitudinal diameter of eye. Clypeus narrower than interocular width, rounded on sides, convex and with same puncturation of frons, not punctate and shiny on fore third; fronto-clypeal suture well visible; labrum slightly longer than clypeus, fore margin slightly sinuate, punctures finer than on clypeus. Maxillary palpomeres subcylindrical, IV only slightly enlarged anteriorly, with black setae on the external side of apex of each palpomere (except IV), particularly on III; male maxillae not modified with stipes narrow and elongate in lateral view; II labial palpomere widened, last one short and stout; mandibles robust, curved in fore half, sharp at apex, slightly longer than labrum. Antennae (Fig. 12D) with 10 antennomeres, I–V shiny, VI–X opaque and microsetate; I slightly shorter than II–III together, II subglobose; III–V slender and subcylindrical, III slightly longer than IV–VI; VII–IX subtrapezoidal, apically widened on inner side, increasing in width and length from VII to IX; X at base as wide as IX but two times longer, the apical half evidently and conically narrowed, apex obtuse, without tracks of fusion of two antennomeres.

Pronotum subcampaniform, slightly longer than wide, wider than head, side slightly widened from base to middle and then evidently narrowing anteriad; fore portion transversally subdepressed; middle furrow extended only in middle, base shortly depressed just in front of mesonotum; puncturation similar than on head, but slightly sparse. Elytra parallel, dorsally convex, punctures similar in size to those of pronotum but shallower, denser on sides and on black parts, while inner orange-brown surface with micro-puntures and very short setae. Mesosternum (Fig. 12E) intermediate in shape between *Mesotaeniatus* and *Mesoscutatus* types, with narrow and small fore

modified area, smooth and shiny; fore margins of mesepisterna well defined, narrow concave and evidently depressed, at the same level of the sclerite. Legs slender, both tibial spurs on all legs slender, external metatibal spur only slightly rounded at apex; ventral blade of claw regularly developed, scarcely curved.

Ventrites shiner with more scattered punctures and shorter but dense setae. Male penultimate ventrite widely arcuate on posterior margin, last one widely and scarcely emarginated. Gonoforceps slender in both lateral and dorsal views (Fig. 12A, 12B); aedeagus (Fig. 12C) with two apical hooks, distal smaller and lesser inclined than prossimal.

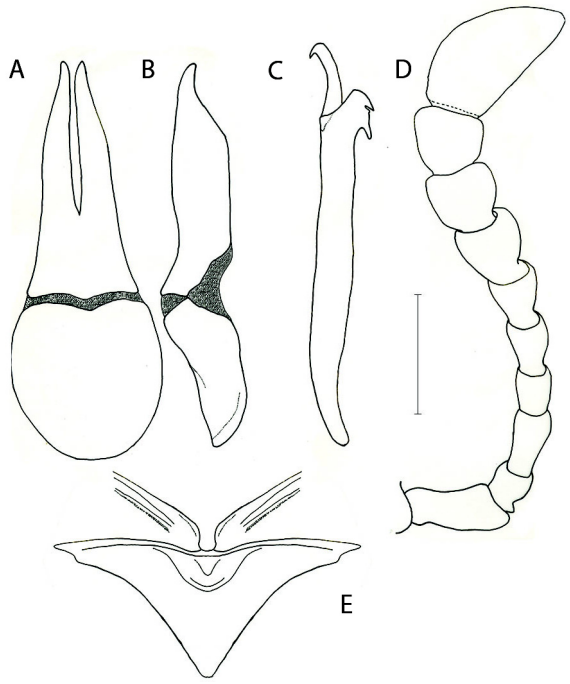

FIGURE 12. *Hycleus arlecchinus*: tegmen in ventral (A), and lateral view (B); aedeagus in lateral view (C); antenna (D); mesosternum (E). Bar = 1 mm.

Remarks. No species of the genus have a similar elytral pattern. Affinities of this species among those with a mesosternum *Mesotaeniatus*-type are totally unknown.

Etymology. The name of the new species refers to the elytral pattern, which is reminiscent of the clothes of Arlecchino, the Venetian "maschera", as painted by Cézanne.

Distribution. SW Namibia.

Hycleus basibicinctus (Marseul, 1872**) comb. n.** (Fig. 3Y)

Mylabris (Mylabris) basibicincta Marseul, 1872

Types. Types of this species were examined at MNHN.

Distribution. Botswana, southern Namibia (new species for this country), and South Africa

Material examined and literature records. [Hardap] Rehoboth Rural: D1206 10 km NE Bullsport, 24.10313°S 16.4456°E (CB). Gibeon: Asab, 25.4667°S 17.9500°E (SMWN). [Karas] Keetmanshoop Rural: Khabus 146, 26.3167°S 18.2500°E (SMWN); C11, 1 km jct. M26, 27.0915°S 19.5372°E (CB); Karas distr., 27.1352°S 19.4941°E (CB); D608, Grunau, 5 km jct. C12, 27.4901°S 18.1608°E (CB). Lüderitz: Plateau 38, 26.6667°S 16.5333°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Pitzalis *et al.* 2014).

Remarks. Probably *Zonabris singularefasciata* Pic, 1941 from Cape represents a synonym of *H. basibicinctus*.

Hycleus bifucatus (Marseul, 1879) (Fig. 4A)

Mylabris bifucata Marseul, 1879

Distribution. Angola and Namibia.

Material and literature records. [Kunene] Epupa: Hartmannberge, 17.4333°S 12.2833°E (SMWN). Opuwo: 21 km E of Orupembe, 18.1785°S 12.4136°E (SMWN); Kaokoveld, Anabib (Orupembe), 100 miles W Ohopoho, 18.1833°S 12.5167°E (Kaszab 1956 as ab. *rufobimaculata,*, type locality); Kaokoveld, 11 miles E Omutati, 60 miles WSW Ohopoho, 18.2500°S 13.0833°E (Kaszab, 1956); Sanitates, 18.2833°S 12.6667°E (SMWN); Othutemba, 40 miles SE Ohopoho, 18.5667°S 14.1500°E (Kaszab, 1956); 42 km NW Giribes Vlakte, 18.8180°S 13.1130°E (SMWN). Sesfontein: D2650, near Kamanjab, 19.8087°S 14.5128°E (CB); Palmwag 702, 19.8333°S 13.8833°E (SMWN). Khorixas: Torra Bay Road, 30 km W turnoff, 20.1190°S 13.1010°E (SMWN); Bethanis 514, 20.4000°S 14.4000°E (SMWN); Krone 721, 20.5373°S 13.9799°E (SMWN); main road Omaruru-Khorixas, near Terra Mea, 20.6950°S 14.8590°E (SMWN); Doros, 20.7534°S 14.2202°E (SMWN); Duineveld 529, 20.7833°S 14.6333°E (SMWN). Kamanjab: C39, 25 km E Khorixas, 20.30608°S 15.1867°E (CB). [Erongo] Dâures: Okonyenye Mt. Otjihorongo Reserve, 21.1500°S 15.3167°E (SMWN); Gross Spitzkoppe, 21.8167°S 15.1667°E (CB); Spitzkoppe, 21.8518°S 15.1484°E (SMWN). Karibib: D1953, near Karibib, 45 km jct. C32, 22.2963°S 16.0658°E (CB). Arandis: Lower Dome Gorge, 22.4667°S 15.0667°E (SMWN); Upper Ostrich Gorge, 22.4833°S 14.9833°E (SMWN). Walvis Bay Rural: Rostock, Windhoek, 23.3833°S 15.7500°E (SMWN). [Hardap] Gibeon: C14, 12 km S Waltevrede, 24.2377°S 15.9040°E (CB). [Karas] Berseba: Itzawisis 9, 26.2000°S 18.1333°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at MNHN.

Hycleus burmeisteri (Bertoloni, 1850) (Fig. 4B)

Mylabris burmeisteri Bertoloni, 1850

Distribution. Botswana, Mozambique, Namibia, South Africa, and Zimbabwe.

Material examined and literature records. [Kunene] Opuwo: Opuwo town, 18.05°S 13.8333°E (CB). Kamanjab: 40 km S Okaukuejo, 19.5818°S 15.8848°E (CP); C39, 23 km W Outjo, 20.1798°S 15.948°E (CB); C39, 29 km W Outjo, 20.19834°S 15.8831°E (CB). Outjo: Damaraland: Abachaus, 19.7167°S 16.5800°E (as ab. *perssoni*: Kaszab, 1956, *paratypes*); "Abachaus" 50 km N Otjwarongo, 19.7500°S 16.5833°E (CB); C39, 10 km W Outjooad, 20.0100°S 16.0100°E (CB); road Outjo-Kalkfeld, 162 km S Outjo, 20.3333°S 16.1500°E (CB). [Oshikoto] Omuthiyagwiipundi: Okashana Agric. Experimental Station, 18.4167°S 16.6500°E (SMWN); 30 km E Etosha N.P. Mokuti Lodge, 18.8000°S 17.0333°E (CB); Etosha N.P., Okaukuejo, 19.1833°S 15.9333°E (CP); Gobaub, Etosha N.P., 19.3000°S 16.4167°E (SMWN). Guinas: B1, 10 km S Oshivelo, 18.7556°S 17.2420°E (CB); C38, 1 km jct. B1, 18.7725°S 17.2491°E (CB); Otjikoto Lake, Tsumeb, 19.1833°S 17.5500°E (SMWN). Tsumeb: 5 km E Tsumeb, 19.2600°S 17.7500°E (CB). [Oshana] Uuvudhiya: W jct. Wolnes-Okondeka rd., Etosha Game Park, 19.0500°S 15.8667°E (SMWN); Ongava Lodge, Row III, Etosha N.P., 19.2770°S 15.9120°E (SMWN). [Otjozondjupa] Otavi: Dakota 424, 19.4833°S 17.1333°E (SMWN); Kudib 426, 19.5118°S 17.2475°E (SMWN); B8, 10 km E Otavi, 19.6500°S 17.4167°E (CB). Grootfontein: Groofontein, 19.5667°S 18.1167°E (SMWN). Otjiwarongo: D2430, 25 km N Otjiwarongo, 20.2667°S 16.6167°E (CB); Outjo-Otjivarongo, 20.341°S 16.383°E (CB); Cleveland 17, 20.4050°S 16.6590°E (SMWN); Garfield, 20.4450°S 16.0830°E (SMWN). Omatako: Waterberg Plateau Park, on plateau, 20.4167°S 17.2500°E (SMWN); Rodenstein 307, 20.5626°S 17.2418°E (SMWN); Hamakari S 285, 20.5833°S 17.3333°E (SMWN); Hamakari S 285, 20.6167°S 17.3500°E (SMWN); Waterberg, jct.. C222 and C512, 20.6333°S 17.1500°E (CB); Hamakari S 285, 20.6667°S 17.3833°E (SMWN); Hamakari S 373, 20.6667°S 17.3833°E (SMWN); Hamakari S 373, 20.6667°S 17.4000°E (SMWN); B1, 28 km S Otjiwarongo, 20.6806°S 16.7787°E (CB); Okonjima 128, 20.8650°S 16.6670°E (SMWN); Sukses 62 km S Otjiwarongo, 21.0000°S 16.8000°E (CB); Mount Etjo Safari Lodge, 21.0167°S 16.4167°E (CB). Okahandja: Ongambeanavita, 21.5800°S 16.5900°E (SMWN). [Erongo] Omaruru: Otjikoko-Sud, 21.2833°S 16.3667°E (SMWN). [Omaheke] Steinhausen: C30, 8 km S jct. C29, 21.8207°S 18.3307°E (CB); 10 km E Witvlei(AMNH).

Kehoro S 939, Gobabis, 22.0833°S 18.6167°E (SMWN); Omitara, C29, 15 km jct. D1535, 22.2168°S 18.0407°E (CB). [Khomas] Windhoek Rural: Hochberg 158, 21.9167°S 17.7167°E (SMWN); Windhoek, 22.3400°S 17.0500°E (SMWN); D1535, near Windhoek, 5 km jct. B6, 22.3681°S 17.6675°E (CB); D1525, Windhoek-Gobabis to Bodenhausen, 1 km N jct. B6, 22.3968°S 17.6600°E (CB); Brakwater, 20 km N Windhoek, 22.4000°S 17.0667°E (CB); Excelsior 286, 22.4500°S 17.6333°E (SMWN); Windhoek Airport, 22.5333°S 17.2500°E (CB). Windhoek East: Windhoek, 22.5667°S 17.0833°E (SMWN). [Hardap] Gibeon: Harmonie, 24.7167°S 16.3833°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Hycleus damarensis (Borchmann, 1928) (Fig. 4C)

Mylabris damarensis Borchmann, 1928

Distribution. Namibia (endemic).

Material examined and literature records. [Kunene] Khorixas: Bethanis 514, 20.4000°S 14.4000°E (SMWN). [Erongo] Omaruru: Otjingoro 20, 20.8833°S 15.6333° (SMWN); C33, 30–20 km N Karibib, 21.6833°S 15.9667°E (CB). Karibib: Daheim 106, 21.8167°S 15.8167°E (SMWN); D1953, near Karibib, jct. C32, 21.9552°S 15.8493°E (CB); B2, 8 km W Usakos, 21.9876°S 15.5057°E (CB); Navachab 67, 22.0167°S 15.7333°E (SMWN); D1980, 26–28 km S Karibibad, 22.1500°S 15.8333°E (CB). Dâures: Brandberg, Königstein pan, 21.1467°S 14.5714°E (SMWN); Spitzkoppe, 21.8518°S 15.1484°E (SMWN). Arandis: 6 km N Arandis, 22.3667°S 14.9833°E (SMWN); Upper Ostrich Gorge, 22.4833°S 14.9833°E (SMWN); Lower Ostrich Gorge, 22.5000°S 14.9667°E (SMWN). [Otjozondjupa] Okahandja: Okahandja, 21.9833°S 16.9167°E (SMWN). [Khomas] Windhoek Rural: D1535, near Omitara, 11 km jct. B6, 22.3460°S 17.7240°E (CB); Excelsior 286, 22.4500°S 17.6333°E (SMWN); Daan Park, 22.5333°S 16.9667°E (CP); C23, 26 km S Dordabis, 23.0575°S 17.9329°E (CB); Kos 28, 23.2667°S 16.1333°E (SMWN). [Omaheke] Aminius: Leonardville, Gobabis, 23.5000°S 18.8000°E (SMWN). Steinhausen: 10 km E Witvlei, 22.4826°S 18.4949°E (AMNH). [Hardap] Rehoboth Rural: Garies Oos 489, 23.9500°S 16.5500°E (SMWN). Gibeon: C19, 62 km W jct. C14, 24.8944°S 16.2092°E (CB); Alwynkop, 24.9167°S 16.2333°E (SMWN); Gorraris 99, 25.3184°S 15.9089°E (SMWN). [Karas] Keetmanshoop Rural: Koes 202, 25.9500°S 19.1167°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were not examined, but specimens compared with them were studied at HMNH.

Hycleus derosus (Péringuey, 1909) **comb. n.** (Fig. 4D)

Mylabris derosa Péringuey, 1909

Types. Types of this species were examined at SAMC.

Distribution. Eastern Namibia (new species record for this country) and northern South Africa.

Material examined. [Omaheke] Gobabis: C22, 2 km N jct. B6, 22.4205°S 19.0037°E (CB).

Other records: Namibia (Pitzalis *et al.* 2014).

Remarks. This is one of the few species oft the genus *Hycleus* with the abdomen red.

Hycleus mimulus (Borchmann, 1940) (Fig. 4E)

Mylabris mimula Borchmann, 1940

Distribution. Northern Namibia (endemic).

Material examined and literature records. [Oshikoto] Tsumeb: Tsumeb, 19.2333°S 17.7167°E (Borchmann 1940). [Otjozondjupa] Otavi: Dakota 424, 19.4941°S 17.1287°E (CB; SMWN).

Other records: Namibia (Bologna 2000a).

Remarks. Types of this species, characterized by a very distinctive elytral pattern, are probably lost. The elytral pattern is similar to that of some *Ceroctis* species of the *angolensis* group.

Hycleus pruinosus (Gerstäcker, 1854) **comb. n.** (Fig. 4F)

Mylabris pruinosa Gerstäcker, 1854

Types. Types of this species were not examined, but specimens compared with them were studied at HMNH.

Distribution. Mozambique, Namibia (new species for this country), and Zimbabwe.

Material examined. [Khomas] Windhoek East: Windhoek, 22.5700°S 17.0836°E (CB).

Remarks. Types of this species were not examined but specimens compared with therm were studied at HMNH.

Hycleus svakopinus (Marseul, 1872) (Fig. 4G)

Mylabris (Mylabris) svakopina Marseul, 1872

Distribution. Namibia (endemic).

Material examined and literature records. [Kunene] Epupa: Swartbooisdrift, 17.3406°S 13.7706°E (SMWN); Okokatuwo, Kaokoland, 17.4000°S 12.7333°E (SMWN); Hippo Pool on Kunene River 20 km W of Ruacana, 17.4092°S 14.2185°E (CB); Okokatuwo, Kaokoland, 17.4500°S 12.7000°E (SMWN). Opuwo: 30 km WNW Orupembe, Koakoland, 18.1167°S 12.3500°E (SMWN); D3710, near Opuwo, 18.2011°S 13.8994°E (CB); C35, Kamanjab-Ruacana, 18.9027°S 14.3903°E (CB); C35, 110 km NW Kamanjabad, 18.9167°S 14.3833°E (CB). Sesfontein: Khorixas distr., 19.4333°S 13.8667°E (SMWN); D2650, near Kamanjab, 19.8087°S 14.5128°E (CB); Grootberg Pass, Damaraland, 19.8333°S 14.1167°E (SMWN); Palm 708, Damaraland, 19.9000°S 13.9833°E (SMWN). Kamanjab: 40 km S Okaukuejo, 19.5818°S 15.5515°E (CP); Beulah 256, 19.6000°S 14.9167°E (SMWN); Kamanjab, 19.6333°S 14.8333°E (SMWN); Otjitambi, 19.8167°S 15.1667°E (SMWN); Heila 317, 19.8333°S 14.8667°E (SMWN); Hoas 273, 19.9200°S 14.7500°E (SMWN); Ehobib 209, 20.0496°S 14.7829°E (SMWN); C39, 25 km E Khorixas, 20.30608°S 15.1867°E (CB). Khorixas: Fransfontein, Damaraland, 20.1833°S 15.0167°E (SMWN); Bethanis 514, 20.4000°S 14.4000°E (SMWN); Damaraland, 41 km W Khorixas: Petrified Forest, 20.4163°S 14.4158°E (CB); Sebraskop 410, Damaraland, 20.7333°S 15.1500°E (SMWN); C35, 54 km N Uis, 20.7788°S 14.8692°E (CB); Damaraland, near Rooipoort, farm at Ugab River, 20.8750°S 14.8750°E (JP). Outjo: road Outjo-Kalkfeld 16–20 km S Outjo, 20.3333°S 16.1500°E (CB). [Omusati] Okahao: Kamanjab-Ruacana 25 km NW of Kamanjab on C35, 18.4775°S 14.6977°E (CB); C35, Kamanjab-Ruacana, 77 km NW of Kamanjab, 19.2528°S 14.4442°E (CB). Ruacana: Ekango, Kaokoland, 18.6833°S 14.3167°E (SMWN). [Otjozondjupa] Otjiwarongo: Otjiku 192, 20.2667°S 16.8167°E (SMWN). Omatako: Waterberg Plateau N.P., 20.5167°S 17.2333°E (CB); Hamakari 285, 20.6167°S 17.3500°E (SMWN); Mount Etjo Safari Lodge, 21.0167°S 16.4167°E (CB); D2414, Etjo-Kalkfeld, 38 km SE of Kalkfeld, 21.1288°S 16.3883°E (CB). Okahandja: D2192, near Okahandja, 4 km jct. B2, 21.9490°S 16.5763°E (CB); Okahandja, 21.9833°S 16.9167°E (CP; SMWN); Okahandja, Gross Barmen, 22.1000°S 16.7500°E (CP). [Omaheke] Otjombinde: Northern Veter. fence, 5 km E of Gam roar, Hereroland East, 20.5167°S 20.7333°E (SMWN). Aminius: C20, Gobabis-Leonardville 5 km S of Aais. 23.2593°S 18.7237°E (CB); Leonardville, Gobabis, 23.5000°S 18.8000°E (SMWN); C20, 15 km S Leonardville, 23.6376°S 18.7918°E (CB). [Erongo] Dâures: N end Tsisab, Brandberg, 21.0833°S 14.6667°E (SMWN); Brandberg Hungorob Valley, 21.1900°S 14.5282°E (Bologna 2000a; SMWN); Brandberg Messum Valley, 21.2248°S 14.5163°E (Bologna 2000a; SMWN); Uis Townland, Damaraland, 21.2333°S 14.9000°E (SMWN); Messum River, 21.2586°S 14.4714°E (SMWN); 6 km W Uis, 21.27807°S 14.83835°E (CB); Spitskoppe, Damaraland, 21.8518°S 15.1484°E (SMWN). Omaruru: D2329, near Omaruru, 21.4333°S 15.9333°E (CB); Omaruru Townland, 21.4667°S 15.9667°E (SMWN); C33, 3–9 km S of Omaruru, 21.4948°S 15.9705°E (CB). Karibib: D1935, 30 km NNW Usakos, 21.7833°S 15.5000°E (CB); Karibib, 21.9333°S 15.8333°E (CP); Karibib-Okahandja, 21.9333°S 15.8333°E (CP); B2, Usakos-Karibib, 16 km W of Karibib, 21.9358°S 15.7056°E (CB);

Karibib, 21.9417°S 15.8509°E (CB); D1953, near Karibib, jct. C32, 21.9552°S 15.8493°E (CB); B2, 8 km W Usakos, 21.9876°S 15.50567°E (CB); B2, 2,6 km W Usakos, 21.9989°S 15.5647°E (CB); Navachab 67, 22.0167°S 15.7333°E (SMWN); 26–28 km S Karibib (road 1980), 22.1500°S 15.8333°E (CB); B2, 66 km W Usakos, 22.2505°S 15.13681°E (CB); C28, Boshua Pass, 22.7000°S 16.0333°E (CB). Arandis: 6 km N Arandis, Damaraland, 22.3667°S 14.9833°E (SMWN); Rossing Mine, 22.4667°S 15.0333°E (SMWN); Lower Dome Gorge, 22.4667°S 15.0667°E (SMWN); Upper Ostrich Gorge, 22.4833°S 14.9833°E (SMWN); Upper Panner Gorge, 22.4833°S 15.0167°E (SMWN); Lower Ostrich Gorge, 22.5000°S 14.9667°E (SMWN); C14, Kuiseb Pass, 23.3045°S 15.7526°E (CB). Walvis Bay Rural: Gorob Mine, Namib Desert Park, 23.5333°S 15.4167°E (SMWN); C14, 36 km N Solitaire, 23.5823°S 15.8182°E (CB). [Khomas] Windhoek Rural: Otjiseva 45, 22.3000°S 16.9667°E (SMWN); Windhoek, Heroes Acre, 22°37820'S 17°04.016'E, (OSU); Brakwater 20 km N Windhoek, 22.4000°S 17.0667°E (CB); Daan Viljoen Game Park, 22.5333°S 16.9333°E (CB); Daan Park, 22.5333°S 16.9667°E (CP); Richtofen 126, 22.5667°S 17.7500°E (SMWN); C23, 28 km jct. with B6, 22.7719°S 17.4551°E (CB); Wasservalley (W), 22.9167°S 16.3667°E (SMWN); C23, 26 km S Dordabis, 23.0575°S 17.9329°E (CB); C23, 38 km S Dordabis, 23.0715°S 18.0434°E (CB); Garib-Ost 275, 23.1167°S 17.6333°E (SMWN); 20 km N Rehoboth, 23.1223°S 17.1062°E (SMWN); Kos 28, 23.2500°S 16.1333°E (SMWN); D1228, 7 km ENE Rehoboth, 23.2833°S 17.2333°E (CB). Windhoek East: Windhoek, 22.57°S 17.0836°E (CB; SMWN). [Hardap] Rehoboth West Urban: Rehoboth town, 23.3167°S 17.0667°E (CB); near Rehobot, 23.3167°S 17.0833°E (CP); Rehoboth, 23.3500°S 17.0667°E (SMWN). Mariental Rural: 20 km S Derm, 23.8337°S 18.1926°E (CB); M42, Leonardville 40 km S, 23.8370°S 18.9010°E (CB); M29, 7 km E Mariental, 24.6570°S 18.0408°E (CB); M29, 25 km E Mariental, 24.7825°S 18.1612°E (CB); M29, 88 km S Mariental, 25.2410°S 18.5155°E (CB); M29, 118 km S Mariental, 25.4479°S 18.6138°E (CB). Rehoboth Rural: Garies Oos 489, 23.9500°S 16.5500°E (SMWN). Gibeon: C19, 8 km S Solitaire, 23.9774°S 16.0063°E (CB); C1, Bullsport-Solitaire 5 km W of Bullsport, 24.104°S 16.3093°E (CB); Bullsport 172, 24.1167°S 16.3333°E (SMWN); Waltevrede Game Farm, 24.1779°S 15.9802°E (CB); C14, 10 km S Waltevrede, 24.23774°S 15.90401°E (CB); Sukses 133, 24.3°S 15.8833°E (SMWN); C14, Maltahohe-Bullsport, after Fish River. 24.4022°S 16.8172°E (CB); Sesriem 137, 24.4833°S 15.8°E (SMWN); Sesriem 137, River, 24.4833°S 15.9500°E (SMWN); Sesriem Canyon Plain, 24.5167°S 15.8000°E (SMWN); C14, 1 km W Maltahöhe, 24.8589°S 16.9751°E (CB); C19, 62 km W jct. C14. 24.8944°S 16.2092°E (CB); Kwessiegat 173, 24.9000°S 15.9500°E (SMWN); jct. C14-C19, 24.9025°S 16.8964°E (CB); Alwynkop, 24.9167°S 16.2333°E (SMWN); C19, western slope Tsaris Pass, 24.9346°S 16.4159°E (CB); Wereldend 115, 25.1500°S 16.2333°E (SMWN); Gorraris 99, 25.3184°S 15.9089°E (SMWN). Mariental Urban: C19, 11 km W Mariental, 24.6167°S 17.8500°E (CB); Mariental town, 24.6167°S 17.9500°E (CB); Mariental, 24.6333°S 17.9667°E (CP); C19, near Mariental, 6 km jct. B1, 24.6467°S 17.9122°E (CB). [Karas] Berseba: Mukorob 14, Namaland, 25.5000°S 18.1667°E (SMWN); Goab, 25.7500°S 17.3833°E (SMWN); Auas S, 25.8000°S 17.0167°E (SMWN); Oreylingen 48, 26.1333°S 17.0333°E (SMWN); C14, 51 km N Bethanien, 26.2919°S 17.0535°E (CB); B4, 73 km W Keetmanshoop, 26.7809°S 17.4657°E (CB). Lüderitz: Numabis Pan, Diamond Area 2, 25.5167°S 15.5833°E (SMWN); near Aus, 26.6667°S 16.2667°E (CP); Plateau 38, 26.6667°S 16.5333°E (SMWN). Keetmanshoop Rural: M29, 4 km S jct. D3919, 25.6205°S 18.6135°E (CB); Koes, 25.9500°S 19.1167°E (SMWN); Khabus 146, 26.2833°S 18.2333°E (SMWN); Khabus 146, 26.3000°S 18.2167°E (SMWN); Wildheim Ost 384, 26.4833°S 19.5667°E (SMWN); Keetmanshoop, 26.9169°S 18.6746°E (CB); Swarbaas West 276, 27.0167°S 19.7000°E (SMWN); C11, 1 km jct. M26. 27.0915°S 19.5372°E (CB); Karas distr., 27.1352°S 19.4941°E (CB). Karasburg: 75 km S Keetmanshoop, Guigatsis River, 27.3750°S 18.6250°E (JP); Keimas 99, 28.7667°S 19.1167°E (SMWN); Fish River canyon, Hiker Point, 27.7765°S 17.6049°E (CB alcohol).

Other records: Swakop (Marseul 1872, type locality); Swakop River (CB); Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at MNHN.

In this species, the mesosternal "scutum" is very narrow, almost absent as in the *Mesogorbatus* lineage. The antennae are short and compact, with 11 antennomeres.

Hycleus transvaalicus (Péringuey, 1904) **comb. n.** (Fig. 4H)

Decatoma transvaalica Péringuey, 1904

Types. Types of this species were examined at SAMC.

Distribution. Botswana, Namibia, South Africa, and Zimbabwe.

Material examined and literature records. [Oshikoto] Guinas: Tsumeb, Uithoek 770, National road, 19.3300°S 17.6600°E (SMWN). [Kunene] Outjo: Abachaus, 19.7167°S 16.5800°E (Kaszab 1959a, as ab. *simplicior*). [Otjozondjupa] Okahandja: 25 km N of Okahandja, 21.7619°S 16.8743°E (CB). [Omaheke] Steinhausen: C30, 8 km S jct. with C29, 21.8207°S 18.3307°E (CB); 10 km E Witvlei, 22.4876°S 18.4939°E (AMNH). Gobabis: C22, 2 km N jct. with B6, 22.4205°S 19.0037°E (CB). Kalahari: C20, Gobabis-Leonardville 16 km S of Gobabis on, 22.9500°S 18.9422°E (CB). [Khomas] Windhoek Rural: D1535, near Windhoek, 5 km jct. B6, 22.3681°S 17.6675°E (CB); D1525, Windhoek-Gobabis, 1 km N jct. B6, 22.3968°S 17.6600°E (CB); C23, 26 km S Dordabis, 23.0575°S 17.9329°E (CB). [Hardap] Rehoboth West Urban: Rehoboth, 23.3167°S 17.0833°E (CP).

Other records: Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Species with 10 antennomeres, characterized by a very distinctive elytral pattern.

C) *Mesoscutatus* lineage

Most *Hycleus*, both Palaeotropical and Palaearctic, belong to groups of species of this lienage having the mesosternum with a wide and well distinct fore "scutum". A great number of groups of species are recognizable, but affinities of most species, including some from Namibia, remain not defined.

Ca) *Hycleus adamantinus* species group

Monotypic group, endemic to xeric southwestern Africa.

Hycleus adamantinus (Péringuey, 1888) **comb. n.** (Fig. 4I)

Decapotoma adamantina Péringuey, 1888

Types. Types of this species were examined at SAMC.

Distribution. Southwestern Namibia (new species for this country) and northwestern South Africa.

Material examined. [Karas] Lüderitz: Aus, 26.6667°S 16.2667°E (CB; CP). Karasburg: Ortsansbaus 120, Warmbad, 28.3000°S 18.7000°E (SMWN).

Remarks. Species related primarily to the Succulent Karoo and endemic to a narrow area extended in both South African and Namibian Namaqualand, and marginally in the South African Nama Karoo. Well characterized by the combination of the elytral colouration, with a posterior shiny orange spot, and 10 antennomeres.

Cb) *Hycleus amoenus* species group

This southern African group of species is well distinct by the reduced number of antennomeres (eigth) and molecular analyses (Pitzalis 2007) pointed out its division in some sub-groups. Because of the antennal feature, the species of this group were erroneously referred to the genus *Actenodia* (see Bologna *et al.* 2008a), but actually they belong to *Hycleus*, as pointed out by Bologna & Pinto (2002), and by Pitzalis (2007). This group includes (Pitzalis & Bologna in preparation): *H. amoenus, H. bushmanicus, H. deserticolus, H. devylderi*, *H. kochi, H. politus, H. vansoni*, and the new species *H. planitiei.*

Two other eastern African and Arabic species, namely *H. afrotropicus* (Kaszab, 1983) and *H. yemenicus* (Kaszab, 1983) have a similar reduced number of antennomeres (Bologna 1990; Bologna & Turco 2007) and for this reason they were erroneously described as *Actenodia* (Kaszab 1983). Relationships between these two assemblages of species are not defined, but probably the reduction of antennomeres is only a parallelism more than a synapomorphic condition.

Hycleus amoenus (Marseul, 1872) **comb. n.** (Fig. 4J)

Actenodia amoena Marseul, 1872; Kaszab 1952
Actenodia amoena ssp. *anthicoides* Kaszab, 1955b **syn. n.**

Types. Types of this species were examined at MNHN, and those of the ssp. *anthicoides* at NHP.

Distribution. Botswana, southwestern Namibia (new species record for this country), and western South Africa.

Material examined. [Karas] Lüderitz: Kaukausib Riverbed, Diamond Area 1, 26.8833°S 15.4167°E (CB; SMWN); C13, 4.5 km N Rosh Pinah, 27.82909°S 16.72726°E (CB).

Other records: Namibia (Pitzalis *et al.* 2014).

Remarks. Kaszab (1955b) described the ssp. *anthicoides* from the South African Richtersveld, just close to the southwestern Namibian border. After the examination of several specimens of different populations, we consider this subspecies as a synonym of the nominate form.

Hycleus bushmanicus (Kaszab, 1952) (Fig. 4K)

Actenodia bushmanica Kaszab, 1952

Distribution. South Namibia and northwestern South Africa.

Material examined and literature records. [Hardap] Mariental Urban: 11 km W Mariental (road C19), 24.6167°S 17.8500°E (CB). [Karas] Keetmanshoop Rural: D608, 35 km S Keetmanshoop, 26.90790°S 18.26411°E (CB); D608, 87 km S Keetmanshoop, 27.32571°S 18.27616°E (CB); D608, 95.5 km S Keetmanshoop, 27.37944°S 18.22418°E (CB); C12, 33 km W Grunau, 27.57847°S, 18.10557°E (CB). Karasburg: M21, 21.5 km S Karasburg, 28.20340°S 18.72978°E (CB); M21, 4 km N Warmbad, 28.39832°S 18.75766°E (CB); C13, 44.5 km N Noordoewer, Grape Valley, 28.41803°S 17.44408°E (CB); C10, 23 km N Velloorsdrif, 28.52194°S 19.18402°E (CB).

Other records: Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at NHP.

Hycleus deserticolus Wellman, 1908 (Fig. 4L)

Actenodia deserticola Wellman, 1908
Zonabris (Actenodia) annulipes Pic, 1910
Actenodia annulipes, Kaszab 1955

Distribution. Southern Angola, Namibia.

Material examined and literature records. [Kunene] Epupa: Hartmann's Valley, 17.3833°S 12.2500°E (SMWN); Dunes, 17.3833°S 12.2500°E (SMWN); Okakatuwo, 17.4000°S 12.7333°E (SMWN); Okakatuwo, 17.4500°S 12.7000°E (SMWN); Kandao, 17.6167°S 12.5000°E (SMWN); Ondundujengo River, 17.8000°S 12.3167°E (SMWN). Opuwo: 30 km WNW Orupembe, 18.1167°S 12.3500°E (SMWN); Oropembe, 18.1833°S 12.5167°E (SMWN); Kaokoveld, Anabib (Orupembe), 100 miles W Ohopoho, 18.1833°S 12.5167°E (Kaszab 1956, as ab. *anticedisrupta*: Kaszab, 1956); Kaokoveld, Orupembe, 18.1833°S 12.5167°E (Kaszab 1956, as ab. *anticedisrupta*); Kaokoveld, Sanitatas, 85 miles WSW Ohopoho, 18.2833°S 12.6667°E (Kaszab, 1956); Kunene distr., C43, 18.9562°S 13.7573°E (CB). Sesfontein: Khowarib River, 19.2667°S 13.8667°E (SMWN); D2650, near Kamanjab, 19.8087°S 14.5128°E (CB). Kamanjab: C35, 35 km NW Kamanjab, 19.5000°S 14.8000°E (CB); C40, 26 km E Kamanjab, 19.6957°S 15.1046°E (CB); C39, 25 km E Khorixas, 20.3061°S 15.1867°E (CB). Khorixas: Bethanis 514. 20.4000°S 14.4000°E (SMWN); Twyfelfontein, 20.5667°S 14.3667°E (SMWN); C35, 54 km N Uis, 20.7788°S 14.8692°E (CB); Duineveld 529, 20.7833°S 14.6333°E (SMWN); Onverwag 412, 20.8370°S 14.9610°E (SMWN). [Kavango] Mashari: Kaukau-Kungveld, Samengaigai, 19.0833°S 20.2000°E (Kaszab 1956 as ab. *anticedisrupta*:). [Otjozondjupa] Otjiwarongo: C63, Outjo-Kalkfeld 15 km N of Kalkfeld, 20.7537°S

16.2210°E (CB). [Erongo] Dâures: Brandberg, Hungorob Valley, 21.1900°S 14.5282°E (Bologna 2000a; SMWN); Brandberg, Messum valley, 21.2215°S 14.5163°E (Bologna 2000a; SMWN); C35, 2 km E Uis, 21.2325°S 14.8973°E (CB); Gross Spitzkoppe, 21.8167°S 15.1667°E (CB); Spitskoppe, 21.8518°S 15.1484°E (CP; SMWN). Omaruru: near Omaruru, 21.4333°S 15.9333°E (CP). Karibib: D1935, 30 km N jct. B2, 21.7732°S 15.4699°E (CB); D1935, 30 km NNW Usakos, 21.7833°S 15.5000°E (CB); Karibib-Okahandja, 21.9333°S 15.8333°E (CP); B2, 16 km W Karibib, 21.9358°S 15.7056°E (CB); Karibib, 21.9417°S 15.8509°E (CB); Usakos, D1935 6 km N jct. B2, 21.9475°S 15.5851°E (CB); Karibib, D1953, 100 m jct. C32, 21.9552°S 15.8493°E (CB); B2, 16 km W Karibib, 21.9702°S 15.6868°E (CB); B2, 2,6 km W Usakos, 21.9989°S 15.5647°E (CB); B2, 2 km W Usakos, 21.9992°S 15.5696°E (CB); Navachab 67, 22.0167°S 15.7333°E (SMWN); D1980, 27 km S Karibib, 22.1500°S 15.8333°E (CB); C32, 42 km S Karibib, 22.29447°S 15.8351°E (CB); D1953, near Karibib, 45 km jct. C32, 22.2963°S 16.0658°E (CB); C32, 54 km S Karibib, Swakop River, 22.3954°S 15.8343°E (CB). Arandis: Rossing Mine, 22.4667°S 15.0333°E (SMWN); N Namib, 22.5667°S 14.7167°E (SMWN); C14, Kuiseb Pass, 23.3045°S 15.7526°E (CB); C14, Kuiseb River, 23.30457°S 15.77184°E (CB). Walvis Bay Rural: Rostock, Windhoek, 23.3833°S 15.7500°E (SMWN); C14, 36 km N Solitaire, 23.5823°S 15.8182°E (CB). [Omaheke] Aminius: C20, Gobabis-Leonardville 5 km S of Aais, 23.2593°S 18.7237°E (CB). [Khomas] Windhoek Rural: Kos 28, 23.2667°S 16.1333°E (SMWN); D1228, 7 km ENE Rehoboth, 23.2833°S 17.2333°E (CB). [Hardap] Rehoboth Rural: B1, 28.5 km S Rehoboth, 23.5833°S 17.1500°E (CB). Gibeon: C19, 8 km S Solitaire, 23.9774°S 16.0063°E (CB); Waltevrede Game Farm, 24.1779°S 15.9802°E (CB); C14, 10 km S Waltevrede, 24.2377°S 15.9040°E (CB); Sesriem 137, River, 24.4833°S 15.9500°E (SMWN); C14, 1 km W Maltahöhe, 24.8589°S 16.9751°E (CB); Wereldend 115, 25.1500°S 16.2333°E (SMWN); Gorrasis 99, 25.3184°S 15.9089°E (SMWN). Mariental Urban: C19, 11 km W Mariental, 24.6167°S 17.8500°E (CB). Mariental Rural: M29, 25 km E Mariental, 24.7825°S 18.1612°E (CB); M29, 118 km S Mariental, 25.4479°S 18.6138°E (CB). [Karas] Keetmanshoop Rural: Khabus 146, 26.2833°S 18.2333°E (SMWN); Khabus 146, 26.3000°S 18.2167°E (SMWN); Karas distr., 27.1352°S 19.4941°E (CB). Keetmanshoop Urban: B1, near Keetmanshoop, 26.5833°S 18.1333°E (CB). Berseba: B4, 73 km W Keetmanshoop, 26.7809°S 17.4657°E (CB). Karasburg: 5 km S Warmbad, 28.4833°S 18.7667°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of *annulipes* were examined at MNHN.

