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A NEW *OMOCESTUS* I. BOLIVAR 1878
(*ORTHOPTERA ACRIDIDAE*) FROM LIBYA

ABSTRACT - MASSA B., 2004 - A new *Omocestus* I. Bolivar 1878 (*Orthoptera Acrididae*) from Libya.

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The Author describes *Omocestus fontanai* n. sp., recently found in Cyrenaica (Libya); it is much related to *O. lopadusae* La Greca living in the Lampedusa Is. (Italy), and, like this, even if it is brachypterous, is not montane, as other brachypterous species belonging to gen. *Omocestus*. Differences between the two species are particularly pointed out, and affinities with other brachypterous species of the genus are recorded.

KEY WORDS - *Omocestus fontanai* n. sp., Description, Affinities.

RIASSUNTO - MASSA B., 2004 - Una nuova specie di *Omocestus* I. Bolivar 1878 (*Orthoptera Acrididae*) della Libia.

L'Autore descrive *Omocestus fontanai* n. sp., recentemente rinvenuta in Cirenaica (Libia); essa è molto affine ad *O. lopadusae* La Greca dell'isola di Lampedusa e, come questa, pur essendo brachittera, non è montana, come le altre specie brachittere, appartenenti a questo genere, finora note. Sono messe in particolare evidenza le differenze tra le due specie e le affinità con le altre specie brachittere del genere.

PAROLE CHIAVE - *Omocestus fontanai* n. sp., Descrizione, Affinità.

Despite researches carried out in the first half of 1900, mainly by Italian researchers (cf. MASSA 1998 and references therein), among countries of North Africa, Libya is certainly the least investigated from the entomological, particularly orthopterological, point of view. The wide

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surface of this country (1,775,500 Km²) is one of the reasons of difficulties to reach an adequate knowledge of its entomological fauna. One example of this insufficient investigation is the fact that a single visit carried out at the end of August 2003 consented Renzo Ientile from Siracusa (Sicily) to collect three undescribed species, that is *Rhacocleis lagrecai* (FONTANA & MASSA 2003), a new species of *Steropleurus* (FONTANA & MASSA in preparation) and another one belonging to the genus *Omocestus* I. Bolivar, 1878, that I will describe here.

Subgeneric systematic of the genus *Omocestus* is not clear (see HARZ 1975, RAGGE 1986, DÉFAUT 1988) and some species may be assigned equivocally to the subgenus *Omocestus*, as well as to *Dreuxius* Défaut and *Dirshius* Harz; moreover, RAGGE (1986) synonymized *Dirshius* with *Omocestus* and, eventually, also *Dreuxius* might be considered its synonym. It should be necessary to understand better the separation existing among species groups and their possible origin, in order to include them within one or more distinct genera. For this reason I prefer to describe provisionally this new species in the genus *Omocestus*.

Omocestus fontanai n. sp.

Holotypus ♂. Libya, Cyrenaica, El Kouf (c. 450 m a. s. l.) 30.VIII.2003, leg. R. Ientile (coll. B. Massa, Palermo University) (Fig. 1).

Head vertically well developed, antennae just longer than head and pronotum, consisting of 19 segments, the first eighth flattened, others cylindrical. Eyes long, vertical diameter 1.7 times longer than subocular groove (Fig. 2). Fastigium of vertex narrow, with acute angle, protruding between the eyes, as long as wide; foveole flat, wrinkled, two times longer than wide, well visible from above (Figs 4, 6). Pronotum as large as long, characterized by a sharp medial keel, posterior border just pointed, with an obtuse angle (Figs 2, 4). Lateral keels x-shaped, closed in the prozona, diverging in the metazona; maximum distance between them is 1.8 times their minimum distance. Transversal posterior sulcus is placed behind the middle of the pronotum, the ratio prozona/metazona being 1.6 (Fig. 4). Lateral lobes of pronotum as long as high.

