

CLICK-BEETLES (COLEOPTERA, ELATERIDAE) FROM TWO OAK FORESTS IN TURKEY

Giuseppe Platia¹, Tuba Öncül Abacigil², Nicklas Jansson³,
Tamer Kayis⁴, Mustafa Coskun⁴ & Sakin Vural Varli⁵

¹Via Molino Vecchio, 21, 47043 Gatteo (FC) Italy — pinoplatia@teletu.it

²Department of Olive and Olive Processing Technology, Vocational High School of Edremit, University of Balıkesir, 10300 Edremit, Balıkesir, Turkey — abacigil@balikesir.edu.tr

³Biology/IFM, Linköping University, 58183 Linköping, Sweden — nicja@ifm.liu.se

⁴Department of Biology, Adiyaman University, Adiyaman, Turkey — mcoskun@adiyaman.edu.tr; tkayis@adiyaman.edu.tr

⁵Department of Biology, Faculty of Arts and Science, University of Balıkesir, 10145 Balıkesir, Turkey — svarli@balikesir.edu.tr

Abstract: In a study of the saproxylic beetle fauna of old hollow oaks (*Quercus* spp.) in Turkey (Balıkesir and Adiyaman) 37 species of the family Elateridae were found. Two of the species, *Brachygonus ruficeps* and *Dicronychus berrai*, were new to Turkey. Three species, *Elathous tezcani*, *Melanotus balikesirensis* and *Cardiophorus adiyamanensis*, were new to science and are here described and illustrated.

Key words: Coleoptera, Elateridae, *Elathous*, *Cardiophorus*, *Melanotus*, taxonomy, new species, *Quercus* spp., Turkey.

Elatéridos (Coleoptera, Elateridae) de dos robledales de Turquía

Resumen: En un estudio de la fauna de escarabajos saproxílicos de los huecos de viejos robles (*Quercus* spp.) en Turquía (Balıkesir y Adiyaman) se han encontrado 37 especies de la familia Elateridae. Dos de las especies, *Brachygonus ruficeps* y *Dicronychus berrai*, eran nuevos para Turquía. Tres especies, *Elathous tezcani*, *Melanotus balikesirensis* y *Cardiophorus adiyamanensis*, eran nuevas para la ciencia y se describen e ilustran.

Palabras clave: Coleoptera, Elateridae, *Elathous*, *Cardiophorus*, *Melanotus*, taxonomía, especies nuevas, *Quercus* spp., Turquía.

Taxonomy / Taxonomía: *Elathous tezcani* n. sp., *Melanotus balikesirensis* n. sp., *Cardiophorus adiyamanensis* n. sp.

Introduction

Old oaks (*Quercus* spp.) are very species-rich in Europe and Turkey (Palm, 1959; Jansson & Coskun, 2008). The habitat has declined substantially and many species are threatened (Hannah *et al.*, 1995; McLean & Speight, 1993; Nieto & Alexander, 2010). The reason is lack of suitable trees from wrong management or habitat conversion (Nilsson, 1997; Kirby & Watkins, 1998). This study is a part of a larger project aiming to describe the saproxylic beetle fauna on old oaks in Turkey (Novak *et al.*, 2011; Platia *et al.*, 2011; Sama *et al.*, 2011; Mazur *et al.*, 2013) and compare the results with neighbouring countries.

One group of beetles often found in our studies are the Elaterids and in total about 450 species are known from Turkey. Most of the species are predators in their larval stage and in the habitat we are studying most of the species have their larval development in dead wood or in the wood mould in cavities in the trunks and branches on the old oaks.

Three new species (*Elathous tezcani* Platia sp. nov., *Melanotus balikesirensis* Platia sp. nov. and *Cardiophorus adiyamanensis* Platia sp. nov.) from Turkey, are presently described, illustrated and compared with related species of Turkey and adjacent regions.

Material and methods

Trapping.

Two stands with old hollow oaks were studied in Turkey. One in Kazdagı National Park near Edremit, Balıkesir and another

near Komur, Adiyaman (Fig. 21). In total 11-13 hollow oaks have been surveyed at each site. The studied oaks in Balıkesir are growing in a shady situation in a north-east facing slope in forest condition (1.3-3.0 m in stem circumference) and belong to the species *Quercus frainetto* (Tenore 1813) (Fig. 22) and in Adiyaman the oaks are growing in an open and sunny situation on a rocky plane, are heavily pollarded (1-2.7 m in stem circumference) and belongs to the species *Quercus cerris*, *Q. infectoria* and *Q. brantii* in Adiyaman (Fig. 23).

The trees were examined by using two different trap types for sampling saproxylic beetles: window traps on the tree trunk and pit fall traps in the wood mould inside the trunk cavities. The traps were in field from end of late Mars to mid September over the season 2011. The studied site in Balıkesir are situated at an altitude of 560m and the studied site in Adiyaman at an altitude of 1100m. Individual trees used for trapping were randomly selected from the pool of suitable oaks found. The window traps (W-trap) consisted of a 30 x 60 cm wide transparent plastic plate with a tray underneath (Jansson & Lundberg, 2000). They were placed near the trunk (<1 m), beside or in front of the cavity entrance. Their positions were 1.5-4 m from the ground, depending on where the cavity entrance was situated on the studied tree. The pitfall traps (P-trap) were plastic cups with a top diameter of 6.5 cm. They were placed in the wood mould at the bottom of the cavity, with their openings on level with the wood mould surface.

Identification of new species.

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 material studied is preserved in:

DBUBT - Department of Biology, University of Balıkesir, Turkey.

EMEUBT - Entomological Museum, Ege University, Bornova, Turkey.

