

## DESCRIPTION OF TEN NEW SPECIES OF CLICK BEETLES FROM THE PALEARCTIC REGION WITH NEW DISTRIBUTIONAL RECORDS (COLEOPTERA, ELATERIDAE)

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**Abstract:** *Lanelater iranicus* n. sp. (Iran), \**Dima etoliensis* n. sp. (Greece, Etolia), \**Dima florinensis* n. sp. (Greece, Florina), *Agriotes tekirdagensis* n. sp. (Turkey), *Ampedus dacicus* n. sp. (Romania), \**Melanotus palpalis* n. sp. (Greece), *Melanotus klimenкои* n. sp. (Iran), *Cardiophorus mersinensis* n. sp. (Turkey), *Craspedostethus chittaroi* n. sp. (Oman) and *Craspedostethus omanensis* n. sp. (Oman) are described. New distributional records are given for *Agrypnus argillaceus argillaceus* (Solsky, 1871), *Selatosomus coreanus* (Miwa, 1928), *Ampedus sanguinolentus sanguinolentus* (Schränk, 1776) from the Ullung Island (South Korea) (Platia & Han, 2010), for *Octocryptus maindroni* Fleutiaux, 1944 from UAE, *Heteroderes musculus* (Germar, 1844), *Craspedostethus dilutus* (Erichson, 1840) from Morocco and *Melanotus pavliceki* Platia, 2010 from Jordan. Finally, the male and female genitalia, respectively, of *Octocryptus maindroni* Fleutiaux, 1944 from Oman and *Agriotes granulosus* Platia & Schimmel, 1992 from Turkey are illustrated for the first time.

**Key words:** Coleoptera, Elateridae, new species, new distributional records, Palearctic Region.

**Descripción de diez especies nuevas de elatéridos de la Región Paleártica, y nuevas citas (Coleoptera, Elateridae)**

**Resumen:** Se describen en el presente trabajo *Lanelater iranicus* n. sp. (Irán), \**Dima etoliensis* n. sp. (Grecia, Etolia), \**Dima florinensis* n. sp. (Grecia, Florina), *Agriotes tekirdagensis* n. sp. (Turquía), *Ampedus dacicus* n. sp. (Rumania), \**Melanotus palpalis* n. sp. (Grecia), *Melanotus klimenкои* n. sp. (Irán), *Cardiophorus mersinensis* n. sp. (Turquía), *Craspedostethus chittaroi* n. sp. (Omán) y *Craspedostethus omanensis* n. sp. (Omán). Se presentan nuevas citas de distribución para *Agrypnus argillaceus argillaceus* (Solsky, 1871), *Selatosomus coreanus* (Miwa, 1928), *Ampedus sanguinolentus sanguinolentus* (Schränk, 1776) de las Islas Ullung (Corea del Sur) (Platia & Han, 2010), para *Octocryptus maindroni* Fleutiaux, 1944 de EAU, *Heteroderes musculus* (Germar, 1844), *Craspedostethus dilutus* (Erichson, 1840) de Marruecos y *Melanotus pavliceki* Platia, 2010 de Jordania. Finalmente, se presentan por primera vez imágenes de la genitalia masculina y femenina de *Octocryptus maindroni* Fleutiaux, 1944 de Omán y de *Agriotes granulosus* Platia & Schimmel, 1992 de Turquía.

**Palabras clave:** Coleoptera, Elateridae, especies nuevas, citas nuevas, Región Paleártica.

### Taxonomy / Taxonomía:

*Lanelater iranicus* sp. n.

*Agriotes tekirdagensis* sp. n.

*Melanotus klimenкои* sp. n.

*Craspedostethus omanensis* sp. n.

*Dima etoliensis* sp. n.

*Ampedus dacicus* sp. n.

*Cardiophorus mersinensis* sp. n.

*Dima florinensis* sp. n.

*Melanotus palpalis* sp. n.

*Craspedostethus chittaroi* sp. n.

## Material and methods

The species with asterisk “\*” are the result of the program “Research Missions in the Mediterranean Basin” sponsored by the World Biodiversity Association onlus. XXXII contribution (Dr. Pier Mauro Giachino, Dr. Dante Vailati).

**Body measurements.** Body length is measured along the midline from the anterior margin of the frons to the apex of the elytra; the width is measured across the broadest part of the entire beetle.

**Pronotal measurements.** The pronotal length is measured along the midline; the width at the broadest part, which is most usually at the hind angles.

**Abbreviations.** The names of institutions, museums and private collections containing material studied are abbreviated as follows:

CAF, Angelini coll., Francavilla Fontana (Italy)

CCW, Cate coll., Wien

CPG, Platia coll., Gatteo (Italy).

CRG, Riese coll., Genoa (Italy)

MCSNG, Genoa, Museum of Natural History.

The tribal placement of genera listed below follows Bouchard *et al.*, 2011.

## Results

### Tribe Agrypnini Candèze 1857

#### *Lanelater iranicus* n. sp.

Fig. 1, 1a, 8, 8a, 19, 19a, 20, 30, 35.

**MATERIAL EXAMINED.** **Holotype** ♂ - Iran: Hormozgan prov., Minab eo., 16.VII.2010, J. Dalihod. (CRG don. MCSNG). 1 **Paratype** ♀ - same data as HT. (CPG).

**DIAGNOSIS.** A large species allied to *L. naviauxi* Chassain, 1983 from Yemen and Oman; it can be separated by the larger size, more convex tubercle at middle of basal slope of pronotum, more mucronate and divergent apices of elytra, elytral striae well marked and punctured from base to apices, male genitalia.

**DESCRIPTION.** Male. Moderately shiny; entirely brown-ferruginous with blackish shades on disc of pronotum, sides and base of pronotum, base and striae of elytra, around of scutellum; covered with dense, short, recumbent, yellowish vestiture.