Hycleus devylderi (Borchmann, 1928) (Fig. 4M)

Actenodia devylderi Borchmann, 1928

Distribution. Namibia (endemic).

Material examined and literature records. [Kunene] Khorixas: N of Doros Crater, Skeleton Coast Park, 20.3667°S 14.1333°E (SMWN). [Otjozondjupa] Otjiwarongo: C63, Outjo-Kalkfeld, 15 km N of Kalkfeld, 20.7537°S 16.2210°E (CB). Okahandja: 30 km W Okahandja, 21.9260°S 16.5768°E (CB; CP). [Erongo] Dâures: Brandberg, Hungorob Mouth, 21.2267°S 14.5167°E (Bologna 2000a, as sp. aff. *devylderi*; SMWN); Messum River, 21.2500°S 14.4667°E (SMWN); D2342, 17 km SE Messum Valley, 21.3048°S 14.6574°E (CB). Omaruru: C33, 3–9 km S of Omaruru, 21.4948°S 15.9705°E (CB). Karibib: D2306, 33 km N Usakos, 21.7764°S 15.4578°E (CB); D1935, 30 km NNW Usakos, 21.7833°S 15.5000°E (CB); C33, 17 km jct. B2, 21.8390°S 15.9233°E (CB); B2, 16 km W Karibib, 21.9358°S 15.7056°E (CB); D1953, jct. C32, 21.9552°S 15.8493°E (CB); B2, 8 km W Usakos, 21.9876°S 15.5057°E (CB); B2, 2,6 km W Usakos, 21.9989°S 15.5647°E (CB); D1953, 6 km jct. C32, 22.0078°S 15.8861°E (CB); B2, Swakopmund-Usakos, 210 km W Usakos, 22.0199°S 15.5296°E (CB); B2, 52 km W Usakos, 22.1499°S 15.1930°E (CB); D1953, 45 km jct. C32, 22.2963°S 16.0658°E (CB). Arandis: 6 km N Arandis, 22.3667°S 14.9833°E (SMWN); Upper Ostrich Gorge, 22.4833°S 14.9833°E (SMWN); Upper Panner Gorge, 22.4833°S 15.0167°E (SMWN). Walvis Bay Rural: C14, 45 km N Solitaire, 23.5364°S 15.7827°E (CB). [Khomas] Windhoek Rural: Windhoek, Heroes Acre, 22.62°S 17.07°E, (OSU); D1261, Nauchas-Rehoboth, 1–40 km NW Nauchas, 23.5763°S 16.4588°E (CB). [Hardap] Gibeon: C14, 10 km S Waltevrede, 24.2377°S 15.9040°E (CB); C14, Maltahohe-Bullsport, after Fish River, 24.4022°S 16.8217°E (CB). [Karas] Lüderitz: near Aus, 26.6667°S 16.2667°E (CP).

Other records: Damaraland (Borchmann 1928); Namibia (Bologna 2000a, also as "sp. aff. *devylderi*"; Pitzalis *et al.* 2014).

Remarks. Types of this species were not examined, but specimens compared with types were studied at HMNH.

Hycleus kochi (Kaszab, 1952) (Fig. 4N)

Actenodia kochi Kaszab, 1952

Distribution. Namibia (endemic).

Material examined and literature records. [Kunene] Epupa: C43, near Opuwo, 17.8554°S 13.7981°E (CB). Opuwo: D3710, near Opuwo, 18.1589°S 13.9173°E (CB); D3710, near Opuwo, 18.2011°S 13.8994°E (CB); Kunene distr., C43, 18.6788°S 13.7135°E (CB); Kunene distr., C43, 18.7599°S 13.7489°E (CB); C35, 110 km NW Kamanjab, 18.9167°S 14.3833°E (CB). Outjo: Abachaus, 19.7167°S 16.5800°E (Kaszab, 1952; SMWN). Kamanjab: C38, 40 km N Outjo, 19.80883°S 15.91281°E (CB). [Oshikoto] Guinas: C38, 1 km jct. B1, 18.7725°S 17.2491°E (CB). Omuthiyagwiipundi: Site 1/Row D, Term. /Tamboti forest, 18.8725°S 17.0550°E (SMWN). [Otjozondjupa] Grootfontein: D2859, Hoba Meteorite, 19.5833°S 17.9333°E (CB). Otjiwarongo: B1, 13.6 km N Otjiwarongo, 20.3728°S 16.7393°E (CB); Hedwigstal 77, 20.8750°S 16.1250°E (SMWN). Omatako: 140 km N Okahandja, 20.4925°S 16.9872°E (CP); Waterberg, jct. C22-2512, 20.6333°S 17.1500°E (CB); B1, 28 km S Otjiwarongo, 20.6806°S 16.7787°E (CB); Erindi Osave 170, Otjiwarongo, 20.9800°S 16.7600°E (SMWN). Okahandja: Ovita, 21.5228°S 16.2539°E (SMWN). [Omaheke] Steinhausen: Alkm ar 512, 21.8700°S 19.8800°E (SMWN). [Khomas] Windhoek Rural: Windhoek, D1535, 5 km jct. B6, 22.3681°S 17.6675°E (CB). [Karas] Keetmanshoop Rural: Noachabeb 97/ Rotegab 95, 27.3833°S 18.4667°E (SMWN). Karasburg: Eendoorn 106, 28.7333°S 18.9667°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at NHP and at HMNH.

Hycleus planitiei **Bologna sp. n.** (Fig. 4O)

Types. Holotype male, 2 females paratypes (SMWN) and 1 male paratype (CB) labelled "Namibia: Hoanid floodplain, Opuwo district, 19°22S 13°01E, 25.II.1996, E. Marais & A.H. Kirk-Spriggs".

Type locality. This locality (19.37°S 13.02°E in decimal degrees) is located in the Kunene region, in an area characterized by Namib desert biome.

Diagnosis. One *Hycleus* with *Mesoscutatus* type mesosternum belonging to the group of *H. amoenus* (see above) but very similar phenetically to *Paractenodia glabra* Kaszab, 1969, which is immediately distinct by 7 antennomeres. This new small sized species is characterized by 8 antennomeres, aedeagus with a single distal hook, integuments shiny and dorsally with only scattered punctures, legs totally black, antennomeres IV–VIII greatly widened apically and subtrapezoidal, VIII bean-shaped, narrowed apically and sometimes with tracks of fusion of two antennomeres.

Description. Body very shiny, unicolour black-brown but elytra yellow with the following black pattern (Fig. 4O): one narrow stripe along the suture extended from the apical fascia to scutellum, expanded externally in middle and on fore third; one trasverse fascia just posterior to middle, extended from sutural stripe to external margin, progressively widened; one spot on external part of fore third, rarely extended and fused to suture and anteriorly along humerus to base of elytra wich results narrowly marginated. Body setation black, robust, very scattered dorsally, particularly on head and pronotum, denser and lighter ventrally and on legs. Body maximal length 7.2 mm.

Hed subrectungular, transverse, maximal width at level of eyes; temples subparallel, slightly depressed posteriorly to hind margin of eye, shorter than longitudinal diameter of eye, maximal width subequal to that of pronotum; frons scarcely convex in middle, with one subcircular depression on both sides, close to fore-inner margin of eye; eyes bulging, laterally extended to gena, fore-dorsal margin deeply emaginate. Punctures thin and shallow, scarce and very scattered, intermediate surface almost smooth with very scarce micro-punctures. Clypeus evidently narrower than interocular width, only slightly convex, subrectangular, transverse; punctures as on head; fronto-clypeal suture well distinct, subrectilinear; labrum as long as clypeus and with similar punctures, fore

margin sligthly emarginated. Maxillary palpomeres subcylindrical, IV sligthly widened anteriorly, not modified, as galeae and labial palpomeres; mandibles robust, curved only on fore third. Antennae with 8 antennomeres, I–VI shiny, VII–VIII subopaque; I shorter than II–III together, II subglobose, I and III subcylindrical but III sligthly widened at apex; IV–VI subtrapezoidal, particularly in male, almost subserrate and densely microsetate; VII less widened at apex; VIII bean-shaped, and narrowed apically, with tracks of fusion of two antennomeres in one paratype.

Pronotum subpentagonal, sligthly longer than wide, maximal width subequal to that of head on temples, sides slightly oblique from base to middle, then distinctly narrowed anteriad; one lateral oblique depression on both sides of fore third, one middle depression and one at base, and longitudinal furrow visible on the basal half; punctures as on head, but slightly deeper, intermediate surface shagreened. Elytra subparallel, dorsally slightly convex, shiny with scattered middle sized punctures; black pattern as in Fig. 4O. Mesosternum of *Mesoscutatus*-type. Legs slender, both tibial spurs of all legs slendere and pointed; ventral balde of claws regularly developed; fore tibia and tersomeres with scattered longer setae mixed to denser and shorter setae.

Posterior margin of last ventrite triangularly emarginated in male, rounded in female. Male gonoforceps in lateral view (Fig. 13D) with apical lobes short, while in ventral view (Fig. 13C) slender and progressively narrowed; gonocoxal piece distinctly widened; aedeagus with one single distal hook, short and curved. Female gonostyli slender and elongate.

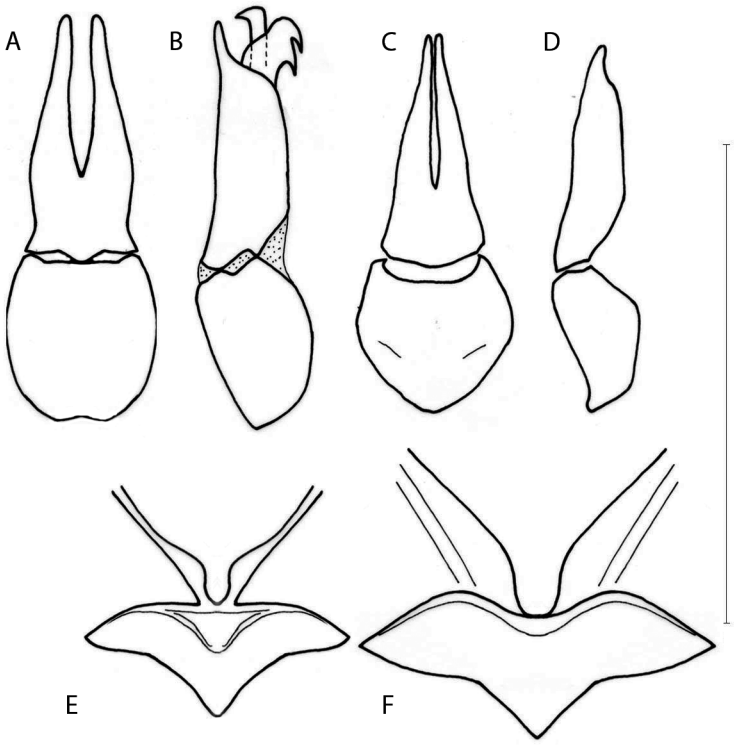

FIGURE 13. *Hycleus san*: tegmen in ventral view (A); tegmen and aedeagus in lateral view (B); mesosternum (F). *Hycleus planitiei*: tegmen in ventral (C) and lateral view (D). *Hycleus* cfr. *overlaeti*: mesosternum (E). Bar = 1 mm.

Remarks. This species differs from other of the group of *H. amoenus*, except *H. politus*, because of legs totally black and the integument shiny and scarcely punctuate. In particular, it differs from *H. vansoni, H. kochi, H. bushmanicus* and *H. amoenus* because of the elytral pattern, which does not include an inner longitudinal yellow-brown spot. From *H. devylderi* and *H. deserticolus*, it differs also because the posterior third of elytra is yellow-brown and not orange. From *H. politus* it differs because of bigger size, the temples ca as wide as pronotum, the middle antennomeres more widened apically and subtrapezoidal, VIII slender and almost pointed at apex in both sexes, the reduction of blak spots on fore third.

Etymology. The name *planitiei* (from Latin: plain = *planities, planitiei*) refers to the habitat where the species

lives, which is represented by floodplains gradually sloping from the Damaraland highplain west to the coastal Namib desert.

Distribution. NW Namibia.

Hycleus politus (Kaszab, 1955) **comb. n.** (Fig. 4P)

Actenodia polita Kaszab, 1955b

Types. Holotype and paratype of this species were examined at NHP.

Distribution. Western Namibia and western South Africa.

Material examined. [Khomas] Windhoek Rural: SE corner of Namib Desert Park, near Knamhoek farm, 23.5333°S 15.9500°E (JP). [Erongo] Walvis Bay Rural: C14, 36 km N Solitaire, 23.5823°S 15.8182°E (CB). [Hardap] Gibeon: C14, 10 km S Waltevrede, 24.2377°S 15.9040°E (CB); Sesriem 137, Maltahohe, 24.4833°S 15.8000°E (SMWN); Gorrasis 99, 25.3184°S 15.9089°E (SMWN). [Karas] Lüderitz: Awasib dunes E., 25.2500°S 15.7167°E (SMWN); 7 km N Grillental, Diamond Area 1, 26.8500°S 15.3667°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Pitzalis *et al.* 2014).

Cc) *Hycleus pallipes* species group

This group, as defined by Pardo Alcaide (1958a), is characterized by sharp and elongate mandibles and widened external spur of both pro- and mesotibiae. It is widely distributed in the sub-Saharan Africa and in western India.

Hycleus hilaris (Péringuey, 1892) (Fig. 4Q)

Mylabris hilaris Péringuey, 1892

Distribution. Northern Namibia (endemic).

Material examined and literature records. [Omusati] Anamulenge: C46, 100 km ESE Ruacana, 17.5333°S 15.1167°E (CB). [Oshikoto] Oniipa: B1, 20 km SE Ondangwa, 17.9833°S 16.1333°E (CB). Onayena: B1, Ondangwa-Tsumeb, 26 km SE Ondangwa, 18.0402°S 16.2037°E (CB). [Otjozondjupa] Otavi: B8, 5 km E Kombat, 19.7167°S 17.8000°E (CB). Omatako: Waterberg, 20.4167°S 17.2500°E (CP); Okosongomingo 148, 20.6167°S 17.1333°E (SMWN); Waterberg, jct. C22-2512, 20.6333°S 17.1500°E (CB). [Erongo] Omaruru: Otjikoko-Sud 61, 21.2833°S 16.3667°E (SMWN).

Other records: Damaraland (Kaszab 1956); Ovampoland (Péringuey 1909; Kaszab 1955b, as ab. *erikssoni*); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at SAMC.

Hycleus villosus (Fåhraeus, 1870) (Fig. 4R)

Mylabris villosa Fåhraeus, 1870

Distribution. Botswana, Malawi, northern Namibia, South Africa, Zambia, and Zimbabwe.

Material examined and literature records. [Omusati] Anamulenge: C46, 100 km ESE Ruacana, 17.5333°S 15.1167°E (CB). Ogongo: Ogongo Agric. College, Ovambo, 17.6833°S 15.2833°E (SMWN). [Caprivi] Linyandi: Nkatwa, Mudumu Game riserve, 18.1833°S 23.4167°E (SMWN). [Kunene] Outjo: Abachaus, 19.7167°S 16.5800°E (SMWN).

Other records: Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were not examined.

Citations of *H. holosericeus* from southern Africa refer to *H. villosus*, being *H. holosericeus* a western African species.

Cd) *Hycleus lavaterae* species group

This group is composed by a few large-sized southern African species with mesosternum of *Mesoscutatus*-type, five basal antennomeres black and maxillary stipes not greatly modified. It includes at least *H. haemactus* (Fairmaire, 1888), *H. lavaterae* (Fabricius, 1801), *H. plagiatus* (Pallas, 1782), *H. testudo* (Marseul, 1872), and perhaps *H. capeneri* (Pardo Alcaide, 1963) and *H. tettensis* (Gerstäcker, 1854). The possible conspecificity of some of these species must be tested.

Hycleus haemactus (Fairmaire, 1888) (Fig. 4S)

Mylabris haemacta Fairmaire, 1888

Distribution. Southwestern Namibia and northwestern South Africa.

Material examined and literature records. [Erongo] Walvis Bay Rural: Kuiseb Canyon, 23.3667°S 15.6667°E (SMWN). [Karas] Lüderitz: Plateau 38, 26.6667°S 16.5333°E (SMWN); Aar 16, 26.7167°S 16.4667°E (SMWN); Skorpion area, 27.8167°S 16.6000°E (SMWN). Karasburg: Nukois 269, Warmbad, 27.3833°S 18.9667°E (SMWN); Hobas 374, 27.6167°S 17.7167°E (SMWN). Oranjemund: Ai-Ais Warmbad, 27.9167°S 17.4833°E (SMWN); Fish River Canyon (CB); Orange River, 28.0333°S 17.0667°E (SMWN).

Other records: Namibia (Bologna 2000a); Namib Sand Sea desert (Seely 2012).

Remarks. Types of this species were examined at MNHN.

This species is strictly related to *H. lavaterae* and *H. testudo,* and differs from both at least because of the antennomeres VI–XI distinctly orange and not infuscate. The study of types is necessary to confirm the validity of this complex.

Hycleus plagiatus **(Pallas, 1782) comb. n.** (Fig. 4T)

Meloe plagiatus Pallas, 1782

Types. Types of this species are lost.

Distribution. Namibia (new species record for this country) and western South Africa.

Material examined and literature records. [Erongo] Karibib: D1935, 30 km NNW Usakos, 21.7833°S 15.5000°E (CB). [Khomas] Windhoek Rural: Windhoek, 22.3400°S 17.0500°E (CB, RMCA). [Hardap] Mariental Urban: C19, 11 km W Mariental, 24.6167°S 17.8500°E (CB). Rehoboth Rural: D1206, 10 km NE Bullsport, 24.10313°S 16.4456°E (CB).

Remarks. This species is related to *H. haemactus* and it was sometimes confused with *H. tricolor* because of its very similar elytral pattern, which has the middle black fascia dark reddish on the sutural sides. Distinctive characters vs. *H. tricolor* are: (a) five basal antennomeres black (sometimes V dark yellow); (b) male labial palpi not so widened and without large depression; (c) male maxillary stipe slender; (d) lateral setae of genae silver and very long; (e) male protibiae and protarsomeres with very long black setae; (f) aedeagus shape.

Ce) *Hycleus lactimalus* species group

This group is not well defined and could be an artificial assemblage of species with mesosternum of *Mesoscutatus*-type and yellow, modified male maxiillary stipes. We grouped tentatively in this unit three species: *H. lactimalus* (Marseul, 1879), from Angola and Namibia, *H. maculicornis* (Voigts, 1902), from southern and eastern Africa (we examined specimens from Zimbabwe and Tanzania, CB; and from southwestern R.D. Congo, RMCA), and *H. maxillaris* (Kaszab, 1956) from Tanzania. We suspect that *H. maxillaris* could be a synonym of *H. maculicornis,* because of the same antennal colouration (antennomere I and II black, and apex of XI with black spots) and the similarly modified shape of male maxillary stipes.

Hycleus lactimalus (Marseul, 1879) (Fig. 4U)

Mylabris lactimala Marseul, 1879
Mylabris (Gorrizia) lactimala, Pardo Alcaide 1963

Distribution. Southwestern Angola, western Namibia.

Material examined and literature records. [Kunene] Opuwo: Kaokoveld, Anabib (Orupembe), 100 miles W Ohopoho, 18.1833°S 12.5167°E (Kaszab, 1956). [Erongo]: Dâures: Brandberg (MSNF); Arandis: C14, Kuiseb River, 23.3046°S 15.7718°E (CB).

Other records: Namibia (Bologna, 2000a).

Remarks. Types of this species was examined at MNHN.

The male of this species is easily distinguishable by the maxillary stipes yellow, inflated and with a middle keel. The colour of this mouth parts were described as white by Marseul (1879), but, as evidenced by Pardo Alcaide (1963), actually it is yellow. Females are more difficult to distinguish from the species of the group of *H. dicinctus*, because they have the same size and elytral pattern, but in both sexes the pronotum is slender, parallel in the basal half and narrowed in front, and the antennomere III is slightly longer than IV; in male temples are slightly convergent posteriorly.

Hycleus lactimalus differs from *H. maculicornis-maxillaris* (see above) because of the colour of antennomeres (I–II completely black and XI orange) and the male maxillary stipes more widened ventrally.

Cf) *Hycleus dicinctus* species group

We grouped here tentatively some large-sized Afrotropical species with a *Mesoscutatus*-type mesosternum, probably belonging to distinct lineages, usually confused in the literature because of the great elytral pattern variability. Males of these species are easy to distinguish because of the morphology of maxillary stipe and palpi, while female are more difficult to recognize. The colour of antennomeres also can help in the separation of species. Information on some species of these lineages was published by Pardo Alcaide (1963).

Hycleus scalaris (Marseul, 1872) (Fig. 4V)

Mylabris (Mylabris) scalaris Marseul, 1872

Distribution. Namibia (endemic).

Material examined and literature records. [Kunene] Epupa: Okakatuwo, Kaokoland, 17.4500°S 12.7000°E (SMWN). Opuwo: Opuwo town, 18.0500°S 13.8333°E (CB); Kaokoveld, Anabib (Orupembe), 100 miles W Ohopoho, 18.1833°S 12.5167°E (Kaszab, 1956) (Kaszab 1956, as ab. *pseudovulgaris*, holotype); 4 km E Orumana, Kaokoland, 18.2333°S 13.8333°E (SMWN); Kaokoveld, 11 miles E Omutati, 60 miles WSW Ohopoho, 18.2500°S 13.0833°E (Kaszab, 1956) (Kaszab 1956, as ab. *nigrobasipennis*, holotype); Orumana, Kaokoveld, 18.2500°S 13.9000°E (SMWN); Orumana, Kaokoland, 18.2667°S 13.8833°E (SMWN); Kunene distr., C43, 18.6788°S 13.7135°E (CB); Kunene distr., C43, 18.7599°S 13.7489°E (CB); Kunene distr., C43, 18.9962°S 13.7581°E (CB). Sesfontein: Khovarib River, Kaokoland, 19.3167°S 13.9667°E (SMWN); Hunkab-Hoanib Rivers, Skeleton Coast Park, 19.6333°S 13.0167°E (SMWN); Humor 704, Damaraland, 19.8439°S 14.1231°E (SMWN). Kamanjab: Kamanjab, 19.6333°S 14.8333°E (SMWN); Hoas 273, Outjo, 19.9200°S 14.7500°E (SMWN). Outjo: Ike 346, Outjo, 19.7533°S 16.6244°E (SMWN); C39, 10 km W Outjo, 20.0100°S 16.0100°E (CB); Outjo-Kalkfeld, 16–20 km S Outjo, 20.3333°S 16.1500°E (CB). Khorixas: Bethanis 514, 20.4000°S 14.4000°E (SMWN); Damaraland, Duineveld 529, 20.7833°S 14.6333°E (SMWN). [Oshikoto] Guinas: Leeudrink, Etosha N.P., 18.8833°S 17.0667°E (SMWN). [Otjozondjupa] Otavi: Dakota 424, 19.4941°S 17.1287°E (SMWN). Omatako: Waterberg Plateau Park, 20.4167°S 17.2500°E (SMWN); D2414, Etjo-Kalkfeld, 38 km SE of Kalkfeld, 21.1288°S 16.3883°E (CB); Kalkfeld, Omukandi (MCZR). Okahandja: 30 km W Okahandja, 21.9260°S 16.5768°E (CP); Okahandja, 21.9833°S 16.9167°E (Pic, 1908; SMWN). [Erongo] Dâures: Okonyenye Mt. Otjihorongo Reserve, Damaraland, 21.1500°S 15.3167°E (SMWN); Brandberg Hungorob Valley, 21.1900°S 14.5282°E (Bologna, 2000a; SMWN).

Omaruru: Otjikoko S 61, 21.2833°S 16.3667°E (SMWN); Okakongo farm, Omaruru, 21.3167°S 15.9833°E (SMWN). Karibib: D1935, 30 km NNW Usakos, 21.7833°S 15.5000°E (CB); Karibib, 21.9333°S 15.8333°E (as ab. *nigrobasipennis*: Kaszab, 1956, *paratypus*); 20 km W Boshua Pass, 22.6640°S 15.8780°E (CB). Arandis: Rossing Mine, 22.4667°S 15.0333°E (SMWN). [Omaheke] Steinhausen: Kohoro Noord 185, 21.9667°S 18.7167°E (SMWN). [Khomas] Windhoek Rural: Daan Park, 22.5333°S 16.9667°E (CP); Portsmut 33, Windhoek, 23.1000°S 16.4167°E (SMWN). Windhoek East: Windhoek, 22.5667°S 17.0833°E (SMWN); Windhuk, 22.5700°S 17.0836°E (Bologna, 1978; CB). [Hardap] Mariental Urban: C19, 11 km W Mariental, 24.6167°S 17.8500°E (CB). [Karas] Berseba: Mukorob 14, Namaland, 25.4833°S 18.1667°E (SMWN). Keetmanshoop Rural: Khabus 146, 26.3000°S 18.2167°E (SMWN); Keetmanshoop, 26.9169°S 18.6746°E (CB); Karas distr., 27.1352°S 19.4941°E (CB). Karasburg: Grunau, 27.7333°S 18.3833°E (SMWN); 11 km NW Karasburg, 28.0167°S 18.7500°E (SMWN).

Other records: Northern Damaraland (Péringuey 1909); Swakop (Marseul 1872); Swakop River (CB); Otjiuve (SMWN); Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at MNHN.

Hycleus* sp. complex *tricolor [? = ***Hycleus kakamas*** (Péringuey, 1909)] (Fig. 4W)

? *Mylabris oculata* var. *kakamas* Péringuey, 1909
? *Mylabris buqueti* Péringuey, 1909 *nec* Marseul, 1872
Hycleus buqueti, Pitzalis *et al*. 2014

Distribution. Southern Namibia (new species record for this country) and western South Africa.

Material examined and literature records. [Karas] Keetmanshoop Rural: M29, 4 km S jct. D3919, 25.6205°S 18.6135°E (CB). Bersheba: C14, 51 km N Bethanien, 26.2919°S 17.0535°E (CB). Karas distr., 27.1352°S 19.4941°E (CB).

Other records: Damaraland (Péringuey 1909, as *buqueti*); Ovampoland (Péringuey 1909, as *buqueti*); Namibia (Bologna 2000a, as *buqueti*; Pitzalis *et al.* 2014, as *buqueti*). Kaszab (1956) cited from Damaraland *oculata* ab. *kakamas*, and this citation could be referable to this taxon.

Remarks. The identification of specimens from the localities listed above is still uncertain, being all females. They clearly belong to the group of species here considered as *dicinctus* group, and in particular to the complex of *H. tricolor* (Gerstäcker, 1854) or to that of *H. dicinctus* (Bertoloni, 1849), which were variously confused in the literature. Males of these last two species have maxillary palpi greatly distinct (see Pardo Alcaide 1958a, 1966), but the variation of elytral pattern is partially overlapping and this produced several erroneous records. Some infraspecific forms of these species were described (see Péringuey 1909) and referred to *tricolor* (as *oculatus*) or to *dicinctus*. For example: (i) *hottentottus* Fåhraeus, 1870, from South Africa, which probably refers to *tricolor*, with its synonym *trasversalis* Marseul, 1872 (see Pardo Alcaide 1966, note 1); (ii) *myops* Fåhraeus, 1870, erroneously referred to *tricolor*, or considered distinct (as *caffrarius* Pic 1908; see Kaszab 1956), but probably belonging to *dicinctus* (see Pardo Alcaide 1966, note 2).

Only the comparative examination of types of all described forms of this complex could clarify this taxonomic problem and could define if our southern Namibian specimens belong to a distinct species or to another described taxon. In Figs. 14 A–E are illustrated: tegmen in ventral (Fig. 14A) and lateral view with the aedeagus (Fig. 14B); mesosternum (Fig. 14C); male maxillary palpi (Fig. 14D) and stypes (Fig. 14E).

We suspect that the examined specimens belong to the form described by Péringuey (1909) as "*oculata* var. *kakamas*", from the arid regions of western South Africa, or to the taxon erroneously recorded by the same Author as *buqueti*. The description of *kakamas* greatly corresponds to our specimens as concerns the head and pronotum punctures. The shape of pronotum, which is very distinct from that of *tricolor* and *dicinctus*, due to its strangling and extended fore depression, clearly distinguishes this form from both species. Moreover, in our opinion, *buqueti* Marseul, 1872 (described from S Angola) represents simply an infraspecific form of *H. dicinctus*: we examined specimens from R.D. Congo identified as *buqueti* by Kaszab (RMCA), and they have the typical male maxillary stipes of *H. dicinctus*.

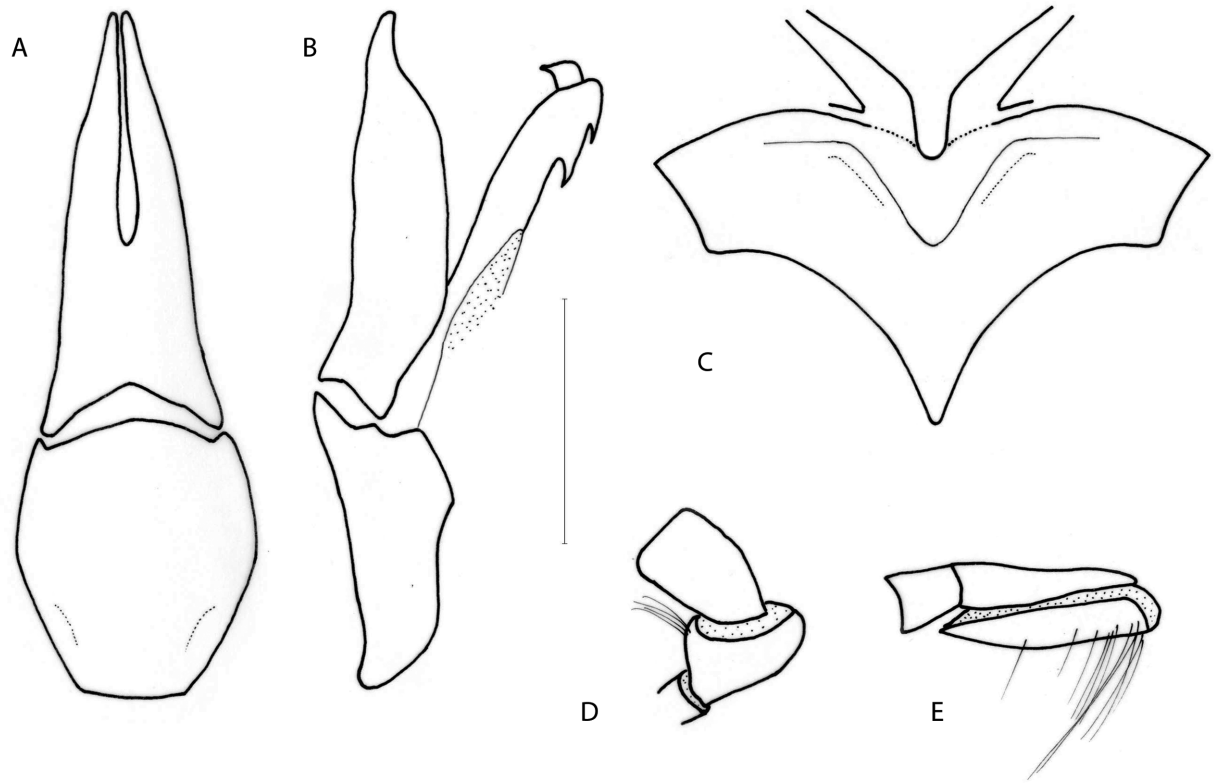

FIGURE 14. *Hycleus* complex *tricolor* (*kakamas*?): tegmen in ventral view (A); tegmen and aedeagus in lateral view (B); mesosternum (C); male maxillary palpi (D); male stype (E). Bar = 1 mm.

Hycleus tricolor (Gerstäcker, 1854) **comb. n.** (Fig. 4X)

Mylabris tricolor Gerstäcker, 1854
Mylabris oculata Thunberg, 1791
Mylabris oculata ssp. *ovamboensis* Kaszab, 1956

Types. Types of the taxa discussed here were not examined, but they were deeply studied by Pardo Alcaide (1966), who sent us specimens compared with types.

Distribution. Angola, Botswana, Mozambique, Namibia, South Africa, Tanzania, Zaire, Zambia, and Zimbabwe.

Material examined and literature records. [Ohangwena] Engela: Ovamboland: Ochikango, 17.4000°S 15.8833°E (ssp. *ovamboensis*: Kaszab, 1956, type locality). [Kavango] Rundu Rural: West Caprivi, Region Okavango, Ostufer near Rundu, 17.9333°S 19.7667°E (CP). Mukwe: Shadikongoro, 18.0500°S 21.3667°E (SMWN); Popa Falls, 18.1167°S 21.0667°E (SMWN). [Kunene] Opuwo: Orumana, Kaokoveld, 18.2500°S 13.9000°E (SMWN); Orumana, Kaokoland, 18.2667°S 13.8833°E (SMWN). [Oshikoto] Omuthiyagwiipundi: Namutoni, 18.8000°S 16.9833°E (CP); Okaukuejo, 19.1833°S 15.9333°E (SMWN). Tsumeb: Tsumeb, 19.2333°S 17.7167°E (CP); Tsumeb, 19.2333°S 17.7167°E (CB). [Oshana] Uuvudhiya: Okaukuejo-Leeubron, Etosha, 19.0667°S 15.8167°E (SMWN). [Otjozondjupa] Otavi: Dakota 424, 19.4941°S 17.1287°E (SMWN). Grootfontein: Grootfontein, 19.5667°S 18.1167°E (CB). Tsumkwe: Kremetartkop, Boesmanland, 19.8667°S 20.9167°E (SMWN). Otjiwarongo: Otjiwarongo, 20.4500°S 16.6500°E (CB). Omatako: Waterberg Rest Camp, Waterberg Plateau Park, 20.5167°S 17.2333°E (SMWN); Rodenstein 307, 20.5626°S 17.2418°E (SMWN); Okonjima 128, 20.8650°S 16.6670°E (SMWN); Sukses, 62 km S Otjiwarongo, 21.0000°S 16.8000°E (CB); D2414, Etjo-Kalkfeld, Dinosaurus Tracks, 21.1156°S 16.4161°E (CB); Kalidoua, 21.2833°S 18.0667°E (SMWN).

Okahandja: Okahandja, 21.9833°S 16.9167°E (SMWN). [Erongo] Dâures: Pager se gat: Brandberg, Damaraland, 21.1333°S 14.5833°E (SMWN); Brandberg, Wasserfallflache, 21.1795°S 14.5478°E (SMWN); Brandberg, Hungorob Valley, 21.1900°S 14.5282°E (Bologna 2000a, as *oculatus*; SMWN); Brandberg, Messum Valley, 21.2215°S 14.5163°E (Bologna, 2000a as *oculatus*; SMWN). Omaruru: Otjikoko-Sud 61, 21.2833°S 16.3667°E (SMWN). Karibib: Karibib, 21.9333°S 15.8333°E (CB). Walvis Bay Rural: Kuiseb Canyon, 23.3667°S 15.6667°E (SMWN). [Omaheke] Steinhausen: Owingi 246, Gobabis, 21.9000°S 18.8667°E (SMWN); Kehoro S 939, Gobabis, 22.0833°S 18.6167°E (SMWN). Kalahari: C22, near Gobabis, 12 km N jct. B6, 22.3613°S 19.0034°E (CB). Gobabis: Swart Nossob R. Gobabis, 23.1333°S 18.7000°E (SMWN); 15 km E Gobabis, Welkom Farm, 22.3923°S 19.1129°E (CP). [Khomas] Windhoek Rural: Onganja Ost 190, 22.1000°S 17.5667°E (SMWN); Khomas-Hochland, Bushmanland, 75 km NE Windhoek, Karivo, 22.2000°S 17.5500°E (CP); Windhoek, 22.3400°S 17.0500°E (SMWN); D1525, Windhoek-Gobabis, to Bodenhausen, 1 km N jct. B6, 22.3968°S 17.6600°E (CB); Neudamm 63, 22.5°S 17.35°E (SMWN); Daan Park, 22.5333°S 16.9667°E (CP); Windhoek Airport, 22.5333°S 17.2500°E (CB); Richthofen 126. 22.5667°S 17.7500°E (SMWN); Regenstein 32, 22.7178°S 17.0317°E (SMWN); Lichtenstein, 22.7667°S 16.9833°E (SMWN); Haris 367, 22.7833°S 16.8667°E (SMWN); Claratal 18, 22.8000°S 16.8333°E (SMWN); Wasservallei 382, 22.9167°S 16.3667°E (SMWN); Portsmut 33, 23.1000°S 16.4167°E (SMWN); Guisés 180, 23.8000°S 16.2333°E (SMWN). Windhoek East: Windhoek, 22.5667°S 17.0833°E (CB; SMWN); Avis Dam, 22.5728°S 17.1314°E (SMWN). [Hardap] Rehoboth Rural: Tsumis Park, 23.7333°S 17.4500°E (SMWN); Mariental Rural: Twilight, 24.1667°S 17.9833°E (SMWN); Haruchas 156, 24.9500°S 18.8500°E (SMWN); Mariental Urban: Hardap Dam, 24.4833°S 17.8333°E (CP). Gibeon: Ubussis 3, Namib-Naukluft Park, 24.3667°S 16.0667°E (SMWN). [Karas] Berseba: Aruab, 25.7000°S 16.5500°E (SMWN); C14, 1 km N Helmeringhausen, 25.8771°S 16.8233°E (CB). Keetmanshoop Rural: Koes 202, Keetmanshoop, 25.9500°S 19.1167°E (SMWN); Karasburg-Koes, 25.9500°S 19.1167°E (CP); Aroab, Keetmanshoop, 26.8000°S 19.6500°E (SMWN); Keetmanshoop, 26.8611°S 18.3864°E (CB); Swartbaas West 276, Keetmanshoop, 27.0167°S 19.7000°E (SMWN); Pleterskloof 370, Keetmanshoop, 27.2031°S 18.7681°E (SMWN); Rotegab 95, Keetmanshoop, 27.3333°S 18.4167°E (SMWN); Noachabeb 97, Keetmanshoop, 27.3833°S 18.4667°E (SMWN). Lüderitz: Plateau 38/Aar 16.26.6667°S 16.5333°E (SMWN). Karasburg: Nukois 269, Warmbad, 27.3833°S 18.9667°E (SMWN); Groenrivier, Warmbad, 27.5000°S 18.8000°E (SMWN); near Klein-Karas, Kuduberg 9, 27.6000°S 18.000°E (SMWN); 50 km E of Karasburg, bridge Oab River, 28.0500°S 19.2333°E (SMWN); Richthersveld, 55 km E Ariamsvlei-Velloorsdrift, 28.3333°S 19.4333°E (SMWN). Oranjemund: Boom River Canyon, 19 km N of Orange River (ENE of Rosh Pinah), 27.8500°S 17.0667°E (SMWN).