DBUAT - Department of Biology, University of Adıyaman, Turkey.

CJL - Jansson coll., Linköping University (Sweden).

CPG - Platia coll., Gatteo (Italy).

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

The abbreviations of countries, given by “distribution” follows Cate (2007).

Taxonomy

Tribe AGRYPNINI Candèze, 1857

Lacon ladae Mertlik & Dusaneck, 2006

MATERIAL EXAMINED. 8 spcm. (♂♀) - Turkey: Balıkesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 23.IV-20.VII.2011, T. A. Oncul, S. V. Varlı & N. Jansson (7); Adıyaman, Komur (37°55'900"N, 38°28'352"E), Pınaryayla & Karaman mezrası, 30 km N, 12.VII.2011, T. Kayis, M. Coskun & N. Jansson (1) (CJL).

DISTRIBUTION. Turkey, Syria, Greece (Jarzabek-Muller, 2013).

ECOLOGICAL NOTES. Specimens from Balıkesir were caught in window-trap 1, 3, 6, 7; P-trap 9, 11 on hollow oaks (*Quercus frainetto*) and in Adıyaman in a W-trap (no 5) on hollow oak (*Quercus infectoria*).

Lacon punctatus (Herbst, 1779)

MATERIAL EXAMINED. 1 spcm. ♂ - Turkey: Adıyaman, Komur (37°55'900"N, 38°28'352"E), Pınaryayla & Karaman mezrası, 30 km N, 15.VI.2011, T. Kayis, M. Coskun & N. Jansson (CJL).

DISTRIBUTION. E: AB AR BH BU CR CT CZ FR GE GG GR HU IT MA PT RO SK SL SP ST SZ TR UK YU A: CY JO SY TR, N: MO (Cate, 2007). Pakistan (Akhter *et al.*, 2012); Albania (Kovacs & Merkl, 2013); Algeria, Tunisia (Platia, 2014).

ECOLOGICAL NOTES. The specimen was caught in a P-trap (no 12), in a trunk cavity on a hollow oak (*Quercus brantii*).

Adelocera pygmaeus (Baudi di Selve, 1871)

Fig. 1.

MATERIAL EXAMINED. 10 spcm. (♂♀) - Turkey: Balıkesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 9.VIII.2011, T. A. Oncul, S. V. Varlı & N. Jansson (7); Adıyaman, Komur (37°55'900"N, 38°28'352"E), Pınaryayla & Karaman mezrası, 30 km N, 23.V., 9.VIII.2011, T. Kayis, M. Coskun & N. Jansson (3) (CJL; CPG).

AEDEAGUS as in fig. 1 (length 0,52 mm).

DISTRIBUTION. A: CY IS LB TR (Cate, 2007).

ECOLOGICAL NOTES. The specimens in Balıkesir were caught in W-trap 1, 11, 13 and pitfall-trap 9, 11, on hollow oaks (*Quercus frainetto*) and in Adıyaman in W-trap 1, 11, 13, on hollow oaks (*Quercus infectoria* and *Quercus cerris*).

Tribe PROSTERNINI Gistel, 1856

Calambus bipustulatus (Linnaeus, 1767)

MATERIAL EXAMINED. 1 spcm. ♂ - Turkey: Balıkesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 15.VI.2011, T. A. Oncul, S. V. Varlı & N. Jansson (CPG).

DISTRIBUTION. E: AU BE BH BU CZ DE FR GB GE HU IR IT LA LT LU NL NR PL RO SK SL SP SV SZ UK YU, A: WS (Cate, 2007); Croatia, Greece (Platia, 2011). **New to Turkey.**

ECOLOGICAL NOTES. The specimen was caught in a W-trap (no 2) on a hollow oak (*Quercus frainetto*).

Prosternon chrysocomum (Germar, 1843)

MATERIAL EXAMINED. 1 spcm. ♂ - Turkey: Balıkesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 15.VI.2011, T. A. Oncul, S. V. Varlı & N. Jansson (CJL).

DISTRIBUTION. E: BU CZ HU GR RO SK (Cate, 2007); European Turkey (Platia, 2010). **New to Asiatic Turkey.**

ECOLOGICAL NOTES. The specimen was caught in a W-trap (no 4) on a hollow oak (*Quercus frainetto*).

Tribe AGRLOTINI Laporte, 1840

Agriotes turcicus Candèze, 1863

MATERIAL EXAMINED. 1 spcm. ♂ - Turkey: Balıkesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 15.VI.2011, T. A. Oncul, S. V. Varlı & N. Jansson (CJL).

DISTRIBUTION. E: AB AR GG ST TR, A: TR (Cate, 2007); Bulgaria, Israel (Platia, 2010).

ECOLOGICAL NOTES. The specimen was caught in a W-trap (no 8), on a hollow oak (*Quercus frainetto*).

Tribe ELATERINI Leach, 1815

Elater ferrugineus Linnaeus, 1758

MATERIAL EXAMINED. 1 spcm. - Turkey: Balıkesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 10.IX.2011, T. A. Oncul, S. V. Varlı & N. Jansson (CJL).

DISTRIBUTION. E: AL AR AU BE BH BU CT CZ DE FR GB GE GG GR HU IT MD NL RO SK SP ST SV SZ UK (Cate, 2007). A: Turkey (Mertlik & Platia 2008).

ECOLOGICAL NOTES. The specimen was caught in W-trap 2, on a hollow oak (*Quercus frainetto*).

Mulsanteus kahramanensis Schimmel, Platia & Tarnawski, 2009

Fig. 2, 2a.