Frons impressed from middle to the anterior margin, the latter at middle merged with clypeus; punctures coarse, of variable diameters, umbilicate, with shortest intervals or contiguous. Antennae short, just exceeding the middle of sides of

pronotum, serrated from third article on; second article cylindrical, 1,4x longer than wide, third subtriangular, 1,9x longer than wide and 1,6x longer than second and longer than fourth; fourth-tenth triangular, fourth longer than following, on average just longer than wide; last subellipsoidal, symmetrically constricted at the apical third.

Pronotum as long as wide, widest at the apices of posterior angles of pronotum, very convex on disc and abruptly sloping at sides and base, at middle of basal sloping is present a well apparent subrectangular tubercle; sides arcuate, from behind the middle anteriorly gradually narrowing, posteriorly clearly sinuate before the posterior angles, the latter long, acuminate, divergent, with a long carina subparallel to the lateral margins and reaching the anterior third; punctures dense, on central part of disc deep, simple with shortest intervals, gradually larger towards the anterior margin and sides becoming more superficial, umbilicate and also contiguous to the lateral extremities.

Scutellum shield-shaped, quadrangular, ridged at base, punctured.

Elytra 2,4x longer than pronotum and as wide as it, convex; sides subparallel at the first half then gradually narrowing with apices slightly mucronate and feebly divergent; striae regularly marked and punctured; interstriae flat with very fine, few apparent, punctures.

Aedeagus as in fig. 1, 1a (length 4,1 mm).

Female. Very similar to the male but with larger body (length 36 mm; width 11 mm).

Bursa copulatrix sclerified as in fig. 8, 8a.

Size. Length 29 mm; width 8,7 mm (male).

**ETYMOLOGY.** The name is derived from the country of origin of the species: Iran.

***Agrypnus argillaceus argillaceus* (Solsky, 1871)**

**MATERIAL EXAMINED.** 10 specimens ♂♀ - S Korea: Ullung Island, Mt Songh peak (37°40'N, 130°60'E), 948 m, 9-18.VII.2008, Li Jingke (CPG; CRG).

**DISTRIBUTION.** Russia: Far East; China; Korea (Cate, 2007). New to Ullung Island. (Platia & Han, 2010).

***Octocryptus maindroni* Fleutiaux, 1944**

Fig. 2, 2a, 39.

**MATERIAL EXAMINED.** 8 specimens (1♂, 7♀) - UAE: Wadi Maidaq, 24.IX-22.X.2006, 26.X-9.XI.2006, A. van Harten; Wadi Shawkah, 25.X-15.XI.2007, A. van Harten. Oman: Izki (22°93079N, 57°72290E), 575 m, 9.XI.2011, Y. Chittaro. (CPG). Collected under stones, along a dry wadi (see in the fig. 51-52 the pictures of the landscape in Oman).

Described from a female specimen from Oman. The male was undescribed. It is identical to the female and indistinguishable from external morphology.

Aedeagus as in fig. 2, 2a (length 0,86 mm).

**DISTRIBUTION.** Oman. New to UAE (Platia, 2007).

**Tribe Oophorini Gistel, 1848**

***Heteroderes musculus* (Germar, 1844)**

**MATERIAL EXAMINED.** 11 specimens ♂♀ - Morocco: Ouarzazate prov., Oued Drea river valley, Tin-Zoulin (30°30' 26"N, 006°06'01"W), 26.VI.2010, A. Klimenko; Marrakech prov., Haut Atlas, Oukameden env. (31°13'N, 007°49'W), 2500 m, 17.VI.2010, A. Klimenko (CPG; CRG).

**DISTRIBUTION.** Algeria, Egypt, Saudi Arabia, Yemen (Cate, 2007). New to Morocco.

**Tribe Prosternini Gistel, 1856**

***Selatosomus coreanus* (Miwa, 1928)**

**MATERIAL EXAMINED.** 4 specimens ♂♀ - S Korea: Ullung Island, Mt Songh peak (37°40'N, 130°60'E), 948 m, 9-18.VII.2008, Li Jingke (CPG; CRG).

**DISTRIBUTION.** Russia: East Siberia, Far East; China: Heilongjiang, Jilin, Liaoning, Nei Mongol; Mongolia; N & S Korea (Cate, 2007). New to Ullung Island (Platia & Han, 2010).

**Tribe Dendrometrini Gistel, 1848**

***\*Dima etoliensis* n. sp.**

Fig. 9, 9a, 21, 31, 40.

**MATERIAL EXAMINED. Holotype** ♀ - Greece: Etolia-Akar-nania, O. Panetolikó, Nerosirtis, 850 m, 31.V.2005/ 30.V. 2006, P. M. Giachino & D. Vailati (CPG).

**DIAGNOSIS.** A large species very closely for the size and colour to *D. hladilorum* Schimmel, 1987, it can be separated for the elytra with subparallel sides and striae well marked from the base to the apices.

**DESCRIPTION.** Female. Moderately shiny; entirely brownish, lighter at sides of pronotum and elytra, covered with dense yellowish, recumbent, partially erect on head and sides of pronotum, vestiture.

Head widely impressed from vertex to the anterior margin, the latter merged with the clypeus, punctures coarse, more or less clearly umbilicate with shortest intervals.

Antennae exceeding by one article the apices of posterior angles of pronotum slightly serrated from fourth article on; second and third articles subconical with second a little longer than third, taken together 1,2x longer than fourth; fourth-tenth subtriangular, more twice longer than wide, last a little longer than penultimate, subellipsoidal.