Other records: Namib Sand Sea desert (Seeely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. The taxonomy of this southern and eastern African species is still greatly confused (see above) and it probably represents a complex of species and subspecies. In the literature it was usually cited as *Mylabris oculata* Thunberg, 1791, but, according to Pardo Alcaide (1958a note 21) the type of *Mylabris oculata* refers to *Meloe bifasciatus* De Geer, 1778, an unavailable name, substituted by *Zonabris senegalensis* Voigts, 1902, which is a distinct Western African species of *Hycleus.* Consequently, the valid name available for this species, well characterized by the shape of male stypes, remains *tricolor* Gerstäcker, 1854. Waiting for the revision of this complex based on types, we did not consider its infraspecific taxonomy.

Hycleus versutus (Péringuey, 1909) (Fig. 4Y)

Mylabris versuta Péringuey, 1909

Distribution. Namibia (endemic).

Material examined and literature records. [Kunene] Opuwo: Opuwo town, 18.0500°S 13.8333°E (CB); D3710, near Opuwo, , 18.2011°S 13.8994°E (CB); Kunene distr., C43, 18.6788°S 13.7135°E (CB); Kunene distr., C43, 18.7599°S 13.7489°E (CB). Kamanjab: C40, 26 km E Kamanjab, 19.6957°S 15.1046°E (CB). [Erongo] Omaruru: C33, 6 km S Omaruru, 21.4824°S 15.9508°E (CB). Karibib: Karibib, D1953 45 km jct. C32, 22.2963°S 16.0658°E (CB). [Hardap] Mariental Urban: C19, 11 km W Mariental, 24.6167°S-17.8500°E (CB). Gibeon: C14, 1 km W Maltahöhe, 24.8589°S 16.9751°E (CB).

Other records: Damaraland (Péringuey 1909); Namibia (Bologna 2000a).

Remarks. Type of this species was briefly examined at SAMC.

This species was never studied or recorded in the literature after its description, except by Pardo Alcaide (1958a) who compared it to *H. descarpentriesi* (Pardo Alcaide, 1958), a scarcely known species from Guinea-Bissau. The specimens we examined agree with the description of *versutus* and the male maxillary shape is similar to that described by Pardo Alcaide (1958a). The deep examination of the type could confirm our identification.

Cg) *Hycleus hybridus* species group

This group of species was partially defined by Pardo Alcaide (1958a). It is well characterized by the structure of male maxillae and labial palpomeres. The fore portion of maxillary stipes is depressed and variously shaped, but greatly distinct from the posterior portion. We tentatively refer to this group at least the following species: *H. hybridus* (Marseul, 1872), *H. herero* (Borchmann, 1940), both from Namibia, *H. convexior* (Pic, 1909) (and its synonym *gridellii* Pardo Alcaide, 1958) from eastern Africa, *H. ligatus* (Marseul, 1870) from eastern Africa and Arabia, erroneously referred to the *dubiosus* group by Bologna & Turco (2007), and *H. cruentatus* (Klug, 1845) from Somalia, Ethiopia and Arabia.

Hycleus herero (Borchmann, 1940) (Fig. 5A)

Mylabris herero Borchmann, 1940

Distribution. Namibia (endemic).

Material examined and literature records. [Otjozondjupa] Okahandja: Okahandja Gross Barmen, 22.1000°S 16.7500°E (CB).

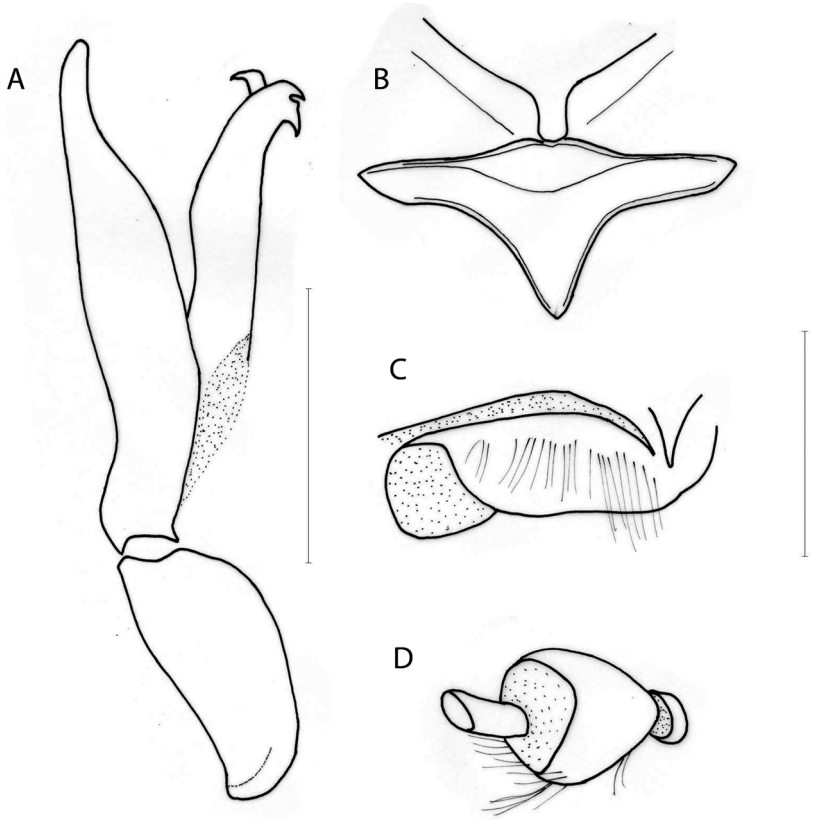

FIGURE 15. *Hycleus herero*: tegmen and aedeagus in lateral view (A); mesosternum (B); male stype (C); male maxillary palpi (D). Bars = 1 mm.

Other records: Hereroland (Borchmann 1940, type locality); Damaraland (Kaszab 1956); Namibia (Bologna 2000a).

Remarks. Type of this species was not examined and is probably lost.

Bologna (2000a) hypothesized the synonymy of this species with *H. hybridus*. Actually, after the examination of the male specimen from Okahandja, which strictly agrees with the description, we consider *H. herero* as a distinct species. It differs from *H. hybridus*, a species widespread in Namibia, at least by the following characters: (i) fore margin of fore depression of male maxillary stipes squared and posteriorly delimited by a shiny expansion, while in *hybridus* this depression is oval and rounded in front; (ii) punctures of head, pronotum and elytra very deep and approached; (iii) elytral red and black colouration clean and not vanished as in *hybridus*.

In Figs. 15A–D are illustrated: male genitalia in lateral view (Fig. 15A), mesosternum (Fig. 15B); male stype (Fig. 15C) and male maxillary palpi (Fig. 15D).

Hycleus hybridus (Marseul, 1872) (Fig. 5B)

Mylabris (Mylabris) hybrida Marseul, 1872

Distribution. Angola, Botswana, Namibia, and northwestern South Africa.

Material examined and literature records. [Omusati] Ruacana: C46, near Ruacana Falls, 17.4000°S 14.2833°E (CB); 4 km SW Ruacana Falls, 17.4167°S 14.2167°E (SMWN). Okahao: Kakoveld vegetation, Etosha N.P., 18.9661°S 14.8739°E (SMWN); Otjovasandu, Etosha N.P., 19.2500°S 14.5000°E (SMWN); btw. Kaross and Zebrapump, 19.3667°S 14.5000°E (SMWN). [Kunene] Epupa: Okokatuwo, 17.4500°S 12.7000°E (SMWN). Opuwo: 21 km E of Orupembe, 18.1785°S 12.4136°E (SMWN); Kaokoveld, Anabib (Orupembe), 100 miles W Ohopoho, 18.1833°S 12.5167°E (Kaszab 1956); D3710, near Opuwo, , 18.2011°S 13.8994°E (CB); 8 km E of Orumana, 18.2333°S 13.8833°E (SMWN); 25 km S Opuwo, 18.2830°S 13.7923°E (SMWN); Otjitundua, 18.6500°S 14.2333°E (SMWN); Kunene distr., C43, 18.6788°S 13.7135°E (CB); Kunene distr., C43, 18.7599°S 13.7489°E (CB); 42 km NW of Giribes Vlakte, 18.8180°S 13.1130°E (SMWN); Kunene distr., C43, 18.9562°S 13.7573°E (CB). Sesfontein: Khowarib River, 19.2667°S 13.8667°E (SMWN); Khowarib River, crossing 6 km N, 19.2667°S 13.8667°E (SMWN); D2650, near Kamanjab, 19.8087°S 14.5128°E (CB); Palmwag 702, 19.8333°S 13.8833°E (SMWN); Humor 704, 19.8439°S 14.1231°E (SMWN); Palm 708, 19.9000°S 13.9833°E (SMWN). Kamanjab: Kamanjab, 19.6333°S 14.8333°E (SMWN); C40, 26 km E Kamanjab, 19.6957°S 15.1046°E (CB); Otjitambi 25, 19.8167°S 15.1667°E (SMWN); C39, 23 km W Outjo, 20.1798°S 15.9480°E (CB); C39, 25 km E Khorixas, 20.3061°S 15.1867°E (CB). Outjo: Ike 346, 19.7533°S 16.6244°E (SMWN). Khorixas: Khorixas, 20.3500°S 14.9500°E (SMWN); Khorixas, 20.3667°S 14.9667°E (SMWN); Bethanis 514, 20.4000°S 14.4000°E (SMWN); Krone 721, 20.5373°S 13.9799°E (SMWN); Huab River Valley, 20.6167°S 13.9000°E (SMWN); Sebraskop 410, 20.7333°S 15.1500°E (SMWN); Duineveld 529, 20.7833°S 14.6333°E (SMWN). [Oshikoto] Omuthiyagwiipundi: 30 km E Etosha N.P. Mokuti Lodge, 18.8000°S 17.0333°E (CB); Halali, toilet Camp, Etosha N.P., 18.9500°S 16.5500°E (SMWN); Etosha N.P., Halali Rest Camp, 19.0333°S 16.4667°E (CB); Etosha N.P., Halali, 19.0500°S 16.4667°E (CB); Etosha N.P. near Okaukejo, 19.1833°S 15.9333°E (CB); Gobaub, Etosha N.P., 19.3000°S 16.4167°E (SMWN). Guinas: Otjikoto Lake, Tsumeb, 19.1833°S 17.5500°E (SMWN). [Otjozondjupa] Grootfontein: Hurisib 533, 19.3833°S 17.9167°E (SMWN). Otavi: Dakota 424, 19.4833°S 17.1333°E (SMWN); Kudib 426, 19.4833°S 17.2500°E (SMWN); Dakota 424, 19.4941°S 17.1287°E (SMWN); Kudib 426, 19.5118°S 17.2475°E (SMWN); B8, 10 km E Otavi, 19.6500°S 17.4167°E (CB). Otjiwarongo: D2430, 25 km N Otjiwarongo, 20.2667°S 16.6167°E (CB); Otjiwa, 18.7621°S 13.7333°E (SMWN). Omatako: Onjoka, Waterberg Plateau Park, 20.4167°S 17.2500°E (SMWN); Mount Etjo Safari Lodge, 21.0167°S 16.4167°E (CB); Kalkfeld: Omukandi (MCZR). Okahandja: Okahandja, 21.9833°S 16.9167°E (SMWN). [Erongo] Dâures: Ugab River near Onverwag, 20.8620°S 14.9890°E (SMWN); Otjohorongoro Mt., 20.8817°S 15.5168°E (CB); Brandberg, 21.1333°S 14.5833°E (Bologna 2000a; SMWN); Okonyenye Mt., Otjihorongo Reserve, 21.1500°S 15.3167°E (SMWN); Gross Spitzkoppe, 21.8167°S 15.1667°E (CB). Omaruru: Otjongoro 20, 20.8833°S 15.6333°E (SMWN); Otjikoko S 61, 21.2833°S 16.3667°E (SMWN); C33, 6 km S Omaruru, 21.4824°S 15.9508°E (CB). Karibib: D1935, 30 km NNW Usakos, 21.7833°S 15.5000°E (CB); Karibib, 21.9333°S 15.8333°E (CB); Navachab 67, 22.0167°S 15.7333°E (SMWN); D1980, 27 km S Karibib, 22.1500°S 15.8333°E (CB); C32, 54 km S Karibib, Swakop River,

22.3954°S 15.8343°E (CB); 20 km W Boshua Pass, 22.6640°S 15.8780°E (CB); C28, Boshua Pass, 22.7000°S 16.0333°E (CB). Arandis: Upper Panner Gorge, 22.4833°S 15.0167°E (SMWN); Ganab, Walvisbaai, 23.0667°S 15.1667°E (SMWN); C14, Kuiseb River, 23.3046°S 15.7718°E (CB). Walvis Bay Rural: Kuiseb Canyon, 23.3667°S 15.6667°E (SMWN); Rostock, Windhoek, 23.3833°S 15.7500°E (SMWN); Gorob Mine, Namib Desert Park, 23.5333°S 15.4167°E (SMWN). [Omaheke] Steinhausen: Swakop River, Okahandja, 22.0500°S 18.9000°E (SMWN). [Khomas] Windhoek Rural: Otjiseva 45, 22.3000°S 16.9667°E (SMWN); Whindoek, 22.5750°S 17.0831°E (RMCA); Brakwater, 20 km N Windhoek, 22.4000°S 17.0667°E (CB); Daan Viljoen Game Park, 22.5333°S 16.9333°E (CB); Daan Park, 22.5333°S 16.9667°E (CP); Windhoek Airport, 22.5333°S 17.2500°E (CB); Regenstein 32, 22.7178°S 17.0317°E (SMWN); Lichtenstein, 22.7667°S 16.9833°E (SMWN); Wasservalley 382, 22.9167°S 16.3667°E (SMWN); C23, 38 km S Dordabis, 23.0715°S 18.0434°E (CB); 8 km E of Namib Park Border, 23.3167°S 15.8667°E (SMWN); C14, 10 km N Solitaire, 23.7188°S 15.8776°E (CB). Windhoek East: Windhoek, 22.5667°S 17.0833°E (SMWN); Windhoek, 22.5700°S 17.0836°E (CB); Avis Dam, 22.5728°S 17.1314°E (SMWN). [Hardap] Rehoboth West Urban: near Rehobot, 23.3167°S 17.0833°E (CP). Gibeon: Sukses 133, 24.3000°S 15.8833°E (SMWN); C14, 1 km W Maltahöhe, 24.8589°S 16.9751°E (CB).

Other records: Swakop (Pardo Alcaide 1958a); Swakop River (CB); Kaokoveld Cropembe (Pardo Alcaide 1958a); Damaraland (Péringuey 1909); Rooilyn (SMWN); Tuyeb (SMWN); Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at MNHN.

See above for the distinction from *H. herero* (Borchmann, 1940).

Ch) *Hycleus tinctus* species group

This group, partially studied by Bologna (1978), is here defined only phenetically by the particular elytral pattern with a wide reddish lateral edge. It includes at least the two species listed below.

Hycleus matabele (Péringuey, 1909) **comb. n.** (Fig. 5C)

Mylabris matabele Péringuey, 1909

Types. Types of this species were examined at SAMC.

Distribution. Botswana, Namibia (new species record for this country), and Zimbabwe. The citation from Kenya (Péringuey 1909) is ambiguous and probably refers to a Botswanan locality.

Material examined. [Kunene] Opuwo: 30 km WNW Orupembe, 18.1167°S 12.3500°E (SMWN). Sesfontein: Hoanib floodplain, 19.3667°S 13.0167°E (SMWN). Khorixas: Fransfontein, 20.1833°S 15.0167°E (SMWN). [Oshikoto] Omuthiyagwiipundi: Okashana Agric. Experimental Station, 18.4167°S 16.6500°E (SMWN); B1, Ondangwa-Tsumeb, 45 km NW of Oshivelo Andoni plains, 18.4325°S 16.7272°E (CB); Nau-Obes, Etosha N.P., 19.3167°S 16.6167°E (SMWN). Engodi: 30 km W Oshivelo, 18.4870°S 17.0000°E (CB). Guinas: B1, 10 km S Oshivelo, 18.7556°S 17.2420°E (CB). [Omusati] Ruacana: NW Etosha N.P., 18.7167°S 14.5833°E (SMWN). Okahao: Dorsland, Etosha N.P., 18.7167°S 14.8667°E (SMWN); Kaokoveld vegetation, Etosha Nat. Park, 18.9661°S 14.8739°E (SMWN); Northern Border, Bitterwater Firebreak, Etosha N.P., 18.9667°S 15.1500°E (SMWN); Duikersdrink, Etosha N.P., 19.0667°S 14.7167°E (SMWN). [Otjozondjupa] Tsumkwe: Dobe, 19.4167°S 20.6000°E (SMWN); Klein Dobe, 19.4333°S 20.5000°E (SMWN); Boesmanland, 19.6000°S 20.6833°E (SMWN); Bushmanland, Aha hills, 19.6167°S 20.9667°E (SMWN); Bushmanland, 3 km W Kuru, 19.9333°S 20.6333°E (SMWN); Gam, Hereroland-Oos, 20.2500°S 20.8167°E (SMWN). Omatako: near Otjahevita road to Grootfontein, 20.3400°S 17.5500°E (CB); Waterberg Plateau Park, 20.3667°S 17.3500°E (SMWN); Waterberg Plateau Park, 20.3833°S 17.3000°E (SMWN); Waterberg, cr. roads C22-2512, 20.6333°S 17.1500°E (CB); Hamakari S 373, 20.6667°S 17.3833°E (SMWN); Hamakari S 373, 20.6667°S 17.4000°E (SMWN). Okakarara: Hereroland-West, 20.5167°S 17.4833°E (SMWN); Okakarara, Hereroland, 20.5833°S 17.4333°E (SMWN). [Omaheke] Steinhausen: Boplaan, 21.7007°S 19.4779°E (SMWN); C30, 8 km S jct. C29, 21.8207°S 18.3307°E (CB); Geiersberg, Omitara 109, 22.3213°S 18.0331°E (SMWN). Kalahari: Gobabis, C22, 12 km N jct. B6, 22.3613°S 19.0034°E (CB); C20, Gobabis-Leonardville, 16 km S of Gobabis, 22.9500°S 18.9422°E (CB).

Gobabis: Gobabis, C22, 2 km N jct. B6, 22.4205°S 19.0037°E (CB). Aminius: C20, Gobabis-Leonardville 5 km S Aais, 23.2593°S 18.7237°E (CB). [Erongo] Daures: Brandberg Messum Valley, 21.2248°S 14.5163°E (Bologna, 2000a; SMWN); Karibib: Navachab 67, 22.0167°S 15.7333°E (SMWN). [Khomas] Windhoek Rural: Excelsior 286, 22.4500°S 17.6333°E (SMWN); Richthofen 126, 22.5667°S 17.7500°E (SMWN). [Hardap] Gibeon: Bullsport 172, 24.1167°S 16.3333°E (SMWN). Mariental Rural: Haruchas 156, 24.9500°S 18.8500°E (SMWN). [Karas] Keetmanshoop Rural: Wildheim Ost 384, 26.4833°S 19.5667°E (SMWN); C11, 1 km jct. M26, 27.0915°S 19.5372°E (CB).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Pitzalis *et al.* 2014).

Remarks. Easily distinguishable from *H. tinctus* (Erichson, 1843) because of their temples greatly shorter than eye longitudinal diameter (longer in *tinctus*), pronotum more rounded in the fore half and the silver, very dense setation of both head and pronotum. The elytral pattern differs from that of *H. tinctus* because of lateral reddish portion of black fasciae more extended.

Hycleus tinctus (Erichson, 1843) (Fig. 5D)

Mylabris tincta Erichson, 1843
Coryna tincta, Bologna 1978

Distribution. Angola and Namibia.

Material examined and literature records. [Omusati] Ruacana: C46, near Ruacana Falls, 17.4000°S 14.2833°E (CB); NW Etosha N.P., 18.7167°S 14.5833°E (SMWN). Tsandi: Tsandi, Ovamboland, 17.7500°S 14.9000°E (SMWN). Okahao: Duikersdrink, Etosha N.P., 19.0667°S 14.7167°E (SMWN); Otjiovasandu, Etosha N.P., 19.2500°S 14.5000°E (SMWN); Between Kaross and Zebrapump, Etosha N.P., 19.3667°S 14.5000°E (SMWN); Kaross, Etosha N.P., 19.3833°S 14.5333°E (SMWN). [Kunene] Epupa: Hippo Pool on Kunene River, 20 km W of Ruacana, 17.4092°S 14.2185°E (CB); Otwazuma, 17.8667°S 13.3167°E (SMWN). Opuwo: Opuwo town, 18.0500°S 13.8333°E (CB); 30 km WNW Orupembe, Kaokoland, 18.1167°S 12.3500°E (SMWN); 21 km E Orupembe, 18.1785°S 12.4136°E (SMWN); D3710, near Opuwo, 18.2011°S 13.8994°E (CB); 6 km NE Orumana, Kaokaland, 18.2167°S 13.9500°E (SMWN); 4 km E Orumana, Kaokoland, 18.2333°S 13.8333°E (SMWN); C35, 110 km NW Kamanjab, 18.9167°S 14.3833°E (CB). Sesfontein: Khowarib River, Damaraland, 19.2667°S 13.8667°E (SMWN); D2650, near Kamanjabn, 19.8087°S 14.5128°E (CB); Palmwag 702, Damaraland, 19.8333°S 13.8833°E (SMWN). Kamanjab: Ombika, Etosha N.P., 19.3333°S 15.9333°E (SMWN); C35, 35 km NW Kamanjab, 19.5000°S 14.8000°E (CB); Beulah 256, 19.6000°S 14.9167°E (SMWN); Sonnegroet 608, 19.6167°S 14.7167°E (SMWN); Kamanjab, 19.6333°S 14.8333°E (SMWN); C40, 26 km E Kamanjab, 19.6957°S 15.1046°E (CB); Otjitambi, 19.8167°S 15.1667°E (SMWN); C39, 23 km W Outjo, 20.1798°S 15.9480°E (CB); C39, 29 km W Outjo, 20.19834°S 15.8831°E (CB); C39, 70 km W Outjo, 20.2589°S 15.5248°E (CB); C39, 25 km E Khorixas, 20.30608°S 15.1867°E (CB); Eendrag 110, Outjo, 20.3386°S 15.7749°E (SMWN); Delhi, 20.3780°S 15.7280°E (SMWN). Outjo: "Abachaus" 50 km N Otjwarongo, 19.7500°S 16.5833°E (CB); C39, 10 km W Outjo, 20.0100°S 16.0100°E (CB); Outjo town, 20.0833°S 16.1333°E (CB); Damaraland, 1 km SE of Outjo, River Ugab, 20.1167°S 16.1500°E (CB); road Outjo-Kalkfeld, 16–20 km S Outjo, 20.3333°S 16.1500°E (CB). Khorixas: Fransfontein, 20.1833°S 15.0167°E (SMWN); Fransfontein, 20.2167°S 15.0167°E (SMWN); Khorixas, Damaraland, 20.3500°S 14.9500°E (SMWN); Khorixas, Damaraland, 20.3667°S 14.9667°E (SMWN); Damaraland, Bethanis 514, 20.4000°S 14.4000°E (SMWN); Damaraland, Duineveld 529, 20.7833°S 14.6333°E (SMWN). [Oshikoto] Omuthiyagwiipundi: B1, Ondangwa-Tsumeb, 45 km NW of Oshivelo, Andoni plains, 18.4325°S 16.7272°E (CB); Ovamboland, Namutoni, 18.8000°S 16.9833°E (Kaszab, 1956, as ab. *biluteocingulata*, type locality); 30 km E Etosha N.P., Mokuti Lodge, 18.8000°S 17.0333°E (CB); Etosha N.P., Sueda Pan, 18.8333°S 16.3333°E (JP); Etosha N.P., Halali Rest Camp, 19.0333°S 16.4667°E (CB); Kapupuhedi-Rietfontein, Etosha N.P., 19.1167°S 16.0667°E (SMWN); Gobaub Etosha N.P., 19.3000°S 16.4167°E (SMWN). Tsumeb: 5 km E Tsumeb, 19.2600°S 17.7500°E (CB). [Oshana] Uuvudhiya: N of Okondeka, Etosha Nat. Park, 18.9500°S 15.8333°E (SMWN). [Kavango] Ndiyona: Kaudom Game Reserve, 19.0333°S 20.5167°E (SMWN). [Otjozondjupa] Otavi: Dakota 424, 19.4833°S 17.1333°E (SMWN); Dakota 424, 19.4941°S 17.1287°E (SMWN); Kudib 426, 19.5118°S 17.2475°E (SMWN); B8, 10 km E Otavi, 19.6500°S 17.4167°E (CB). Otjiwarongo: D2430, 25 km N Otjiwarongo, 20.2667°S 16.6167°E (CB); Outjo-Otjivarongo, 20.3410°S 16.3830°E (CB); Garfield,

20.4450°S 16.0830°E (SMWN). Omatako: Waterberg Plateau Park, River Omatako, 20.4167°S 17.2500°E (CB); B1, 28 km S Otjiwarongo, 20.6806°S 16.7787°E (CB); Mount Etjo Safari Lodge, 21.0167°S 16.4167°E (CB). Okahandja: Okahandja, D2192, 4 km jct. B2, 21.949°S 16.5763°E (CB); Okahandja, 21.9833°S 16.9167°E (CB; CP; SMWN); Okahandja, Gross Barmen, 22.1000°S 16.7500°E (CP). [Erongo] Dôures: Otjihongoro Reserve, Damaraland, 20.9000°S 15.2000°E (SMWN); Damaraland, Okonyene Mt., Otjiwarongo Reserve, 21.1500°S 15.3167°E (SMWN); Hungorob Valley, Branderberg, 21.1900°S 14.5282°E (SMWN); Messum Valley, Branderberg, 21.2215°S 14.5163°E (SMWN); Gross Spitzkoppe, 21.8167°S 15.1667°E (CB); Spitzkoppe, 21.8518°S 15.1484°E (SMWN); Gross Spitzkoppe, 21.9532°S 15.2842°E (CP). Omaruru: Otjikoko-Sud 61, Omaruru, 21.2833°S 16.3667°E (SMWN); Omaruru, 21.4333°S 15.9333°E (SMWN); C33, 6 km S Omaruru, 21.4824°S 15.9508°E (CB); C33, 30 km jct. B2, 21.6681°S 15.9799°E (CB). Karibib: D1935, 30 km NNW Usakos, 21.7833°S 15.5000°E (CB); Karibib, 21.9333°S 15.8333°E (CB); Okakoara 43, 21.9667°S 16.0167°E (SMWN); Usakos, 12 km W, Karibib, 21.9972°S 15.4879°E (SMWN); Navachab 67, 22.0167°S 15.7333°E (SMWN); D1980, 26–28 km S Karibib, 22.1500°S 15.8333°E (CB); 20 km W Boshua Pass, 22.664°S 15.878°E (CB); C28, 20 km E Boshua Pass, 22.7000°S 16.0333°E (CB). Arandis: Damaraland, 6 km N Arandis, 22.3667°S 14.9833°E (SMWN); Rossing mine, 22.4667°S 15.0333°E (SMWN); Upper Panner Gorge, 22.4833°S 14.9833°E (SMWN); Upper Panner Gorge, 22.4833°S 15.0167°E (SMWN); Lower Ostrich Gorge, 22.5000°S 14.9667°E (SMWN); Gemsbokwater, Namib Naukluft Park, 23.0833°S 15.1667°E (SMWN). Swakopmund: Swakop River (Marseul 1872; Péringuey 1909). Walvis Bay Rural: Walvis Bay, 22.9575°S 14.5053°E (Péringuey 1909). [Omaheke] Steinhausen: Swakop River, Okahandja, 22.0500°S 18.9000°E (SMWN). Aminius: Leonardville, Gobabis, 23.5000°S 18.8000°E (SMWN). [Khomas] Windhoek Rural: Otjiseva 45, 22.3000°S 16.9667°E (SMWN); Brakwater, 20 km N Windhoek, 22.4000S 17.0667°E (CB); Neudamm 63, 22.5000°S 17.3500°E (SMWN); Daan Viljoen Garne Park, 22.5333°S 16.9333°E (CB); Daan Park, 22.5333°S 16.9667°E (CP); Windhoek Airport, 22.5333°S 17.2500°E (CB); Hoffnung 66, 22.5411°S 17.1978°E (SMWN); Richtofen 126, 22.5667°S 17.7500°E (SMWN); Regenstein 32, 22.7178°S 17.0317°E (SMWN); Lichtenstein, 22.7667°S 16.9833°E (SMWN); C23, 28 km jct. B6, 22.7719°S 17.4551°E (CB); Heris 367, 22.7833°S 16.8667°E (SMWN); Wasservallei W, 22.9167°S 16.3667°E (SMWN); C23, 38 km S Dordabis, 23.0715°S 18.0434°E (CB); D1228, 7 km ENE Rehoboth, 23.2833°S 17.2333°E (CB); D1261, Nauchas-Rehoboth, 1–40 km NW Nauchas, 23.5763°S 16.4588°E (CB). Windhoek East: Windhoek, 22.5667°S 17.0833°E (Bologna 1978; CB; SMWN); Avis Dam, 22.5728°S 17.1314°E (SMWN). [Hardap] Rehoboth West Urban: Rehoboth town, 23.3167°S 17.0667°E (CB); Rehoboth distr., 23.3500°S 17.0667°E (SMWN). Rehoboth Rural: Oudam 354, 23.6167°S 16.6833°E (SMWN). Mariental Rural: Stampried, 24.3333°S 18.4000°E (SMWN). Mariental Urban: C19, 11 km W Mariental, 24.6167°S 17.8500°E (CB). Gibeon: C14, 1 km W Maltahöhe, 24.8589°S 16.9751°E (CB); Alwynkop, 24.9167°S 16.2333°E (SMWN); Wolwedans 144, 25.1000°S 15.9833°E (SMWN). [Karas] Berseba: C14, 1 km N Helmeringhausen, 25.8771°S 16.8233°E (CB). Keetmanshoop Rural: Koes, 25.9500°S 19.1167°E (SMWN); Khabus 146, 26.3000°S 18.2167°E (SMWN); C11, 1 km jct. M26, 27.0915°S 19.5372°E (CB). Lüderitz: Plateu 38, 26.6667°S 16.5333°E (SMWN). Karasburg: Hobas 374, 27.6167°S 17.7167°E (SMWN).

Other records: Damaraland (Kaszab 1956, as ab. *biluteocingulata*, type locality); Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a).

Remarks. Types of this very distinctive species were not examined.

Ci) *Hycleus africanus* species group

We group tentatively in this assemblage some southern African species of the *Mesocutatus* lineage with ten antennomeres as *H. africanus* (Olivier, 1811), *H. namaquus* (Péringuey, 1909) and *H. quadriguttatus* (Wulfen, 1786). The taxonomy of this group needs a deep revision.

Hycleus* cfr. *africanus (Olivier, 1795**)** [? = ***Hycleus insolitus*** (Péringuey, 1909)] (Fig. 5E)

Mylabris africana Olivier, 1795
Decatoma africana, Péringuey 1909
? *Decatoma africana* var. *insolita* Péringuey, 1909

Distribution. Namibia (new species record for this country) and South Africa.

Material examined. [Khomas] Windhoek Rural: Excelsior 286, 22.4500°S 17.6000°E (SMWN).

Remarks. The single specimen we examined is similar to *H. africanus* from Western and Northern Cape but the pronotum is more depressed anteriorly, the head and pronotum punctures are more subrugose and confluent, the head, pronotum and ventral setae are longer and distinctly golden. The mesosternum is illustrated in Fig. 16E. The elytral pattern and setation correspond to that of the var. *insolita* Péringuey, 1909, which was considered as a possible distinct species by the South African entomologist. The deeply examination of types of both *africanus* and var. *insolita* is basic to the resolution of this taxonomic problem.

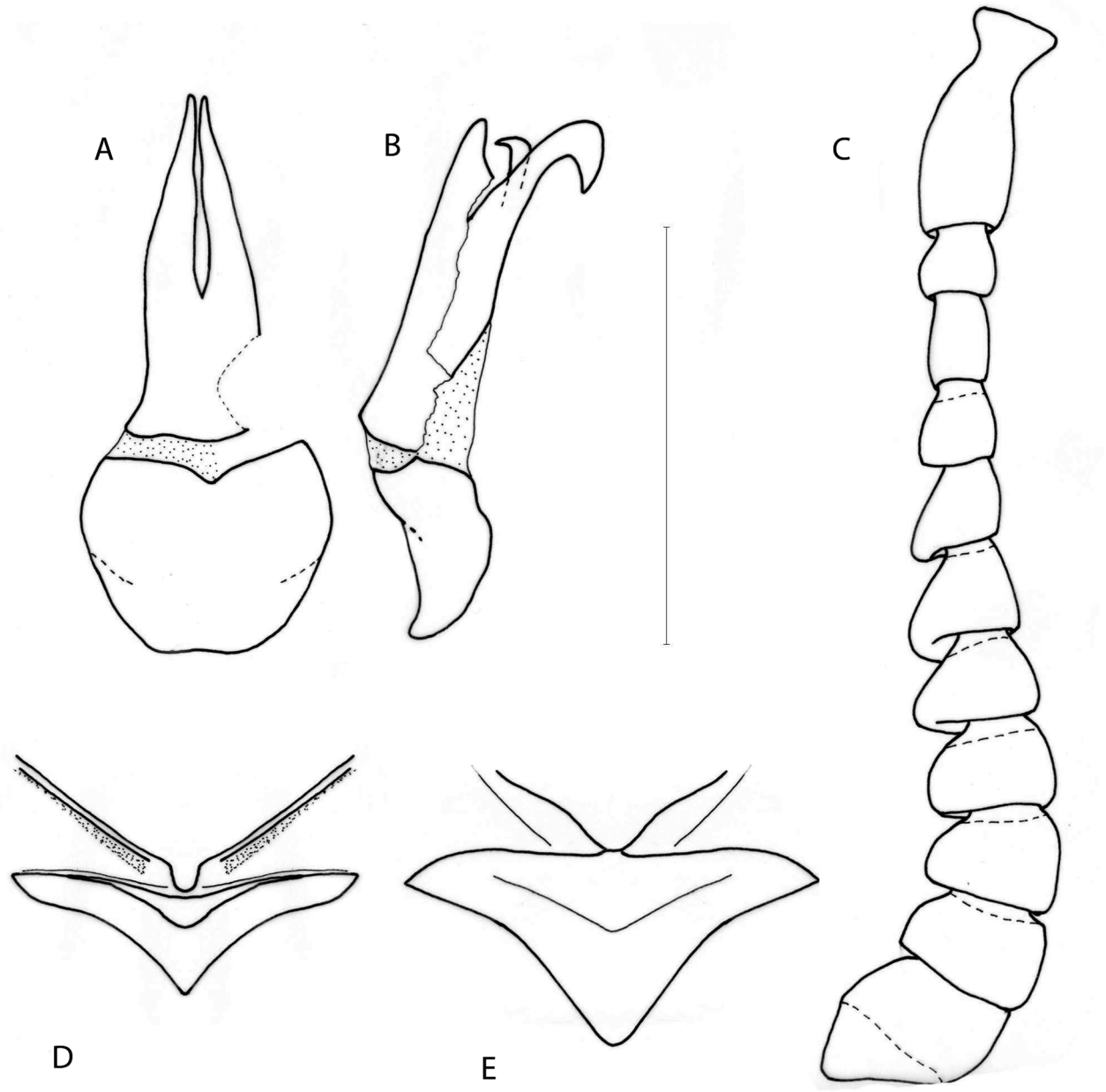

FIGURE 16. *Hycleus aridus*: tegmen in ventral view (A); tegmen and aedeagus in lateral view (B); antenna (C); mesosternum (D). *Hycleus* cfr. *africanus*: mesosternum (E). Bar = 1 mm.

Hycleus namaquus (Péringuey, 1909) **comb. n.** (Fig. 5F)

Decatoma namaqua Péringuey, 1909

Types. Types of this species were examined at SAMC.

Distribution. Southwestern Namibia (new species record for this country) and northwestern South Africa.

Material examined. [Karas] Lüderitz: Aus, 26.6667°S 16.2667°E (CP).

Remarks. Péringuey (1909) used in its monograph of southern African Meloidae the same name *namaqua* for two distinct blister beetles. The first name corresponds to a chromatic variation of *H. haemactus* (see above) and consequentlythe, representing only an intraspecific phenetic variation, is taxonomically unvalid. Therefore, the name *namaquus* is useful for the second taxon, which was described as distinct species in the genus *Decatoma* (a synonym of *Hycleus*) and which is referred to *Hycleus* for the first time in the present paper (**comb. n.)**.

The mesosternal "scutum" is very narrow, intermediate between the *Mesoscutatus* and *Mesotaeniatus*-type lineages. Antennae have ten black antennomeres, but IV–VI reddish.

Cj) *Hycleus svakopensis* species group

The only species of this group is very distinct at least because of elytra, subquared apically as in the mylabrine genera *Mimesthes*, *Paramimesthes* and *Namylabris* (see above). Both the last two genera and *H. svakopensis* are endemic to the Namib Desert.

Hycleus svakopensis (Borchmann, 1940) (Fig. 5G)

Coryna svakopensis Borchmann, 1940

Distribution. Western Namibia (endemic).