MATERIAL EXAMINED. 8 spcm. (4 ♂, 4 ♀) - Turkey: Adıyaman, Komur (37°55'900"N, 38°28'352"E), Pınaryayla & Karaman mezrası, 30 km N, 12.VII., 9.VIII.2011, T. Kayis, M. Coskun & N. Jansson (CJL; CPG)

AEDEAGUS as in fig. 2, 2a (length 1,40 mm).

FEMALE. Unknown at the date of description, very different for the larger size, with shorter antennae only reaching the apices of posterior angles of pronotum, this very convex, quadrangular. Size. Length 10,7-13 mm; width 3,2-3,6 mm.

DISTRIBUTION. Turkey.

ECOLOGICAL NOTES. The specimens were caught in W-trap 3, 6, 7, 12, 13, P-trap 2, on hollow oaks (*Quercus infectoria*, *Q. cerris* and *Q. brantii*).

Mulsanteus schaumii (Candèze, 1882)

Fig. 3, 3a.

MATERIAL EXAMINED. 13 spcm. (9 ♂, 4 ♀) - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 5.VI., 10.VII., 10.IX.2011, T. A. Oncul, S. V. Varli & N. Jansson (CJL; CPG).

AEDEAGUS as in fig. 3, 3a (length 1,43 mm).

DISTRIBUTION. E: GR, A: SY TR (Cate, 2007).

ECOLOGICAL NOTES. The specimens were caught in W-trap 7, 9, 10, 11, on hollow oaks (*Quercus frainetto*).

Pittonotus theseus (Germar, 1817)

MATERIAL EXAMINED. 28 spcm. (♂, ♀) - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 10.IX.2011, T. A. Oncul, S. V. Varli & N. Jansson (5); Adiyaman, Komur (37°55'900"N, 38°28'352"E), Pinaryayla & Karaman mezzasi, 30 km N, 12.VII., 9.VIII.2011, T. Kayis, M. Coskun & N. Jansson (23) (CJL).

DISTRIBUTION. E: BU CR GR, N: EG, A: CY IN IS JO LE TR (Cate, 2007).

ECOLOGICAL NOTES. The specimens from Balikesir were caught in W-trap 1, 3, 10, on hollow oaks (*Quercus frainetto*) and from Adiyaman in W-trap 1, 2, 3, 5, 6, 7, 10, 12, 13; P-trap 3, 9, on hollow oaks (*Quercus infectoria*, *Q. cerris* and *Q. brantii*).

Tribu AMPEDINI Gistel, 1848

Ampedus anatolicus Platia & Gudenzi, 2002

Fig. 4, 4a.

MATERIAL EXAMINED. 2 spcm. ♂ - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 15.VI., 20.VII.2011, T. A. Oncul, S. V. Varli & N. Jansson (CJL; CPG).

Aedeagus as in fig. 4, 4a (length 1,31 mm).

DISTRIBUTION. A: TR (Cate, 2007).

ECOLOGICAL NOTES. The specimens were caught in W-trap 1; P-trap 7, on hollow oaks (*Quercus frainetto*).

Ampedus cinnaberinus (Eschscholtz, 1829)

MATERIAL EXAMINED. 3 spcm. ♀ - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 15.VI., 20.VII.2011, T. A. Oncul, S. V. Varli & N. Jansson (CJL; CPG).

DISTRIBUTION. E: AB, AR AU BE BH BU BY CR CT CZ DE EN FI FR GB GE GG GR HU IT LA LT LU MD NL NR NT PL PT RO SK SL SP ST SV SZ UK A: ES FE IN KZ TR WS (Cate, 2007); Albania (Pedroni & Platia, 2010); N: Algeria (Platia, 2011).

ECOLOGICAL NOTES. The specimens were caught in W-trap 2, 6, on hollow oaks (*Quercus frainetto*).

Ampedus punctatus (Schwarz, 1893)

MATERIAL EXAMINED. 1 spcm. ♀ - Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 15.VI.2011, T. A. Oncul, S. V. Varli & N. Jansson (CPG).

DISTRIBUTION. A: SY, TR (Cate, 2007).

ECOLOGICAL NOTES. The specimen was caught in a W-trap (no 8), on a hollow oak (*Quercus frainetto*).

Brachygonus ruficeps (Mulsant & Guillebeau, 1855)

Fig. 5, 5a.

MATERIAL EXAMINED. 2 spcm. (♂, ♀) - Turkey: Balikesir, 10

km N Edremit (39°41'17"N, 26°56'15"E), 9 & 20.VII.2011, T. A. Oncul, S. V. Varli & N. Jansson (CJL; CPG).

AEDEAGUS as in fig. 5, 5a (length 0,7 mm).

DISTRIBUTION. E: AU BU CZ FR GB GE GR HR HU IT PT RO SK SP ST SZ UK. **New to Turkey.**

ECOLOGICAL NOTES. The specimens were caught in W-trap 2, 3, on hollow oaks (*Quercus frainetto*).

Haterumelater fulvago (Marseul, 1868)

Fig. 6, 6a.

MATERIAL EXAMINED. 20 spcm. (13 ♂, 7 ♀) - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 15.VI., 9.VIII., 10.IX.2011, T. A. Oncul, S. V. Varli & N. Jansson (17); Adiyaman, Komur (37°55'900"N, 38°28'352"E), Pinaryayla & Karaman mezzasi, 30 km N, 15.VI., 20.VII., 9.VIII.2011, T. Kayis, M. Coskun & N. Jansson (3) (CJL; CPG).

AEDEAGUS as in fig. 6, 6a (length 1,2 mm).

DISTRIBUTION. E: BU GR IT, A: CY IS LB TR (Cate, 2007). Russia: South European Territory (Prosvirov, 2013); Syria (Nemeth & Platia, 2014).