Pronotum 1,48x wider than long, widest at middle, convex on disc, gradually sloping at sides and base, sides strongly arcuate, from middle anteriorly and posteriorly equally narrowing, well sinuate before the posterior angles, the latter very acuminate and divergent, carina prolonged to the anterior margin, very near and parallel to the lateral margin; puncturation rather uniformly distributed, punctures on the disc deep, simple, with very shortest shiny intervals.

Elytra 3,2x longer than pronotum and wider than it, convex, nearly vertically sloping at sides; sides subparallel from base to the posterior third then gradually narrowing to the apices; lateral and marginal channel enlarged at anterior third; striae well marked for all the length of elytra and indistinctly punctured; interstriae flat with very fine and dense punctures.

Bursa copulatrix with thorns shaped as in fig. 9, 9a.

Male unknown.

Size. Length 14,3 mm; width 5,3 mm.

**ETYMOLOGY.** The name of the species is derived from the region where it was collected: Etolia.

**ECOLOGICAL NOTES.** Subterranean traps placed along the left slope of a small valley with stream. This small valley is on the N mountain slope in an *Abies cephalonica* forest on limestone substrate (P.M. Giachino *in litteris*).

**\**Dima florinensis* n. sp.**

Fig. 10, 10a, 22, 32, 41.

**MATERIAL EXAMINED.** **Holotype** ♀ - **Greece:** nom. Flórina O. Varnous, A. Triados (40°47'32.1''N, 21°13'35.4''E), m 1285, 19.VI.2008/14.VI.2010, P. M. Giachino & D. Vailati (CPG).

**DIAGNOSIS.** A large and dark coloured species closed to *D. olympica* Meschnigg, 1934 for the long and semierect vestiture on pronotum and sides of elytra but it is distinguished for the larger size and shorter antennae (Schimmel & Platia, 2008).

**DESCRIPTION.** Female. Moderately shiny; entirely dark brown with blackish shadings except for the reddish colour at the extreme basal ridge of pronotum, centre of scutellum, lateral margins and suture and epipleura of elytra; antennae and legs brown; covered with yellow-fulvous long, semierect at sides of body, vestiture.

Frons moderately and regularly impressed from middle to anterior margin, the latter obsolete and merged with clypeus; punctures coarse of variable diameters, deep, simple or vaguely umbilicate with shortest intervals or contiguous.

Antennae nearly reaching the apices of posterior angles of pronotum, serrated from fourth article on; second and third articles subconical, subequal in length, taken together 1,5x longer than fourth; fourth quadrangular, just longer than wide, fifth-tenth triangular, about twice longer than wide, last just longer than penultimate, ellipsoidal.

Pronotum 1,4x wider than long, widest at middle, slightly convex, very gradually sloping at sides more abruptly at basal slope; sides very arcuate from middle anteriorly and posteriorly equally and notably narrowing, posterior angles acuminate, divergent, directed upwards, carina prolonged from base to anterior margin forming a narrow and regular channel; puncturation moderate, rather uniformly distributed, on disc punctures deep, simple with intervals variable, equal to larger than their own diameters, similar at sides, sparser at basal sloping.

Scutellum quadrangular, straight at base, transversally slightly impressed at the posterior third, finely punctured.

Elytra 3x longer than pronotum and a little wider than it, strongly convex, subovaliform, widest just behind the middle; striae well distinct from base to apices and weakly punctured; interstriae flat with dense and finer punctured

Male unknown.

Bursa copulatrix sclerified with thorns as in fig. 10, 10a.

Size. Length 12,5 mm; width 4,68 mm.

**ETYMOLOGY.** The name of the species is derived from Flórina town.

**ECOLOGICAL NOTES.** Subterranean traps placed in MSS (or Superficial Subterranean Habitat) along the road slope in *Fagus* forest on schistose substrate. This site is near a small valley with stream on the SSW mountain slope. MSS is characterized by the presence of black humus and hazel clay (P.M. Giachino *in litteris*).

**Tribe Agriotini Laporte, 1840**

***Agriotes tekirdagensis* n. sp.**

Fig. 3, 3a, 11, 23, 23a, 36, 36a, 42, 42a.

**MATERIAL EXAMINED.** **Holotype** ♂ - **Turkey:** Tekirdağ province, Yenice, Inecik, 500 m ca, 20.V.2011, F. Angelini (CPG). 5 **Paratypes** (3 ♂, 2 ♀) - same data as HT (CAF, CPG).

**DIAGNOSIS.** A species very allied to *Agriotes solai* Platia, 2004 for the general shape, colour, size and male genitalia with simple apices of paramera, it can be separated for the male genitalia much more elongate and particularly for the last visible sternite clearly thickened at the apical third.

**DESCRIPTION.** Male. Moderately shiny. Entirely black to elytra lighter dark-brown, antennae and legs ferruginous; covered with very dense, yellowish, vestiture.

Frons moderately convex, flat before the anterior margin, suprantennal carinae not reaching the anterior margin, the latter thickened, straight, merged with clypeus; punctures coarse, umbilicate, contiguous.

Antennae not reaching for about 1-1,5 articles the apices of posterior angles of pronotum, serrated from fourth article on; second and third articles subcylindrical, subequal in length, twice longer than wide, taken together 1,3x longer than fourth; fourth-tenth triangular, subequal in length, on average 1,6x longer than wide; last slightly longer than penultimate, ellipsoidal.

Pronotum as long as wide or just longer than wide, widest at the apices of posterior angles, very convex, with short mid-longitudinal depression at the basal slope; sides slightly dilated at the anterior third, then subparallel at middle and weakly sinuate before the posterior angles, the latter rather acuminate, just diverging with fine and short carina subparallel to the lateral margin, this complete reaching the anterior margin; puncturation coarse and dense, uniformly distributed, punctures more or less distinctly umbilicate, with shortest intervals or contiguous giving to the surface a dull appearance.