Tegmina reduced in length, overlapping between each other, leaving discovered the posterior 3/5 of the abdomen, oval, three times longer than wide (Figs 8, 10); longitudinal veins much prominent; anterior border right on the middle provided with a small convexity. Costal veins evident up to middle of tegmina, where they change to a series of transverse and parallel veinlets, placed in the apical part of the costal



Fig. 1. *Omocestus fontanai* n. sp., holotypus ♂, Libya, Cyrenaica, El Kouf 30.VIII.2003, leg. R. Ientile. Scale: 3 mm.

area, which, together the precostal area, makes up a wide area. Subcostal veins, radial and medial, merge to a sole basal line in the middle of length, and diverge evidently between them, mainly the medial one. Radial veins absent (Fig. 12). Wings very reduced and rudimentary, reaching half of the first tergite. Posterior femurs 3.5 times longer than wide, bearing inside 55 stridulatory pegs (Fig. 15).

Tympanic organ opened, oval, three times longer than wide. Abdomen compressed, tergites provided by a small medial keel. Ninth tergite almost completely concealed under the eighth, tenth characterized by a wide semicircular medial incision. Cerci conical, long c. 2/3 as the supranal plate, which is triangular, pointed and provided with a small central concavity.

Measurements. Body length: 11 mm; pronotum length: 2.1 mm; tegmina length: 4.2 mm; length of posterior femurs: 7.8 mm (Table 1).

Colour. Brownish grey with two dark lateral strips from the eyes through the pronotum to the abdomen.

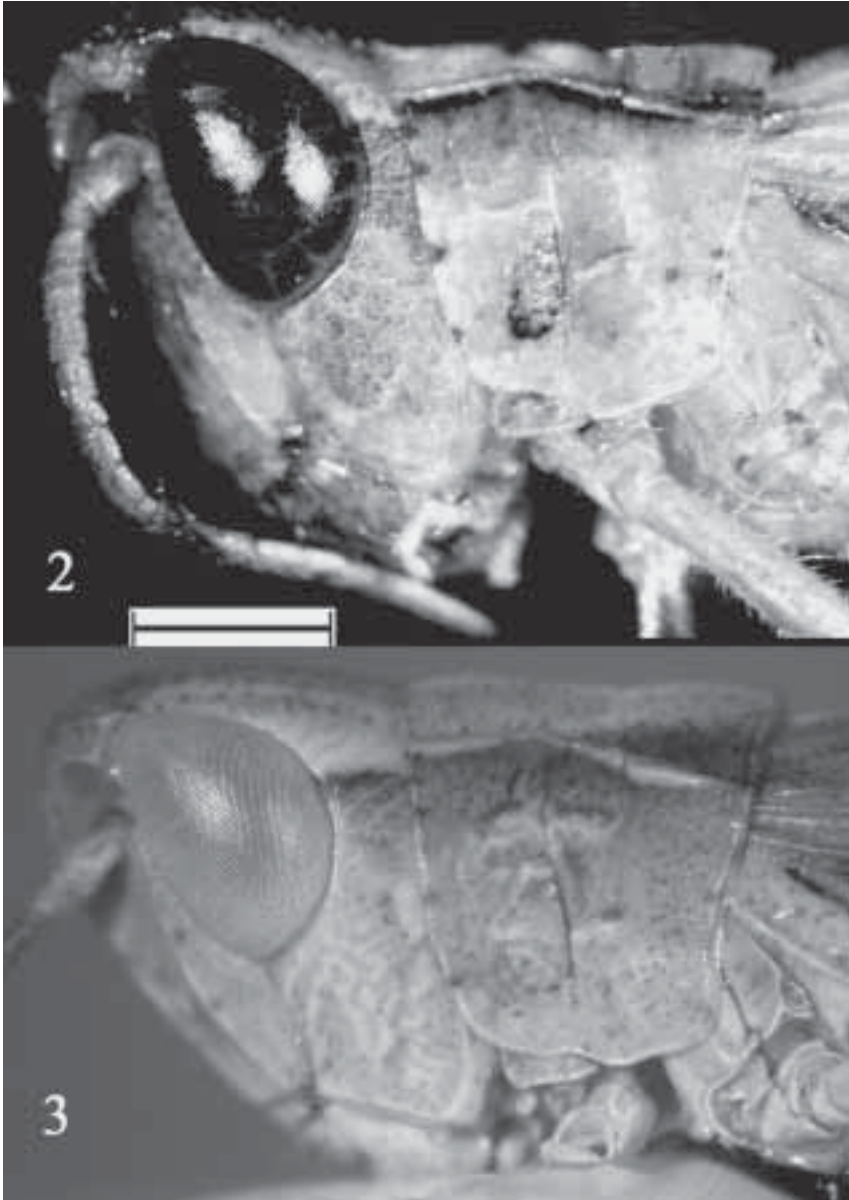
Derivatio nominis. *Omocestus fontanai* n. sp. is named after the Italian orthopterologist Paolo Fontana (Padua University), who, in the last ten years, has concurred to the growth of mediterranean orthopterology.