ECOLOGICAL NOTES. The specimens in Balikesir were caught in W-trap 3, 5, 10, 11, 13, P-trap 4, 11, on hollow oaks (*Quercus frainetto*); in Adiyaman in W-trap 7, 11, 12, on hollow oaks (*Quercus infectoria* and *Q. brantii*).

Reitterelater dubius Platia & Cate, 1990

MATERIAL EXAMINED. 3 spcm. (2 ♂, 1 ♀) - Turkey: Adiyaman, Komur (37°55'900"N, 38°28'352"E), Pinaryayla & Karaman mezzasi, 30 km N, 15.VI., 20.VII., 9.VIII.2011, T. Kayis, M. Coskun & N. Jansson (CJL; CPG).

DISTRIBUTION. E: AU CZ FR GE GR HU IT SK SL SV UK, A: TR (Cate, 2007); Spain (Irurzun & Sanchez Ruiz, 2006); Israel (Platia, 2010); Syria (Platia & Nemeth, 2011).

ECOLOGICAL NOTES. The specimens were caught in W-trap 1, 11, on hollow oaks (*Quercus cerris* and *Q. infectoria*).

Ischnodes sanguinicollis (Panzer, 1793)

MATERIAL EXAMINED. 11 spcm. (♂, ♀) - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 23.IV.-20.VII.2011, T. A. Oncul, S. V. Varli & N. Jansson (CJL).

DISTRIBUTION. E: AB AU BE BH CR CZ DE FR GB GE GR HU IT MD PL RO SK SL SP SV SZ UK, A: IN JA SY (Cate, 2007); Turkey (Mertlik & Platia 2008).

ECOLOGICAL NOTES. The specimens were caught in W-trap 1, 3, 4, 10, 11; P-trap 11, on hollow oaks (*Quercus frainetto*).

Tribu MEGAPENTHINI Gurjeva, 1973

Ectamenogonus montandoni (Buysson, 1888)

MATERIAL EXAMINED. 3 spcm. (1 ♂, 2 ♀) - Turkey: Adiyaman, Komur (37°55'900"N, 38°28'352"E), Pinaryayla & Karaman mezzasi, 30 km N, 12.VII., 9.VIII.2011, T. Kayis, M. Coskun & N. Jansson (CJL; CPG).

DISTRIBUTION. E: BU CZ FR GR IT RO SK SP, A: CY IN SY TR (Cate, 2007), Hungary (Merkl *et al.*, 2010).

ECOLOGICAL NOTES. The specimens were caught in W-trap 3, 6, 13, on hollow oaks (*Quercus infectoria* and *Q. cerris*).

Megapenthes lugens (Redtenbacher, 1842)

MATERIAL EXAMINED. 1 spcm. ♀ - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 15.VI.2011, T. A. Oncul, S. V. Varli & N. Jansson (CJL).

DISTRIBUTION. E: AB AL ARAU BH BU BY CZ FR GB GE GG GR HU IT MC MD RO SK SP ST SZ UK YU, N: AG A: TR (Cate, 2007).

ECOLOGICAL NOTES. The specimen was caught in a W-trap (no 3), on a hollow oak (*Quercus frainetto*).

***Procraerus bicolor* Platia & Gudenzi, 2002**

MATERIAL EXAMINED. 1 spcm. ♀ - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 15.VI.2011, T. A. Oncul, S. V. Varli & N. Jansson (CPG)

DISTRIBUTION. A: TR (Cate, 2007). Described from Cangal Dag (Sinop) on a single male specimen.

FEMALE. Identical to the male for the colour, it is distinct for the shorter antennae not reaching the apices of posterior angles of pronotum. The pronotum a little longer than wide with a finer puncturation, the bursa copulatrix without any visible sclerites confirms the validity of the species compared to *P. tibialis* (Lacordaire). The Holotype male preserved in the Museum of Wien was originally determined as a chromatic variety (Platia & Gudenzi, 2002). Size. Length 6,87 mm; width 1,68 mm.

ECOLOGICAL NOTES. The specimen was caught in a W-trap (no 4), on a hollow oak (*Quercus frainetto*).

***Procraerus tibialis* (Lacordaire, 1835)**

MATERIAL EXAMINED. 3 spcm. (2 ♂, 1 ♀) - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 15.VI.2011, T. A. Oncul, S. V. Varli & N. Jansson (CJL; CPG).

DISTRIBUTION. E: AU BE BH BU CR CT CZ DE FI FR GB GE GR HU IT LT LV MD NR PL RO SK SL SP SV ST SZ UK YU, N: AG A: IN (Cate, 2007); Turkey (Mertlik & Platia 2008); Albania (Pedroni & Platia, 2010).

ECOLOGICAL NOTES. The specimens were caught in W-trap: 2, 3, 4, on hollow oaks (*Quercus frainetto*).

Tribu DENDROMETRINI Gistel, 1848

***Elathous tezcani* Platia n. sp.**

Fig. 7, 7a, 12, 13, 16.

MATERIAL EXAMINED. Holotype ♂ - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 10.IX.2011, T. A. Oncul, S. V. Varli & N. Jansson (CPG).

DIAGNOSIS. A species near *E. lizlerwernerii* Mertlik & Dusanek (Kabalak *et al.*, 2013) for the colour and frons but clearly separated for the shorter antennae.

DESCRIPTION. Male. Entirely yellow-ferruginous with head and pronotum darker than elytra; covered with dense and long, partially erect at sides of body, yellow-fulvous, pubescence.