Scutellum shield-shaped, a little longer than wide, slightly sinuate at middle of sides, ridged at base, flat or slightly convex, roughly punctured.

Elytra 2,5-2,6x longer than pronotum and as wide as it, convex; sides subparallel in the first half then gradually narrowing to the apices; striae well marked and punctured, interstriae flat with dense, finer, moderately raised punctures giving to the surface a granulated appearance.

Last abdominal visible segment thickened at apical third.

Aedeagus as in fig. 3, 3a (length 2,18 mm).

Female. Body a little larger, elytra lighter, blackish with reddish shadings or nearly totally reddish, darkened at base around the scutellum and along the suture, antennae shorter.

Bursa sclerified as in fig. 11.

Size. Length 10,6-12,5 mm; width 2,8-3,2 mm.

**ETYMOLOGY.** The name is derived from the name of the Turkish province Tekirdağ.

*Agriotes granulosus* Platia & Schimmel, 1992

Fig. 12, 43.

**MATERIAL EXAMINED.** 1 ♀ - **Turkey:** Golhisar, 7 km SW Altinyayla, 28.VI.2009, N. Jansson & M. Avci.

Described on a single male specimen, the female (length 11,5 mm, width 3,25), is identical to male.

Bursa copulatrix sclerified as in the fig. 12.

**Tribe Ampedini Gistel, 1848**

***Ampedus dacicus* n. sp.**

Fig. 13, 13a, 24, 33, 44.

**MATERIAL EXAMINED.** **Holotype** ♀ - **Romania:** Fagaras Mts., Bilea Cascade, 1300-1700 m, 23-27.VII.1994, V. Kabourek (CCW).

**DIAGNOSIS.** A species very closely to *A. nigerrimus* (Lacordaire) (figs. 14, 14a) for the shape, size and colour it can be separated for the third article of antennae slenderer and 1,4x longer than second, presence of a mid-longitudinal furrow at the basal slope prolonged more superficially at middle of pronotum, thorns of bursa copulatrix much more smaller.

**DESCRIPTION.** Female. Shiny; entirely black-piceous with antennae and legs brown-ferruginous; covered with moderate, partially erect on pronotum and sides of body, blackish vestiture.

Frons convex, anterior margin moderately thickened, directed downwards, regularly arcuate; punctures coarse, umbilicate, contiguous.

Antennae not reaching the apicis of posterior angles of pronotum, serrated from fourth article on; second cylindrical, as long as wide, third subconical, diametrically smaller, 1,4x longer; second and third, taken together a little longer than fourth; fourth-tenth triangular, fourth a little longer than following, fifth-tenth just longer than wide, a little longer than penultimate, regularly ellipsoidal.

Pronotum 1,16x wider than long, widest at the apicis of posterior angles, strongly convex, abruptly sloping at sides and base with a clear mid-longitudinal furrow at basal slope prolonged more superficially at the middle; sides from middle anteriorly narrowing, posteriorly subparallel and very slightly sinuated only before the apicis of posterior angles, the latter moderately acute, not divergent with a short carina directed inside; punctures coarse and rather uniformly distributed on all the surface, on disc moderately umbilicate with shortest intervals, gradually denser, more superficial, clearly umbilicate towards the sides with shortest, feebly shagreened intervals or contiguous.

Scutellum shield-shaped, just longer than wide, ridged at base, flat, punctured.

Elytra 2,8x longer than pronotum and as wide as it, moderately convex; sides subparallel from base to behind the middle the gradually narrowing to the apicis; striae regularly marked and punctured, interstriae subconvex with subrugose surface.

Bursa copulatrix sclerified as in fig. 13, 13a.

Male unknown.

Size. Length 9,5 mm; width 2,75 mm.

**ETYMOLOGY.** The name of the species is derived from Dacia, the ancient latin name of Romania.

*Ampedus sanguinolentus sanguinolentus* (Schrank, 1776)

**MATERIAL EXAMINED.** 6 specimens - Korea: Ullung Island, Mt Songh peak (37°40'N, 130°60'E), 948 m, 9-18.VII.2008, Li Jingke (CPG; CRG).

**DISTRIBUTION.** Europe; Asia. New to Ullung Island. (Platia & Han, 2010).

#### Tribe Melanotini Candèze, 1859

*\*Melanotus palpalis* n. sp.

Fig. 4, 4a, 26, 37, 38, 45.

**MATERIAL EXAMINED.** Holotype ♂ - Greece: Etolia-Akarnania, O. Sérekas, near Megálo Spilio (38°46'06.1"N, 20°57' 22.3"E), 1000 m, 2.VI.2008/18.VI.2010, P. M. Giachino & D. Vailati (CPG).

**DIAGNOSIS.** A species similar in the general shape and colour to *M. crassicollis* (Erichson, 1841), it can be separated by a

series of characters as the robuster body, fourth article of antennae longer compared to second and third taken together, pronotum less convex gradually sloping at base and sides, last segment of maxillary palpi slenderer and sinuate, aedeagus.

**DESCRIPTION.** Male. Moderately shiny; entirely blackish with antennae and legs brown-ferruginous; covered with dense, recumbent, yellowish vestiture.

Head with eyes a little narrower than anterior margin of pronotum, frons flat, just impressed immediately before the anterior margin, the latter finely thickened, straight at middle and just protruding above the clypeus; puncturation coarse, punctures strongly umbilicate, of variable diameters, with shortest, feebly shagreened intervals or contiguous.

Antennae reaching the apicis of posterior angles of pronotum, second article subcylindrical, as long as wide, third subconical, 1,5x longer than second and 1,5x longer than wide; second and third, taken together, just longer than fourth; fourth-tenth triangular, 1,6x to 2x longer than wide, last longer than penultimate, subellipsoidal.