Material examined and literature records. [Erongo] Arandis: 6 km N Arandis, Damaraland, 22.3667°S 14.9833°E (CB; SMWN); Upper Ostrich Gorge, 22.4833°S 14.9833°E (SMWN); Lower Ostrich Gorge, 22.5000°S 14.9667°E (CB; SMWN); Lower Ostrich Gorge, 22.5000°S 14.9833°E (SMWN). Swakopmund: Swakopmund, 22.6833°S 14.5333°E (Borchmann 1940; CB).

Other records: Namibia (Bologna 2000a); South West Africa (Borchmann 1940).

Remarks. Type of this species was not examined and is probably lost.

Elytra are apically squared and have a vanished brown-black pattern; antennae have only nine antennomeres.

Cj) *Hycleus dvoraki* species group

Tentatively we consider in this group two new species, *H. dvoraki* and *H. aridus*, both from the Namib Desert and syntopic in two localities. These species are characterized by the combination of the following traits: 11 short and black antennomeres, VII–X slightly subserrate, particularly in male, XI not elongate; aedeagus with a single apical slender hook; protarsomeres distinctly shorter than protibiae.

Hycleus dvoraki **Bologna sp. n.** (Fig. 5H)

Types. Holotype female (SMWN) labelled "Hunkab River, at 19°49'S 13°0'E, Skeleton Coast Park, 4.5 April 1979 s. louw, R. Wharton; H38975". Male paratype (CB), labelled "Khorixas: Unjab River bank, 11 km upstream from pump house, Skeleton Coast Park, 20°08'S 13°18'E, 18-26.VIII.1990, C.S. Roberts, Pres. pitf. traps".

Type locality. Both the type locality (19.8167°S 13.00°E in decimal degrees) and the second site (20.133°S

13.30°E in decimal degrees) are located in the Kunene region, districts of Sesfontein and Khorixas, in the biome of the Namib Desert. In both localities is distributed also *H. aridus* endemic to Namib.

Diagnosis. One *Hycleus* species with mesosternum of the *Mesoscutatus*-type (Fig. 17F), characterized by 11 antennomeres totally black, VI–IX subserrate (Fig. 17D), wide campaniform pronotum, elytral pattern as in Figs. 5H and 17E, one single distal aedeagal hook (Fig. 17C).

Description. Body shiny and unicolor black, pronotum less shiny in the paratype, elytra brown-orange with black pattern (Figs. 5H, 17E) with wide apex and two undulate fasciae, fore one extended on humerus and on base, encircling a rounded brown spot. Body setation black, denser and longer on ventral side; elytra with setiform punctures variable in size and depth and sparse setae. Maximal body length: 12–13 mm.

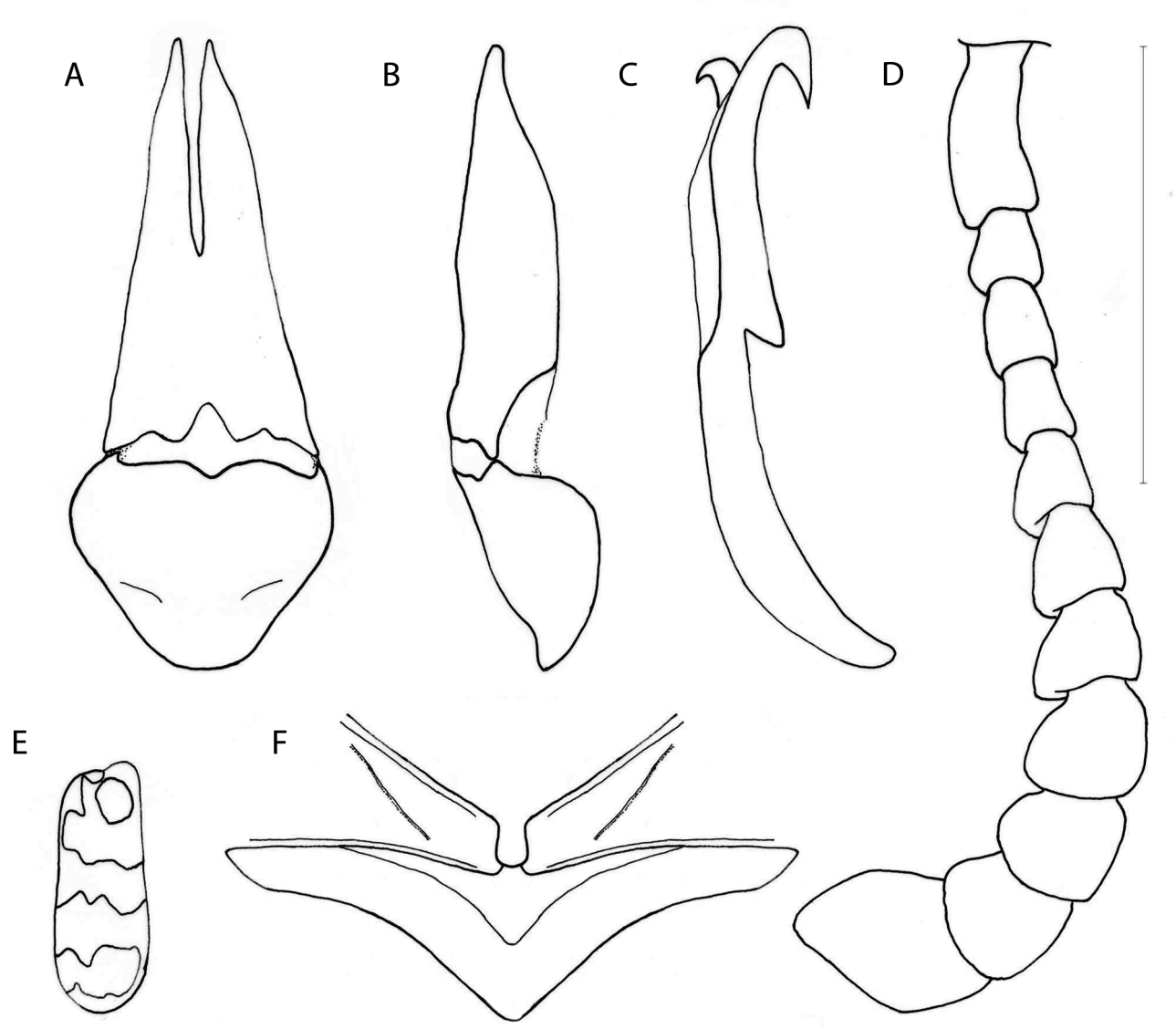

FIGURE 17. *Hycleus dvoraki*: tegmen in ventral (A), and lateral view (B); aedeagus in lateral view (C); antenna (D); elytra (E); mesosternum (F). Bar = 1 mm.

Head distinctly transverse, subrectangular, temples parallel, short, distinctly shorter than longitudinal diameter of eye, smaller than maximum width at the level of eyes; punctures deep, wide and scattered, denser and subrugose on frons, intermediate surface microreticulate; frons slogthly convex and occiput almost flat; eye subglobose, bulging, with antero-dorsal margin sligthly emarginated. Clypeus narrower than interocular width, rounded on sides, convex and with the same puncturation of frons; fronto-clypeal suture well visible; labrum about as long as clypeus, fore margin slightly emarginated, punctures finer than on clypeus. Maxillary palpomeres subcylindrical, with black setae on the external side of the apex of each palpomere; male maxillae and labial palpomeres not

modified with stipes narrow and elongate in lateral view; mandibles robust, curved in fore half, sharp at apex, longer than labrum. Antennae (Fig. 17D) with 11 antennomeres, I–IV shiner, V–XI subopaque and microsetate; I as long as II–III together, II subglobose; III–IV slender and subcylindrical, III distinctly longer than IV; V–IX trapezoidal, progressively widened at apex, VI–IX subserrate and apically widened on external side, increasing in width and length from V to X; XI at base as wide as X but two times longer, apical half distinctly and abruptly conical and obtuse.

Pronotum widely campaniform, about as long as wide, as wide as the maximal width of head on eye, sides parallel from base to fore third and then slowly narrowing anteriad; fore portion transversally subdepressed; middle furrow extended only in middle, base depressed in front of mesonotum; puncturation similar to that on head, but slightly more subopaque in the paratype. Elytra parallel, dorsally convex, punctures subrugose on black parts, very scattered and wide on brown-yellow parts, with distinct setae, more subrugose in the paratype; setae black and sligthly robust. Mesosternum (Fig. 17F) of *Mesoscutatus* types, with one quite large triangular fore modified area; fore margins of mesepisterna furrowed and with a distanced vague keel. Legs slender; male protarsomeres not distinctly widened; male protibiae and protarsomeres with dense robust setae, mixed with longer setae in female; both tibial spurs on all legs slender, external metatibial spur obtuse; ventral blade of claw regularly developed and scarcely curve.

Male last ventrite emarginated. Gonoforceps (Figs. 17A, 17B) slender in both ventral and lateral views, progressively narrowed, in lateral view, apical lobes elongate; gonocoxal plate very wide; aedeagus (Fig. 17C) with one single distal hook at apex, long and sharp.

Etymology. Named after the late Czech entomologist Miroslav Dvořak, who studied some complex groups of Palaearctic and Oriental Meloidae.

Remarks. Affinities of this species are unknown. It is phenetically similar to *H. aridus* particularly because of the aedeaugus with a single sharp apical hook, the punctures of elytra and the subserrate midle antennomeres, but differs because of the elytral pattern with extended black surface; the pronotum less depressed anteriorly, the shape of mesosternum and fore portion of male gonoforceps less slender.

Distribution. Northwestern Namibia.

***Hycleus aridus* Bologna sp. n.** (Fig. 5I)

Types. Holotype female, 2 females paratypes (SMWN) and 1 female paratype (CB), labelled "6 km N Arandis, 22°22'S 14°59'E, 12 Feb–11 March 1985, J. Irish- H. Rust. 1 female paratype (SMWN), *idem,* but 10 April–8 May 1984 J. Irish H. Liessner. 1 female paratype (SMWN), 1 male and 1 female paratypes (CB), *idem,* but 3–31.VII.1984, J. Irish H. Liessner. 1 male paratype (SMWN), labelled "Lower Ostrich Gorge, 22°30'S 14°58'E, Swakopmund district, 11March–9April 1985*,* J. Irish- H. Rust. 1 female paratype (SMWN), *idem,* but 13 March–9 April 1984 J. Irish H. Liessner. 1 male and 2 females paratypes (SMWN), labelled "Upper Ostrich Gorge, 22°29'S 14°59'E, Swakopmund distr., 13 March–10 April 1984 J. Irish H. Liessner. 1 male paratype (SMWN), *idem,* but 12 Feb–11 March 1985, J. Irish- H. Rust. 1 female paratype (SMWN), *idem,* but 11 March–9April 1985, J. Irish- H. Rust. 1 male paratype (SMWN), labelled "Unjab River bank, 11 km upstream from pump house, Skeleton Coast Park, 20°08'S 13°18'E. 1 male paratype (SMWN), labelled "Namibia, Brandberg, Hungorob ravine at: 21°13'25"S 14°31'03"E, 21.iv.2000, 700 m, K.Meakin/Raleigh Int., yellow paint trap row 3, Bberg pan 48. 1 female paratype (SMWN), labelled "Betw. Hunkab and Hoanib Rivers at 19°38'S 13°31'E, Skeleton Coast Park, 5 April 1979, S. Louw, R. Wharton".

Type locality. All localities are located in the Namib Desert biome, but with different ecological characteristics. The type locality and two others, very close (Upper and Lower Ostrich gorge), are located in the Erongo region, in areas with dense ground; another (Hungarob) on the Brandberg volcan, along a temporary river bank in a mountain valley. The remaining two sites are located in the Skeleton Coast Park (Kunene Region, Sesfontein and Khorixas districts, respectively), along temporary river banks surronded by rocky hills (Hoanib) or sand dunes (Unjab).

Diagnosis. One *Hycleus* species with mesosternum of the *Mesoscutatus* type, close and similar to *H. dvoraki*, with 11 antennomeres, the middle ones subserrate, aedeagus with one single distal hook at apex; distinct by *H. dvoraki* because of the very distintive elytral pattern (Fig. 5I)*,* smaller mesosternal scutum, wider and shorter male protarsomeres, narrower apical part of male gonoforcesps.

Description. Body shiny and unicolor black, elytra brown-yellow, with black pattern (Fig. 5I) with narrow apex partially extended on the sutura, two spots on fore third, external spot subtrasverse, one middle undulate fascia, one isolated pre-apical middle spot oblique. Body setae black, denser and longer on ventral side; elytra with setiform punctures variable in size and depth and sparse short setae, quite longer on posterior third. Maximal body length: 8.5–13 mm.

Head distinctly transverse, subrectangular, temples parallel, short, distinctly shorter than longitudinal diameter of eye, smaller than maximum width at the level of eyes; punctures deep, wide and scattered, denser on frons, intermediate surface shagreened; frons transversely depressed, occiput almost flat; eye subglobose, bulging, with antero-dorsal margin sligthly emarginated. Clypeus narrower than interocular width, subparallel on sides, convex and with same punctures that on frons, smooth anteriorly; fronto-clypeal suture well visible; labrum about as long as clypeus, fore margin slightly emarginated, punctures as on clypeus. Maxillary palpomeres subcylindrical, with black setae on the external side of apex of each palpomere, except last one; male maxillae and labial palpomeres not modified with stipes narrow and elongate in lateral view; mandibles robust, curved in fore half, sharp at apex, longer than labrum. Antennae (Fig. 16C) with 11 antennomeres, I–III shiner, IV–XI subopaque and microsetate; I as long as II–III together, II subglobose; III slender and subcylindrical, distinctly longer than IV; IV cylindrical short; V–IX trapezoidal, progressively widened at apex; VI–IX subserrate and apically widened on external side, increasing in width and length from V to X; XI at base as wide as X but two times longer, apical half distinctly and abruptly conical and obtuse.

Pronotum widely campaniform, about as long as wide, as wide as maximal width of head on eye, sides parallel from base to fore third, and then slowly narrowing anteriad; fore portion with one distinct transverse deep depression, almost divided in two lateral portions; middle furrow extended only in middle, base with a round depression in front of mesonotum; punctures similar to that on head, but denser. Elytra parallel, dorsally convex, punctures subrugose on black parts, wider, very scattered and setiform on brown-yellow parts, with distinct black setae, in some paratypes appearing more approached and less distinct. Mesosternum (Fig. 16D) of the *Mesoscutatus* types, with a middle sized triangular fore modified area; fore margins of mesepisterna with a narrow furrow. Legs slender; male protarsomeres short and sligthly widened; male protibiae and protarsomeres with dense robust setae which in female are also mixed with longer setae; both tibial spurs on all legs slender, external metatibial spur obtuse; ventral blade of claw regularly developed and scarcely curved.

Male last ventrite narrowly emarginated. Gonoforceps slender in both ventral and lateral views (Fig. 16A 16B), sinuate at base, widened at middle and then suddendly greatly narrowed; in lateral view apical lobes short; gonocoxal plate very wide; aedeagus (Fig. 16B) with one single distal hook at apex, slightly elongate and sharp.

Etymology. The name of this species (from the Latin adjective *aridus* = arid, very dry) refers to the aridity of the area were it lives.

Remarks. The elytral pattern of this species is very distinctive. We assume possible relationships with *H. dvoraki* (see above) because of the shape of antennae, pronotum and aedeagus.

Distribution. NW Namibia.

Ck) *Incertae sedis* groups

The species discussed in this section at present are not referable to defined groups and need further investigation.

Hycleus benguellanus (Marseul, 1879) **comb. n.** (Fig. 5J)

Mylabris benguellana Marseul, 1879
Decapotoma csikii Kaszab, 1953 **syn. n.**

Types. Types of both taxa were examined respectively at MNHN, and SAMC and HMNH.

Distribution. Southern Angola and western Namibia.

Material examined and literature records. [Kunene] Opuwo: D3710, near Opuwo, 18.1589°S 13.9173°E (CB); D3710, near Opuwo, 18.2011°S 13.8994°E (CB); Kunene distr.,C43, 18.6788°S 13.7135°E (CB); Kunene distr., C43, 18.7599°S 13.7489°E (CB); C35, 110 km NW Kamanjab, 18.9167°S 14.3833°E (CB); Kunene distr.,

C43, 18.9562°S 13.7573°E (CB); Kunene distr., C43, 18.9962°S 13.7581°E (CB). Sesfontein: Kaross, 100 km SE Sesfontein, Kaokoveld, 19.5000°S 14.3333°E (Kaszab 1953b, type locality); D2650, near Kamanjab, 19.8087°S 14.5128°E (CB). Kamanjab: C40, 26 km E Kamanjab, 19.6957°S 15.1046°E (CB); Hoas 273, 19.9200°S 14.7500°E (SMWN); Orpheus Suid 419, Outjo, 20.1250°S 15.1250°E (SMWN). Khorixas: Sebraskop 410, Damaraland, 20.7333°S 15.1500°E (SMWN). [Erongo] Omaruru: Otjongoro 20, 20.8833°S 15.6333°E (SMWN).

Other records: Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. The new synonymy is established after the examination of types of both taxa and of several specimens, some of which identified as *Decapotoma benguellana* by Kaszab on 1976 (HNHM, SMWN).

The mesosternal scutum is smooth and wide; pronotal and elytral black setae distincly erected.

Hycleus bissexguttatus (Marseul, 1879) (Fig. 5K)

Mylabris bissexguttata Marseul, 1879

Distribution. Southern Angola, central and northern Namibia.

Material examined and literature records. [Kunene] Opuwo: Kaokoveld, Anabib (Orupembe), 100 miles W Ohopoho, 18.1833°S 12.5167°E (Kaszab 1956); D3710, near Opuwo, 18.2011°S 13.8994°E (CB); Kaokoveld, Outhemba, 40 miles SW Ohopoho, 18.5667°S 14.1500°E (Kaszab 1956, also as ab. *transversecolorata*); Kunene distr., C43, 18.9562°S 13.7573°E (CB); Kunene distr., C43, 18.9962°S 13.7581°E (CB). Sesfontein: Kaokoveld, Zesfontein, 19.1333°S 13.6167°E (Kaszab 1956, as ab. *transversecolorata*, type locality); Kaokoveld, Warmquelle, 19.1667°S 13.8167°E (Kaszab 1956, as ab. *transversecolorata*). Kamanjab: C40, 26 km E Kamanjab, 19.6957°S 15.1046°E (CB). Khorixas: Outjebis, Franzfontein, Kaokoveld, 20.2167°S 15.0167°E (Kaszab 1956, as ab. *transversecolorata*). [Erongo] Omaruru: 18 km NW of Omaruru, 21.3484°S 15.8336°E (SMWN). Karibib: C28, Boshua Pass, 22.7000°S 16.0333°E (CB). [Otjozondjupa] Okahandja: Ongambeanavita, 21.5800°S 16.5900°E (SMWN). [Khomas] Windhoek Rural: Lichtenstein, 22.7667°S 16.9833°E (SMWN). [Omaheke] Gobabis: Swart Nossob R., 23.1333°S 18.7000°E (SMWN).

Other records: Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Type of this species was examined at MNHN.

The mesosternal "scutum" is a wide smooth area; the mesosternal suture is almost invisible.

Hycleus decemguttatus (Thunberg, 1791) **comb. n.** (Fig. 5L)

Meloe decemguttatus Thunberg, 1791
Decapotoma caffra Marseul, 1872
Mylabris decemguttata, Pardo Alcaide 1958b

Types. Thunberg's type was not examined, while that of *Decapotoma caffra* was studied at MNHN.

Distribution. Southern Namibia (new species record for this country) and South Africa.

Material examined. [Karas] Lüderitz: Aus, 26.6667°S 16.2667°E (SMWN). Berseba: Huns 106, Bethanien, 27.4000°S 17.2667°E (SMWN). Oranjemund: Boom River Canyon, 19 km of Orange River (ENE of Rosh Pinah), 27.8667°S 17.0667°E (SMWN).

Remarks. Antennomeres I–IV black, V black at base, VI-X orange, last one asymetrically narrowed.

Hycleus decoratus (Erichson, 1843) (Fig. 5M)

Mylabris (Decatoma) decorata Erichson, 1843

Distribution. Angola, Namibia.

Material examined and literature records. [Kunene] Epupa: Okakatuwo, 17.4000°S 12.7333°E (SMWN); Hippo Pool on Kunene River, 20 km W of Ruacana, 17.4092°S 14.2185°E (CB); Otjinyanyasemo, 17.5500°S

13.5833°E (SMWN); S side Hartmann's, 17.7000°S 12.2833°E (SMWN); Kaokoland, 17.9333°S 12.2333°E (SMWN). Opuwo: Opuwo town, 18.0500°S 13.8333°E (CB); 30 km WNW Orupembe, 18.1167°S 12.3500°E (SMWN); D3710, near Opuwo, 18.1589°S 13.9173°E (CB); D3710, near Opuwo, 18.2011°S 13.8994°E (CB); Kunene distr., C43, 18.6788°S 13.7135°E (CB); Kaokoland, 18.8667°S 12.9833°E (SMWN); C35, Kamanjab-Ruacana, 18.9027°S 14.3903°E (CB); C35, 110 km NW Kamanjab, 18.9167°S 14.3833°E (CB); Kunene distr., C43, 18.9562°S 13.7573°E (CB). Sesfontein: Aub Area, 19.3333°S 13.8833°E (SMWN); Gomakukous Fountain, 19.6000°S 13.8833°E (SMWN); D2650, near Kamanjab, 19.8087°S 14.5128°E (CB); Humor 704, 19.8439°S 14.1231°E (SMWN). Kamanjab: C40, 26 km E Kamanjab, 19.6957°S 15.1046°E (CB); Outjo-Kamanjab 95 km N of Outjo, 19.8040°S 15.3290°E (CB); Otjitambi 25, 19.8167°S 15.1667°E (SMWN); C39, 23 km W Outjo, 20.1798°S 15.9480°E (CB); C39, 70 km W Outjo, 20.2589°S 15.5248°E (CB); C39, 25 km E Khorixas, 20.3061°S 15.1867°E (CB); Eendrag 110, 20.3386°S 15.7749°E (SMWN); Delhi 96, 20.3780°S 15.7280°E (SMWN). Outjo: C39, 10 km W Outjo, 20.0100°S 16.0100°E (CB); road Outjo-Kalkfeld 16–20 km S Outjo, 20.2333°S 16.1500°E (CB). Khorixas: Franzfontein, 20.2167°S 15.0167°E (SMWN); Khorixas, 20.3500°S 14.9500°E (SMWN); Korixas, 20.3667°S 14.9667°E (SMWN); Bethanis 514, 20.4000°S 14.4000°E (SMWN); 41 km W Khorixas: Petrified Forest, 20.4154°S 14.4200°E (CB); Sebraskop 410, 20.7333°S 15.1500°E (SMWN); C35, 54 km N Uis, 20.7798°S 14.8692°E (CB). [Omusati] Ruacana: C46, near Ruacana Falls, 17.4000°S 14.2833°E (CB). Tsandi: Okakundu, 17.8000°S 14.9500°E (SMWN). Okahao: C35, Kamanjab-Ruacana, 25 km NW of Kamanjab , 18.4775°S 14.6977°E (CB); Duikersdrink, Etosha N.P., 19.0667°S 14.7167°E (SMWN); C35, Kamanjab-Ruacana, 77 km NW of Kamanjab, 19.2528°S 14.4442°E (CB); Kaross, Etosha N.P., 19.3500°S 14.5167°E (SMWN). [Kavango] Mukwe: Kavango River bank, Mahango Game Riserve, 18.2167°S 21.7500°E (SMWN). [Oshikoto] Omuthiyagwiipundi: Okashana Rossing, Agricultural centre, 18.4167°S 16.6500°E (SMWN). [Otjozondjupa] Tsumkwe: 4 km NW Makuri, 19.6333°S 20.6833°E (SMWN). Otjiwarongo: Garfield, 20.4450°S 16.0830°E (SMWN); C63, Outjo-Kalkfeld, 15 km N of Kalkfeld, 20.7537°S 16.2210°E (CB). Omatako: D2414, Etjo-Kalkfeld, 38 km SE of Kalkfeld, 21.1288°S 16.3883°E (CB). Okahandja: B2, 35 km W Okahandja, 21.9340°S 16.5563°E (CB); D2192, near Okahandja, 4 km jct. B2, 21.9490°S 16.5763°E (CB); Okahandja, 21.9833°S 16.9167°E (CP; SMWN); Gross Barmen, 22.1000°S 16.7500°E (CP). [Erongo] Dâures: Okonyenye Mt. Otjihorongo Reserve, 21.1500°S 15.3167°E (SMWN); Brandberg, Hungorob Valley, 21.1900°S 14.5282°E (Bologna, 2000a; SMWN); Brandberg, Messum Valley, 21.2215°S 14.5163°E (Bologna, 2000a; SMWN); Gross Spitzkoppe, 21.8167°S 15.1667°E (CB). Omaruru: Otjikoko-Sud 61, 21.2833°S 16.3667°E (SMWN); D2329, near Omaruru, 21.4333°S 15.9333°E (CB); near Omaruru, 21.4333°S 15.9333°E (CP); C33, 6 km S Omaruru, 21.4824°S 15.9508°E (CB); C33, 3–9 km S of Omaruru, 21.4948°S 15.9705°E (CB); C33, 30 km jct. B2, 21.6681°S 15.9799°E (CB). Karibib: D1935, 30 km N jct.. B2, 21.7732°S 15.4699°E (CB); D1935, 30 km NNW Usakos, 21.7833°S 15.5°E (CB); Daheim 106, 21.8167°S 15.8167°E (SMWN); Karibib, 21.9333°S 15.8333°E (CB); B2, 16 km W Karibib, 21.9358°S 15.7056°E (CB); Okakoara 43, 21.9667°S 16.0167°E (SMWN); B2, 2 km W Usakos, 21.9992°S 15.5696°E (CB); Navachab 67, 22.0167°S 15.7333°E (SMWN); D1980, 27 km S Karibib, 22.1500°S 15.8333°E (CB); C28, Boshua Pass, 22.7000°S 16.0333°E (CB). Arandis: 6 km N Arandis, 22.3667°S 14.9833°E (SMWN); Rossing mine, 22.4667°S 15.0333°E (SMWN); Upper Ostrich Gorge, 22.4833°S 14.9833°E (SMWN); Upper Panner Gorge, 22.4833°S 15.0167°E (SMWN); Lower Ostrich Gorge, 22.5000°S 14.9667°E (SMWN). [Khomas] Windhoek Rural: Otjiseva 45, 22.3000°S 16.9667°E (SMWN); Brakwater, 20 km N Windhoek, 22.4000°S 17.0667°E (CB); Daan Park, 22.5333°S 16.9667°E (CP); Haris 367, 22.7833°S 16.8667°E (SMWN); Claratal 18, 22.8000°S 16.8333°E (SMWN); Wasservallei W, 22.9167°S 16.3667°E (SMWN). Windhoek East: Windhoek, 22.5700°S 17.0836°E (SMWN). [Hardap] Rehoboth West Urban: Rehoboth, 23.3500°S 17.0667°E (SMWN). Rehoboth Rural: Oudam 354, 23.6167°S 16.6833°E (SMWN); Garies Oes 489, 23.9500°S 16.5500°E (SMWN). Gibeon: C14, Bullsport-Solitaire, 5 km W of Bullsport, 24.1040°S 16.3093°E (CB). [Karas] Berseba: Hoagces, 25.9167°S 17.9333°E (SMWN). Keetmanshoop Rural: Khabus 146, 26.2833°S 18.2333°E (SMWN); Khabus 146, 26.8000°S 18.2167°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were not examined.

***Hycleus* cfr. *overlaeti* (Pic, 1931)** (Fig. 5N)

Distribution. Southwestern R.D. Congo, northern Namibia (new species record for this country), and Zambia (new species record for this country, see below).

Material examined. [Oshikoto] Etosha N.P., Sueda, 18.8333°S 16.3333°E (CB).

Remarks. We refer to *H. overlaeti* the single Namibian specimen, which is damaged, having only antennomeres I–II in both antennae. We examined the holotype and other specimens of *H. overlaeti* from Congo (RMCA) and Zambia (NC, Mkushi neighbourhood, CB) which are very similar to that from the Etosha Pan. The mesosternum is illustrated in Fig. 13E.

Hycleus pilosus (Fåharaeus, 1870) (Fig. 5O)

Mylabris pilosa Fåharaeus, 1870
Coryna cinctuta Marseul, 1872
Coryna postuma Marseul, 1872
Coryna mixta Marseul, 1872

Distribution. Angola, Botswana, Mozambique, Namibia, South Africa, Tanzania, and Zimbabwe.

Material esamine and literature records. [Caprivi] Katima Mulilo Urban: Katima Mulilo, 17.5000°S 24.2667°E (CB; CP). Katima Mulilo Rural: 10 km SW Katima Mulilo, 17.6082°S 24.2324°E (CP). Kongola: Singalamwe, Eastern Caprivi, 17.6500°S 23.4167°E (SMWN); Kwando River, West Caprivi Park, 17.7167°S 23.3500°E (SMWN); Kongola, 17.8000°S 23.3833°E (CB; CP). Linyandi: Mudumu Natural Reserve, 18.1667°S 23.4167°E (SMWN). [Kavango] Rundu Rural: Runtu, 17.9333°S 19.7667°E (SMWN). Mukwe: Kavango River bank, Mahango Game Reserve, 18.2167°S 21.7500°E (SMWN). Ndiyona: Leeupan, Kaudom Game Reserve, 18.6667°S 20.8667°E (SMWN); Kaudom Game Reserve, 19.0667°S 20.8000°E (SMWN). [Omusati] Okahao: Otjivalunda, Etosha N.P., 18.6000°S 15.5333°E (SMWN). [Kunene] Opuwo: Kunene distr., C43, 18.6788°S 13.7135°E (CB). Kamanjab: Oljitambi, 19.8167°S 15.1667°E (SMWN). [Oshikoto] Omuthiyagwiipundi: 30 km E Etosha N.P. Mokuti Lodge, 18.8000°S 17.0333°E (CB). [Otjozondjupa] Tsumkwe: 2 km W Omatako, Bushmanland, 19.2667°S 19.3000°E (SMWN); Boesmanland, 19.6000°S 20.6833°E (SMWN); Aha hills, Bushmanland, 19.6167°S 20.9667°E (SMWN); Bushmanland, 3 km W Kuru, 19.9333°S 20.6333°E (SMWN). Grootfontein: Grootfontein, 19.5667°S 18.1167°E (SMWN). Otavi: B8, 10 km E Otavi, 19.6500°S 17.4167°E (CB). [Khomas] Windhoek Rural: Hochberg 158, Windhoek, 21.9167°S 17.7167°E (SMWN); D1535, near Windhoek, 5 km jct. B6, 22.3681°S 17.6675°E (CB); Windhoek Olympia (OSU); Excelsior 286, Windhoek, 22.4500°S 17.6333°E (SMWN); Neudamm 63, Windhoek, 22.5000°S 17.3500°E (SMWN); Daan Viljoen, 22.5333°S 16.9667°E (SMWN); C23, 28 km jct. B6, 22.7719°S 17.4551°E (CB); Windhoek, Otjihaven(CB). Windhoek East: Windhoek, 22.5700°S 17.0836°E (CB); 30 km N Rehoboth, 23.0468°S 17.1063°E (CB). [Erongo] Karibib: C28, Boshua Pass, 22.7000°S 16.0333°E (CB). [Hardap] Gibeon: Alwynkop, 24.9167°S 16.2333°E (SMWN); C19, western slope Tsaris Pass, 24.9346°S 16.4159°E (CB). [Karas] Keetmanshoop Rural: Ghaub, 25.8667°S 18.9333°E (SMWN); C11, 1 km jct. M26, 27.0915°S 19.5372°E (CB); Karas dist., 27.1352°S 19.4941°E (CB).

Other records: Damaraland (Gomes Alves 1961); Ovampoland (Péringuey 1909; Gomes Alves 1961); Northern Namaqualand (Péringuey 1909); Namib Sand Sea desert (Seely 2012); Namibia (Bologna 1978, 2000a).

Remarks. The type of the Fåharaeus' species was not examined but this taxon is very distinctive because of the elytral pattern and antennal colouration. Types of the Marseul's taxa were examined at MNHN.

This species is well distinct by the number of antennomeres (nine), the basal five black, and the apical ones progressively widened as in several species of eastern Africa

***Hycleus san* Bologna sp. n.** (Fig. 5P)

Types. Holotype male, 1 female paratype (SMWN) and 1 female paratype (CB), labelled "Bushmanland at 19°22'S 19°36'E, 08.I–01.II.1990, E. Marais, Pres. pit. traps". Holotype lacks left antenna, both types lack all antennomeres III-XI.

Type locality. The type locality (19.36667° 19.6000°E in decimal degrees) is located in the Otjozondjuparegion, Tsumkwe district, in the savannah biome.

Diagnosis. One small-sized *Hycleus* with the mesosternum of *Mesoscutatus* type, with 11 black antennomeres, well distinct because of its particular elytral pattern (Fig. 5P).

Description. Body shiny and unicolor black, elytra brown-yellow with black pattern (Fig. 5P) with one narrow longitudinal stripe along the sutura and narrowly extended on apex, one longitudinal wider stripe from humerus in middle of elytra where it is extended trasversaly to join sutural stripe, one subsquared wide spot on apical third. Body setation yellow-white, dense, sligthly shorter on elytra. Maximal body length: 8.5–10.1 mm.

Head distinctly transverse, subrectangular, temples sligthly convergent posteriorly where are almost subgibbose, very short, half as long as longitudinal diameter of eye, distinctly smaller than maximum width at the level of eyes; punctures small and quite dense, deep, intermediate surface micropunctuate; frons and occiput slightly convex; eye suglobose, distinctly bulging, with antero-dorsal margin emarginated. Clypeus narrower than interocular width, subrounded on sides, convex and with same punctures that on frons, smooth anteriorly; fronto-clypeal suture well visible; labrum about as long as clypeus, fore margin only scarcely emarginated, punctures as on clypeus but more scattered. Maxillary palpomeres subcylindrical, with black setae on external side of the apex of each palpomere, except last one; male maxillae and labial palpomeres not modified with stipes narrow and elongate in lateral view; mandibles robust, distinctly curved in fore half, sharp at apex, slightly longer than labrum. Antennae with 11 antennomeres, I–II shiner, III–XI subopaque and microsetate; I as long as II-III together, II subglobose, III–V slender and cylindrical, III slightly longer than IV and V, VI–VIII sligthly trapezoidal apically moderately widened on external side, increasing in width and length, IX–X subcylindrical, XI at base as wide as X but 1.3 times longer, apical half obtusely conical and progressively narrowed.

Pronotum slightly longer than wide, distinctly smaller than maximal width of head on eye; sides sligthly sinuate on basal third, then distinctly converging in front; fore third with one transverse deep depression; middle furrow extended only in middle, base with a round depression in front of mesonotum; punctures similar to that on head, but denser. Elytra parallel, dorsally convex, punctures on black parts similar to that of pronotum, slightly shallower on yellow-brown parts. Mesosternum (Fig. 13F) of *Mesoscutatus* types, with a wide triangular fore modified area; fore margins of mesepisterna with a wide furrow. Legs slender; female fore tibiae and tarsi with mixed with longer setae; both tibial spurs on all legs slender, external metatibial spur obtuse; ventral blade of claw regularly developed and scarcely curved.

Male last ventrite emarginated. Gonoforceps slender in ventral view (Fig. 13A), with lobes very long, in lateral view cylindrical and lobes short (Fig. 13B); gonocoxal plate only quite widened; aedeagus (Fig. 13B) with two apical hooks, similarly inclined and sharped, prossimal one longer.

Etymology. The species is named (for apposition) after the southern African people “San”, belonging to the Khoi San group, depreciatively named Bushmen, inhabiting also the region where this new *Hycleus* is distributed.

Remarks. Relationships of this species are unknwown. The elytral pattern of the new species parallels that of some species belonging to the group of *H. pallipes*, widely distributed in the sub-Saharan Africa, but which, differently than *H. san,* is characterized by the elongate shape of mandibles and the widened external spur of both pro- and mesotibiae; moreover, temples of *H. san* are very short.

Distribution. Northeastern Namibia.

Hycleus stali (Fåhraeus, 1870) **comb. n.**

Mylabris stali Fåhraeus, 1870
Mylabris palliata Marseul, 1879

Types. The type of the Fåharaeus’ species was not examined but this taxon is very distinctive because of the elytral pattern. Type of the Marseul’s species was examined at MNHN.

Distribution. Angola, Botswana, northern Namibia (new species record for this country), and South Africa, Zimbabwe.

Material examined. [Otjozondjupa] Omatako: Onjoka, Waterberg Plateau Park, 20.4167°S 17.2500°E (SMWN).

Remarks. This species was erroneously related to *H. tristigmus* (Gerstäcker, 1854), which actually belongs to the *Mesotaeniatus*-lineage.

[*Hycleus subarcuatefasciatus* (Pic, 1941)]

Zonabris subarquatefasciata Pic, 1941

Literature records. Namaqualand (Pic 1941, type locality); Namibia (Bologna 2000a). The type locality was generically indicated as "Namaqualand" so it is impossible to define if it refers to the Little Namaqualand, in western South Africa, or to the Great Namaqualand, in southern Namibia. In the first case, this unknown species must be excluded from the checklist of Namibian Meloidae.

Remarks. The holotype of this species was not found at MNHN.

This species was never cited or examined after its short and vague description. We suspect that it could represent an elytral variation of another southern African species of *Hycleus*, already described, with 11 antennomeres. No information are available to resolve this taxonomic problem and types need examination.

Hycleus windhoekanus (Kaszab, 1981) (Fig. 5Q)

Decapotoma windhoekana Kaszab, 1981

Distribution. Namibia and northern South Africa.