Head with eyes as wide as the anterior margin of pronotum, frons flat between the eyes, deeply impressed at sides of the middle before the anterior margin, the latter moderately thickened, slightly sinuate at middle and protruding subhorizontally above the clypeus; punctures coarse, clearly umbilicate with variable interspaces, on average smaller than their own diameters.

Antennae just reaching the apices of posterior angles of pronotum, slightly serrated from fourth article on; second article subcylindrical nearly twice longer than wide, third subconical, as long as second and nearly twice longer than wide; second and third, taken together, 1,28x longer than fourth; fourth-tenth triangular, on average less twice longer than wide, last a little longer than penultimate, subellipsoidal.

Pronotum as long as wide, widest at the apices of posterior angles, moderately and regularly convex, sides arcuate

from behind the middle regularly narrowing forwards, slightly sinuate backwards before the posterior angles, the latter short, truncate, just divergent, with a raised and short carina directed inwards; lateral margins obsolete before of the middle; puncturation rather uniformly distributed, punctures simple or feebly umbilicate, on the disk with intervals on average equal to their diameters, just a little denser towards the sides.

Scutellum shield-shaped, as long as wide, slightly convex, densely punctured.

Elytra 2,7x longer than pronotum and as wide as it, convex; sides subparallel from base to after the middle, further gradually narrowing to the apices; striae regularly marked and punctured; interstriae flat, densely and finely punctured.

Tarsal articles simple gradually decreasing in length.

Aedeagus as in fig. 7, 7a (length 1,34 mm).

Female unknown.

Size. Length 10,5 mm; width 2,8 mm.

ETYMOLOGY. The species is dedicated to Prof. Serdar Tezcan at Ege University.

ECOLOGICAL NOTES. The specimen was caught in a W-trap (no 8) on a hollow oak (*Quercus frainetto*).

***Nothodes parvulus* (Panzer, 1799)**

MATERIAL EXAMINED. 27 spcm. (♂, ♀) - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 5.VI., 15.VI., 20.VII.2011, T. A. Oncul, S. V. Varli & N. Jansson (CJL).

DISTRIBUTION. E: AL AU BE BH BU CR CT CZ EN FR GE GR HU IT LA LS LU MD MC NL PL PT RO SK SL SP ST SZ TR YU, A: SY TR (Cate, 2007). Lebanon (Platia, 2010); Algeria (Platia, 2008).

ECOLOGICAL NOTES. The specimens were caught in W-trap 5, 6, 7, 8, 11; P-trap 1, on hollow oaks (*Quercus frainetto*).

Tribe SYNAPTINI Gistel, 1856

***Peripontius terminatus* (Erichson, 1841)**

MATERIAL EXAMINED. 5 spcm. (2 ♂, 3 ♀) - Turkey: Adiyaman, Komur (37°55'900"N, 38°28'352"E), Pinaryayla & Karaman mezzasi, 30 km N, 23.V., 1.VI.2011, T. Kayis, M. Coskun & N. Jansson (CJL).

DISTRIBUTION. E: AL BU CR FR GR IT MC RO SP TR, N: MO, A: CY IS JO LE SY TR (Cate, 2007). Bosnia – Herzegovina, Montenegro (Platia, 2011).

ECOLOGICAL NOTES. The specimens were caught in W-trap 5, 12, 13, on hollow oaks (*Quercus infectoria* and *Q. cerris*).

Tribe MELANOTINI Candèze, 1859

***Melanotus balikesirensis* Platia n. sp.**

Fig. 8, 8a, 10, 14, 15, 17, 18.

MATERIAL EXAMINED. Holotype ♂ - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 10.IX.2011, T. A. Oncul, S. V. Varli & N. Jansson. (CPG). 3 Paratypes ♀ - same data as Ht. (CJL; CPG).

DIAGNOSIS. A big species similar to *M. busei* Platia, 2010 from Israel for the general shape, but it is distinct for the black colour, the shorter antennae, the male and female genitalia.

DESCRIPTION. Male. Entirely black with antennae and legs ferruginous; covered with dense, yellowish pubescence.

Head with eyes as wide as anterior margin of pronotum, frons flat, anterior margin simple, arcuate, directed down-

wards, at middle shortly protruding above the clypeus; punctures coarse, umbilicate, with very short, shagreened interstices.

Antennae just reaching the apices of posterior angles of pronotum, serrated from fourth article on; second and third articles small, subequal in length, taken together 1,4 shorter than fourth; fourth-tenth triangular, on average less twice longer than wide, gradually slenderer; last a little longer than penultimate, subellipsoidal.

Pronotum 1,2x wider than long, widest at the apices of posterior angles, very convex, with a vestige of mid-longitudinal depression at basal slope; sides arcuate, from middle gradually narrowing forwards, clearly sinuate before the posterior angles, the latter short, truncate, not divergent at apex, with a fine and short carina running parallel to the lateral margins; puncturation well distributed on all the surface, punctures on disk umbilicate, with very short, shiny intervals, gradually denser towards the sides, contiguous or confluent at the lateral extremities.

Scutellum shield-shaped, subrectangular, with subparallel sides, rounded at apex, flat, with punctured surface.

Elytra 2.8x longer than pronotum and as wide as it, convex; sides subparallel from base to the middle, further very gradually converging at the apices; striae well marked and regularly punctured; interstriae flat with dense and finer punctures.

Prosternal process bent immediately behind the procoxal cavities, running subhorizontally after the middle, very slightly emarginate at apex.

Aedeagus as in fig. 8, 8a (length 1,81, mutilated of basal part).

Female. Body larger and more convex; shorter antennae not reaching for about one article the apices of posterior angles of pronotum with second and third articles, taken together as long as fourth.