Pronotum 1,24x wider than long, widest at the apicis of posterior angles, convex, gradually sloping at sides, with a mid-longitudinal, superficial and wide depression at basal slope; sides arcuate, from middle forwards rather abruptly sloping, backwards subparallel, feebly sinuate before the posterior angles, the latter acuminate, just divergent, with a carina gradually directed inside; puncturation coarse, on the disc punctures umbilicate, with shortest intervals, gradually denser towards the sides, strongly umbilicate, contiguous or confluent at the lateral extremities.

Scutellum shield-shaped, subrectangular, gently sinuate at sides, flat, punctured.

Elytra 3,1x longer than pronotum and as wide as it, convex, sides from base gradually and regularly narrowing to the apicis, striae moderately and regularly marked and punctured; interstriae flat, with dense and finer punctures.

Prosternal process gradually bent immediately behind the procoxal cavities, slightly emarginate at apex.

Last segment of maxillary palpi slender and shaped as in fig. 38.

Aedeagus as in fig. 4, 4a (length 2 mm).

Female unknown.

Size. Length 16,5 mm; width 4,4 mm.

**ETYMOLOGY.** The name is derived by the particular shape of the last segment of maxillary palpi.

**ECOLOGICAL NOTES.** Subterranean traps placed along a limestone wall, just out of the Megálo Cave, in a *Quercus ilex* forest on the N slope of Sérekas Mt. The traps was placed near the fissure network of the bedrock; a number of *Q. ilex* roots was present. (P.M. Giachino *in litteris*).

*Melanotus klimenkoi* n. sp.

Fig. 5, 5a, 27, 34, 46.

**MATERIAL EXAMINED.** Holotype ♂ - Iran: NE, W Khorasan prov., 20 km N Sabzevar (36°23'N, 57°34'E), 1600 m, 16.V.2009, A. Klimenko. (CRG don. MCSNG).

**DIAGNOSIS.** Species immediately separable from the other of the region for the posterior angles of pronotum elongate and very divergent. (Cate, Platia & Schimmel, 2002).

**DESCRIPTION.** Male. Moderately shiny; entirely brownish



with blackish shades particularly on head and elytra so the disc of pronotum appears lighter; antenna and legs ferruginous; covered with dense, long, semierect at sides of pronotum and elytra, yellow-golden vestiture.

Frons flat, just impressed at the anterior margin, the latter moderately thickened, directed downwards and just protruding above the clypeus, this with two rudimental mid-longitudinal carinae; puncturation coarse, strongly umbilicate with shortest intervals or contiguous.

Antennae exceeding by about two articles the apicis of posterior angles of pronotum, second article small, as long as wide, third just longer than second, taken together clearly shorter than fourth; fourth-tenth triangular, gradually slenderer, 2,4-3x longer than wide; last longer than penultimate, subellipsoidal, asymmetrically constricted at apical third.

Pronotum 1,26x wider than long, widest at apicis of posterior angles of pronotum, slightly convex, gradually sloping at sides and base with a very short and shallow mid-longitudinal depression at basal slope; sides arcuate, from behind the middle anteriorly regularly narrowing, posteriorly notably sinuate before the posterior angles, the latter elongate, strongly divergent with a fine and short carina directed inside; punctures on disc more or less umbilicate with variable intervals on average equal to smaller than their own diameters, gradually denser and clearly umbilicate towards the sides, contiguous and confluent at the lateral extremities.

Scutellum shield-shaped, ridged at base, very slightly sinuate at sides, flat, punctured.

Elytra 3,3x longer than pronotum and as wide as it, moderately convex, rather flat around the suture; sides subparallel, very gradually narrowing at posterior third; striae regularly marked and punctured, interstriae flat with finer punctures.

Prosternal process immediately bent behind the procoxal cavities, not emarginate at apex.

Aedeagus as in fig. 5, 5a (length 1,87mm).

Size. Length 13,7 mm; width 3,67 mm.

Female unknown.

**ETYMOLOGY.** The species is dedicated to the collector, A. Klimenko.

*Melanotus pavlicei* Platia, 2010

**MATERIAL EXAMINED.** 1 ♂ - Jordan: Al Aluk, 8.VI.2011.

**DISTRIBUTION.** Described from Israel. New to Jordan.

#### Tribe Cardiophorini Candèze, 1860

*Cardiophorus mersinensis* n. sp.

Fig. 6, 6a, 15, 15a, 47, 47a.

**MATERIAL EXAMINED.** **Holotype** ♀ - **Turkey:** Mersin prov., Tarsus, 20 km N, 5.VI.2011, F. Angelini (CPG). 2 **Paratypes** (♂, ♀) - same data as Ht (CAF, CPG).

**DIAGNOSIS.** Bicoloured species resembling for the general shape and patterns of pronotal drawings to female specimens of *C. discicollis* (Herbst) but it is easily separated for the smaller size, punctures on the disc of pronotum approximately of the same size, sclerified pieces of bursa copulatrix (Platia & Gudenzi, 2000).

**DESCRIPTION.** Female. Moderately shiny; bicoloured; entirely blackish with pronotum red-orange with a suboval black spot departing from anterior margin and prolonged to

the beginning of the basal slope, inner margin of propleura touching prosternum too black (Ht), in one of the paratype (female) is also present a very small rounded black spot at middle of the sides not visible in a dorsal view; antennae and legs blackish; covered with a fine, dense, yellowish vestiture.

Antennae reaching the apicis of posterior angles of pronotum, feebly serrated from third article on, second subcylindrical, 1,6x longer than wide and a little shorter than third; third-tenth conical, on average 2x longer than wide, last just longer than penultimate, subellipsoidal.