| Male | <i>Omocestus lopadusae</i> | <i>Omocestus fontanai</i> |
|--|--|--|
| Eyes length (Figs 2, 3) | 1.5 times subocular groove | 1.7 times subocular groove |
| Fastigium foveolae (Figs 6, 7) | sharp borders, just visible from above | flat, borders not evident, well visible from above |
| Posterior border of pronotum (Figs 4, 5) | right | obtuse |
| Ratio between maximum and minimum distance of pronotum lateral keels | 2.0 | 1.8 |
| Ratio between prozona and metazona length | 1.4-1.5 | 1.6 |
| Ratio between tegmina length and width | 2.6 | 3.0 |
| Tegmina (Figs 12, 13, 14) | Apically more rounded from above | Apically more pointed from above |
| Wings | Rudimentary | Rudimentary |
| Supranal plate | evident concavity, dark coloured | small concavity |
| Cerci | reaching the apex of supranal plate | 2/3 long as supranal plate |
| Body length | 8.0-10.1 | 11.0 |
| Pronotum length | 2.0-2.2 | 2.1 |
| Length of tegmina | 3.4-4.0 | 4.2 |
| Length of hind femurs | 6.8-7.2 | 7.8 |

Tab. 1. Differences between *Omocestus lopadusae* La Greca and *O. fontanai* n. sp. Data of *O. lopadusae* were drawn from LA GRECA (1973).

Affinities

According to OTTE et al. (2004) 41 valid species belong to the genus *Omocestus*, six are well distributed in Europe and Asia [*O. haemorrhoidalis* (Charpentier), *petraeus* (Brisout), *raymondi* (Yersin), *rufipes* (Zetterstedt), *ventralis* (Zetterstedt), *viridulus* (L.)], two species are widespread in North Africa [*O. africanus* Harz, *lucassii* (Brisout)], seven are endemic to Spain [*O. antigai* (Bolivar), *bolivari* (Chopard), *femoralis* (Bolivar), *minutissimus* (Brullé), *navasi* Bolivar, *uhagoni* (Bolivar), *panteli* (Bolivar)], one to the Canary Is. [*O. simonyi* (Krauss)], four live in Morocco (*O. allaudi* Uvarov, *lecerfi* Chopard, *lepineyi*