Bursa copulatrix sclerified as in fig. 10.

Size. Male: length 14 mm; width 4.3 mm. Female: length 16- 18.5 mm; width 5.2-5.5 mm.

ETYMOLOGY. The name is derived from Balikesir, the province where the species was collected.

ECOLOGICAL NOTES. The specimens were caught in W-trap 4, 6, 8, 10, on hollow oaks (*Quercus frainetto*).

Melanotus brunripes (Germar, 1824)

MATERIAL EXAMINED. 3 spcm. (1 ♂, 2 ♀) - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 15.VI., 10.IX. 2011, T. A. Oncul, S. V. Varli & N. Jansson (CJL).

DISTRIBUTION. E: AB AR AU BE BH BU BY CR CT CZ FR GE GG GR HU IT MC MD PL RO SK SL ST SZ TR UK, A: IN KA TR XIN (Cate, 207). Albania (Pedroni & Platia, 2010). **ECOLOGICAL NOTES.** The specimens were caught in W-trap 3, 7, 10, on hollow oaks (*Quercus frainetto*).

Melanotus fraseri Platia & Schimmel, 1993

MATERIAL EXAMINED. 1 spcm. ♂ - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 10.IX.2011, T. A. Oncul, S. V. Varli & N. Jansson. (CJL).

DISTRIBUTION. A: SY TR (Cate, 2007).

ECOLOGICAL NOTES. The specimen was caught in a W-trap (no 8), on a hollow oak (*Quercus frainetto*).

Melanotus fusciceps (Gyllenhal, 1817)

MATERIAL EXAMINED. 17 spcm. (5 ♂, 12 ♀) - Turkey: Adiyaman, Komur (37°55'900"N, 38°28'352"E), Pinaryayla &

Karaman mezrasi, 30 km N, 12.VII, 9.VIII., 10.IX.2011, T. Kayis, M. Coskun & N. Jansson. (8); Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 10.IX.2011, T. A. Oncul, S. V. Varli & N. Jansson (2) (CJL).

DISTRIBUTION. E: AB AR AZ BU CR CT GG GR MC MD RO ST UK, A: CY KZ IN IQ IS LE SY TR (Cate, 2007). Albania (Pedroni & Platia, 2010).

ECOLOGICAL NOTES. The specimens in Balikesir were caught in W-trap 6 on hollow oaks (*Quercus frainetto*) and in Adiyaman in W-trap 1, 3, 7, 10, 12, 13 on hollow oaks (*Quercus infectoria*, *Q. brantii* and *Q. cerris*).

Subfamilia CARDIOPHORINAE Candèze, 1859

Cardiophorus adiyamanensis Platia n. sp.

Fig. 9, 9a, 11, 11a, 19, 20.

MATERIAL EXAMINED. Holotype ♀ - Turkey: Adiyaman, Komur (37°55'900"N, 38°28'352"E), Pinaryayla & Karaman mezrasi, 30 km N, 15.VI.2011, T. Kayis, M. Coskun & N. Jansson. (CPG). 7 Paratypes (3 ♀, 4 ♂) – same data as HT, 20.IV., 23.V, 1.VI.2011 (CJL; CPG).

DIAGNOSIS. Among the bicoloured *Cardiophorus* from Turkey (Platia & Gudenzi, 2000) it can be compared to *C. pavesii* Platia & Gudenzi but is distinguished for the reddish first antennal articles and legs, pronotum widest at middle with a black colour less defined.

DESCRIPTION. Female. Bicoloured; head, first half or to the beginning of the basal slope of pronotum, scutellum and elytra, prosternum, the great part of propleura, thorax and abdomen, black; basal slope, basal sides of pronotum and propleura, sometimes also anterior angles of pronotum red-orange; first two or base of third article of antennae and legs yellow-ferruginous; covered with fine and dense yellow-fulvous, pubescence.

Head with eyes as wide as anterior margin of pronotum, frons moderately convex between the eyes, flat before the anterior margin, this regularly arcuate; punctures of variable diameters, simple, with very short intervals.

Antennae reaching the apices of posterior angles of pronotum, slightly serrate from third article on; second article subcylindrical, twice longer than wide; third conical, 1.4x longer than second and 2.5x longer than wide, fourth-tenth, subequal in length and shape to third; last a little longer than penultimate, subellipsoidal.

Pronotum 1.17x wider than long, widest at middle, very convex; sides arcuate from middle gradually converging forwards, more abruptly backwards to the posterior angles, the latter short, truncate, not divergent, shortly carinate; lateral suture-like obsolete after the first half; puncturation rather uniformly distributed; punctures of variable diameters, simple, regularly mixed with very short, shiny intervals.

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

Elytra 2.4x longer than pronotum and as wide as it, ovaliform, widest at middle; striae regularly marked and finely punctured; interstriae flat, more finely punctured.

Bursa copulatrix sclerified as in fig. 11, 11a.

Claws simple.

Male. Very similar to the female, only with a little longer antennae.

Aedeagus as in fig. 9, 9a (length 0.85 mm).

Size. Length 5-6,8 mm; width 1.68-2.25 mm.

ETYMOLOGY. The name is derived from Adiyaman, the province where the species was collected.

ECOLOGICAL NOTES. The specimens were caught in W-trap 3, 5, 13, 3P, 12W, on hollow oaks (*Quercus infectoria* and *Quercus cerris*).

Cardiophorus analis Schwarz, 1892

MATERIAL EXAMINED. 8 spcm. (2 ♂, 6 ♀) - Turkey: Adiyaman, Komur (37°55'900"N, 38°28'352"E), Pinaryayla & Karaman mezrası, 30 km N, 23.V., 15.VI.2011, T. Kayis, M. Coskun & N. Jansson (CJL).