Pronotum just wider than long, widest at the middle, regularly convex, sides regularly arcuate from middle regularly narrowing anteriorly and posteriorly, posterior angles short, truncate, not diverging, shortly carinate, suture-like lateral clearly visible obsolescent at the anterior third; punctures of approximately of the same diameters, on the disc deep, simple with shortest intervals, very dense but finer towards the sides and sparser at the basal slope.

Elytra 2,4x longer than pronotum and as wide as it, moderately convex, sides subparallel in the first half then gradually narrowing to the apicis; striae well marked and punctured, interstriae flat with dense and much more finer punctures.

Wings normally developed and able to fly.

Claws simple.

Bursa copulatrix sclerified as in fig. 15, 15a.

Male. Very similar to female with antennae a little longer just exceeding the apicis of posterior angles of pronotum. The colour of pronotum is quite different with a more reduced black median spot and a residual round median lateral black spot as in one of paratypes (female).

Aedeagus as in fig. 6, 6a (length 0,84 mm).

Size. Length 5,9-6,5 mm; width 1,8-1,85 mm.

**ETYMOLOGY.** The name is derived from the Turkish province of Mersin.

*Craspedostethus chittaroi* n. sp.

Fig. 7, 7a, 16, 28, 48, 48a.

**MATERIAL EXAMINED.** **Holotype** ♂ - **Oman:** Izki (22°9'30" 79N, 57°7'22" 90E), 575 m, 9.XI.2011, Y. Chittaro. (CPG). 2 **Paratypes** ♂♀ - same data as Ht. (CPG). Light trapped (see in the figs. 51-52 the pictures of the landscape in Oman).

**DIAGNOSIS.** A species that can be compared with *C. dilutus* (Erichson), it is distinguished by the coarser punctures of pronotum, slenderer paramera of aedeagus, presence of a median piece in the bursa copulatrix. (Platia & Schimmel, 1997).

**DESCRIPTION.** Male. Moderately shiny; entirely yellow-ferruginous with blackish shades at the base of the pronotum and elytra and around the scutellum; covered with moderate, short and recumbent yellow-golden vestiture.

Head with eyes as wide as the anterior margin of the pronotum, frons flat, just impressed at the anterior margin, the latter moderately thickened and regularly arcuate, punctures of different diameters, larger and deep punctures are more or less regularly mixed with very small punctures.

Antennae not reaching the apicis of posterior angles of pronotum by about two articles feebly serrated from the fourth article on; second article subcylindrical a little longer than wide, third subconical 1,6x longer than second and 2,6x longer than wide; taken together a little longer than fourth; fourth-tenth subtriangular, on average 2,5x longer than

wide; the last a little longer than the penultimate, regularly ellipsoidal.

Pronotum 1,1x wider than long, widest at middle, very convex, abruptly sloping at sides and base; sides very arcuate from middle anteriorly and posteriorly narrowing, gently sinuate before the posterior angles, the latter short, truncate, not divergent, with a carina reaching the middle of sides; puncturation double, larger and deep punctures are intervalled more or less regularly by two or three very fine and superficial punctures.

Scutellum heart-shaped as long as wide, emarginate at middle of base, moderately impressed at middle.

Elytra 2,4x longer than pronotum and as wide as it, moderately convex, ovaliform, widest at middle; striae regularly marked and punctured; interstriae flat and very finely punctured.

Claws simple.

Aedeagus as in fig. 7, 7a (length 0,93 mm).

Female. Extremely similar to male with shorter and less serrate antennae.

Bursa copulatrix sclerified as in fig. 16.

Size. Length 5,75- 7 mm; width 1,75-2,18 mm.

**ETYMOLOGY.** The species is dedicated to the collector Yannick Chittaro, a young Swiss entomologist preparing an updated catalogue of swiss elateridae.

### *Craspedostethus omanensis* n. sp.

Fig. 17, 29, 49.

**MATERIAL EXAMINED.** **Holotype** ♀ - **Oman:** Ayn Hamran (17°10017N, 54°28421E), 104 m, 19.XI.2011, Y. Chittaro. (CPG). 1 **Paratype** ♀ - same data as Ht. (CPG). Light trapped. (see in the fig. 50 the picture of the landscape).

**DIAGNOSIS.** A species closely allied as for the general shape and size to *C. buettikeri* Platia & Schimmel, 1997 (fig. 18.), it can be separated for by the less arcuate sides, widest at middle of pronotum and sclerified pieces of bursa copulatrix.

**DESCRIPTION.** Female. Moderately shiny; entirely yellow-ferruginous with blackish shades at base of the pronotum and elytra and around the scutellum; covered with moderate, short and recumbent yellow-golden vestiture.

Head with eyes as wide as anterior margin of the pronotum, frons convex between the eyes, just impressed at the anterior margin, the latter moderately thickened, regularly and moderately arcuate, punctures of different diameters; rare, larger and deep punctures are more or less regularly mixed with very small and nearly imperceptible punctures.

Antennae short, not reaching for about three articles the apices of the posterior angles of the pronotum, feebly serrated from the fourth article on; second article subcylindrical, twice longer than wide, third subconical, longer than second and shorter than fourth, second and third taken together 1,5x longer than the fourth; fourth-tenth subtriangular, on average 2,5x longer than wide; last a little longer than penultimate, subbellipsoidal, asymmetrically constricted at apical third.

Pronotum as long as wide, widest at middle, very regularly convex, abruptly sloping on the sides and base; sides very arcuate from the middle anteriorly and posteriorly narrowing, feebly sinuate before the posterior angles, the latter short, truncate, not divergent, with a carina reaching the middle of sides and running parallel to a short and visible suture-like line; puncturation double, larger and deep punctures are

intervalled more or less regularly by very fine, nearly imperceptible punctures.