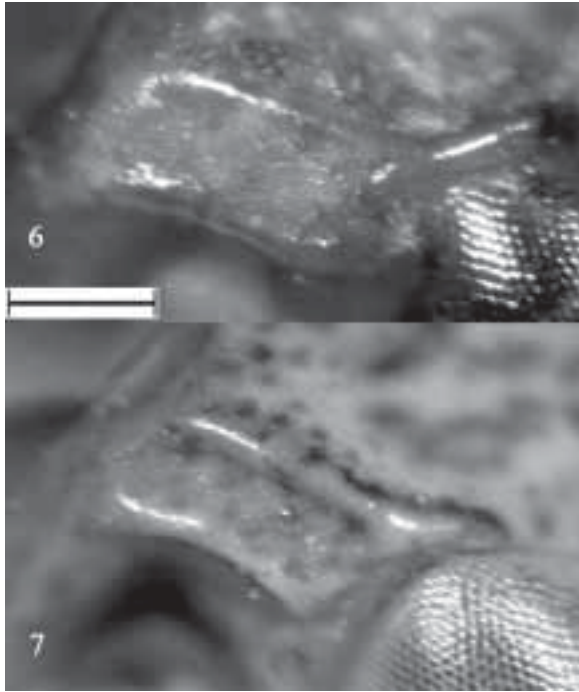
Figs. 2-3. Lateral view of head and pronotum of *Omocestus fontanai* n. sp., holotypus (2) and *O. lopadusae* La Greca from Lampedusa Is. (3). Scale: 1 mm.



Figs. 4-5. Head and pronotum of *Omocestus fontanai* n. sp., holotypus (4) and *O. lopadusae* La Greca from Lampedusa Is. (5), seen from above. Scale: 1 mm.

Chopard, *harzi* Nadig), one lives respectively in Algeria (*O. nadigi* Harz), Lampedusa Is. (Italy) (*O. lopadusae* La Greca), central southern Italy (*O. uvarovi* Zanon), Greece [*O. minutus* (Brullé)], Turkey (*O. nanus* Uvarov), Caucasus (*O. caucasicus* Tarbinsky), Armenia (*O. demodikovi* Ramme), Azerbaijan (*O. znojko* Mistschenko), Transcaspia [*O. heymonsi* (Ramme)], Tibet (*O. tibetanus* Uvarov), Karakorum (*O. aymonissabaudiae* Salfi), Mongolia (*O. tzendsureni* Harz), and nine in China (*O. cuonaensis* Yin, *enitor* Uvarov, *ubeiensis* Wang & Li, *megaoculus* Yin, *motuoensis* Yin, *nigripennis* Zheng, *nyalamus* Xia, *xinjiangensis* Liu, *zhenglanensis* Zheng & Han).

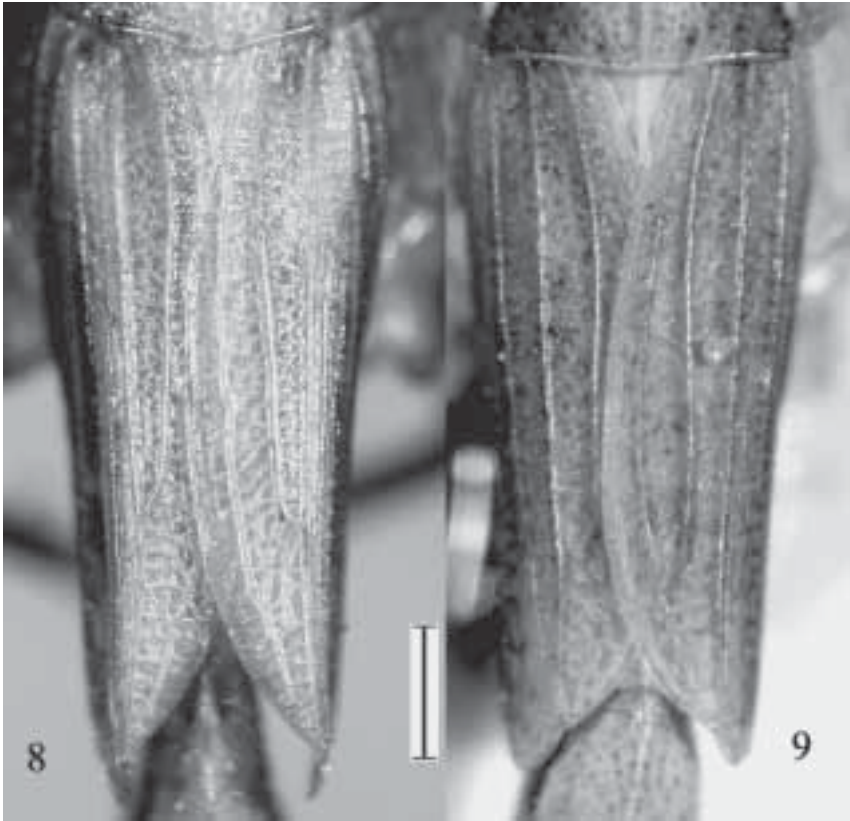
Among these species there are many examples of tegmina reduction, all restricted to mountainous areas, with the exception of *O. lopadusae*, living on a small island in the Sicilian Channel (LA GRECA 1973) and *O. fontanai* n. sp., collected in Cyrenaica at little altitude; it seems very probable that the former originated from northafrican populations related to the new species here described, as it has oc-