DISTRIBUTION. A: TR (Cate, 2007).

ECOLOGICAL NOTES. The specimens were caught in W-trap 3, 5, 7, 13, on hollow (*Quercus infectoria* and *Quercus cerris*).

Cardiophorus nigratissimus Buysson, 1891

MATERIAL EXAMINED. 1 spcm. ♀ - Turkey: Adiyaman, Komur (37°55'900"N, 38°28'352"E), Pinaryayla & Karaman mezrası, 30 km N, 12.VII.2011, T. Kayis, M. Coskun & N. Jansson (CJL).

DISTRIBUTION. E: AB AR GG, A: IN IQ SY TM TR (Cate, 2007).

ECOLOGICAL NOTES. The specimen was caught in a W-trap (no 6) on a hollow oak (*Quercus infectoria*).

Cardiophorus parvulus Platia & Gudenzi, 2000

MATERIAL EXAMINED. 4 spcm. (3 ♂, 1 ♀) - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 10.IX.2011, T. A. Oncul, S. V. Varli & N. Jansson. (3); Adiyaman, Komur (37°55'900"N, 38°28'352"E), Pinaryayla & Karaman mezrası, 30 km N, 12.VII.2011, T. Kayis, M. Coskun & N. Jansson (CJL) (1).

DISTRIBUTION. E: GR, A: TR (Cate, 2007).

ECOLOGICAL NOTES. The specimens from Balikesir were caught in W-trap 1, 8 on hollow oaks (*Quercus frainetto*) and from Adiyaman in a W-trap (no 13) on a hollow oak (*Quercus cerris*).

Cardiophorus turgidus Erichson, 1840

MATERIAL EXAMINED. 1 spcm. ♀ - Turkey: Adiyaman, Komur (37°55'900"N, 38°28'352"E), Pinaryayla & Karaman mezrası, 30 km N, 15.VI.2011, T. Kayis, M. Coskun & N. Jansson (CJL).

DISTRIBUTION. A: SY TR (Cate, 2007).

ECOLOGICAL NOTES. The specimen was caught in a W-trap (no 3) on hollow oaks (*Quercus cerris*).

Cardiophorus vestigialis Erichson, 1840

MATERIAL EXAMINED. 1 spcm. ♀ - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 15.VI.2011, T. A. Oncul, S. V. Varli & N. Jansson (CJL).

DISTRIBUTION. E: AB AL AR AU BE BH BU CR CT CZ FI FR GB GE GG GR HU IT MD NR NT PL PT RO SK SL SP SV ST SZ UK YU N: AG EG LB MO TU A: CY ES FE IN KZ MG TM TR WS (Cate, 2007). Lebanon, Syria, Jordan (Platia, 2010).

ECOLOGICAL NOTES. The specimens was collected in W-trap 1, on hollow oaks (*Quercus frainetto*).

Dicronychus berrai Platia & Gudenzi, 2003

MATERIAL EXAMINED. 1 spcm. ♂ - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 20.VII.2011, T. A. Oncul, S. V. Varli & N. Jansson (CJL).

DISTRIBUTION. E. GR (Cate, 2007). Austria, Lebanon (Nemeth & Platia, 2014). **New to Turkey.**

ECOLOGICAL NOTES. The specimens was collected in a W-trap (no 2) on hollow oaks (*Quercus frainetto*).

Dicronychus obscuripennis (Pic, 1899)

MATERIAL EXAMINED. 22 spcm. (♂,♀) - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 5.VI, 15.VI., 20.VII., 10.IX.2011, T. A. Oncul, S. V. Varli & N. Jansson (CJL; CPG).

DISTRIBUTION. E: TR, A: TR (Cate, 2007); Greece (Platia, 2008).

ECOLOGICAL NOTES. The specimens was collected in W-trap 1, 2, 4, 6, 7, 8, 10, on hollow oaks (*Quercus frainetto*).

Dicronychus senaci (Desbrochers des Loges, 1869)

MATERIAL EXAMINED. 1 spcm. ♂ - Turkey: Balikesir, 10 km N Edremit (39°41'17"N, 26°56'15"E), 5.VI., 15.VI., 20.VII., 10.IX.2011, T. A. Oncul, S. V. Varli & N. Jansson (CJL).