Material examined and literature records. [Kunene] Opuwo: Opuwo town, 18.0500°S 13.8333°E (CB); C35, 110 km NW Kamanjab, 18.9167°S 14.3833°E (CB). Kamanjab: Ombika, Etosha N.P., 19.3333°S 15.9333°E (SMWN); C39, 25 km E Khorixas, 20.3061°S 15.1867°E (CB). Outjo: C39, 10 km W Outjo, 20.0100°S 16.0100°E (CB); road Outjo-Kalkfeld, 16–20 km S Outjo, 20.3333°S 16.1500°E (CB). [Oshikoto] Omuthiyagwiipundi: Kalkheuwel, Etosha N.P., 18.9000°S 16.8333°E (SMWN); Etosha N.P., Gemsbokvlakte, 19.2167°S 16.0667°E (CB); Okaukuejo-Pan 37-Olifantsbad, Etosha N.P., 19.2333°S 16.1333°E (SMWN). Guinas: Dinaib 852, 19.0833°S 17.4833°E (Kaszab, 1981b; SMWN). [Oshana] Uuvudhiya: N Okondeka, Etosha N.P., 18.9500°S 15.8333°E (SMWN); W Wolfsnes, Etosha N.P., 19.0500°S 15.8667°E (SMWN); Okaukuejo, Etosha N.P., 19.1500°S 15.9333°E (SMWN); Etosha N.P., Pan Okaukuejo Camp, 19.1666°S 15.9166°E (Kaszab 1981b); Ombika, Etosha N.P., 19.3167°S 15.9333°E (Kaszab 1981b, paratype; SMWN). [Omusati] Okahao: Duikersdrink, Etosha N.P., 19.0667°S 14.7167°E (SMWN). [Otjozondjupa] Grootfontein: Grootfontein, 19.5667°S 18.1167°E (CB). [Khomas] Windhoek Rural: D1535, near Windhoek, 5 km jct. B6, 22.3681°S 17.6675°E (CB); D1525, Windhoek-Gobabis, to Bodenhausen, 1 km N jct. B6, 22.3968°S 17.6600°E (CB); Excelsior 286, 22.4500°S 17.6333°E (SMWN); Haris 367, 22.7833°S 16.8667°E (Kaszab 1981, holotype; SMWN, paratypes); Windhoek, Claratal 18, 22.8000°S 16.8333°E (Kaszab 1981, paratype); D1228, 3 km E Rehoboth, 23.29086°S 17.20119°E (CB). [Hardap] Mariental Urban: C19, 11 km W Mariental, 24.6167°S 17.8500°E (CB). Mariental Rural: M29, 88 km S Mariental, 25.2410°S 18.5155°E (CB). [Karas] Keetmanshoop Rural: M29, 4 km S jct. D3919, 25.6205°S 18.6135°E (CB).

Other records: Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Records. Holotype (SMWN) and paratypes (HMNH, SMWN) were examined.

Hycleus zigzagus (Marseul, 1872) (Fig. 5R)

Mylabris (Mylabris) zigzaga Marseul, 1872

Distribution. Western Namibia (endemic).

Material examined and literature records. [Erongo] Arandis: Namib Desert, Swakopmund, 22.5667°S 14.7167°E (CK); Namib Desert, 23.0000°S 15.0000°E (SMWN). Swakopmund: Swakopmund, 22.6667°S 14.5500°E (SMWN). Walvis Bay Rural: Rooibank, 23.1833°S 14.6000°E (SMWN); Rooibank, 23.1833°S 14.6500°E (SMWN); Dunes Gobabeb, 23.5500°S 15.0333°E (SMWN); 5 km E Gobabeb Kuiseb River, 23.5500°S 15.0333°E (SMWN); Namib/Naukluft Park, Kuiseb River near Gobabeb, 23.5667°S 15.0500°E (SMWN); Namib Naukluft Park, dunes near Kamberge, 23.5667°S 15.6833°E (SMWN); 43 km NNW Solitaire, 23.5667°S 15.7667°E (SMWN); Gobabeb, 23.5833°S 15.0833°E (SMWN); Natab, 23.6000°S 15.0500°E (SMWN); Homeb/

Isondavlei, 23.6333°S 15.1833°E (SMWN); Namib Desert, 23.7667°S 15.7833°E (SMWN). [Khomas] Windhoek Rural: Witberg, 23.5167°S 16.0667°E (SMWN); SE corner of Namib Desert Park, near Knamhoek farm, 23.5333°S 15.9500°E (JP). [Hardap] Gibeon: Homeb, Namib Desert Park, 23.6500°S 15.1667°E (SMWN); Sossusvlei Namib-Naukluft Park, 24.3000°S 15.7500°E (SMWN); Sesriem 137, 24.4833°S 15.8000°E (SMWN); Sessriem, Namib Desert, 24.4833°S 15.8000°E (CP); Dunes W Sossusvlei, 24.7000°S 15.2833°E (SMWN; photos, CB). Rehoboth West: btw. Rehoboth and Bullsport (Kaszab 1955b, as ab. *anticebisinterrupta*, ab. *rehobothensis*, ab. *zumpti*). Mariental Urban: Namib Desert, Hardap Dam, 24.4833°S 17.8333°E (CB). [Karas] Lüderitz: 60–80 km N of Aus, 9/10.II.2006 (CB); Aus (Schultze, 1908); near Aus, 14/15.X.2004 (CB); Awasib dunes E, 25.2500°S 15.7167°E (SMWN); Awasib, 25.3833°S 15.6500°E (SMWN); Dunes S.W. of Kanaan, Diamond Area 2, 25.9667°S 16.0417°E (SMWN); Khoichab Pan, 26.2333°S 15.4667°E (SMWN); Heioab, Diamond Area 1, 27.4167°S 15.9667°E (SMWN); Roter Kamm, 27.7667°S 16.2833°E (SMWN); Obib dunes E., 28.0333°S 16.6167°E (SMWN); Obib Dunes, Diamond Area 1, 28.1667°S 16.6833°E (SMWN). Oranjemund: Obib dunes, Diamond Area 1, 27.8833°S 16.5333°E (SMWN); Obib Dunes, 27.9167°S 16.5833°E (SMWN); Obib dunes S., 28.1667°S 16.8000°E (SMWN); Namaqualand, Daberas Dunes, 28.2167°S 16.7500°E (Kaszab 1955b, as ab. *zumpti*).

Other records: Damaraland (Kaszab 1955b, as ab. *zumpti*); Namib Sand Sea desert (Seel, 2012); Namibia (Bologna 2000a); SW Afrika (Kaszab 1955b, as ab. *welwitschiacola*). The species was described from "Cafrérie" (Marseul 1872), but probably this is a generic definition of southern Africa. Schultze (1908) recorded the species also from Kalahari, but probably this record is erroneous.

Remarks. The holotype of this species was examined at MNHN.

Very distinct species because of its elytral pattern with fore spot red and the remaining fasciae yellow, with intermediate surface black, zigzaggy shaped (Fig. 5R). Antennae are sligthly similar to those of the Afrotropical genus *Lydoceras* Marseul, 1870, with antennomeres III–VI slender, VII–IX subtrapezoidal, X subcylindrical, XI slender, VII–XI with sparse and elongate setae. Male maxillary galeae not modified.

Genus *Paractenodia* Péringuey, 1904

This genus, studied by Kaszab (1969a), is under revision (Pitzalis & Bologna in preparation). According to molecular research (Bologna *et al.* 2005; Salvi *et al.* in preparation), it seems referable to the genus *Hycleus* as a distinct lineage, similarly than *Ceroctis* (see above). The reduced number of antennomeres (7) represents a sinapomorphic condition. All five known species are distributed in Namibia; two (*P. namaquensis, P. parva*) are spread also in western South African (Northern and Western Cape), and one (*P. damarensis*) in western Botswana (Kalahari).

Paractenodia damarensis Kaszab, 1951 (Fig. 5S)

Distribution. Botswana and Namibia (new species record for this country).

Material examined and literature records. [Kunene] Khorixas: Bethanis 514, 20.4000°S 14.4000°E (SMWN); W Khorixas, Rooiberg 517, 20.22°S 14.58°E (CB; SAMC). [Omaheke] Kalahari: Good Hope 397, 22.1833°S 19.2833°E (SMWN). [Karas] Karasburg: Ortmansbaus 120, Warmbad, 28.3000°S 18.7000°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012).

Remarks. Types of this species were examined at NHP.

Paractenodia freyi Kaszab, 1955 (Fig. 5T)

Distribution. Western Namibia (endemic).

Material examined and literature records. [Khomas] Windhoek Rural: SE corner of Namib Desert Park, near Knamhoek Farm, 23.5333°S 15.9500°E (CB). [Hardap] Gibeon: 1 km from Elim Dune, SE Sesriem, 24.3333°S 15.8333°E (CB); Sesriem 137, 24.4833°S 15.8000°E (CP; SMWN); Gorraris 99, 25.3184°S 15.9089°E

(SMWN); Rehoboth West: btw Rehoboth and Bullsport (Kaszab 1955b, as ab. *disconjuncta*; Kaszab 1969a). [Karas] Lüderitz: Awasib, dunes E, 25.2500°S 15.7167°E (SMWN); Dunes SW of Kanaan, 25.8333°S 16.1500°E (SMWN); Gt. Namaqualand, Namtib, 70 miles NW of Aus, 25.9667°S 16.2000°E (Kaszab 1955b, type locality also of ab. a*nticeconjuncta*, ab. *disconjuncta*, ab. *longivittata*, ab. *maculata*, ab. *namtibana*, ab. *nigripes*, ab. *vittata*); Aus Townlands 36, 26.6333°S 16.3333°E (SMWN); Grillental, Diamond Area 1, 26.9833°S 15.3667°E (SMWN). Keetmanshoop Rural: Rotegab 95, 27.3333°S 18.4167°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a).

Remarks. Types of this species were examined at NHP.

Paractenodia glabra Kaszab, 1969 (Fig. 5U)

Paractenodia sp. n. Bologna, 2000a

Distribution. Western Namibia (endemic).

Material examined and literature records. [Erongo] Dâures: Brandberg 500 m N into Hungorob, 21.2167°S 14.51670°E (Bologna 2000a, as *Paractenodia* sp. n.; SMWN); Brandberg, Hungaro river, 21.2250°S 14.5183°E (SMWN); Messum River, 21.2586°S 14.4714°E (Bologna 2000a, as *Paractenodia* sp. n.; CB; SMWN); D2342, 17 km SE Messum Valley, 21.3048°S 14.6574°E (CB). Walvis Bay Rural: Mirabib Plains, Namib Desert Park, Walvisbaai, 23.3750°S 15.3750°E (SMWN); betw Hope Mine and Gobabeb, 23.684°S 15.827°E (Kaszab 1969a, type locality). [Karas] Lüderitz: Entrance to Kaukausib River Diamond Area I, 26.8833°S 15.3667°E (SMWN).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at NHP.

Bologna (2000a) signalized the specimens from Dâures as a possible new species. The error is due to the incorrect description of body setation made by Kaszab (1969a) who described erroneously the head and pronotum as glabrous.

Paractenodia namaquensis Kaszab, 1955 (Fig. 5V)

Distribution. Namibia and northwestern South Africa (new species record for this country: some localities of Nothern Cape, CB).

Material examined and literature records. [Otjozondjupa] Omatako: Waterberg Plateau Park, 20.3833°S 17.3000°E (SMWN). [Kunene] Khorixas: Gai-as Damaraland, 20.7667°S 14.0167°E (SMWN). [Khomas] Windhoek Rural: D1228, 7 km ENE Rehoboth, 23.2833°S 17.2333°E (CB). [Erongo] Walvis Bay Rural: C14, 36 km N Solitaire, 23.5823°S 15.8182°E (CB). [Karas] Lüderitz: Haibvlakte Diamond Area 2, 25.4833°S 15.7000°E (SMWN). Berseba: M29, 12 km S jct. M24, 26.0384°S 18.5871°E (CB). Keetmanshoop Urban: C16, 6 km jct. B1, 26.5809°S 18.1925°E (CB); Namaqualand, Rek Vlatke, 27.4000°S 16.5833°E (Kaszab 1955b, as ab. *postunifasciata*; Kaszab 1969a). Keetmanshoop Rural: D608, 87 km S Keetmanshoop, 27.32571°S 18.27616°E (CB); D608, 95.5 km S Keetmanshoop, 27.37944°S 18.22418°E (CB); D608, 104.5 km S Keetmanshoop, 27.45086°S 18.18199°E (CB). Oranjemund: C13, 50 km S Rosh Pinah, 28.07076°S 17.12799°E (CB). Karasburg: M21, 31 km S Karasburg, Ortmaunsbaum River, 28.28274°S 18.75025°E (CB); M21, 4 km N Warmbad, 28.39832°S 18.75766°E (CB).

Other records: Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at NHP.

Paractenodia parva Péringuey, 1904 (Fig. 5W)

Distribution. Southern Namibia and northwestern South Africa.

Material examined and literature records. [Karas] Keetmanshoop Rural: Wildheim Ost 384, 26.4833°S 19.5667°E (SMWN); 34 km S Aroab, 27.0500°S 19.5333°E (JP). Lüderitz: near Aus, 26.6667°S 16.2667°E (CP); Aus, 26.667°S 16.267°E (Kaszab 1969a); C13, 20 km S Aus, 26.84238°S 16.31281°E (CB).

Other records: Keetmanshoop-Lüderitzbuct (Kaszab 1969a); Namibia (Kaszab 1952; Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at SAMC.

Tribe Meloini

Genus *Meloe* Linné, 1758

The genus, primarily Holarctic, is distributed in the Afrotropical Region with two subgenera, the nominate and *Afromeleoe*, both represented in Namibia. The Afrotropical species of this genus were revised by Bologna & Pinto (1998).

Meloe (Afromeloe) meridianus Péringuey, 1892 (Fig. 5X)

Meloe (Afromeloe) herero Schmidt, 1913

Distribution. Southern Mozambique, Namibia, northeastern South Africa, and Zimbabwe.

Material examined and literature records. [Ohangwena] Ondose: Mafa, 17.5000°S 16.0833°E (Bologna & Pinto 1998; SAMC). [Oshikoto]: Omuthiyagwiipundi: Ovampoland, Omaramba, 18.7500°S 16.9833°E (Péringuey 1909; Bologna & Pinto 1998; SAMC, holotype). [Otjozondjupa] Okahandja: Okahandja, 21.9833°S 16.9167°E (HNHM); Okahandja Gross Barmen, 22.1000°S 16.7500°E (CP). [Khomas] Windhoek Rural: Windhoek, Regenstein Farm 32, 22.7178°S 17.0317°E (Bologna & Pinto 1998; SMWN). [Karas] Keetmanshoop Rural: Noachabeb Farm 97, 27.3833°S 18.4667°E (Bologna & Pinto 1998; SMWN).

Other records: Damaraland (Schmidt 1913, type locaity of *M. herero*; Bologna & Pinto 1998; BMNH); Ovampoland (Cros 1937; Bologna & Pinto 1998); Namibia (Bologna & Pinto 1998; Bologna 2000a).

Remarks. Types of this species were examined at SAMC.

Meloe (Meloe)* sp. aff. *hottentotus Péringuey, 1886 (Fig. 5Y)

Distribution. Namibia (endemic?) (new species record for this country).

Material examined and literature records. [Otjozondjupa] Omatako: road-central, Umg. Otjiwarongo, Otjibamba lodge, 20.5355°S 16.6537°E (CP).

Remarks. The holotype of *M. hottentotus* was examined at SAMC.

The nominate subgenus of *Meloe* was never recorded from Namibia. The single female examined, greatly damaged, is not referable to any described Afrotropical species of the nominate subgenus (see Bologna & Pinto 1998) and probably represents a new species, close to *M. hottentotus* Péringuey, 1886. In Fig. 5Y is presented a male specimen of *H. hottentotus* from South Africa

Subfamily Nemognathinae

Tribe Horiini

Genus *Synhoria* Kolbe, 1897

Synhoria testacea (Fabricius, 1801) (Fig. 6A)

Horia testacea Fabricius, 1801
Horia hottentota Péringuey, 1886

Distribution. Namibia and South Africa.

Material examined and literature records. [Kavango] Rundu Rural: 10 km S Rundu, 18.0000°S 19.6833°E (SMWN). [Erongo] Walvis Bay Rural: Walwis Bay (Péringuey 1892). Karibib: Damaraland (Goagas), 23.2333°S 15.8000°E (Péringuey 1909).

Other records: Damaraland (Cros 1924; Betrem 1932); Ovampoland (Péringuey 1909; Cros 1924; Betrem 1932); Namibia (Bologna 2000a).

Remarks. The holotype of this species was not examined.

The taxonomy of the genus is still unsatisfactory being the distinctive characters quite variable (see Bologna 1994). *S. testacea* seems distributed only in southern Africa, but the differences with *S. cephalotes* (Kolbe, 1897) and *S. senegalensis* (Laporte de Castelnau, 1840), both widely spread in the intertropical fascia of Africa, and *S. betsimirasaka* Paulian, 1956, from Madagascar and Comores Islands, are not well defined (Bologna & Laurenzi 1994).

Tribe Nemognathini

Genus *Apalus* Fabricius, 1775

Apalus hilaris (Marseul, 1879) (Fig. 6B)

Coriologiton hilaris Marseul, 1879

Distribution. Angola and Namibia (new species record for this country).

Material examined and literature records. [Omaheke] Steinhausen: Summerdown, 21.4113°S 18.5146°E (CK).

Remarks. The holotype of this species is lost.

We examined only the photo of one Namibian specimen, which corresponds completely to the description of *A. hilaris*, a neglected species described from Angola (Marseul 1879) and no more collected. Possibly the holotype was burned in the fire (1978) of the zoological collection housed at the National Museum of Natural History and Science, Lisbon; in this case the Namibian specimen could represent the only available voucher of this species.
Marseul (1879) described the species as "? *Criolis*" and in the last paragraph proposed for it the new genus *Coriologiton* Marseul, 1879. *Criolis* is a subjective synonym of *Apalus*, and *Coriologiton* was considered as synonym in most of the previous literature. The inclusion in *Apalus* of *hilaris* and two other eastern African species, namely *A. robustus* Pic, 1913 (from Kenya), and *A. tanganyikanus* Kaszab, 1981 (from Tanzania), needs confirmation. Kaszab (1981) considered as African *Apalus* only *hilaris, tankanyikanus, bipartitus* Pic, 1909, from Erytraea, which actually is a *Sitaris*, and *rubripennis* Laporte de Castelanu, 1840 from South Africa, which actually is an *Iselma*. A future revision of types and additional material of the three Afrotropical species referred to *Apalus*, probably could support the distinction of *Coriologiton* as distinct genus, as suggested by Bologna & Pinto (2002).

Genus *Nemognatha* Illiger, 1807

Nemognatha fluviatilis **Bologna sp. n.** (Fig. 6C)

Types. Holotype female (SMWN), labelled "Popa Falls, Kavango, 18°07'S 21°04E, 26.II–01.III.1992, E. Marais - M. Pusch".

The holotype could be incompletely scletotized and the true colour of legs and other parts of body not so defined, in particular, hind tibiae and tarsi appear quite reddish.

Type locality. The type locality (18.1167°S 21.067°E in decimal degrees) is located in the Kavango region, Mukwe district, in an area characterized by Mopane savannah biome.

Diagnosis. One small sized *Nemognatha* characterized by the body black with orange pronotum and abdomen, and elytra black with vague reflexions (Fig. 6C), and the very deep punctures of the dorsal surface.

Description. Head (but a small fore frontal area orange), antennomeres (but I quite reddish), metasternum and metafemurs distinctly black, mesosternum, fore legs, mesofemurs, meso-hind tibiae and tarsomeres dark but vaguely reddish, pro-mesosternum, coxae and trochanters reddish, pronotum and whole abdomen distinctly orange, elytra black with vague almost bronze reflexions, laterally clearer. Body setation yellow-white, dense and quite short. Body maximal length: 8.5 mm.

Head transverse, moderately narrowed subtriangularly in front, temple very short, about 0.5 as long as longitudinal diameter of eye (Fig. 18A). Frons trasversally depressed, another oblique depression on each side posteriorly to eye, occiput convex and with medial portion extended posteriorly; interocular space more than twice as wide as the transverse diameter of eye; fronto-clypeal suture well visible and widely emarginated. Punctures deep, wide and quite approached, intermediate surface micro-shagreened. Clypeus transverse, distinctly shorter than labrum, with punctures similar than on head but sparse; labrum subrectiliear anteriorly. Antennae with 11 antennomeres, all cylindrical and slender, II shorter than I and III, X–XI subequal in length, XI about 1.6 as long as X, progressively narrowed in the fore third, obtusely conical at apex. Maxillary stipes with dense short setae on ventral side, visible in lateral view, galeae more than twice as long as head.

Pronotum subrounded, slightly wider than long, with arcuated side, maximal width at middle; punctures sligthly wider and more scattered than on head, setae sparser and shorter, mesosternum triangular. Tarsi longer than tibiae, tarsomeres slender, cylindrical. Pro-mesotibial spurs stick-like, obtuse at apex, both metatibial spurs spoon-like but narrow, external one sligthly wider than inner one (Fig. 18B).

Ventrites with smoother and more confluent punctures, setae shorter than on thoracic ventrites.

Etymology. The name *fluviatilis*, which in Latin means riverine, refers to the distribution of this species along the large river Kavango.

Remarks. Relationships of this species are not defined. It differs from *N. limbata* Pic, 1924 from NE R.D. Congo, the colouration of which is similar, at least because of the shape of pronotum, widened in the middle and not anteriorly, and without depressions, pronotum and abdomen completely orange without black parts, setae whitish and not yellow, elytral punctures more robust, legs completely dark orange, not only the tibiae.

It differs from three almost unknown species from Angola described by Marseul (1879), namely *Nemognatha annulicornis, ciconia, scapularis*, because of several features of body colouration.

Distribution. Northeastern Namibia.

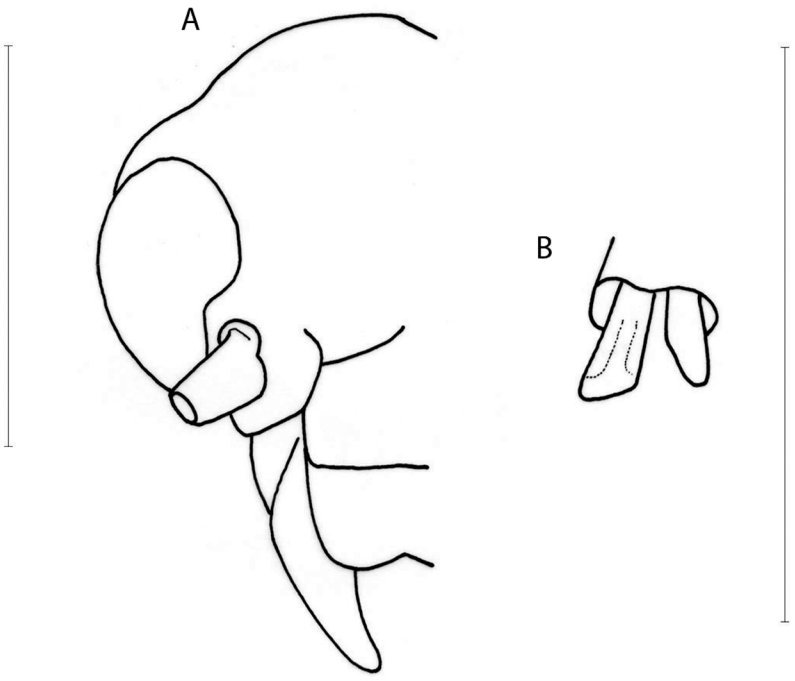

FIGURE 18. *Nemognatha fluviatilis*: head in frontal view (A); metatibial spurs (B). Bars = 1 mm.

Nemognatha* cfr. *notaticeps Pic, 1909 (Fig. 6D)

Distribution. Eritrea and northeastern Namibia (new species record for this country).

Material examined. [Caprivi] Katima Mulilo Rural: Katima Mulilo, 17.4833°S 24.2833°E (MNB).

Remarks. Types of *Nemognatha notaticeps* were examined at MNHN.

We tentatively refer the Namibian specimen to *N. notaticeps*, because of the presence of one frontal and two pronotal black spots. This species, described from Eritrea, belongs to an eastern African group of taxa, having similar pattern of colouration, but the validity of which need clarification. The other two specie of this group are *N. fuscicauda* Marseul, 1887 from eastern R.D. Congo (Kibanga) and *N. innotaticeps* Pic, 1909 from eastern Tanzania (Usagara, Tanga). The first lacks the pronotal black spot, and the second lacks both head and pronotal spots. Being some species of *Nemognatha* variable in colouration, these taxa could represent a single species, and *fuscicauda* has the name priority.

N. notaticeps could represent another example of dijunct distribution in eastern and southern Africa previously discussed for *Lydomorphus bifoveiceps* and *Cyaneolytta affinis*.

Nemognatha peringueyi Fairmaire, 1883 (Fig. 6E)

Nemognatha capensis Péringuey, 1909 **syn. n.**

Types. Types of both taxa were examined respectively at MNHN and SAMC.

Distribution. Namibia (new species record for this country) and South Africa.

Material examined. [Karas] Karasburg: Karasburg distr. (SMWN).

Remarks. The taxonomy of Afrotropical *Nemognatha* is totally unclarified. Some species with blue-green metallic integuments are very similar and probably represent a natural group, which includes at least: *cyaneiventris* Pic, 1924 (eastern Africa and Congo Basin, described as variety of *peringueyi*), *francoisi* Pic, 1909 (Nigeria, Benin), *intermedia* Péringuey, 1909 (South Africa), *peringueyi* Fairmaire, 1883 (South Africa, Kenya, R.D. Congo), and possibly *meraca* Péringuey, 1909 (Mozambique). We synonymized *capensis* with *peringueyi* after the examination of types and several specimens and on the base of the complete agreement of descriptions; the synonymy is based on the priority of the Fairmaire' name on the Péringuey' one. It is surprising that Péringuey (1909) ignored the Fairmaire's description (1883) of a new species from Cape named after his name. The validity of *N. intermedia* needs confirmation, as noted by its Author, and also this species could be a synonym of *N. peringueyi*. After the examination of one photo of the holotype of *Lytta haemorroidalis* Fabricius, 1801 we suspect its conspecificity with *N. peringueyi.*

Specimens of *N. peringueyi* from southern Namibia totally correspond to others from Western and Northern Cape we examined.

We examined specimens from R.D. Congo of *N. cyaneiventris* which differ from *N. peringueyi* not oly by the dark abdomen, but also by the longer maxillae, as long as the head and pronotum. Actually, *N. cyaneiventris* could be related to *N. meraca*, according to the shape of maxillae, and differs because of the abdomen colour which is blue and not partially red, even if the colour of abdomen is variable in this group of species.

Nemognatha vansoni Kaszab, 1951 (Fig. Fig. 6F)

Distribution. Botswana and Namibia.

Material examined and literature records. [Kunene] Epupa: C43, near Opuwo, 17.8554°S 13.7981°E (CB). [Caprivi] Linyandi: E Caprivi, Mamili N.P. Liadura, Linyanti-Ufer, 18.1667°S 23.4333°E (MNB). [Otjozondjupa] Otavi: Helene 59, Grootfontein, 19.6430°S 17.1255°E (SMWN). Omatako: B1, 28 km S Otjiwarongo, 20.6806°S 16.7787°E (CB); Otjiamongombe West 44 (Erichsfelde) 43 km N Okahandja, 21.59867°S 16.94094°E (MNB). [Omaheke] Steinhausen: C30, 8 km S jct. C29, 21.8207°S 18.3307°E (CB). [Khomas] Windhoek East: Windhoek, 22.5700°S 17.0836°E (SMWN); near Windhoek, 22.5007°S 17.0836°E (JP). Windhoek Rural: Regenstein 32, 22.7178°S 17.0317°E (SMWN); D1261, Nauchas-Rehoboth, 1–40 km NW Nauchas, 23.5763°S 16.4588°E (CB). [Hardap] Gibeon: C14, 36 km S Maltahöhe, 24.9418°S 16.7928°E (CB).

Other records: btw. Windhoek and Swakopmund (Kaszab, 1951, type locality); Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at HNHM and NHP.

The genus *Nemognatha* is widely distributed in the Old and New World and is morphologically very heterogenous with uncertain limits (see Bologna *et al.* 2013). *N. vansoni* greatly differs from all other Afrotropical congeneric, but, according to both adult and larval morphology (Di Giulio & Bologna 2007), it is maintained in the genus *Nemognatha*.

Genus *Zonitis* Fabricius, 1775

As evidenced by Bologna & Pinto (2001) and Bologna *et al.* (2013), *Zonitis*, untill now considered cosmopolitan, is probably polyphyletic. Some eastern African species revised by Kaszab (1954a), and others still undescribed, belong to the genus *Palaestra,* an eastern Gondwanaland genus of the tribe Palaestrini (Bologna *et al.* 2013). Others species, including both these endemic to Namibia, as well as some from Madagascar, refer to possible new taxa (Bologna *et al.*, unpublished). Waiting for the revision of the genus, we retain provisionally both Namibian species in *Zonitis*.

"*Zonitis" maculicollis* (Borchmann, 1942) (Fig. 6G)

Euzonitis maculicollis Borchmann, 1942
Zonitis maculicollis, Kaszab 1954a

Distribution. Namibia (endemic).

Material examined and literature records. [Oshikoto] Omuthiyagwiipundi: Namutoni, Etosha N.P., 18.8000°S 16.9333°E (SMWN). [Erongo] Omaruru: Otjikoko-Sud 61, 21.2833°S 16.3667°E (HNHM); Swakopmund: Swakopmund, 22.6833°S 14.5333°E (Borchmann 1942; Kaszab 1954a; HNHM). [Otjozondjupa] Okahandja: Ovita, 21.5800°S 16.5900°E (SMWN). [Khomas] Windhoek East: Windhoek, 22.5700°S 17.0836°E (Borchmann 1942, type locality; Kaszab 1954a); Regenstein, 15 miles SSW Windhoek, 22.7266°S 17.0342°E (CB).

Other records: Namibia (Bologna 2000a).

Remarks. We did not examined the holotype of this species, probably lost, but we studied topotypic specimens (HNHM).

This species was assigned by Borchmann (1942) to the Palaearctic genus *Euzonitis* Escherich, 1897, which is strictly related to *Zonitis* (Di Giulio & Bologna 2007), and differs because of the external metatibial spur widened and longer than the inner one. Actually, the structure of this spur in *maculicollis* differs from that of Palaearctic *Euzonitis* and, according to Kaszab (1954a), we preserve *maculicollis* in *Zonitis*.

"*Zonitis" notaticollis* (Kaszab, 1952) (Fig. 6H)

Zonitomorpha notaticollis Kaszab, 1952
Zonitis notaticollis, Bologna 2000; Bologna & Pinto 2002

Distribution. Namibia (endemic).

Material examined and literature records. [Kunene] Opuwo: C35, 110 km NW Kamanjab, 18.9167°S 14.3833°E (CB). Outjo: Abachaus, 19.7167°S 16.5800°E (Kaszab, 1952 type locality). [Hardap] Mariental Urban: C19, 11 km W Mariental, 24.6167°S 17.85°E (CB).

Other records: Namibia (Bologna, 2000a).

Remarks. The holotype of this species was examined at NHP.

The comparative examination with Afrotropical and Oriental *Zonitomorpha* species supports the exclusion of *notaticollis* from this genus, in which was included by Kaszab (1952), because of the pronotum shape, less

campaniform and longer, and because of antennae, less flabellate. We insert provisionaly *notaticollis* in *Zonitis* (see above), waiting for a new study of Afrotropical nemognathine taxa.

Genus *Zonitodema* Péringuey, 1909

Zonitodema posoka (Wellman, 1908) (Fig. 6I)

Zonitis posoka Wellman, 1908

Distribution. Angola and northeastern Namibia.

Material examined and literature records. [Caprivi] Katima Mulilo Urban: Katima Mulilo: 17.5000°S 24.2667°E (CB).

Other records: Namibia (Bologna 2000a, also as *Z. parentalis*).

Remarks. Types of this species were not examined.

Zonitodema viridipennis (Fabricius, 1801) (Fig. 6J)

Zonitis viridipennis Fabricius, 1801

Distribution. Namibia (new species for this country), South Africa, Tanzania.

Material examined and literature records. [Khomas] Windhoek Rural: 45 km E Seeis, 22.3545°S 18.1076°E (AMNH); D1261, Nauchas-Rehoboth, NW Nauchas, 23.5763°S 16.4588°E (CB). [Hardap] Maltahöhe: 37–47 km W Maltahöhe (AMHN).

Other records: Namibia (Pitzalis *et al.* 2014).

Remarks. Types of this species were not examined.

Genus *Zonitomorpha* Péringuey, 1909

Zonitomorpha costata Kaszab, 1953 (Fig. 6K)

Distribution. Namibia (endemic).

Material examined and literature records. [Kunene] Sesfontein: Hermitarium, Kaokoland, 19.1250°S 13.6250°S (SMWN); Khowarib River, 19.2667°S 13.8667°E (SMWN); Kaokoveld, Kaross, about 100 km SE Sesfontein, 19.5000°S 14.3333°E (Kaszab, 1953b, type locality). Kamanjab: Otjitambi, 19.8167°S 15.1667°E (SMWN). [Erongo] Omaruru: Uis (CB). Karibib: C32, 54 km S Karibib, bridge on Swakop River, 22.3954°S 15.8343°E (CB). Arandis: Lower Dome Gorge, 22.4667°S 15.0667°E (SMWN). [Khomas] Windhoek Rural: 10 km N Gaub Pass, 23.4183°S 15.8433°E (CB; MNB).

Other records: Namib Sand Sea desert (Seely 2012); Namibia (Bologna 2000a; Pitzalis *et al.* 2014).

Remarks. Types of this species were examined at SAMC.

Zonitomorpha sellata (Fåhraeus, 1870) (Fig. 6L)

Zonitis sellata Fåhraeus, 1870

Distribution. Northern Namibia, northeastern South Africa, Zaire, Zambia, and Zimbabwe.

Material examined and literature records. [Oshana] Ompundja: Ovamboland, Onalonga, 18.0000°S 15.6000°E (Kaszab 1953b: paratype ab. *nigricolor*). [Kavango] Mukwe: Popa Falls, 18.11667°S 21.58333°E (MNB).

Other records: Namibia (Bologna 2000a); Ondava (= Ondangwa?) (SMWN).

Remarks. The holotype of this species was not examined, but specimens compared with it were studied at HNHM.

Differences between the specimen from Popa Falls and *Z. prionocera* (Wellman, 1908), from Angola, Congo and R.D. Congo, are not evident. Elytra are completely black, except a narrow basal yellow-brown part, legs black, but ¾ of tibiae yellow-brown, corresponding to the form *nigricolor* of *sellata*, described from Ovamboland (Kaszab 1953b).

Genus *Zonitoschema* Péringuey, 1909

This Palaeotropical genus, distributed also in New Guinea and eastern Australia, represents one of most difficult group of Nemognathini and the identification of species is always hard. Only the study of types and numerous specimens could clarify the validity of most species. Waiting for the revision of the Afrotropical species (Bologna *et al.*, in preparation), we prefer do not define here groups of species.

A recent study made by Batelka & Bologna (2014) reviewed the Palaearctic species, pointing out taxonomical problems also for some Afrotropical species. Most species were described according to the constant colour of antennomeres and legs, but male genitalia, pronotum shape and punctures have distinctive additional characters more relevant to recognize some species.

Moreover, some Afrotropical species belong to an undescribed genus, differring at least by the structure of the ejaculatory ductus and the antennomere II, distinctly shorter than third (Bologna *et al.* 2013; Bologna & Pinto, in preparation). We maintain provisionaly as "*Zonitoschema*" also the following four species from Namibia, which actually refer to this new genus under description: *bivittipennis* Kaszab, 1981, *deserticola* sp. n., *posticalis* (Péringuey, 1892), and *testaceiventris* (Pic, 1931).

A) Undescribed genus (confused with *Zonitoschema*)

"*Zonitoschema" bivittipennis* Kaszab, 1981 (Fig. 6M)

Distribution. Angola and northern Namibia (new species record for this country).

Material examined. [Kunene] Epupa: Kaokoveld: Ombuku, 16.9833°S 13.3667°E (MNB); Kaokoveld: Ombuku, 17.1500°S 13.5333°E (CB; MNB).

Remarks. The holotype of this species was examined at SMWN.

The species is phenetically well distinct by the vittate elytra, unique in both the new genus and in *Zonitoschema*.

"*Zonitoschema" deserticola* Bologna sp. n. (Fig. 6N)

Types. Holotype male, 2 male and 2 female paratypes (SMWN), 2 male and 1 female paratypes (CB), labelled "Torrabaai turnoff, 25 km W, 19.v.1978, S. Louw & M.-L.Penrith". 1 male paratype (SMWN), labelled "Blutkuppe, Namib-Naukluft Park, SE 2215Cd, 09.IV.1993, M. Putsch at light". 1 male paratype (SMWN), labelled "Bethanis 514, Damaraland, SE 2014 Ad, 12/14.v.1978 S. Louw & M.-L.Penrith". 2 males and 1 female paratypes (AMG), and 1 male paratype (CB), labelled "Namibia, Henties Bay/Usakos via Spitzkoppen, 21°54'S 14°58'E, 19.iv.2002"; "visiting yellow flowers of *Zygophyllum simplex* L. Zygophyllaceae"; "01/02/81". 1 female paratype (CB) labelled "25 km NE Usakos, 12/18, 21.iii.2014, S25°52' E 015°19', A. Kudrna leg."

Type locality. The type locality is located in the Kunene region, district of Khorixas, in a dunal area of the Namib Desert biome. Others localities are positioned in the same biome, but also in rocky areas.

Diagnosis. The body colouration is partially similar to the complex of "*Z.*" *testaceiventris* Pic, 1935 (see below), but it differs from all other taxa because of the body colouration orange-ochre and not brown-yellow, also on ventral thoracic ventrites, dorsal surface shiny, particularly on head and pronotum, which have punctures very sparse and finer than in others, pronotum more narrowed on fore third.

Description. Body shiny orange-ochre, abdomen darker; eyes, apical third of mandibles, maxillary and labial palpomeres, antennomeres I–XI, femurs, tibiae and tarsi black. Setation short, light golden-yellow, recumbent, longer ventrally and on legs. Body length: 10–12 mm.

Head slightly narrower than pronotum, maximum width at eye level. Eyes large but not bulged, anterior margin distinctly emarginated near antennal socket, extended ventrally and reaching medial margin of maxillae on underside of head, almost contiguous; frontally about as wide as frontal narrowest space between eyes. Frontal suture sligthly curved; frons sligthly convex but with one shallow depression near the base of antennae. Head punctures small, shallow, intermediate surface wide and shiny; setae short and sparse. Temples distinctly shorter than longitudinal diameter of eye, about 1/3 as long, slightly convergent in male, more parallel in female. Clypeus almost flat, subtrapezoidal; anterior half glabrous and impunctate, shagreened; posterior half with punctuation and setation as on head capsule. Labrum suboval, depressed anteriorly and medially, with a longitudinal middle line; anterior margin scarcely arcuate, longer than clypeus. Mandibles slightly longer than apex of labrum, straight but curved in apical third, sharped. Galeae penicillate, about as long as labial palpi; maxillary palpomeres II–III slender and subcylindrical; IV scarcely widened in anterior half and subtruncate at apex. Antennae elongate, reaching the posterior third of elytra, antennomeres slender and cylindrical, I and III subequal in length and almost twice as long as II; IV-IX about 1.3 as long as III; XI approximately 1.5 as long as previous ones, obtusely conical at apex.