Scutellum heart-shaped, just longer than wide, emarginate at middle of the base, flat.

Elytra 2,5x longer than pronotum and as wide as it, convex, ovaliform, widest at the middle; striae regularly marked and punctured, interstriae subconvex, finely punctured.

Claws simple.

Bursa copulatrix sclerified as in fig. 17.

Male unknown.

Size. Length 4,3-4,7 mm; width 1,43-1,5 mm.

**ETYMOLOGY.** The name is derived from the country where the species was caught: Oman.

### *Craspedostethus dilutus* (Erichson, 1840)

**MATERIAL EXAMINED.** 12 specimens ♂♀ - Morocco: Ouarzazate prov., Oued Drea river valley, Tin-Zoulin (30°30' 26"N, 006°06'01"W), 26.VI.2010, A. Klimenko. (CPG; CRG).

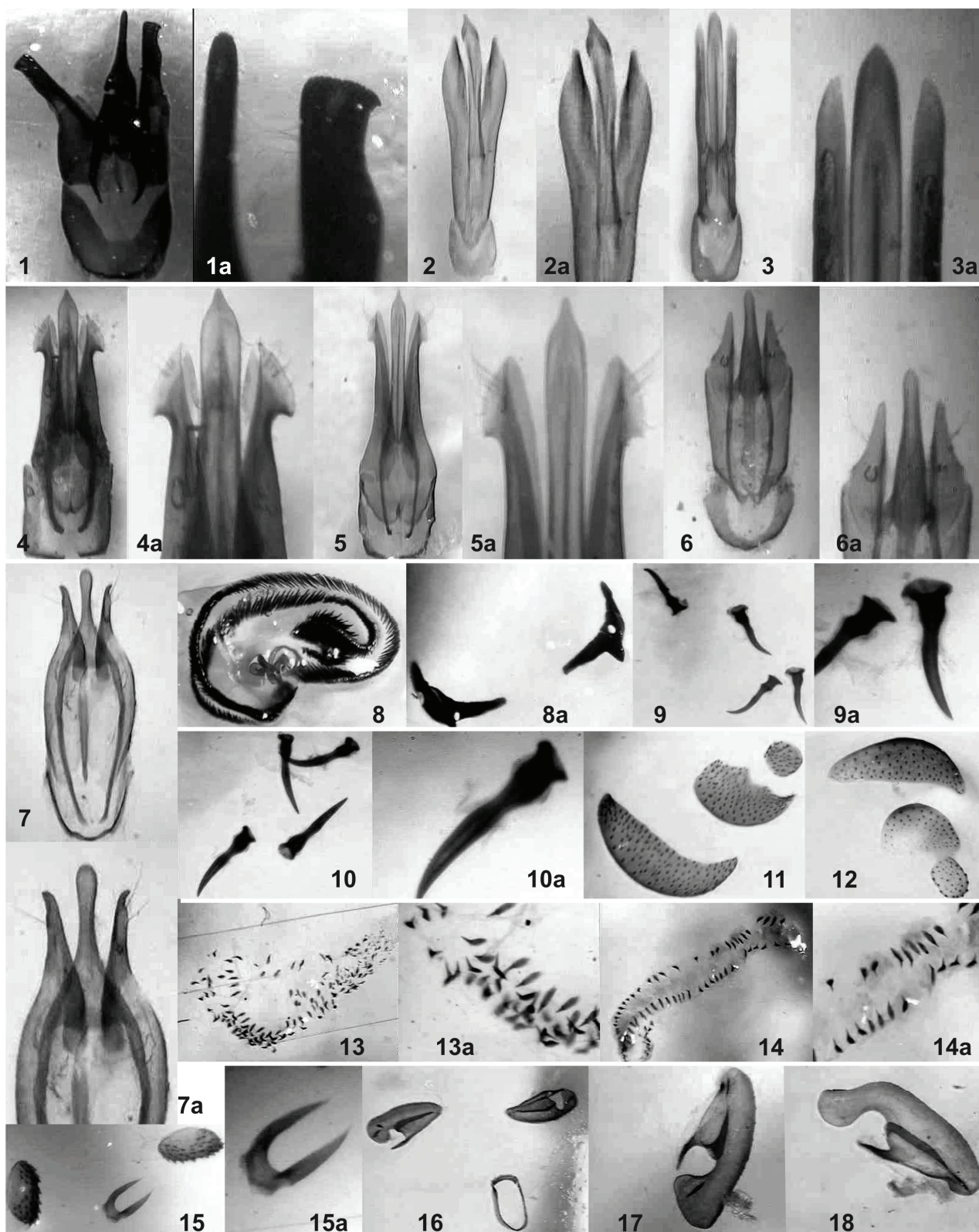
**DISTRIBUTION.** Algeria, Egypt, Iran, Oman, Saudi Arabia, Syria, Yemen (Cate, 2007), UAE (Platia, 2007). New to Morocco.