Figs. 6-7. Fastigium foveolae of *Omocestus fontanai* n. sp., holotypus (6) and *O. lopadusae* La Greca from Lampedusa Is. (7). Scale: 0.2 mm.

curred for other taxa living on Lampedusa Is. (MASSA, 1995). *O. fontanai* and *O. lopadusae* are indeed very related and their characteristics consent to tell apart them from other northafrican brachypterous congeners, which, however, are all restricted to mountainous areas.

Differences between *O. fontanai* and *O. lopadusae* are the following: in the latter species eyes length is 1.5 times longer than subocular groove (Fig. 3), fastigium foveolae show sharp borders (Fig. 7), just visible from above (Fig. 5), posterior border of pronotum is right (Figs 3, 5), the ratio between maximum and minimum distance of pronotum lateral keels is 2.0, the ratio between prozona and metazona length is 1.4-1.5, the ratio between tegmina length and width is 2.6, tegmina are apically more rounded (Figs 9, 13) and leave discovered the posterior 2/5 of the abdomen (Fig. 11), the supranal plate shows an evident dark concavity, cerci reach the apex of supranal plate, body measurements are smaller (Table 1), while the number of stridulatory pegs is the same (Fig. 16). All montane Moroccan-Algerian brachypterous species (*O.*



Figs. 8-9. Dorsal view of tegmina of *Omocestus fontanai* n. sp., holotypus (8) and *O. lopadusae* La Greca from Lampedusa Is. (9). Scale: 2 mm.

lecerfi, *O. allaudi*, *O. lepineyi*, *O. harzi* and *O. nadigi*) are small sized and show a different ratio between pronotum and femur length and between femurs and tegmina length; the number of male stridulatory pegs is 82-133 in *O. lecerfi*, 89-140 in *O. allaudi*, 112-137 in *O. lepineyi* and 25-32 in *O. harzi* (HARZ 1987, NADIG 1988). In the latter and other related species, as *O. bolivari* and *O. nanus*, posterior border of pronotum has an obtuse angle, like that of *O. fontanai*, but lateral keels of pronotum are differently placed, anterior border of tegmina are right and do not show any convexity, tegmina veins look a little different (particularly coastal vein: cf. Fig. 14) and the ratio between prozona and metazona length is smaller. Apart from *O. fontanai* and *O. lopadusae*, only *O. lecerfi* and *O. bolivari* have reduced tegmina and rudimentary wings.