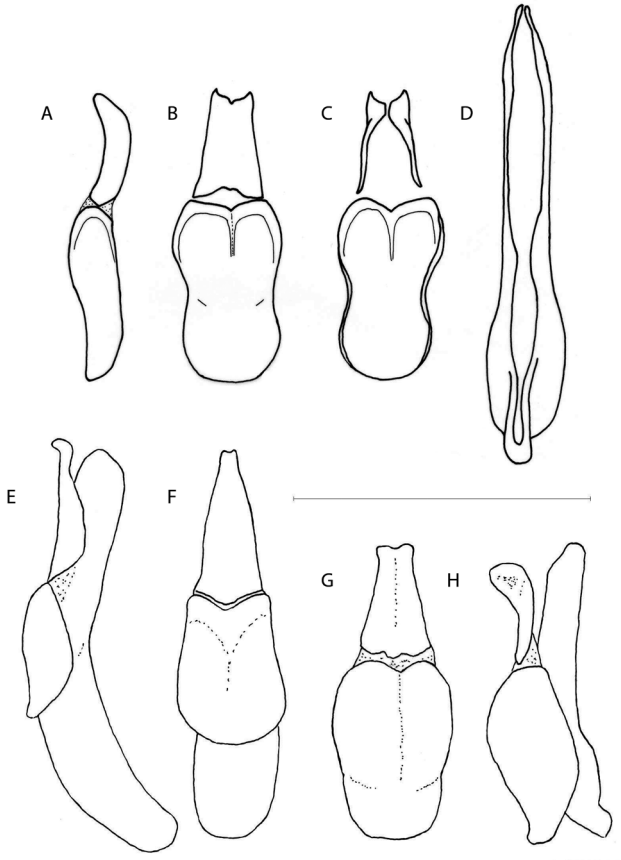

FIGURE 19. "*Zonitoschema*" *deserticola*: tegmen in lateral (A) ventral (B) and dorsal view (C); aedeagus in dorsal view (D). *Zonitoschema dunalis*: tegmen and aedeagus in lateral view (E); tegmen in ventral view (F). *Zonitoschema capensis*: tegmen in ventral view (G); tegmen and aedeagus in lateral view (H). Bar = 1 mm.

Pronotum distinctly longer than wide and longer than head; sides sligthly sinuate after the base, slightly widened from base to middle and anteriorly evidently narrowed with sinuate sides; fore third progressively depressed, particularly on sides; basal half slightly depressed on both sides, posterior margin of base slightly rebordered; punctures sparser than on head and surface appearing shiner, particularly on the middle, setae very short; prosternum wide, weakly narrowed posteriorly. Mesonotum slightly depressed in middle; mesoventrite transverse but laterally narrowed on sides and posteriorly greatly narrowed; metaventrite large, medial line

impunctate and glabrous. Elytra densely and subrugosely punctuate, punctures deeper than on head and pronotum, and setae longer and denser than on pronotum; venations almost not visible. Metathoracic wings present and completely developed. Legs slender, with setae dense, golden-yellow; both foretibial spurs slender, inner one more pointed; both mesotibial spurs slender at apex; both metatibial spurs spoon-like, external one more evidently, sligthly narrowed at apex; fore- and metatarsi about 1.2 as long as respective tibia, mesotarsi about 1.4; tarsal claws denticulate, claw's teeth thin and close to each other, ventral blade very thin.

Abdominal ventrites densely setate, surface densely punctate; last ventrite deeply incised, posterior margin of penultimate ventrite greatly emarginated in middle. Gonoforceps short, apically shortly expanded triangularly in ventral and dorsal view (Figs. 19B–C), progressively narrowed and distinctly curved upwards in lateral view (Fig. 19A); aedeagus slender (Fig. 19D).

Etymology. The name of this species refers to the Namib Desert biome, the habitat to which it is related.

Remarks. The colouration is similar to that of a true *Zonitoschema* [*Z. atrimembris* (Fairmaire, 1894)] from Western Africa As pointed out above, the colouration is partially similar also to that of the complex *"Z." testaceiventris-elongaticeps-jansei* (see below) even if it is easily distinguishable because of their diagnostic characters.

Distribution. Western Namibia.

"Zonitoschema" posticalis (Péringuey, 1892) (Fig. 6O)

Zonitis apicalis Péringuey, 1886 (*nomen praeoccupatum*)
Zonitis posticalis Péringuey, 1892

Distribution. Mozambique, Namibia (new species record for this country), and South Africa.

Material examined. [Caprivi] Kongola: Kwando River, W Caprivi, 17.7833°S 23.3333°E (SMWN); 12 km S Katima Mulio (CB); Rundu, 17.93°S 19.76°E (MSNF).

Remarks. The holotype of this species was examined at SAMC.

It belongs to a group of species characterized by pronotum deeply punctured and elytra bicolour, more or less largely black on the posterior third. This group includes at least: *alluaudi* Pic, 1913, with a wide trans-Sahelian distribution (Ghana, Cote d'Ivoire, Congo, Eritrea, Somalia, Kenya, Tanzania), and *Z. burgeoni* Pic, 1931 (Congo basin, central African Rep. and possibly W Africa), both possible synonym of *Z. posticalis* (Bologna & Pinto, unpublished).

"*Zonitoschema*" cfr. *testaceiventris* (Pic, 1931) (Fig. 6P)

Distribution. Kenya, southern Mozambique, northern Namibia (new species record for this country), northern South Africa, and Zimbabwe.

Material examined. [Otjozondjupa] Tsumkwe: Bushmanland, Aha hills, 19.6167°S 20.9500°E (SMWN).

Remarks. The holotype of *testaceiventris* was examined at MNHN.

We tentatively refer our Namibian specimen to *testaceiventris*. The taxonomy of this species is still under study (Bologna & Pinto, in preparation) and probably *Z. elongaticeps* Pic, 1935 from Mozambique and NE South Africa, is its synonym. Also the taxonomic value of *Z. jansei* (Kazab, 1951) needs confirmation and it could be another synonym of *Z. testaceiventris*.

This species is characterized by the combination of the following colourations: antennae entirely black (or some specimens have antennomeres VI-XI yellowish at base), legs and thoracic ventrites entirely black, abdomen reddish.

B) Genus *Zonitoschema* Péringuey, 1909

***Zonitoschema capensis* Kaszab, 1961** (Fig. 6Q)

Distribution. Namibia (new species record for this country) and South Africa.

Material examined. [Erongo] Daures: Brandberg, Upper Hungorob ravine, 21.19°S 14.53°E and Ungorob ravine 21.224°S 14.517°E (CB; SMWN). [Karas] [Lüderitz] Aar Farm, 25 miles ESE Aus, 26.7200°S 16.4869°E (CB).

Remarks. The paratype of this species was examined at HNHM.

Z. capensis was misinterpreted in the literature because Pardo Alcaide (1966) recorded from Congo as *Z.* cfr. *capensis,* a very distinct species, which probably could be identified with *Z. genicularis* because of the black colouration of antennomere II and the male gonoforceps uncinate. This error was consequently shared by Batelka & Bologna (2014).

Actually, the examination of two specimens from South Africa, one of which from a locality (Swellendam) not far from the type locality of *Z. capensis* (Beaufort West), pointed out that the shape of male gonoforceps, not described by Kaszab (1961), is greatly distinct from that of the Congo' species and *Z. genicularis*, because is curved posteriad but almost spatulate and not uncinate. The Namibian specimens are very similar to the South African ones.

According to the shape of male gonoforceps and colouration of both antennae (antennomere I–II yellow-orange) and legs (black, but femur red on the basal 2/3), *Z. capensis* seems closely related to the complex of *Z. paolii* Pic, 1914 and *Z. gibdoana* (Kaszab, 1956) (*sensu* Batelka & Bologna 2014; Bologna *et al.*, in preparation), wich forms a natural group with another undescribed Arabic species (Batelka & Bologna 2014) and two Saharo-Sindian species (*Z. oculatissima* Peyehrimhoff, 1929; *Z. iranica* Kaszab, 1957). It is distinct from *Z. paolii-gibdoana* and the Arabic species because of the mouthparts distinctly shorter than head in lateral view, and from the Saharo-Sindian species because of the pronotum shape (Batelka & Bologna 2014; Bologna *et al.*, in preparation).

In the framework of the study of the genus *Zonitoschema*, we regard as significant to propose here a more detailed description of *Z. capensis,* based primarily on the Namibian specimen.

Description. Body subopaque brown pale, abdomen slightly darker; eyes, apical third of mandibles, maxillary III–IV (I–II in fuscate) and labial III palpomeres, antennomeres III–XI, femurs at apex, tibiae and tarsi black. Setation short, light golden-yellow, recumbent, longer and senser ventrally and on legs. Body length: 8–15 mm. Head distinctly wider than pronotum, maximum width at eye level. Eyes widened also on frons (particularly in male), bulged, anterior margin distinctly emarginated near antennal socket, extended ventrally and reaching medial margin of maxillae on underside of head, almost contiguous, particularly on male; frons very narrow, about 1/3 as wide as the transverse diameter of the eye. Frontal suture sligthly curved; frons sligthly convex but with a shallow depression near base of antennae. Mouthaprts, in lateral view distinctly shorter than head capsule. Head punctures small, quite shallow, dense, intermediate surface shiny; setae short and sparse. Temples very short, distinctly shorter than longitudinal diameter of eye, about 1/3 as long, parallel and posteriorly rounded, convergent in male, more parallel in female. Clypeus almost flat, subtrapezoidal; anterior half glabrous and impunctate, shagreened; posterior half with punctuation and setation as on head capsule. Labrum suboval, subdepressed medially; anterior margin scarcely curved, longer than clypeus. Mandibles slightly longer than apex of labrum, straight but curved in apical third, sharped. Galeae penicillate, about as long as labial palpi; maxillary palpomeres II–III slender and subcylindrical, IV scarcely narrowed apex. Antennae elongate, reaching the posterior third of elytra, antennomeres slender and cylindrical, I and III subequal in length and slightly more than II; IV–IX about 1.3 as long as III; XI about 1.5 as long as previous ones, obtusely conical at apex. Pronotum distinctly longer than wide and slightly longer than head; sides subparallel and only slightly widened from fase to the middle, then anteriorly progressively narrowed; fore third vaguely depressed on sides; posterior margin of base slightly rebordered; punctures denser and slightly finer than on head, setae very short; prosternum subrectangular but weakly narrowed posteriorly. Mesonotum slightly depressed in middle, pointed at posterior apex; mesoventrite transverse but laterally narrowed on sides and posteriorly greatly narrowed; metaventrite large, medial line impunctate and glabrous. Elytra densely and finely punctuate, punctures deeper than on head and pronotum, setae as on pronotum; venations almost not visible. Metathoracic wings present and completely developed. Legs slender, with setae dense, golden-yellow; both fore- and mesotibial spurs slender and pointed; both metatibial spurs stick-like, obtusely narrowed at apex; tarsi distinctly longer than the respective tibia, particularly mesotarsi; tarsal claws denticulate, claw teeth thin and close to each other, ventral blade very thin. Abdominal ventrites densely setate, surface densely punctate; last ventrite deeply incised, posterior margin of penultimate ventrite greatly emarginated in middle. Gonoforceps short, in ventral (Fig. 19G), and dorsal view apically shortly expanded in subtriangular lobes, in lateral view (Fig. 19H)

distinctly curved upwards, widened and subspatulate in the apical portion where is widely depressed; aedeagus slender at apex narrowed (Fig. 19H).

Zonitoschema* sp. complex of *Z. coccinea (Fabricius, 1801) (Fig. 6R)

Material examined. [Kavango] Ndiyona: Kavango: Kaudom-Camp, 18.5167°S 20.7167°E (MNB).

Remarks. We prefer not to describe the single specimen of this possible new species, because the taxonomy of the genus is very confused, particulartly in the group to which it could be referable.

This species is similar to *Z. coccinea* (Fabricius, 1801) from Western and central Africa, and to *Z. suaveola* (Péringuey, 1899) from southern Africa, which was synonymized by Péringuey (1909) to *Z. coccinea*. This synonymy needs confirmation after the revision of the genus also because most southern Africa specimens of *Z. coccinea* slightly differ from those from the Guinean Gulf (type locality).

The Kavango' specimen differs from both *Z. coccinea* and *Z. suaveola* by its shorter frontal region, eyes more bulged, ventral setae sparser.

***Zonitoschema dunalis* Bologna sp. n. (**Fig. 6S)

Types. Holotype male (CB), labelled "SW Africa (13), Barby Farm, 25 mls W Helmeringhausen, 17/18.1.1972; at ligth". 1 paratype (SMWN), labelled "Gobabeb, Namib Naukluft park, 23°24'S 15°03'E, 12.XII.1988, light trap: Kuiseb".

The holotype lacks rigth antennomeres V–XI. The paratype is greatly damaged and lacks one antenna and antennomeres V–XI of the second, most legs (but rigth fore and partially hind, and left middle), and a large portion of the abdomen.

Type locality. The type locality (25.8583°S 16.5592°E), is in the Karas region, Beersheba district, while the second locality is just north to the previous, in the Erongo region, Walvis bay district. Both are located in the Namib Desert biome, respeticvely with compact and dunal ground. In the type locality it is syntopic with another *Zonitoschema* species, *Z. capensis*.

Diagnosis. Distinct from all other *Zonitoschema* because of the body colouration totally yellow-brown. The shape of the apex of male gonoforceps is not completely uncinated, but only curved posteriad similarly than in *Z. eborina,* and other Afrotropical and Palaerctic species (see remarks).

Description. Body subopaque yellow-brown pale; eyes and apical third of mandibles black, maxillary palpomeres, metaventrite and abdomen darker, extremity of pro- and mesofemur dark. Setation short and dense, light golden-yellow, recumbent, longer ventrally and on legs. Body length: 10–13 mm.

Head slightly wider than pronotum, maximum width at eye level. Eyes large and bulged, anterior margin distinctly emarginated near antennal socket, extended ventrally and reaching medial margin of maxillae on underside of head, almost contiguous in male, wider than frontal narrowest space between eyes. Frontal suture sligthly curved; frons convex with a small and shallow depression near base of antennae. Head punctures, mid-sized, not distinctly deep, quite dense intermediate surface wide and shiny; setae short and sparse. Temples shorter than longitudinal diameter of eye, subparallel and widely curved at apex. Clypeus almost flat, subtrapezoidal; anterior half narrower, glabrous and impunctate, shagreened; posterior half with punctuation and setation as on head capsule. Labrum suboval, depressed medially; anterior margin scarcely arcuate, longer than clypeus. Mandibles slightly longer than apex of labrum, straight but curved in apical third, sharp. Galeae penicillate, slightly longer than labial palpi; maxillary palpomeres II–III slender and subcylindrical, IV widened in anterior half and subsecuriform at apex. Antennae elongate, reaching posterior third of elytra, antennomeres slender and cylindrical, I and II subequal in length and III slightly longer than II; IV–IX about 1.3 as long as III; XI about 1.5 as long as previous ones, obtusely conical at apex.

Pronotum only slightly longer than wide and about as long as head; sides almost parallel, slightly widened from base to middle and anteriorly obliquely narrowed; fore third trasversally depressed, particularly on sides; posterior margin of base quite rebordered; punctures denser than on head, particularly in middle, setae short; prosternum wide, weakly narrowed posteriorly. Mesonotum slightly depressed in middle; mesoventrite transverse but laterally narrowed on sides and posteriorly greatly narrowed; metaventrite large, medial line impunctate and

glabrous. Elytra densely and subrugosely punctuate, punctures slightly deeper than on head and pronotum, setae longer and denser than on pronotum; venations clearly visible. Metathoracic wings present and completely developed. Legs slender, with dense, golden-yellow setae; both foretibial spurs slender, inner one more pointed; both mesotibial spurs slender at apex; metatibial spurs widely spoon-like, more evidently external one, sligthly narrowed at apex; tarsi about 1.3 as long as respective tibia; tarsal claws denticulate, claw teeth thin and close to each other, ventral blade very thin.

Abdominal ventrites densely setate, surface densely punctate; last ventrite deeply incised, posterior margin of penultimate ventrite deeply and greatly V-emarginated in middle. Gonoforceps apically diverging in two short lobes, in ventral (Fig. 19F) and dorsal view, greatly narrowed and apically slightly widened and distinctly curved upwards in lateral view, but not uncinated (Fig. 19E); aedeagus slender.

Etymology. The name of this species refers to the high, imposing dunes particularly spectacular in the central Namib Desert, where it is distributed.

Remarks. It is the only species with both antennae and legs entirely yellow-brown. The shape of the apex of male gonoforceps, not completely hooked, but curved posteriad, possibly relates the new species to *Z. eborina,* which has only the antennomere I yellow and partially black legs, to an undescribed species from Kenya and two Saharan species [*Z. pallidissima* (Reitter, 1908) and *Z. chourriba* Batelka and Bologna, 2014]. Only the revision of the genus and the definition of natural groups can clarify relationships among species.

Distribution. W Namibia.

Zonitoschema eborina (Fåhraeus, 1870) (Fig. 6T)

Zonitis eborina Fåhraeus, 1870

Distribution. Botswana, northern Namibia, South Africa, Zambia, and Zimbabwe.

Material examined and literature records. [Ohangwena] Oshikango: Ohamwaala, Ovambo, 17.4167°S 16.0500°E (SMWN). [Caprivi] Kongola: Kwando River, W Caprivi, 17.7833°S 23.3333°E (SMWN). [Kunene] Opuwo: South Savuti Camp, 18.5500°S 14.0500°E (SMWN). [Kavango] Ndiyona: Kaudom Game Riserve, 18.6167°S 20.6167°E (SMWN).

Other records: Namibia (Bologna 2000a).

Remarks. Types of this species were not examined.

The identification of these specimens needs confirmation after the revision of the genus. *Zonitoschema eborina* is well characterized by the antennal colouration (only antennomere I yellow), the elytral colour brown, the parameres at apex slightly curved posteriad, but not uncinated, the metatibial spur subspatulate.

2. Biogeography and Ecology

(i) Chorological analysis

The definition and study of generalized models of distribution of animal and plant organisms (chorotypes) is one of the aims of the biogeographic research. Even if these models have been variously interpreted by biogeographic schools (for a synthesis see Brown & Lomolino 1998), and if they have been utilized especially by European "historical" zoogeographers (see Material and methods), they could be referred to macro or more local palaeogeographic or palaeoecological events which caused the distribution, fragmentation or dispersal of biotas. These chorotypes have been mostly examined in the Eurasian continent (e.g. La Greca 1964; Vigna Taglianti *et al.* 2000), but tentatives of regionalization and identification of chorotypes were also carried out in Africa (e.g. Wallace 1876; Croizat 1968; Franz & Beier 1970; La Greca 1970, 1990; White 1983; Bologna 1990; Carpaneto & Piattella 1990; Holze & Ohm 2002; Biondi & D'Alessandro 2006).

The African flora and fauna include old Gondwanan elements, as well as other elements dispersed from the Eurasian continent after the Miocene connections of these lands in the Sinai region concurrent to the inverse dispersal from Africa to Middle East and Mediterranean area. The connection of the Maghreb with the African plate (Krijgsman *et al*. 1999) had less influence. The dramatic Cenozoic climatic oscillations, which occurred in the African continent, at least after Oligocene and until the Holocene, with repeated expansions and reductions of

forest, savannah and desert biomes, greatly influenced the differentiation and radiation of all groups of animals and plants (e.g. Moreau 1952).

These events distinctly influenced the southern African biotas. Specifically speaking of animals, the southern Afrotropical elements can be divided in palaeo-endemisms and neo-endemisms. The formers are the relic of an old Paleocene fauna once inhabiting the sub-Saharan lands and then sheltered in the southernmost part of the continent, south of the rivers Kunene, Zambesi, Limpopo (La Greca 1970). The latters (neo-endemisms) most probably derive from northern phyletic lineages.

The wide Cape region represents one of the World's most biodiverse areas. The probable greater stability of climate during the Tertiary (e.g. in Namib and Kalahari deserts) and the local differentiation during the Pliocene and Pleistocene of other Desert and Mediterranean ecosystems are the possible cause of a great generic and specific differentiation in this region, well studied both in plants and animals (e.g. White 1983; Seely 1990; Griffin 1998; Mansell 2002; Mansell & Erasmus 2002; Allosopp *et al.* 2014). Most of these locally differentiated groups are strictly endemic, whereas others spread later to the North (Endrödy-Younga 1978).

Specifically, White (1986) pointed out the presence of two large arid centers of endemisation in Namibia (Karoo-Namib, Kalahari-Highveld) and, in the north-east of the country, one more tropical centre of endemisation (Zambesian). These centres roughly correspond to the biogeographic zones, based on Coleoptera, proposed by Endrödy-Younga (1978).

The identification of Namibian blister beetle chorotypes is partially based on the literature previously cited, with some nomenclatorial changes. In particular, the SW southern chorotypes are named after Namibian regions or also after Angolan or South African.

TABLE 2. Chorotypes of Namibian blister beetle genera.

Subfamily	Tribe	Genus	Chorotype
Eleticinae	Derideini	*Iselma*	SW southern Afrotropical
	Eleticini	*Eletica*	Palaeotropical
		Namibeletica	SW southern Afrotropical
Meloinae	Lyttini	*Afrolytta*	SW southern Afrotropical
		Australytta	southern Afrotropical
		Lydomorphus	Palaeotropical-Saharo-Sindian
		Dilatilydus	SW southern Afrotropical
		Desertilydus	SW southern Afrotropical
		Prionotolytta	southern Afrotropical
		Prolytta	Palaeotropic-Saharo-Sindian
	Epicautini	*Epicauta*	Cosmopolitan
		Psalydolytta	Palaeotropical
	Mylabrini	*Actenodia*	Afro-Mediterrranean-Saharo-Arabic
		Mimesthes	SW southern Afrotropical
		Paramimesthes	SW southern Afrotropical
		Namylabris	SW southern Afrotropical
		Ceroctis	Afro-Mediterranean- Saharo-Arabic
		Hycleus	Palaeotropical-Palaeartic
		Paractenodia	SW southern Afrotropical
	Meloini	*Meloe*	Afrotropical-Holarctic
Nemognathinae	Horiini	*Synhoria*	Palaeotropical
	Nemognathini	*Nemognatha*	Cosmopolitan
		Zonitis	Cosmopolitan
		Zonitodema	Afrotropical
		Zonitomorpha	Palaeotropical
l		n.gen. cfr. *Zonitoschema*	Palaeotropical
		Zonitoschema	Palaeotropical-Saharo-Sindian-Australian

The 27 Meloidae Namibian genera belong to the chorotypes listed in Table 2. Two additional genera, namely *Mimiselma* Bologna, 2009 and *Morphozonitis* Pic, 1922 are distributed in the south-western Angola, very close to the northern Namibian border, and another one, *Iselmeletica* Kaszab, 1966 is also distributed in the South African Karoo. All three genera in the future could be found also in Namibia. The percentage of each chorotype is reported in Table 3. Only four genera (14.81%) have a wide Cosmopolitan or subcosmopolitan distribution. More relevant is the percentage (40.74%) of genera (11) widely distributed in the Palaeotropical Region with possible occurrence in other areas; more numerous are the genera (12: 44.45%) with southern Afrotropical distribution, most of which (37.04%) are endemic to the southwestern Africa. This last result demonstrates the high degree of endemisation of the Cape region also recorded in Meloidae, as we previously discussed in a more general sense. The presence of the other two endemic genera (*Mimiselma, Iselmeletica*) in the nearby Angolan Namib and in South African Karoo, above cited, increases this zoogeographic distinctiveness: more than 10% of World genera of Meloidae are endemic to the large Cape area alone.

TABLE 3. Number and percentage of chorotypes of Namibian blister beetle genera

Chorotype	n	%
Cosmopolitan	3	11,11
Afro-Holoartic	1	3,70
(a) Wide distribution	4	14,81
Palaeotropical-Palaeartic	1	3,70
Palaeotropical-Saharo-Sindian-Australian	1	3,70
Palaeotropical-Saharo-Sindian	2	7,41
Palaeotropical	4	14,82
Afro-Mediterrranean-Saharo-Arabic	2	7,41
Afrotropical	1	3,70
(b) Palaeotropical	11	40,74
Southern Afrotropical	2	7,41
SW Southern Afrotropical	10	37,04
(c) Southern Afrotropical	12	44,45

A similar analysis of chorotypes has also been drawn up at species level: chorotypes (and sub-chorotypes) are listed in Table 4 and their percentages in Table 5. The Namibian blister beetle fauna proved to consist of only Afrotropical and especially southern Afrotropical species. Five species (3.40%), referred to the Sahelo-Sudano-Zambesian chorotype, represent the component widely distributed in the Afrotropical region, while another 11 species (7.48%), referable to four chorotypes, represent elements widely distributed from eastern to southern Africa. The remaining 131 Namibian species (89.12%) have a Southern African distribution, especially SW southern African (68.71%). These last two groups of chorotypes mainly characterize the Namibian blister beetle fauna and its distinctiveness, already pointed out at genus level. The first group includes five chorotypes while the second is more variegate, with eight chorotypes and several narrower subchorotypes. In particular, among the 147 species distributed in Namibia, 40 (27.21%) are endemic while several others belonging to the SW southern African are distributed only in Namibia and in the adjacent Namaqualand in the Northern Cape. A such distinct degree of endemicity was pointed out also in some animal and plant groups (Barnard 1998).

TABLE 4. Chorotypes and sub-chorotypes of Namibian blister beetle species

Species	Chorotype	Subchorotype
Iselma brunneipes	Namaquan	S Namaquan
Iselma deserticola	Namibian	N Namibian
Iselma hobohmi	Kaoko-Karasic	Kaoko-Damaran
Iselma kamanjabi	Ovambo-Karasic	Hereroan
Iselma penrithae	Kaoko-Karasic	Kaoko-Damaran
Iselma piscatrix	Namaquan	N Namaquan
Eletica (Proeletica) luteosignata	Zambesian	
Namibeletica elegantula	Namaquan	
Afrolytta amoena	Namaquan	N Namaquan
Afrolytta carneola	Namaquan	N Namaquan
Australytta maraisi	Kaoko-Karasic	Kaokan
Australytta namaqua	Kaoko-Karasic	Karasic
Australytta rubrolineata	Ovambo-Karasic	
Australytta szekessyi	Kaoko-Karasic	
Australytta vellicata	Namibian	N Namibian
Lydomorphus bifoveiceps	Somalo-Zambesian	
Lydomorphus bisignatus	Somalo-southern African	
Lydomorphus chalybaeus	Kaoko-Karasic	Kaoko-Damaran
Lydomorphus karibibensis	Kaoko-Karasic	
Lydomorphus mimus	Kaoko-Karasic	
Lydomorphus strangulatus	Sahelo-Sudano-Zambesian	
Lydomorphus thoracicus	Angolan-Namibian	
Lydomorphus tibialis	Kaoko-Karasic	Kaoko-Damaran
Dilatilydus optatus	Namibian	
Desertilydus mesembryanthemi	Namaquan	N Namaquan
Prionotolytta binotata	Namibian	
Prionotolytta eremita	Transbotswanan	
Prionotolytta hayekae	Kaoko-Karasic	Kaoko-Damaran
Prionotolytta melanura	Kaoko-Karasic	Kaoko-Damaran
Prionotolytta streyi	Ovambo-Karasic	Ovambo-Herero-Bushmanan
Prolytta coriacea	Namaquan	S Namaquan
Prolytta namibensis	Kaoko-Karasic	
Prolytta pseudolucida	Namaquan	S Namaquan
Cyaneolytta affinis	Somalo-Zambesian	Somalo-Namibian (disjunct)
Cyaneolytta depressicornis	Sahelo-Sudano-Zambesian	
Cyaneolytta granulipennis	Sahelo-Sudano-Zambesian	
Cyaneolytta maculifrons	Sahelo-Sudano-Zambesian	
Cyaneolytta resplendens	Sahelo-Sudano-Zambesian	
Epicauta designata	Zambesian	
Epicauta ovampoa	Ovambo-Karasic	
Epicauta rufifrons	Transvaalic-Transbotswanan	
Epicauta velata	Somalo-southern African	
Psalydolytta gessi	Kaoko-Karasic	Kaokan
Psalydolytta lorigera	Somalo-Zambesian	
Actenodia chrysomelina	Transvaalic-Transbotswanan	
Actenodia mirabilis	Namaquan	N Namaquan
Mimesthes maculicollis	Cape-Namaquo-Karooan	Namaquo-Karooan
Mimesthes nigricollis	Namaquan	N Namaquan
Paramimesthes namibicus	Kaoko-Karasic	Kaoko-Damaran

.....continued on the next page

TABLE 4. (Continued)

Species	Chorotype	Subchorotype
Namylabris adamantifera	Namaquan	N Namaquan
Ceroctis aliena	southern African bilateral	
Ceroctis amphibia	Kaoko-Karasic	
Ceroctis angolensis	Transvaalic-Transbotswanan	
Ceroctis blanda	Zambesian	W Zambesian
Ceroctis bohemani	Transvaalic-Transbotswanan	
Ceroctis braunsiana	Kaoko-Karasic-Karooan	
Ceroctis capensis	Cape-Namaquo-Karooan	
Ceroctis exclamationis	Transvaalic-Transbotswanan	
Ceroctis karroensis	Kaoko-Karasic-Karooan	
Ceroctis korana	Kaoko-Karasic-Karooan	Karasic-Karooan
Ceroctis ovamboana	Kaoko-Karasic	Kaokoan
Ceroctis peringueyi	Kaoko-Karasic-Karooan	
Ceroctis cfr *seabrai*	Zambesian	W Zambesian
Ceroctis spuria	Transvaalic-Transbotswanan	
Ceroctis trifasciata	Namibian	
Hycleus adamantinus	Namaquan	
Hycleus cfr. *africanus*	Cape-Namaquo-Karooan	
Hycleus amoenus	Namaquan	
Hycleus aridus	Namibic	N Namibic
Hycleus arlecchinus	Namaquan	N Namaquan
Hycleus basibicinctus	Kaoko-Karasic-Karooan	Karasic-Karooan
Hycleus benguellanus	Kaoko-Karasic	Kaokan
Hycleus bifucatus	Angolan-Namibian	
Hycleus bissexguttatus	Angolan-Namibian	
Hycleus brincki	Ovambo-Karasic	Kalaharian
Hycleus burmeisteri	Transvaalic-Transbotswanan	
Hycleus bushmanicus	Kaoko-Karasic-Karooan	Karasic-Karooan
Hycleus congoensis	Zambesian	
Hycleus damarensis	Kaoko-Karasic	Namibic-Karasic
Hycleus decemguttatus	Cape-Namaquo-Karooan	
Hycleus decoratus	Angolan-Namibian	
Hycleus dentatus	Angolan-Namibian	
Hycleus derosus	Transvaalic-Transbotswanan	
Hycleus deserticolus	Kaoko-Karasic	
Hycleus devylderi	Kaoko-Karasic	Namibic-Karasic
Hycleus dvoraki	Namibic	N Namibic
Hycleus ertli	Somalo-Zambesian	
Hycleus haemactus	Namaquan	N Namaquan
Hycleus herero	Kaoko-Karasic	
Hycleus hilaris	Ovambo-Karasic	
Hycleus hybridus	Namibian	
Hycleus jucundus	Angolan-Namibian	
Hycleus kochi	Namibian	
Hycleus lactimalus	Angolan-Namibian	Angolan-Kaokan
Hycleus lunatus	Mossabic-southern African	
Hycleus matabele	Transkalaharian	
Hycleus mimulus	Ovambo-Karasic	Ovamban
Hycleus namaquus	Namaquan	
Hycleus cfr. *overlaeti*	Zambesian	S Zambesian

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TABLE 4. (Continued)

Species	Chorotype	Subchorotype
Hycleus peringueyi	Transvaalic-Transbotswanan	
Hycleus pilosus	Mossabic-Transbotswanan	
Hycleus plagiatus	Kaoko-Karasic-Karooan	Karasic-Karooan
Hycleus planitiei	Namibic	N Namibic
Hycleus politus	Namaquan	N Namaquan
Hycleus pruinosus	Transbotswanan	
Hycleus san	Ovambo-Karasic	Bushmanan
Hycleus scalaris	Kaoko-Karasic	
Hycleus stali	Transvaalic-Transbotswanan	
Hycleus subarcuatefasciatus	Namaquan	
Hycleus surcoufi	Transvaalic-Transbotswanan	
Hycleus svakopensis	Namibic	
Hycleus svakopinus	Namibian	
Hycleus tinctus	Angolan-Namibian	
Hycleus transvaalicus	Transvaalic-Transbotswanan	
Hycleus tricolor	Mossabic-southern African	
Hycleus sp. complex *tricolor*	Kaoko-Karasic-Karooan	
Hycleus tripunctatus	Cape-Namaquo-Karooan	
Hycleus versutus	Kaoko-Karasic	
Hycleus villosus	Transvaalic-Transbotswanan	
Hycleus windhoekanus	Ovambo-Karasic	
Hycleus zigzagus	Namibic	S Namibic
Paractenodia damarensis	Transkalaharian	W Transkalaharian
Paractenodia freyi	Namibic	S Namibic
Paractenodia glabra	Namibic	N Namibic
Paractenodia namaquensis	Kaoko-Karasic	
Paractenodia parva	Cape-Namaquo-Karooan	Namaquo-Karooan
Meloe meridianus	Transvaalic-Transbotswanan	
Meloe aff. *hottentotus*	Ovambo-Karasic	Hereroan
Synhoria testacea	southern African bilateral	
Nemognatha peringueyi	Cape-Namaquo-Karooan	
Nemognatha fluviatilis	Ovambo-Karasic	Ovamboan
Nemognatha cfr. *notaticeps*	Somalo-Zambesian	Somalo-Namibian (disjunct)
Nemognatha vansoni	Namibian	
"Zonitis" maculicollis	Kaoko-Karasic	
"*Zonitis*" *notaticollis*	Ovambo-Karasic	
Zonitodema posoka	Angolan-Namibian	W Zambesian
Zonitodema viridipennis	Zambesian	
Zonitomorpha costata	Kaoko-Karasic	Kaoko-Namibic
Zonitomorpha sellata	Zambesian	
"Zonitoschema" bivittipennis	Kaoko-Karasic	Kaokoan
"Zonitoschema" deserticola	Namibic	N Namibic
"*Zonitoschema*" cfr. *testaceiventris*	Mossabic-Transbotswanan	
"*Zonitoschema*" *posticalis*	Transvaalic-Transbotswanan	
Zonitoschema capensis	Cape-Namaquo-Karrroan	
Zonitoschema sp. complex *coccinea*	Ovambo-Karasic	Ovamboan
Zonitoschema dunalis	Namibic	S Namibic
Zonitoschema eborina	Transvaalic-Transbotswanan	

(ii) Faunistic similarity and distribution of species diversity among Namibian regions

Distributional data of all species are analysed using the Baroni-Urbani & Buser's index to point out faunistic similarities among Namibian natural areas. From this analysis is pointed out clearly the great fauna distinction of the extreme SW Karas region, corresponding to the Namibian Namaqualand (the Diamond area) (Fig. 20). Two additional main groups of regions are also pinpointed: (a) one, including Kunene, Erongo, Khomas, Hardap and part of Karas, is divided into a northern portion and in a southern one; (b) the second region includes the remaining Namibian territories and is divided in three portions: (i) one northwestern, including Kunene and Erongo extended to W Otjozondjupa and Khomas; (ii) one northern, including Oshana, Oshikoto, central Otjozondjupa to Omaheke; (iii) one northeastern, corresponding to Kavango and E Otjozondjupa. To summarise, the western regions of Namibia, corresponding to the Namib Desert, the Nama Karoo and the W Savannah portion, have more strong faunistic similarity than others. As previously indicated, the SW area, corresponding to the Succulent Karoo and the transitional zone to southern Nama Karoo, represents the northernmost portion of Namaqualand which is distributed mainly in South Africa.

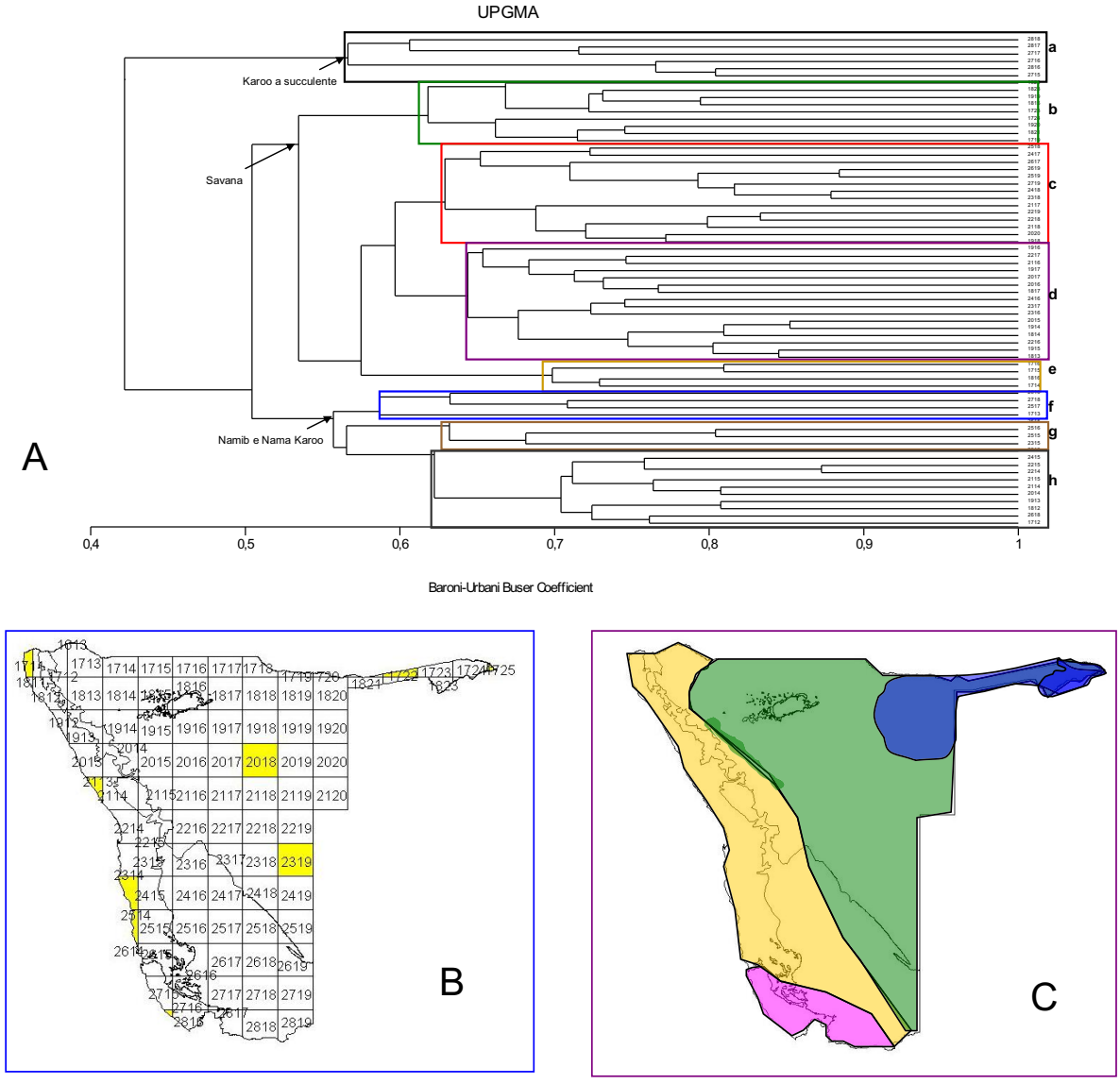

FIGURE 20. Faunistic similarities among Namibian natural areas using the Baroni-Urbani & Buser's index. A. Cluster (UPGMA) of faunistic similarity among squares (1° S x 1° E : see text); B. Numbers which identifies analysed squares (see text): in yellow squares without records; C. Four main regions emerging from the similarity analysis (see text): colour corresponds to that of cluster.