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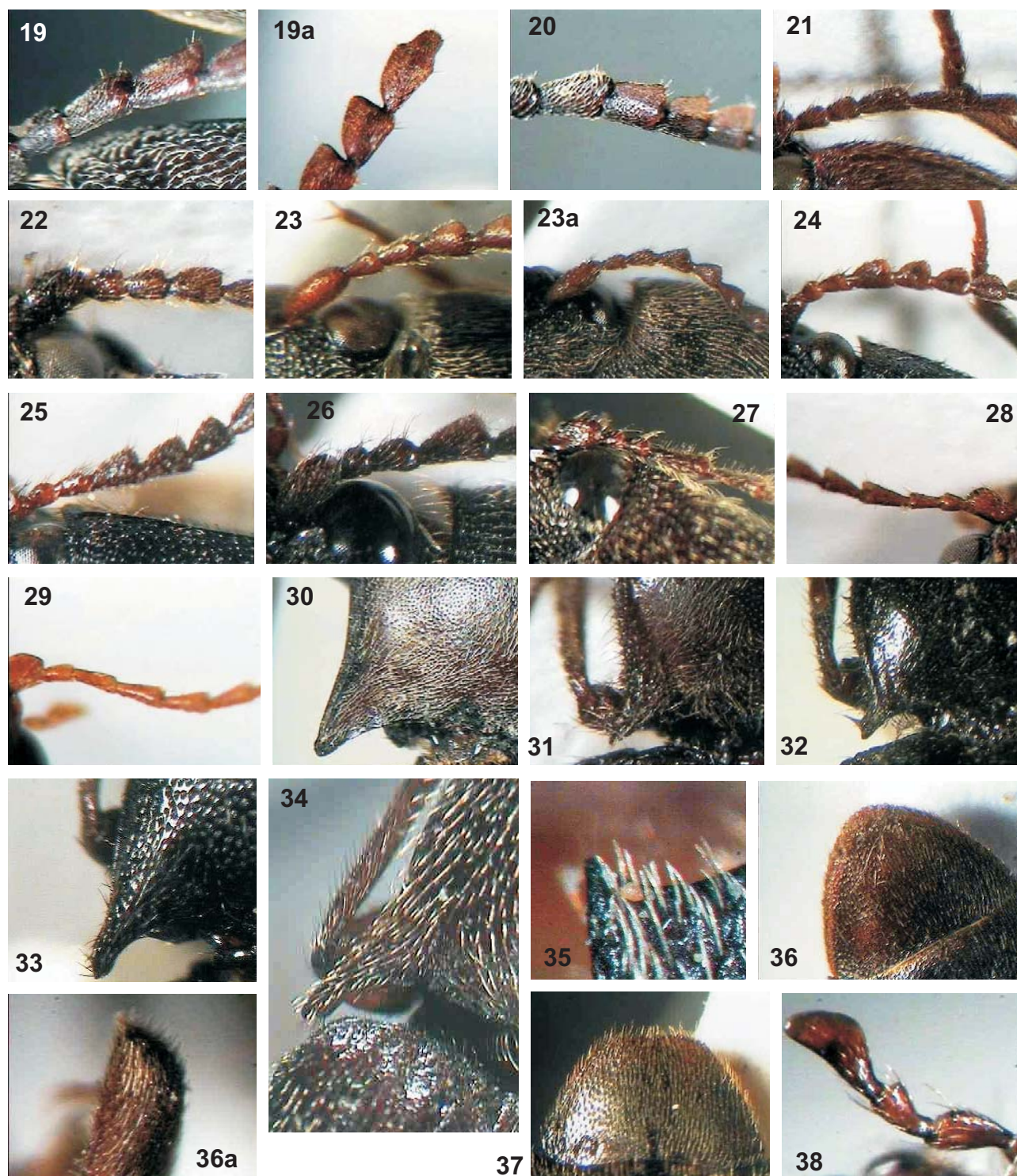
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**Fig. 1-7.** Male genitalia in dorsal view. 1, 1a. *Lanelater iranicus* n. sp.; 2, 2a. *Octocryptus maindroni* Fleutiaux, 1944; 3, 3a. *Agriotes tekirdagensis* n. sp.; 4, 4a. *Melanotus palpalis* n. sp.; 5, 5a. *Melanotus klimentkoi* n. sp.; 6, 6a. *Cardiophorus mersinensis* n.sp.; 7, 7a. *Craspedostethus chittaroi* n. sp. **Fig. 8-18.** Sclerites of bursa copulatrix. 8, 8a. *Lanelater iranicus* n. sp.; 9, 9a. *Dima etoliensis* n. sp.; 10, 10a. *Dima florinensis* n. sp.; 11. *Agriotes tekirdagensis* n. sp.; 12. *Agriotes granulosus* Platia & Schimmel, 1992; 13, 13a. *Ampedus daci-cus* n. sp.; 14, 14a. *Ampedus nigerrimus* Lacordaire, 1835; 15, 15a. *Cardiophorus mersinensis* n. sp.; 16. *Craspedostethus chittaroi* n. sp.; 17. *Craspedostethus omanensis* n. sp.; 18. *Craspedostethus buettikeri* Platia & Schimmel, 1997.





**Fig. 19-29.** First or last articles of antennae. **19, 19a.** *Lanelater iranicus* n. sp. ♂; **20.** *Lanelater iranicus* n. sp. ♀; **21.** *Dima etoliensis* n. sp.; **22.** *Dima florinensis* n. sp.; **23, 23a.** *Agriotes tekirdagensis* n. sp. ♂♀; **24.** *Ampedus dacicus* n. sp.; **25.** *Ampedus nigerrimus* Lacordaire, 1835 ♀; **26.** *Melanotus palpalis* n. sp.; **27.** *Melanotus klimenkoi* n. sp.; **28.** *Craspedostethus chittaroi* n. sp. ♂; **29.** *Craspedostethus omanensis* n. sp. **Fig. 30-34.** Posterior angles of pronotum. **30.** *Lanelater iranicus* n. sp. ♂; **31.** *Dima etoliensis* n. sp.; **32.** *Dima florinensis* n. sp.; **33.** *Ampedus dacicus* n. sp.; **34.** *Melanotus klimenkoi* n. sp. **Fig. 35.** *Lanelater iranicus* n. sp. ♂. Apex of elytra. **Fig. 36-37.** Last abdominal visible sternite. **36, 36a.** *Agriotes tekirdagensis* n. sp. (dorsal and lateral view); **37.** *Melanotus palpalis* n. sp. **Fig. 38.** *Melanotus palpalis* n. sp. Last article of maxillary palpus.