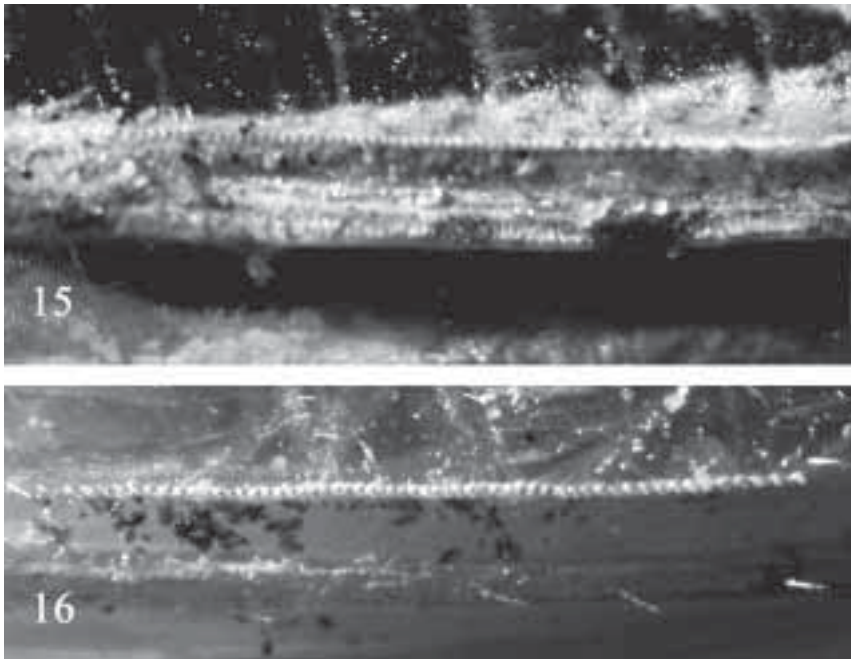


Figs. 10-11. Body dorsal view of *Omocestus fontanai* n. sp., holotypus (10, scale: 2.5 mm) and *O. lopadusae* La Greca from Lampedusa Is. (11, scale: 2.3 mm).

Gen. *Omocestus* is known in Libya only for one macropterous species (*O. africanus*). Actually, GIGLIO-TOS (1923) reported dubitatively *Stenobothrus crassipes* (Charpentier 1825), species of eastern Europe, from Derna, in Cyrenaica coast; SALFI (1930) put in further doubt this record and MASSA (1998) considered possible a misidentification with *O. africanus*. Nevertheless, *S. crassipes* is a small sized species, with wings shorter than the abdomen (HARZ 1975) and, on the light of this new Libyan record, it is realistic that specimen examined by GIGLIO-TOS in 1923, when only 15 species of *Omocestus* were known, might be just *Omocestus fontanai* n. sp.



Figs. 12-14. Dorsal view of left tegmina of *O. lopadusae* La Greca from Lampedusa Is. (12), *Omocestus fontanai* n. sp., holotypus (13) and *O. lecerfi* Chopard from Morocco, High Atlas (14). Scale: 2 mm



Figs. 15-16. Stridulatory pegs of *Omocestus fontanai* n. sp., holotypus (15) and *O. lopadusae* La Greca from Lampedusa Is. (16).

Material examined

Omocestus fontanai n. sp.: holotypus ♂, Libya, Cyrenaica, El Kouf (c. 450 m a. s. l.) 30.VIII.2003, leg. R. Ientile (coll. B. Massa, Palermo University); *Omocestus lopadusae* La Greca: 6 ♂♂, 20 ♀♀, Lampedusa Is. 26-28.IX.80, 16.X.87, 30.IX-1.X.92, 18-19.IX.95 (coll. B. Massa, Palermo University); *Omocestus lecerfi* Chopard: paratypus ♂, Morocco, Middle Atlas, Afnou des Beuf Abdallah (2550 m), Le Cerf; 2 paratypi ♂♂, Morocco, Aguelman Sidi Ali Ou Mohammed, IX.1935; 7 ♂♂, Morocco, Middle Atlas, Sidi Ali (2080 m) 5-25.VII.43, Rungs; 3 ♂♂ and 21 ♀♀, Morocco, Rif, Tidignin, Ketama VIII.32 (Museo Nacional Ciencias Naturales, Madrid); 1 ♀, Morocco, Boulemane, Fès, (1600 m), 13.IX.70, Alicata, Nobile & Costa; 1 ♂, Morocco, Midelt, Cirque de Jaffar (2200 m), 9.IX.70, Nobile, Messina & Costa (coll. P. Fontana).

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