To evaluate the distribution of the blister beetle diversity (total number and endemic species) we carried out an analysis using 1°S x 1°E squares. The richest areas (between 29 and 38 species) are located in the NW of Namibia, corresponding to the eastern portion of Kunene and Erongo, W Otjozondjupa until the Khomas, in the central sector of the country (Fig. 21). This wide area, transitional between Nama-Karoo and Savannah biomes, is characterized by a mosaic of ecosystems. A high richness is also present in western and central areas, characterized by Nama-Karoo ecosystems, transitional to Namib Desert. The richest area in endemic species is the same as the area richest in species, but slightly more western, in the transitional strip between the Namib Desert e Savannah, overlapping the narrow Nama-Karoo strip. The species richness in the main four Namibian biomes is represented in Fig. 22.

TABLE 5. Number and percentage of chorotypes of Namibian blister beetle species

Chorotype	n	%
Sahelo-Sudano-Zambesian	5	3,40
(a) SubSaharan	5	3,40
Somalo-southern African	2	1,36
Somalo-Zambesian	5	3,40
Mossabic-southern African	2	1,36
Mossabic-Transbotswanan	2	1,36
(b) Eastern-southern African	11	7,48
Zambesian	8	5,44
Transvaalic-Transbotswanan	16	10,88
Transbotswanan	2	1,36
Southern African bilateral	2	1,36
Transkalaharian	2	1,36
(c) Southern African	30	20,41
Angolan-Namibian	9	6,12
Namibian	9	6,12
Kaoko-Karasic-Karooan	7	4,76
Cape-Namaquo-Karooan	9	6,12
Ovambo-Karasic	13	8,85
Kaoko-Karasic	27	18,37
Namaquan	18	12,26
Namibic	9	6,12
(d) W southern African	101	68,71
	Tot. 147	

(iii) Autoecological and synecological aspects

At the present, a comprehensive knowledge about the ecology of Southern Africa blister beetles is scarce. In the last years, a few ecological studies have been made (Amore 2005; Pitzalis *et al.* 2014, 2016; 2017). These papers aimed to detect factors determining the assemblage of species in different biomes and the causes of rarity of species.

In this paragraph, we attempt to delineate some general pattern about species habitat preferences and distribution areas, bearing in mind that these concepts are an abstraction derived from observations (collected specimens) of how species are distributed in a temporal and spatial dimension. In this way the concept of presence in a determined habitat typology refers to the probability of observation of a species. Environmental drivers such as temperature, rainfall, and humidity especially in the case of Namib Desert, generate large-scale limits to species distribution. Biomes and the finest division in vegetational types (Irish 1994, Giess 1971) are macrocategories characterized by these environmental factors, among others. We use them to describe environmental preferences of Namibian blister beetles.

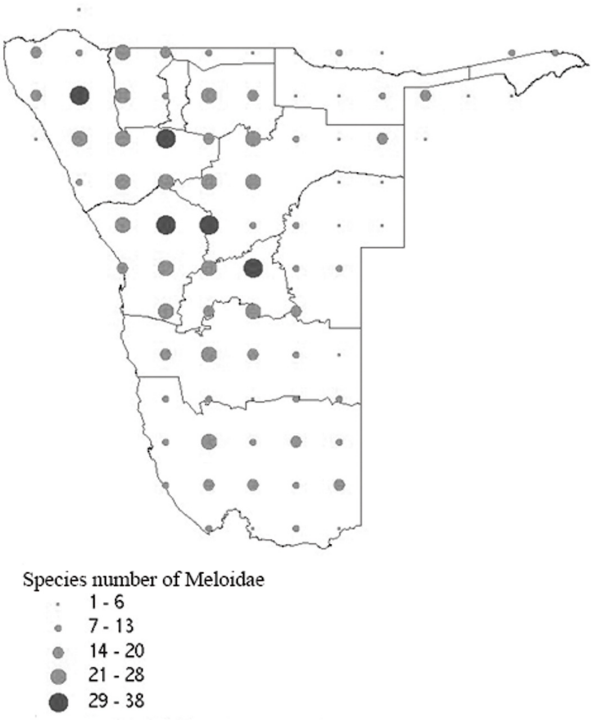

FIGURE 21. Species richness distribution in Namibia (spots on centroids of squares).

The three subfamilies of blister beetles living in Namibia are distributed in all biomes, with the exception of subfamily Nemognathinae missing from Succulent Karoo, showing an increasing number of species according to the degree of dryness of the biome, the driest being the poorest in species. The presence of the Namibian species in each main biome is summarized in Table 6, with specification for endemic species in Table 7. The main four biomes have a different extension in Namibia. Percentages and number of species of each biome are summarized in Table 8, pinpointing the total number of species and endemic species in relation of the surface of each biome. The Succulent Karoo differs from other biomes, as in the case of other animal and plant groups, in both aspects: this result supports the evidence that Succulent Karoo is a relevant hot spot of biodiversity on a global scale (Myers *et al.* 2000), due to its very distinct climate and ecological characteristics (White 1983). The Namib Desert and the Nama Karoo semi-desert show similar values of relative richness, although the first has more than double the number of of endemic species than the second. The Savannah biome, in spite of its greatest absolute number of species, shows the smallest value of relative richness of species and endemic species.

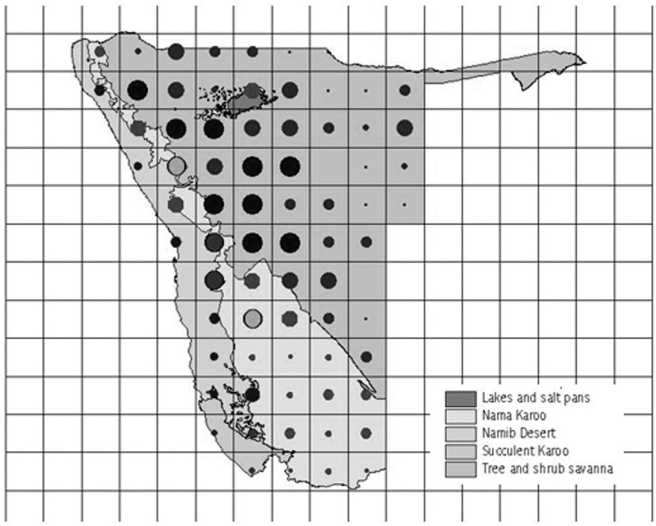

FIGURE 22. Species richness in the main four Namibian biomes (spots on centroids of squares).

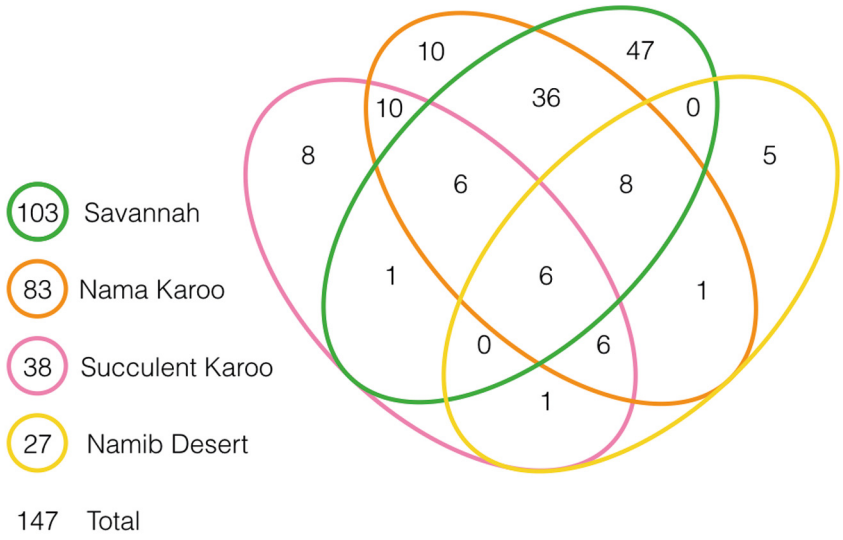

FIGURE 23. Distribution of species into the main four biomes. On the left: total number of species for each biome. On the right: representation of number of species living in one biome or shared with others. No colour: the whole Namibia; yellow: Namib Desert; pink: Succulent Karoo; orange: Nama Karoo; green: Savannah.

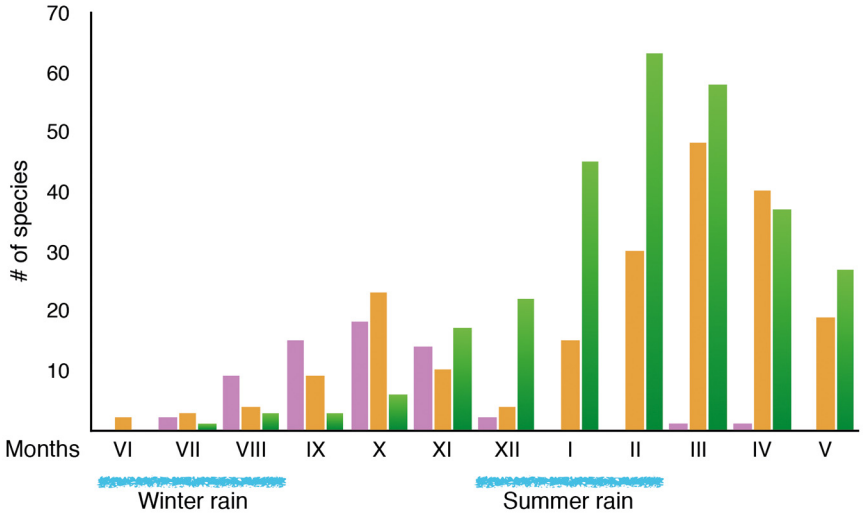

FIGURE 24. Relation of species richness for month with rainfall (mm). Pink: Succulent Karoo; orange: Nama Karoo; green: Savannah;

TABLE 6. Distribution of non-endemic Namibian blister beetle species in the four main biomes (D = Namib Desert; NK = Nama-Karoo; SA = Savannah; SK = Succulent Karoo).

Species	Biomes	Species	Biomes
Australytta vellicata	NK	*Cyaneolytta granulipennis*	NK-SA
Hycleus basibicinctus	NK	*Cyaneolytta resplendens*	NK-SA
Hycleus bushmanicus	NK	*Lydomorphus bisignatus*	NK-SA
Hycleus plagiatus	NK	*Lydomorphus strangulatus*	NK-SA
Hycleus sp. complex *tricolor*	NK	*Prionotolytta binotata*	NK-SA
Hycleus tripunctatus	NK	*Prionotolytta melanura*	NK-SA
Nemognatha peringueyi	NK	*Actenodia chrysomelina*	NK-SA

.....continued on the next page

TABLE 6. (Continued)

Zonitodema viridipennis	NK	*Ceroctis braunsiana*	NK-SA
Zonitoschema capensis	NK	*Ceroctis exclamationis*	NK-SA
Eletica luteosignata	SA	*Hycleus bissexguttatus*	NK-SA
Cyaneolytta affinis	SA	*Hycleus brincki*	NK-SA
Cyaneolytta depressicornis	SA	*Hycleus lactimalus*	D-NK-SA
Cyaneolytta maculifrons	SA	*Hycleus burmeisteri*	NK-SA
Lydomorphus bifoveiceps	SA	*Hycleus pilosus*	NK-SA
Lydomorphus chalybaeus	SA	*Hycleus tricolor*	NK-SA
Prionotolytta eremita	SA	*Hycleus windhoekanus*	NK-SA
Prionotolytta streyi	SA	*Paractenodia damarensis*	NK-SA
Epicauta rufifrons	SA	*Meloe meridianus*	NK-SA
Epicauta designata	SA	*Nemognatha vansoni*	NK-SA
Epicauta velata	SA	*Synhoria testacea*	NK-SA
Ceroctis blanda	SA	*Iselma brunneipes*	NK-SK
Ceroctis spuria	SA	*Prolytta coriacea*	NK-SK
Hycleus sp. cfr. *africanus*	SA	*Prolytta pseudolucida*	NK-SK
Hycleus benguellanus	SA	*Desertilydus mesembryanthemi*	NK-SK
Hycleus congoensis	SA	*Namylabris adamantifera*	D-SK
Hycleus derosus	SA	*Ceroctis capensis*	NK-SK
Hycleus ertli	SA	*Hycleus adamantinus*	NK-SK
Hycleus lunatus	SA	*Hycleus decemguttatus*	NK-SK
Hycleus overlaeti	SA	*Hycleus haemactus*	NK-SK
Hycleus pruinosus	SA	*Paractenodia parva*	NK-SK
Hycleus stali	SA	*Psalydolytta lorigera*	SA-SK
Hycleus surcoufi	SA	*Ceroctis aliena*	SA-SK
Hycleus transvaalicus	SA	*Namibeletica elegantula*	D-NK-SA
Hycleus villosus	SA	*Lydomorphus tibialis*	D-NK-SA
Nemognatha fluviatilis	SA	*Ceroctis amphibia*	D-NK-SA
Nemognatha cfr. *notaticeps*	SA	*Ceroctis peringueyi*	D-NK-SA
Zonitodema posoka	SA	*Hycleus bifucatus*	D-NK-SA
Zonitomorpha sellata	SA	*Hycleus damarensis*	D-NK-SA
"*Zonitoschema*" *bivittipennis*	SA	*Hycleus decoratus*	D-NK-SA
"*Zonitoschema*" *posticalis*	SA	*Hycleus dentatus*	D-NK-SA
Zonitoschema sp.cl. coccinea	SA	*Hycleus deserticolus*	D-NK-SA
Zonitoschema eborina	SA	*Hycleus hybridus*	D-NK-SA
Zonitoschema cfr. *testaceiventris*	SA	*Hycleus matabele*	D-NK-SA
Afrolytta amoena	SK	*Hycleus tinctus*	D-NK-SA
Afrolytta carneola	SK	*Hycleus politus*	D-NK-SK
Actenodia mirabilis	SK	*Prolytta namibensis*	NK-SK-SA
Mimesthes maculicollis	SK	*Dilatilydus optatus*	NK-SK-SA
Hycleus amoenus	SK	*Ceroctis karroensis*	NK-SK-SA
Hycleus namaquus	SK	*Hycleus jucundus*	NK-SK-SA
Ceroctis korana	D-NK	*Hycleus peringueyi*	NK-SK-SA
Hycleus lactimalus	D-NK	*Australytta szekessyi*	D-NK-SA-SK
Lydomorphus thoracicus	D-NK-SA-SK	*Ceroctis angolensis*	D-NK-SA-SK
Ceroctis aliena	D-NK-SA-SK	*Ceroctis karroensis*	D-NK-SA-SK
		Paractenodia namaquensis	D-NK-SA- SK

Only six species were observed along all the major biomes of Namibia: *Australytta szekessyi, Lydomorphus thoracicus, Ceroctis aliena, C. angolensis, C. karroensis,* and *Paractenodia namaquensis* are the most generalistic species, although it is likely that they live mainly in Savannah and Nama Karoo, reaching occasionally more arid biomes.

TABLE 7. Distribution of endemic species in the four main biomes (D = Namib Desert; NK = Nama-Karoo; SA = Savannah; SK = Succulent Karoo).

Species	Biomes	Species	Biomes
Iselma deserticola	D	*Paramimesthes namibicus*	D-SK
Hycleus aridus	D	*Hycleus zigzagus*	D-SK
Hycleus dvoraki	D	*Paractenodia freyi*	D-SK
Hycleus planitiei	D	*Paractenodia glabra*	D-SK
Hycleus svakopensis	D	*Iselma hobohmi*	NK-SA
"Zonitoschema" deserticola	D	*Iselma penrithae*	NK-SA
Zonitoschema dunalis	D	*Australytta rubrolineata*	NK-SA
Australytta maraisi	NK	*Lydomorphus mimus*	NK-SA
Australytta namaqua	NK	*Ceroctis trifasciata*	NK-SA
Prionotolytta hajekae	SA	*Hycleus kochi*	NK-SA
Psalydolytta gessii	SA	*Zonitis notaticollis*	NK-SA
Epicauta ovampoa	SA	*Hycleus versutus*	NK-SA
Hycleus herero	SA	*Iselma piscatrix*	NK-SK
Hycleus hilaris	SA	*Zonitis maculicollis*	D-NK-SA
Hycleus mimulus	SA	*Hycleus scalaris*	D-NK-SA
Hycleus san	SA	*Lydomorphus karibibensis*	D-NK-SA
Meloe sp. n. cfr. *hottentotus*	SA	*Zonitomorpha costata*	D-NK-SA
Hycleus arlecchinus	SK	*Hycleus devylderi*	D-NK- SA-SK
Mimesthes nigricollis	SK	*Hycleus svakopinus*	D-NK- SA-SK
Iselma kamanjabi	D-NK		

TABLE 8. Species (and endemic species) richness in the four main biomes.

Biome	% surface	Tot n. species	Species / % surface	Endemic species	Endemic species / % surface
Namib Desert	12.21	38	3.11	20	1.64
Succulent Karoo	2.56	39	15.23	10	3.90
Nama Karoo	24.96	79	3.17	17	0.68
Savannah	60.27	103	1.71	22	0,37

Most species of Meloidae live in Savannah ecosystems (70.75% of total species). This is partly obvious, the savannah being the biome of widest extension and the one with the friendliest environmental conditions. In fact, although the Savannah maintains a strongly arid character, typical of the entire western subtropical belt, the rainy and the dry season have a more pronounced periodicity than do the other biomes of Namibia. It allows the formation of conspicuous grassland during some months of the year, which together with others shrubs' flowers, represents the adult blister beetle's source of food. In general, species living in Savannah do not need special physiological adaptation and are distributed over wide areas. Of the 103 species living in Savannah, 46.6% are unique to this biome, while 35% is shared with Nama Karoo. The Nama Karoo being a gradual transition from savannah to driest biomesmost of this fauna is shared with neighboring areas, with only 10 species (12%) are unique to this biome (Fig. 23).

Species living exclusively in the Namib Desert are few and the genus *Paramimesthes* is endemic to this biome: *Iselma deserticola, Hycleus aridus, H. dvoraki, H. planitiei, H. svakopensis, "Zonitoschema" deserticola* and *Z. dunalis*. Most species present in this biome reach the desert as an offshoot of their main distribution in the Savannah or Nama Karoo. However, we must bear in mind the difficulties for effective sampling methodology in the desert.

TABLE 9. List and number of species and their presence in vegetational types (Giess, 1971). Desert (D) vegetational type: Central Desert (CD), Northern Desert (ND), Southern Desert (SD); Succulent Karoo (SK) vegetational type: Succulent Steppe (SS); Nama Karoo (NK) vegetational types: Central-western escarpment and inselbergs (CWEI), Desert/dwarf shrub transition (DDST), Dwarf shrub savanna (DSS), Dwarf shrub/southern Kalahari transition (DSSKT), Etosha grass and dwarf shrubland (EGDS), Karas dwarf shrubland (KDS), North-western escarpment and inselbergs (NWEI); Savannah (S) vegetational types: Caprivi Floodplains (CF), Caprivi mopane woodland (CMW), Central Kalahari (CK), Cuvelai drainage (CD), Eastern drainage (ED), Highland shrubland (HS), Karstveld (K), Mopane shrubland (MS), North-eastern Kalahari woodlands (NEKW), Northern Kalahari (NK), Okavango valley (OV), Riverine woodlands and islands (RWI), Southern Kalahari (SK), Thornbush shrubland (TS), Western highlands (WH), Western Kalahari (WK); Salt Pan (SP) vegetational type: Pans (P).

Biome and vegetational type																																			
	D			SK	NK								S																						SP
Subfamily Tribe Species	CD	ND	SD	SS	CWEI	DDST	DDS	DDSKT	EGDS	KDS	NWEI	CF	CMW	CK	CD	ED	HS	K	MS	NEKW	NK	OV	RWI	SK	TS	WH	WK	P							
Eleticinae	2	1	1	2	3	3	2	0	0	2	0	0	0	0	0	0	1	3	0	0	0	0	0	0	2	4	0	0							
Derideini	1	1	0	2	2	2	2	0	0	1	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	3	0	0							
Iselma brunneipes				•		•																													
Iselma deserticola	•																																		
Iselma hobohmi		•			•													•	•							•	•								
Iselma kamanjabi																										•									
Iselma penrithae					•	•	•											•								•									
Iselma piscatrix				•			•			•																									
Eleticini	1	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0							
Eletica luteosignata																		•																	
Namibeletica elegantula	•		•		•	•				•																•	•								
Meloinae	13	6	9	36	32	30	41	17	20	40	21	4	2	23	19	9	37	41	4	25	28	21	6	25	45	49	18	9							
Epicautini	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	2	1	1	1	0	2	0	1	0							
Epicauta designata															•					•					•										
Epicauta ovampoa																		•							•		•								
Epicauta rufifrons																•																			
Epicauta velata																		•		•	•	•	•													
Lyttini	4	2	1	10	7	6	9	4	8	6	8	2	0	3	6	4	11	14	0	12	7	11	2	5	12	15	4	4							
Afrolytta amoena				•																															
Afrolytta carneola				•																															
Australytta maraisi											•																								
Australytta namaqua							•																												
Australytta rubrolineata							•		•						•			•		•								•							
Australytta szekessyi		•		•	•	•				•	•				•		•	•							•	•								
Australytta vellicata											•																								
Cyaneolytta affinis																				•		•													
Cyaneolytta depressicornis																		•		•	•	•			•										
Cyaneolytta granulipennis									•			•		•		•	•	•		•	•	•		•	•	•		•							
Cyaneolytta maculifrons												•										•				•									
Cyaneolytta resplendens									•						•	•	•			•	•			•	•	•									
Desertilydus mesembryanthemi				•		•	•			•																									
Dilatilydus optatus				•	•		•		•						•	•				•	•					•									
Lydomorphus bifoveiceps																		•				•													
Lydomorphus bisignatus							•	•		•	•			•	•		•	•		•	•	•		•	•	•	•								
Lydomorphus chalybaeus																	•									•									
Lydomorphus karibibensis	•				•	•	•	•	•	•								•							•	•									
Lydomorphus mimus							•		•									•							•	•	•	•							
Lydomorphus strangulatus									•								•	•		•		•	•		•										
Lydomorphus thoracicus	•		•	•	•	•	•	•	•	•	•				•	•	•	•		•	•	•		•		•									
Lydomorphus tibialis	•	•			•						•															•									
Prionotolytta binotata								•		•							•	•				•	•	•	•	•		•							
Prionotolytta eremita																	•	•		•		•													
Prionotolytta hayekae																										•	•	•							
Prionotolytta melanura					•						•						•	•								•	•								
Prionotolytta streyi														•								•													
Prolytta coriacea				•		•																													
Prolytta namibensis				•	•		•				•							•		•						•	•								
Prolytta pseudolucida				•		•																													

Subfamily Tribe Species	Biome and vegetational type																																		
	D			SK	NK									S																					SP
	CD	ND	SD	SS	CWEI	DDST	DDS	DDSKT	EGDS	KDS	NWEI	CF	CMW	CK	CD	ED	HS	K	MS	NEKW	NK	OV	RWI	SK	TS	WH	WK	P							
Mylabrini (follows)																																			
Hycleus haemactus				•	•	•	•			•																									
Hycleus herero																	•																		
Hycleus hilaris															•			•			•				•										
Hycleus hybridus					•	•	•		•		•			•			•	•			•			•	•	•	•								
Hycleus jucundus				•	•										•										•	•	•								
Hycleus kochi										•				•			•	•							•	•	•								
Hycleus lactimalus					•						•																								
Hycleus lunatus																					•														
Hycleus matabele							•	•	•	•	•			•			•	•	•	•	•			•	•	•	•								
Hycleus mimulus																		•																	
Hycleus namaquus				•																															
Hycleus oculatus							•																												
Hycleus peringueyi				•	•										•					•															
Hycleus pilosus						•	•	•		•			•			•	•	•	•	•	•	•	•				•								
Hycleus plagiatus							•																			•	•								
Hycleus planitiei		•																																	
Hycleus politus				•	•	•																													
Hycleus pruinosus																	•																		
Hycleus san																					•														
Hycleus scalaris					•		•	•		•	•			•			•	•			•					•	•								
Hycleus sp. complex tricolor							•			•																									
Hycleus stali																					•														
Hycleus surcoufi															•												•								
Hycleus svakopinus				•	•	•	•	•		•	•						•	•			•			•	•	•	•	•							
Hycleus tinctus					•	•	•	•	•	•	•			•	•	•	•	•		•	•			•	•	•	•	•	•	•					
Hycleus transvaalicus														•			•	•						•											
Hycleus tricolor					•	•	•	•	•	•				•	•		•	•		•	•	•		•	•	•	•								
Hycleus tripunctatus										•																									
Hycleus versutus							•											•									•								
Hycleus villosus												•			•			•																	
Hycleus windhoekanus							•		•	•							•	•							•	•	•	•							
Hycleus zigzagus			•	•	•	•	•																												
Mimesthes maculicollis			•	•		•				•																									
Mimesthes nigricollis				•																															
Namylabris adamantifera				•																															
Paractenodia damarensis					•					•				•													•								
Paractenodia freyi			•	•	•	•				•																									
Paractenodia glabra	•			•	•																														
Paractenodia namaquensis	•		•	•	•					•											•			•											
Paractenodia parva			•	•				•		•																									
Paramimesthes namibicus	•	•	•	•																															
Nemognathinae	3	1	0	0	5	0	4	0	1	0	0	0	1	2	2	2	1	2	0	6	1	1	0	0	2	4	1	0							
Horiini	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0							
Synhoria testacea					•															•														
Nemognathini	3	1	0	0	3	0	4	0	1	0	0	0	1	2	2	2	1	2	0	4	1	1	0	0	2	4	1	0							
Nemognatha fluviatilis																				•														
Nemognatha vansoni							•						•	•			•	•								•	•								

Biome and vegetational type																												
	D			SK	NK							S																SP
Subfamily Tribe Species	CD	ND	SD	SS	CWEI	DDST	DDS	DDSKT	EGDS	KDS	NWEI	CF	CMW	CK	CD	ED	HS	K	MS	NEKW	NK	OV	RWI	SK	TS	WH	WK	P
Nemognathini (follows)																												
Zonitis maculicollis									•																•			
Zonitis notaticollis							•											•									•	
Zonitodema posoka																				•								
Zonitodema viridipennis							•							•														
Zonitomorpha costata	•				•																					•		
Zonitomorpha sellata															•							•						
Zonitoschema bivittipennis																										•		
Zonitoschema capensis					•		•																					
Zonitoschema deserticola	•	•			•																							
Zonitoschema dunalis	•																											
Zonitoschema eborina															•	•				•						•		
Zonitoschema jansei																					•							
Zonitoschema posticalis																				•								
Zonitoschema sp complex coccinea																•												
# of species	18	8	10	38	40	33	47	17	21	42	21	4	3	25	21	11	39	46	4	31	29	22	6	25	49	57	19	9

The Succulent Karoo has a very distinct fauna. The different seasonality of this area, has given rise to various adaptations of flora and fauna (White 1983). For Meloidae, this specialization occurs at genera and species level. Genera whose distribution is predominantly restricted to this biome are *Afrolytta, Mimesthes* and *Namylabris* all endemic to southern Africa. Ten species are exclusive of this biome, while the fauna shared with the Nama-Karoo has a greater number of species. The genus *Paractenodia* deserves special attention, there being a different degree of specialization within the genus: the five species denote a different degree of xerophilic habits.

The Namibian vegetational types (see material and methods and Fig. 22) represent environmental units with different extensions, although each is defined approximately by the same pool of features. Evaluating the adult presence in these units makes it possible to identify ecological categories (stenotopic, oligotopic or eutytopic) for single species (see material and methods for details). The distribution of species in each vegetational type as defined by Giess (1971) is represented in Table 9.

The stenotopic species are especially related to desert biomes such as the Namib and the Succulent Karoo: most of them are endemic to Namibia or marginally distributed also in NW South Africa. *Desertilydus mesembryanthemi* and *Mimesthes maculicollis* are mainly from Succulent Karoo and neighboring areas in Nama Karoo. *Hycleus bifucatus* is of the transition between desert and the savannah characterized by dwarf shrubs. It is distributed from North Western and Central escarpment and Western highlands. *Australytta rubrolineata* prefers wetter condition. It is from the Cuvelai drainage system and Etosha grass and dwarf shrubland where the annual rainfall can reach 450 mm.

Some of the oligotopic species prefer drier vegetational types, moving from deserts (Northern, Central and Southern), succulent steppe and those vegetational types of Nama Karoo or savannah where rainfall in the rainy season does not exceed 300 mm. These are *Iselma hobohmi, Namibeletica elegantula, Prolytta namibensis, Prionotolytta melanura, Lydomorphus karibibensis, Ceroctis amphibia, C. korana, Hycleus damarensis, H. deserticolus, H. devylderi* and *H. zigzagus*. Others prefer higher humidity, these including *Lydomorphus mimus, Dilatilydus optatus, Prionotolytta binotata, Ceroctis bohemanni, C. braunsiana, Hycleus jucundus, H. kochi, H. burmeisteri* and *H. windhoekanus*.

Eurytopics such as *Lydomorphus thoracicus, Ceroctis angolensis Actenodia chrysomelina, Hycleus tinctus* and *H. tricolor* are the most generalist species and express a great ecological plasticity.

The phenology of blister beetles in Namibia reflects the general trend of the rainfall season (Fig. 24). Water availability is a limiting factor for survival and reproduction, especially in arid and tropical ecosystems, where

change in temperature does not undergo strong variations. The monthly distribution of rainfall varies regionally. In the Savannah and Nama Karoo the rainy season is during the summer (December–February), while in the Succulent Karoo scarcer and more irregular precipitation happens in the winter (June–August) (Tyson 1978). For this reason, we observe two different trends of emergence of adults coincident with summer and winter rainy period (Table 10). The highest diversity appears when more than half of the rainy season has passed, and larvae have time to grow up. Once again Nama Karoo reveals its transition feature between Savannah and more arid biomes.

TABLE 10. Presence of subfamilies, tribes and species in relation to rainfall (mm).

Subfamily Tribe Species	mm of rain															
	0 - 29	30 - 59	60 - 89	90 - 119	120 - 149	150 - 179	180 - 209	210 - 239	240 - 269	270 - 299	300 - 329	330 - 359	360 - 389	390 - 409	410 - 439	440 - 475
Eleticinae	3	5	2	4	3	3	3	4	3	1	1	0	0	0	0	0
Derideini	2	4	1	3	2	2	2	3	1	1	1	0	0	0	0	0
Iselma brunneipes		●														
Iselma deserticola	●	●														
Iselma hobohmi		●		●	●	●	●	●	●	●	●					
Iselma kamanjabi								●								
Iselma penrithae				●	●	●	●	●								
Iselma piscatrix	●	●	●	●												
Eleticini	1	1	1	1	1	1	1	1	2	0	0	0	0	0	0	0
Eletica luteosignata									●							
Namibeletica elegantula	●	●	●	●	●	●	●	●	●							
Meloinae	33	44	47	45	46	42	36	49	60	38	43	31	35	9	4	9
Epicautini	0	0	0	0	0	0	0	1	2	1	2	2	3	0	0	2
Epicauta designata									●		●	●				●
Epicauta ovampoa								●	●		●	●	●			
Epicauta rufifrons													●			
Epicauta velata										●			●			●
Lyttini	9	10	11	9	12	11	8	12	19	9	14	10	13	5	1	3
Afrolytta amoena	●															
Afrolytta carneola	●															
Australytta maraisi		●														
Australytta namaqua			●													
Australytta rubrolineata				●					●	●	●		●			
Australytta szekessyi		●	●	●	●	●	●	●	●		●					
Australytta vellicata					●											
Cyaneolytta affinis													●			
Cyaneolytta depressicornis									●	●	●			●		
Cyaneolytta granulipennis					●			●	●	●	●	●	●	●		
Cyaneolytta maculifrons									●				●	●		
Cyaneolytta resplendens						●	●	●	●	●	●	●	●			

.....continued on the next page

TABLE 10. (Continued)

Subfamily Tribe Species	mm of rain															
	0 - 29	30 - 59	60 - 89	90 - 119	120 - 149	150 - 179	180 - 209	210 - 239	240 - 269	270 - 299	300 - 329	330 - 359	360 - 389	390 - 409	410 - 439	440 - 475
Desertilydus mesembryanthemi	●	●	●													
Dilatilydus optatus		●	●			●				●	●	●	●			
Lydomorphus bifoveiceps												●	●	●		
Lydomorphus bisignatus		●	●	●	●	●	●	●	●	●	●	●	●			
Lydomorphus chalybaeus					●			●	●							
Lydomorphus karibibensis		●	●	●	●	●	●	●	●		●					
Lydomorphus mimus					●	●		●	●	●	●					
Lydomorphus strangulatus									●	●	●	●	●			●
Lydomorphus thoracicus	●	●	●	●	●	●	●	●	●		●		●			
Lydomorphus tibialis	●		●	●	●	●	●									
Prionotolytta binotata			●	●	●	●	●	●	●		●	●	●		●	
Prionotolytta eremita									●		●	●				●
Prionotolytta hayekae								●	●	●						
Prionotolytta melanura			●	●	●	●	●	●	●				●			
Prionotolytta streyi									●			●				
Prolytta coriacea	●	●														
Prolytta namibensis	●	●	●	●	●	●		●	●				●			
Prolytta pseudolucida	●	●														
Psalydolytta gessi									●							
Psalydolytta lorigera	●										●	●		●		●
Meloini	0	0	0	1	0	0	0	0	1	0	2	1	0	0	0	0
Meloe meridianus				●					●		●	●				
Meloe sp. aff. hottentotus											●					
Mylabrini	26	36	38	40	37	33	32	41	39	29	28	19	26	6	3	5
Actenodia chrysomelina			●	●	●	●	●	●	●	●	●	●	●			●
Actenodia mirabilis	●															
Ceroctis aliena	●	●	●	●	●	●	●		●	●			●			
Ceroctis amphibia	●	●	●	●	●											
Ceroctis angolensis	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Ceroctis blanda									●				●			
Ceroctis bohemanni							●	●	●	●	●	●	●			

.....continued on the next page

TABLE 10. (Continued)

Subfamily Tribe Species	mm of rain															
	0 - 29	30 - 59	60 - 89	90 - 119	120 - 149	150 - 179	180 - 209	210 - 239	240 - 269	270 - 299	300 - 329	330 - 359	360 - 389	390 - 409	410 - 439	440 - 475
Ceroctis braunsiana				●	●		●	●	●		●	●				
Ceroctis capensis		●	●													
Ceroctis cfr seabrai									●	●						
Ceroctis exclamationis										●	●		●	●	●	●
Ceroctis karroensis	●	●	●		●	●		●	●							
Ceroctis korana	●	●	●	●												
Ceroctis ovamboana								●	●							
Ceroctis peringueyi	●	●	●	●	●	●		●	●							
Ceroctis spuria								●	●							
Ceroctis trifasciata		●	●	●	●	●	●	●	●	●	●	●	●			
Hycleus adamantinus		●	●													
Hycleus africanus								●								
Hycleus amoenus	●	●														
Hycleus aridus	●	●														
Hycleus arlecchinus	●	●														
Hycleus basibicinctus			●	●		●										
Hycleus benguellanus					●	●	●	●	●							
Hycleus bifucatus			●	●	●	●	●									
Hycleus bissexguttatus					●	●	●	●	●							
Hycleus brincki				●		●		●	●							
Hycleus burmeisteri					●		●	●	●	●	●	●	●			
Hycleus bushmanicus	●		●		●											
Hycleus caffrarius								●								
Hycleus cfr overlaeti										●						
Hycleus congoensis									●				●			
Hycleus damarensis			●	●		●	●	●	●							
Hycleus decemguttatus	●	●														
Hycleus decoratus		●	●	●	●	●	●	●	●	●	●		●			
Hycleus dentatus		●	●	●	●	●	●	●	●	●	●					
Hycleus derosus								●								
Hycleus deserticolus		●	●	●	●	●	●	●		●						

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Subfamily Tribe Species	mm of rain															
	0 - 29	30 - 59	60 - 89	90 - 119	120 - 149	150 - 179	180 - 209	210 - 239	240 - 269	270 - 299	300 - 329	330 - 359	360 - 389	390 - 409	410 - 439	440 - 475
Hycleus devylderi		●	●	●	●	●	●	●	●	●						
Hycleus dvoraki	●	●														
Hycleus ertli													●			●
Hycleus haemactus	●	●	●	●												
Hycleus herero									●							
Hycleus hilaris									●	●	●	●	●			
Hycleus hybridus			●	●	●	●	●	●	●	●	●	●	●			
Hycleus jucundus		●		●	●	●		●	●	●	●	●				
Hycleus kochi			●	●			●	●	●	●	●		●			
Hycleus lactimalus			●	●				●								
Hycleus lunatus										●						
Hycleus matabele			●	●	●	●	●	●	●	●	●					
Hycleus mimulus												●				
Hycleus namaquus		●														
Hycleus oculatus						●										
Hycleus peringueyi	●			●		●	●	●		●	●	●		●		
Hycleus pilosus			●	●	●		●	●	●	●	●	●	●	●	●	●
Hycleus plagiatus					●	●			●							
Hycleus planitiei		●														
Hycleus politus	●	●	●	●												
Hycleus pruinosus									●							
Hycleus san											●					
Hycleus scalaris			●	●	●	●	●	●	●	●	●	●				
Hycleus sp. complex tricolor				●	●											
Hycleus stali										●						
Hycleus surcoufi						●					●					
Hycleus svakopinus		●	●	●	●	●	●	●	●	●	●					
Hycleus tinctus		●	●	●	●	●	●	●	●	●	●	●	●			
Hycleus transvaalicus						●	●	●	●				●			
Hycleus tricolor		●	●	●	●	●	●	●	●	●	●	●	●			
Hycleus tripunctatus		●														

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TABLE 10. (Continued).

Subfamily Tribe Species	mm of rain															
	0 - 29	30 - 59	60 - 89	90 - 119	120 - 149	150 - 179	180 - 209	210 - 239	240 - 269	270 - 299	300 - 329	330 - 359	360 - 389	390 - 409	410 - 439	440 - 475
Hycleus versutus					•	•	•	•								
Hycleus villosus											•	•	•			
Hycleus windhoekanus					•	•	•	•	•	•	•	•				
Hycleus zigzagus	•	•	•	•	•	•										
Mimesthes maculicollis	•	•	•													
Mimesthes nigricollis	•															
Namylabris adamantifera	•															
Paractenodia damarensis			•	•	•			•								
Paractenodia freyi	•	•	•		•											
Paractenodia glabra	•	•	•													
Paractenodia namaquensis	•	•	•	•	•		•			•						
Paractenodia parva		•	•	•												
Paramimesthes namibicus	•	•														
Nemognathinae	2	2	2	6	3	2	4	5	2	1	4	2	7	2	0	1
Horiini	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0
Synhoria testacea				•									•			
Nemognathini	2	2	2	5	3	2	4	5	2	1	4	2	6	2	0	1
Nemognatha fluviatilis													•			
Nemognatha vansoni				•			•	•	•	•	•	•	•			
Zonitis maculicollis									•		•					
Zonitis notaticollis					•			•					•			
Zonitodema posoka																•
Zonitodema viridipennis				•			•	•								
Zonitomorpha costata		•	•	•	•		•	•								
Zonitomorpha sellata											•		•			
Zonitoschema bivittipennis						•	•									
Zonitoschema capensis			•	•	•	•										
Zonitoschema deserticola	•	•		•												
Zonitoschema dunalis	•															
Zonitoschema eborina								•				•	•	•		
Zonitoschema jansei											•					
Zonitoschema posticalis														•		
Zonitoschema sp complex coccinea													•			
# species	39	52	52	56	53	48	44	59	66	40	48	33	42	11	4	10

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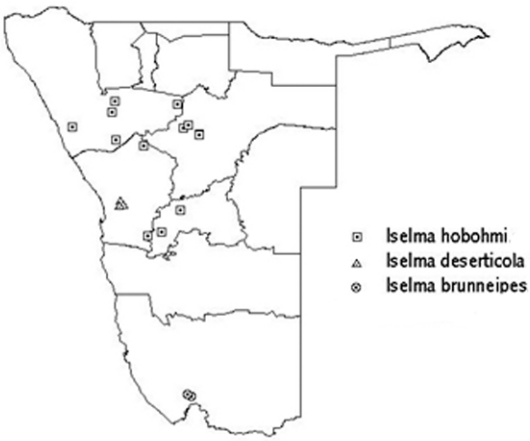
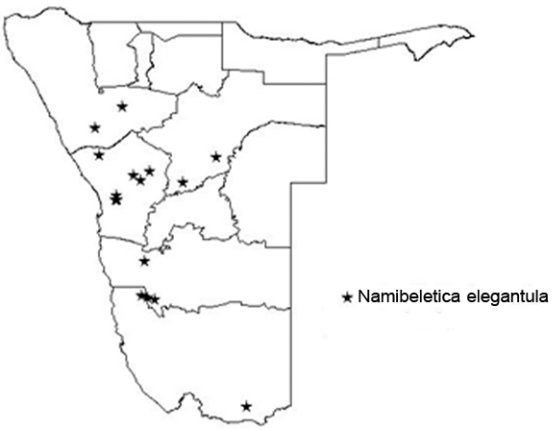
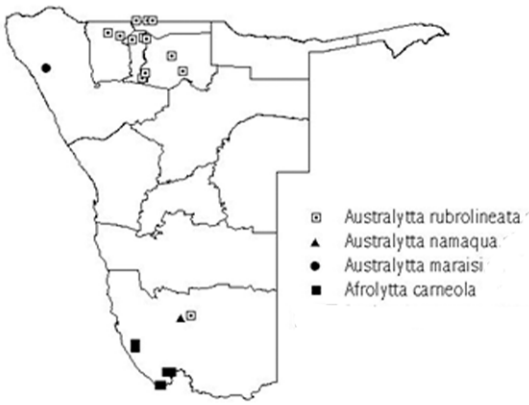
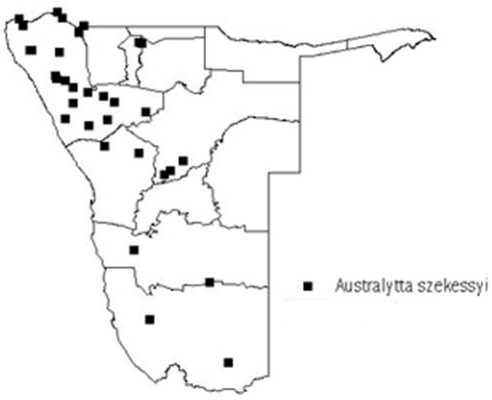
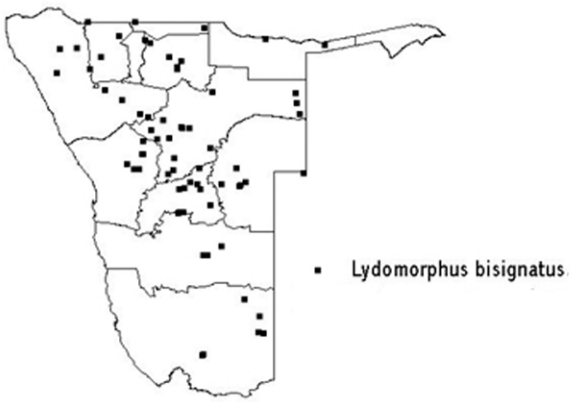
APPENDIX. Maps of distribution (more than five records) of Namibian bister beetle species.

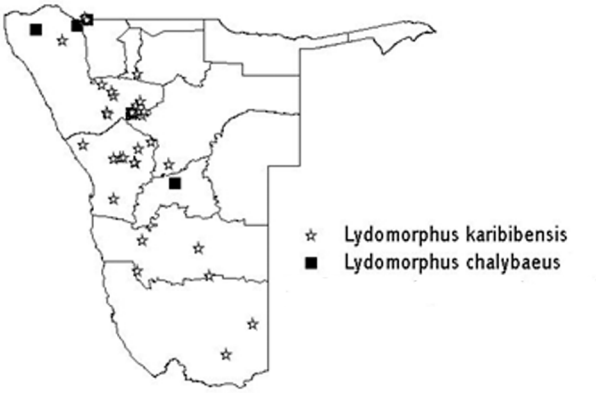


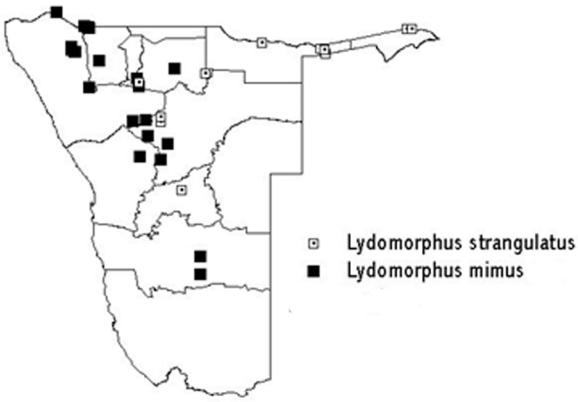


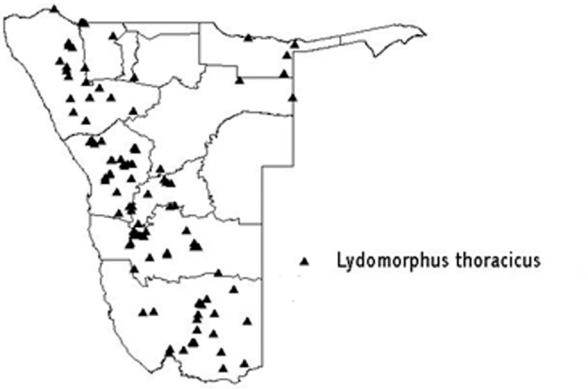


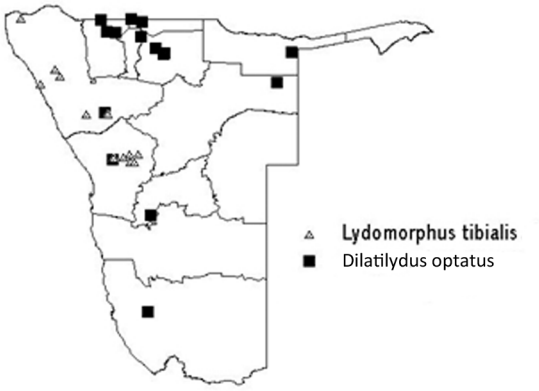


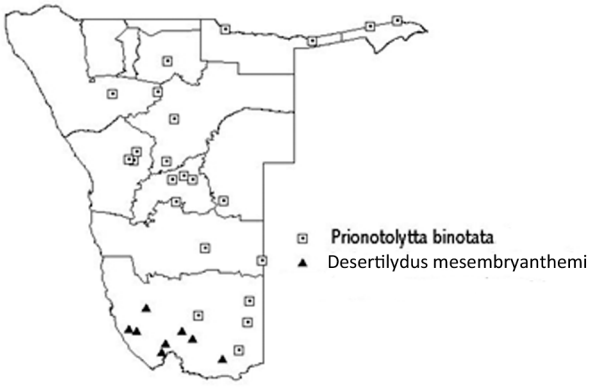


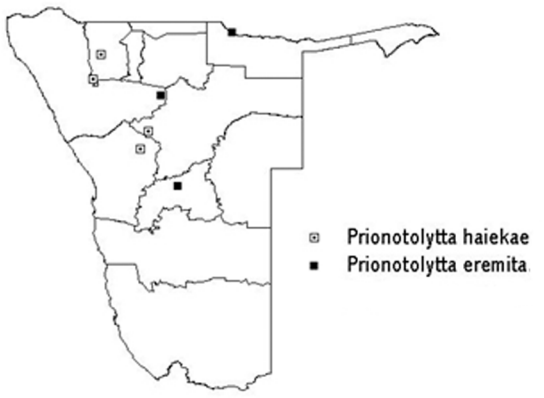

Lydomorphus karibibensis
Lydomorphus chalybaeus

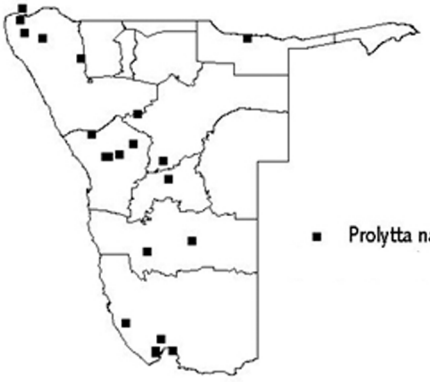

Lydomorphus strangulatus
Lydomorphus mimus

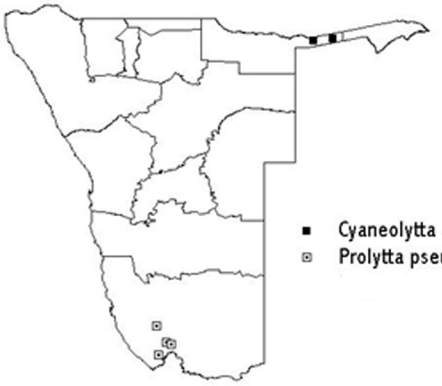

Lydomorphus thoracicus

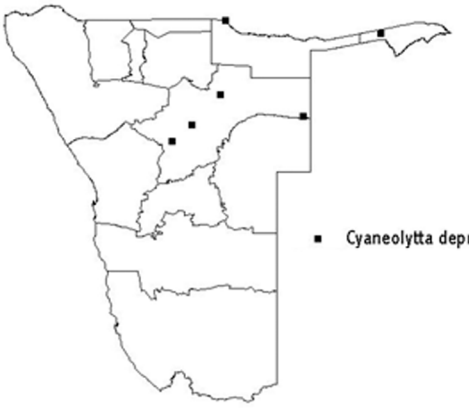

Lydomorphus tibialis
Dilatilydus optatus


Prionotolytta binotata
Desertilydus mesembryanthemi


Prionotolytta haiekae
Prionotolytta eremita


Prolytta namibensis


Cyaneolytta affinis
Prolytta pseudolucida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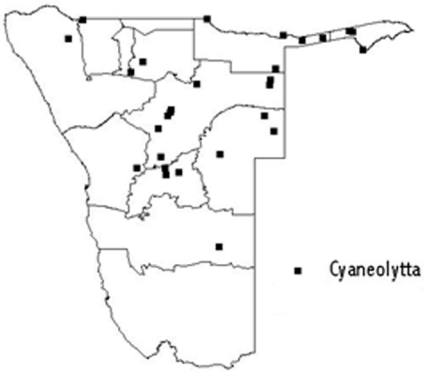
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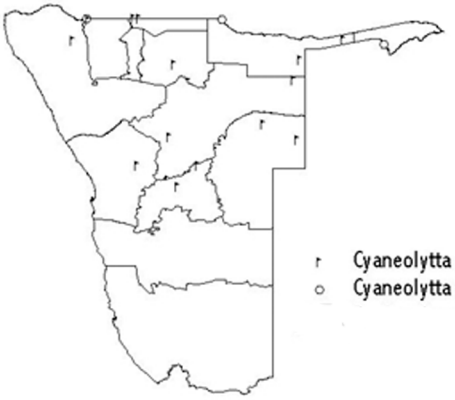
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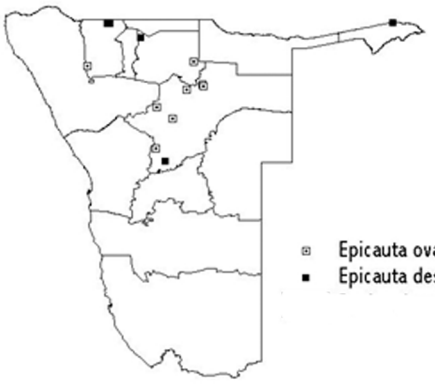
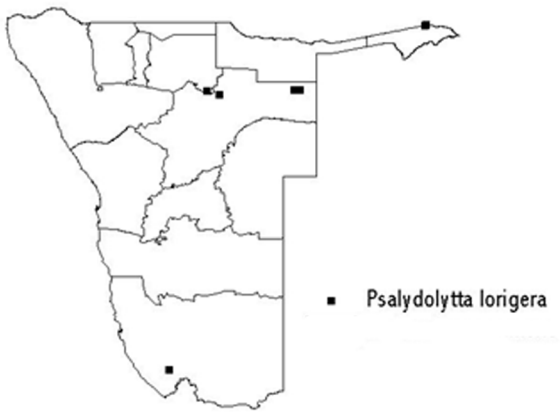
Cyaneolytta maculifrons


Epicauta ovampoa
Epicauta designata


Epicauta velata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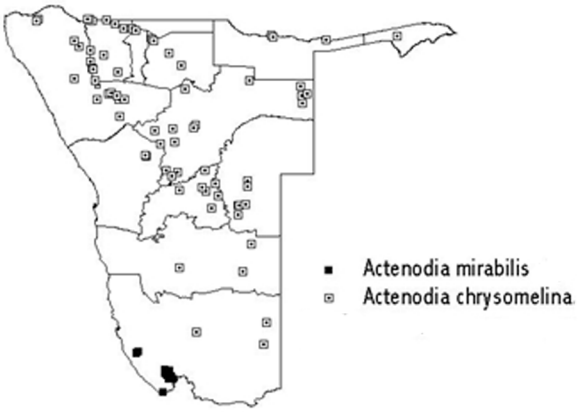
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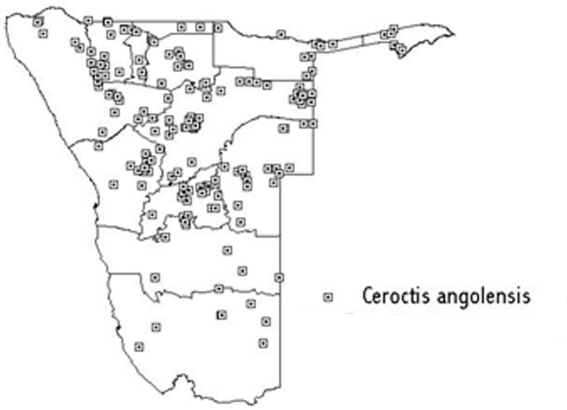
Actenodia chrysomelina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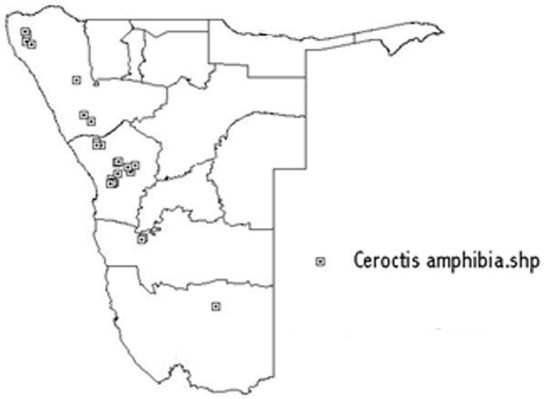
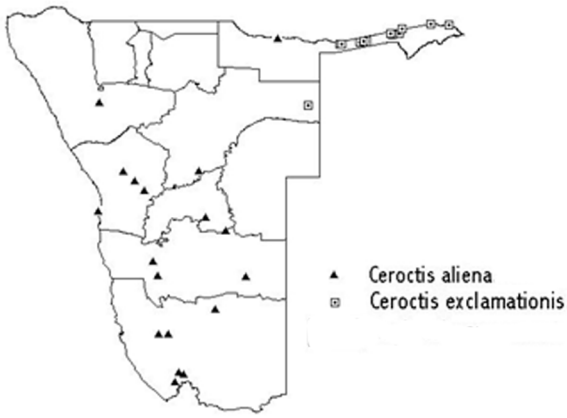
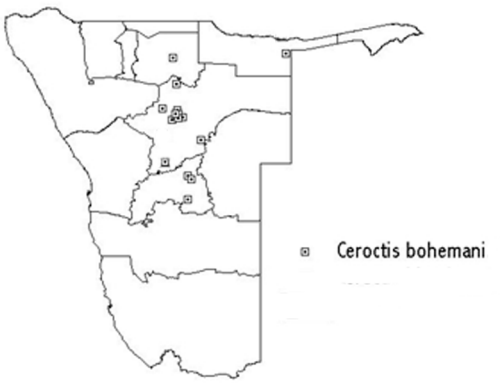

Ceroctis amphibia.shp


Ceroctis aliena
Ceroctis exclamationis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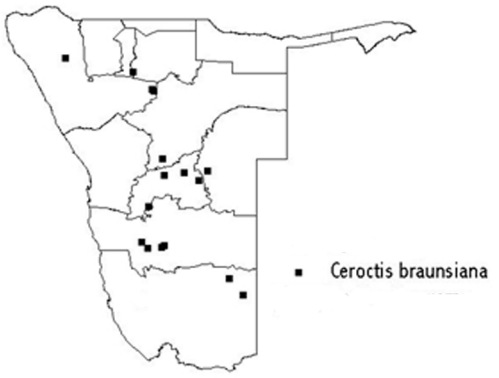
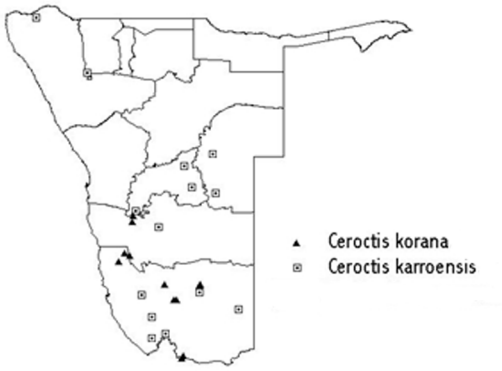
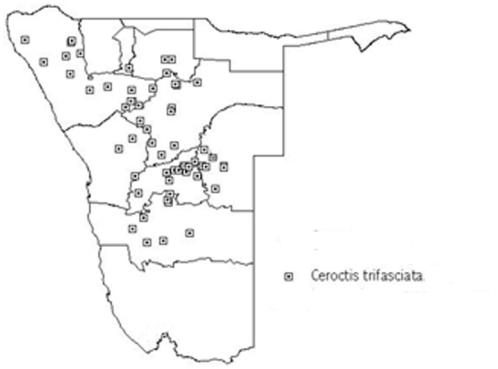
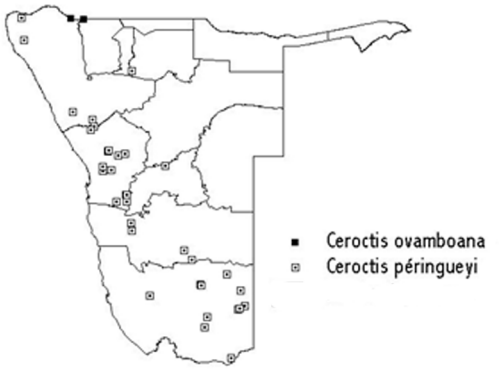
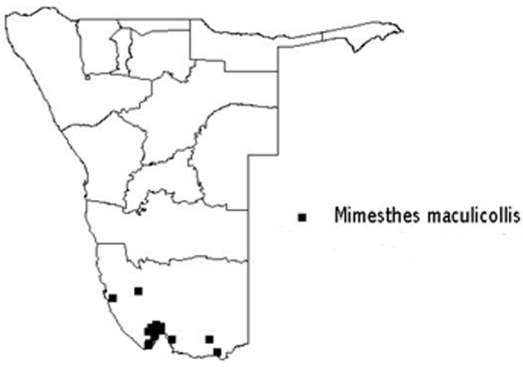
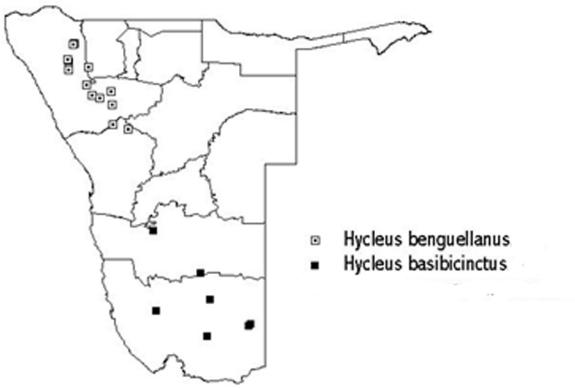

Ceroctis braunsiana


Ceroctis korana
Ceroctis karroensis


Ceroctis trifasciata


Ceroctis ovamboana
Ceroctis péringueyi


Mimesthes maculicollis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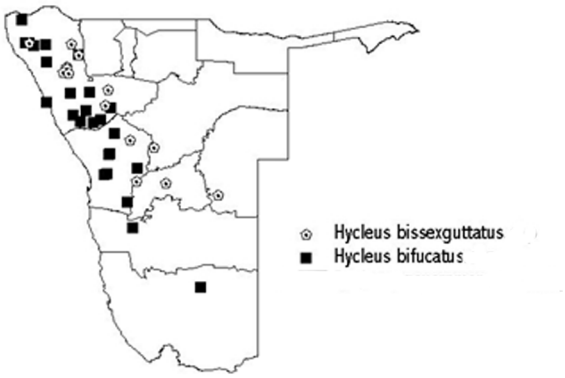
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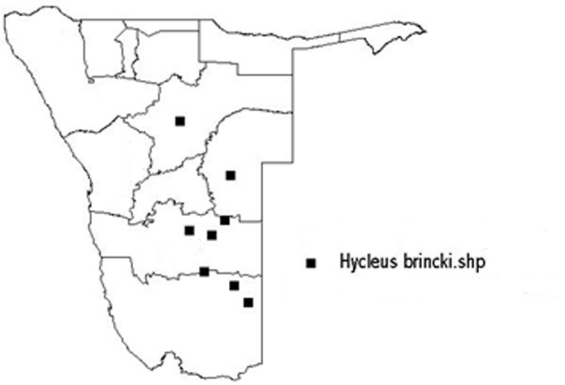
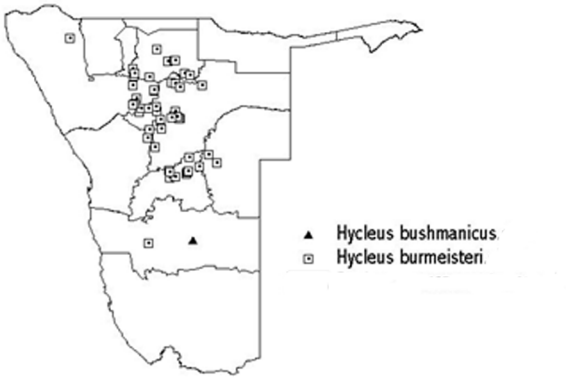
Hycleus bifucatus


Hycleus brincki.shp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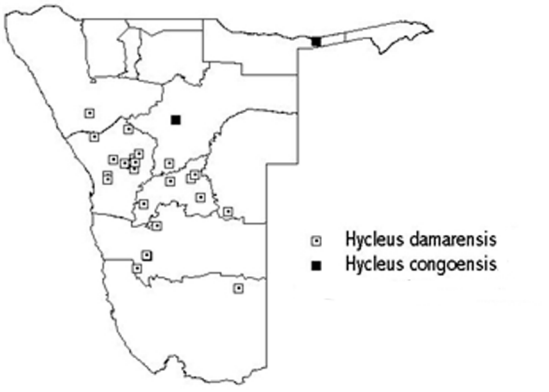
Hycleus burmeisteri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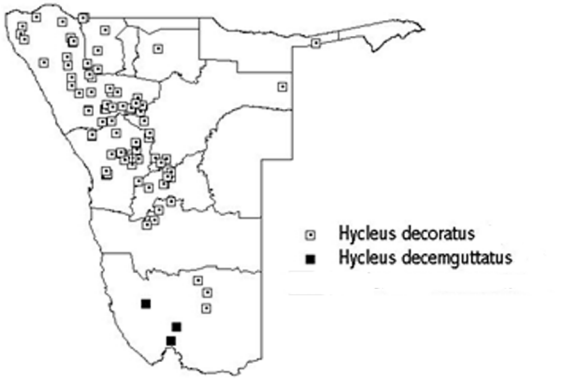
Hycleus congoensis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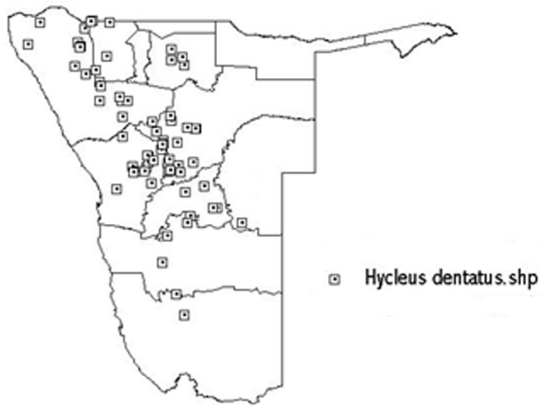
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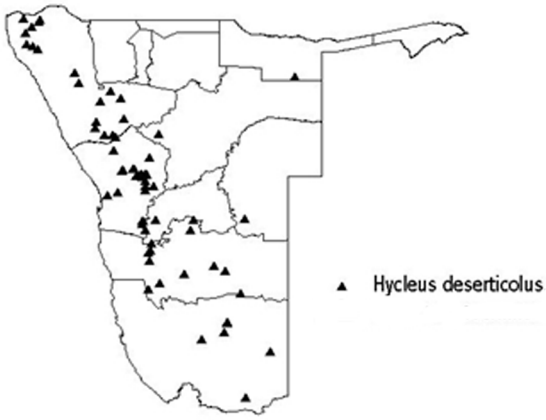
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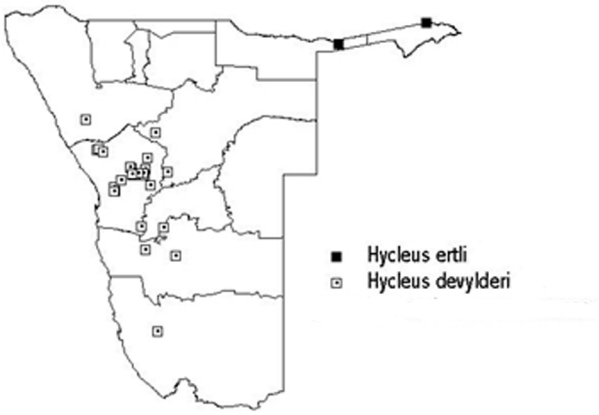
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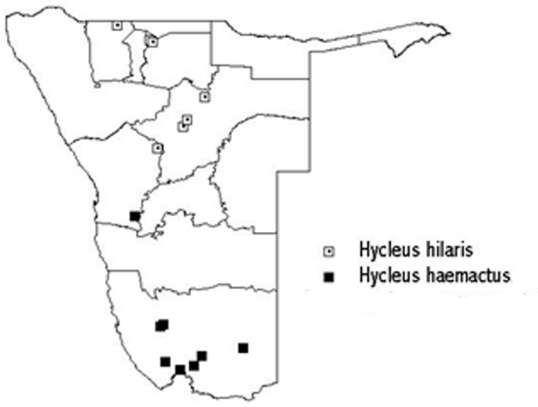
Hycleus devylderi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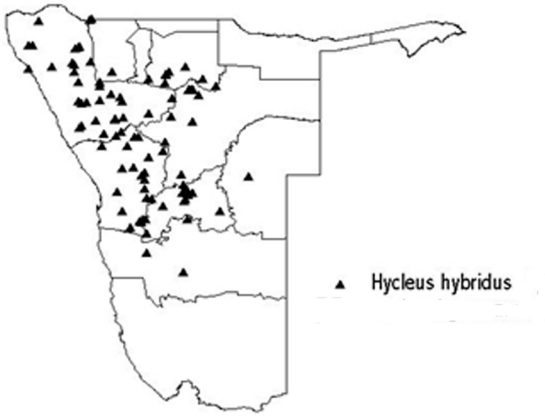
Hycleus haemactus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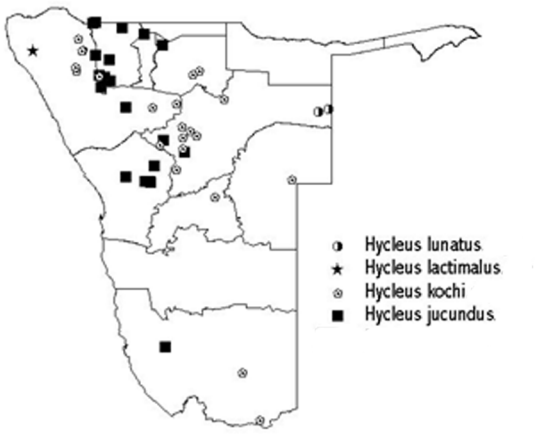
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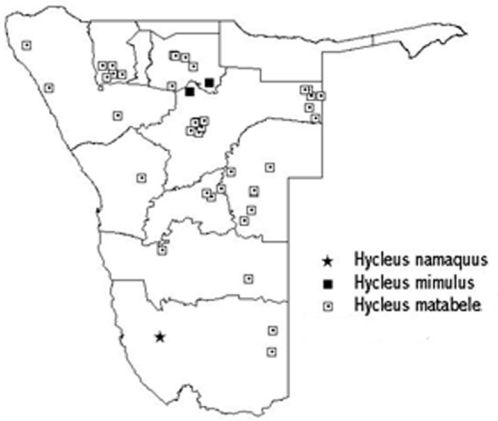
Hycleus jucundus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Hycleus mimulus
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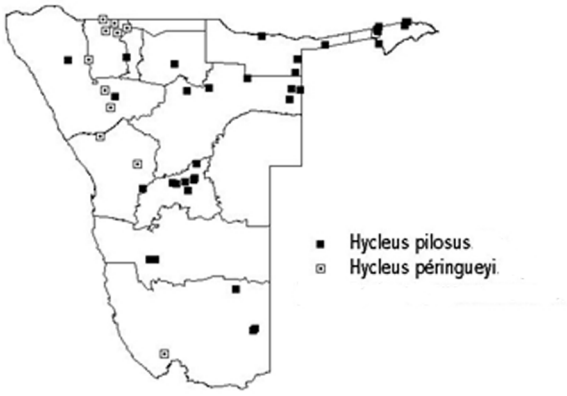
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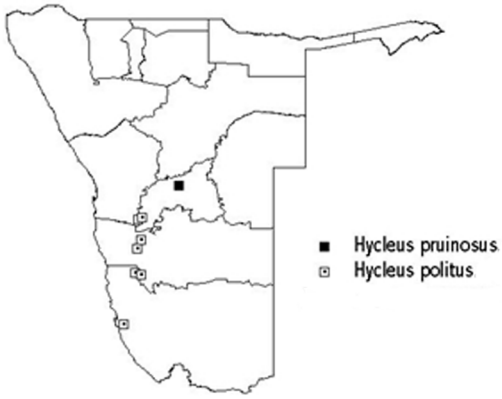
Hycleus péringueyi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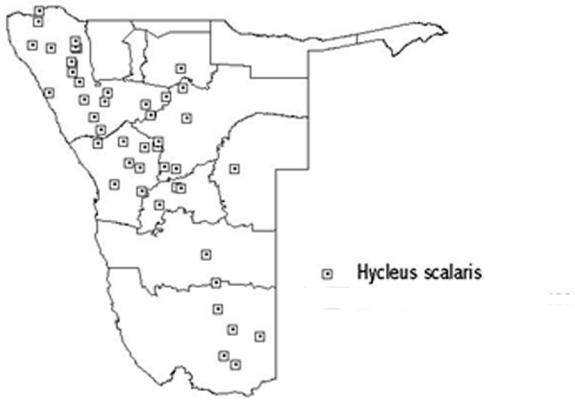
Hycleus politus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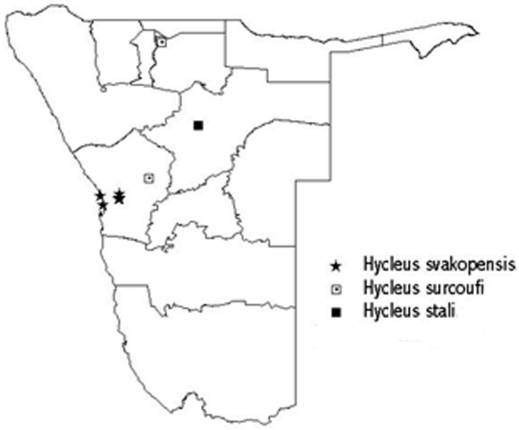
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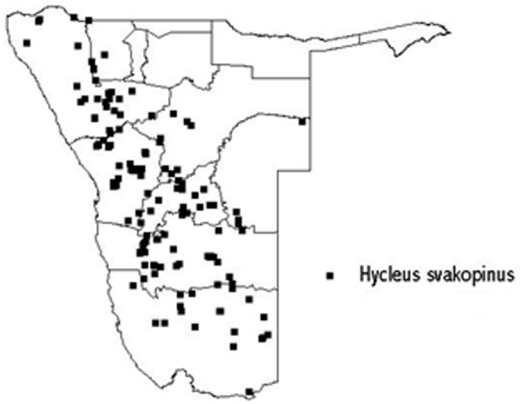
Hycleus stali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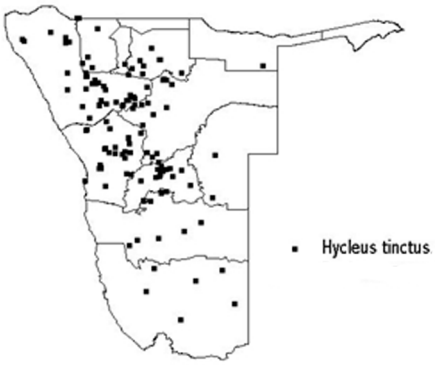
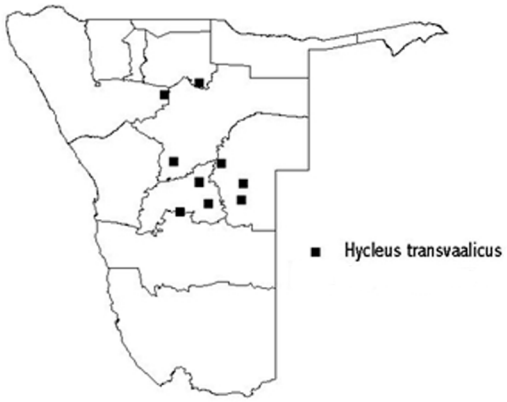

Hycleus tinctus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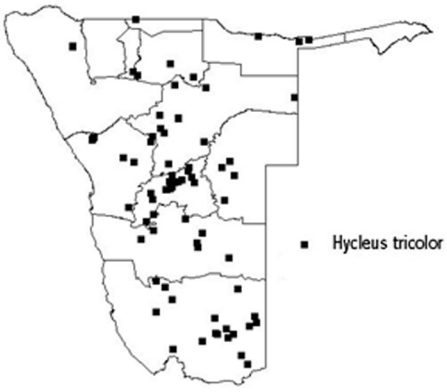
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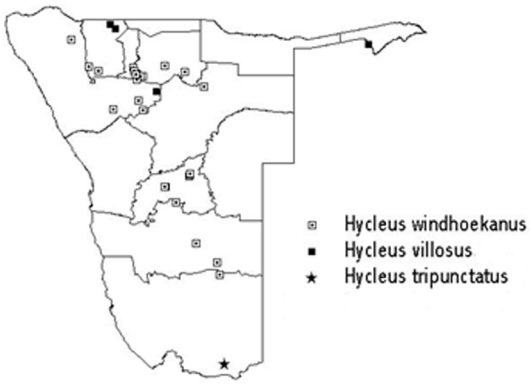
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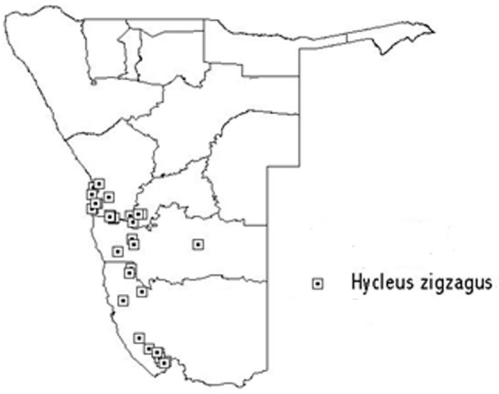
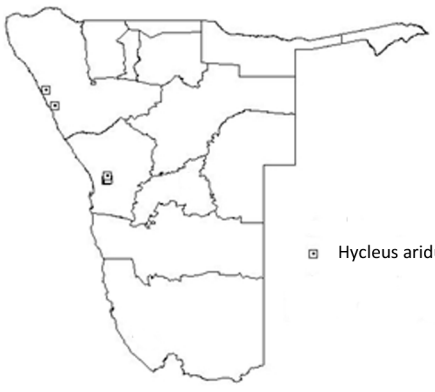
Hycleus villosus
Hycleus tripunctatus


Hycleus zigzagus


Hycleus aridus