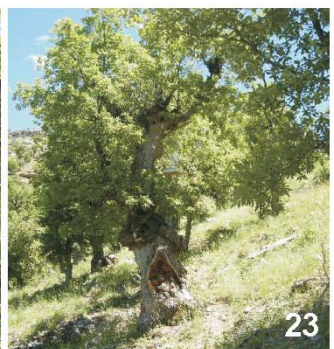
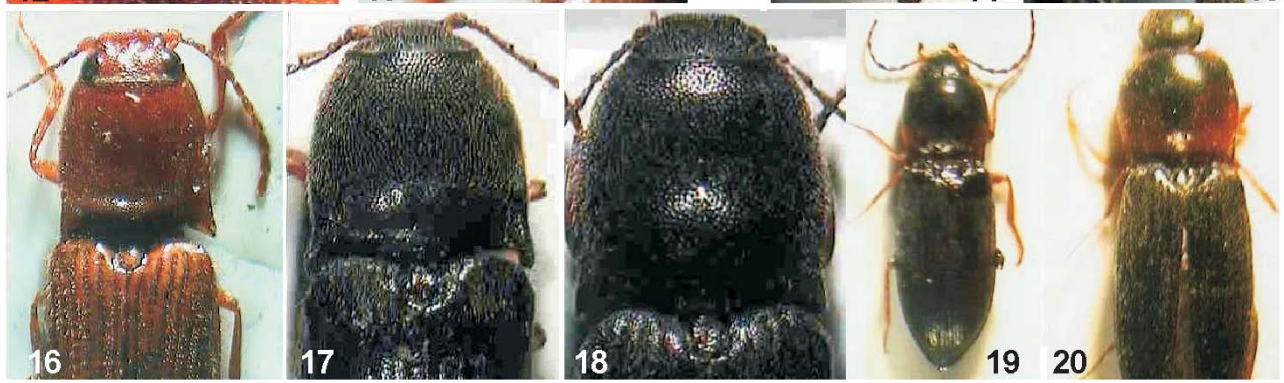
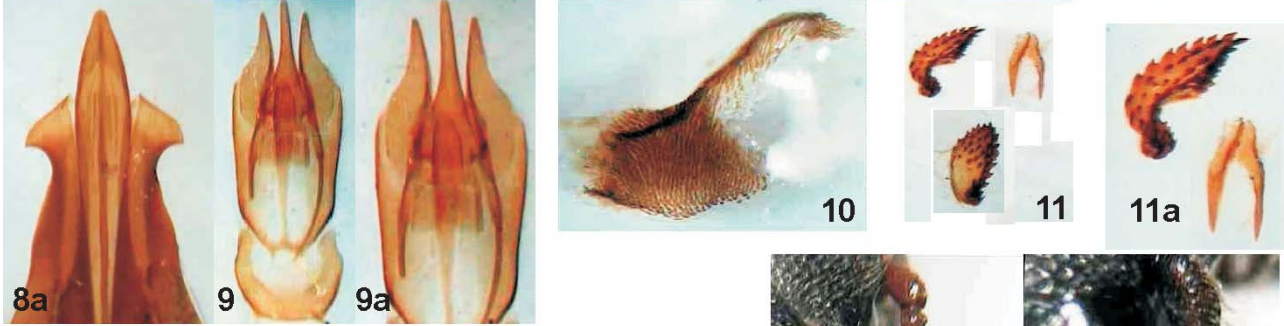
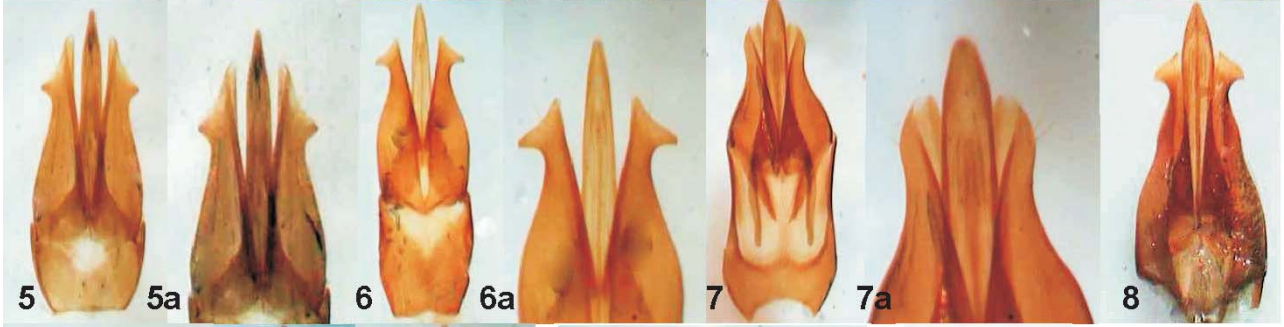
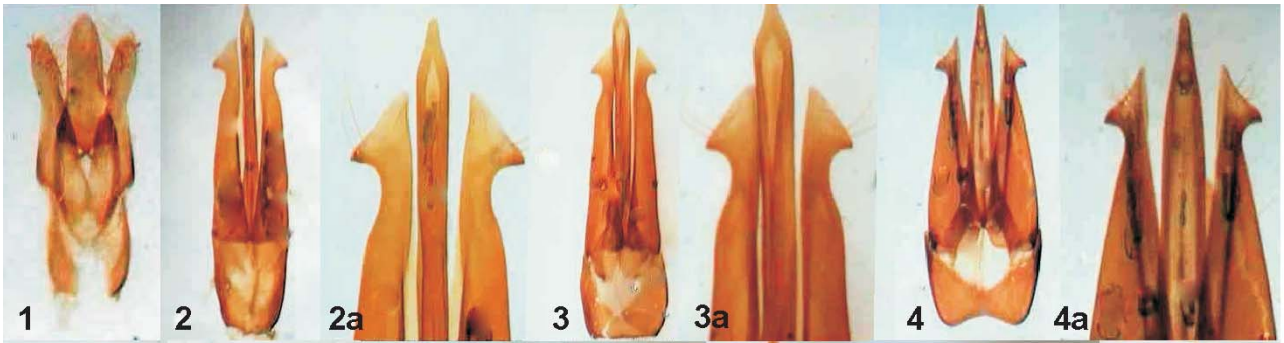
DISTRIBUTION. E: GR RO TR, A: TR (Cate, 2007); Russia: Krasnodar reg.; Kazakhstan (Platia & Gudenzi, 2007).

ECOLOGICAL NOTES. The specimen was collected in a W-trap (no 9), on hollow oak (*Quercus frainetto*).

Acknowledgements

The authors would like to thank Serdar Tezcan from University of Ege for encouragement and advice. Thanks also to Mehmet Demirbag and Muhammet Karahan from Edremit Forestry Department, for support with transport and thanks to Metin Özer and Semsî Rabi Abacigil for assistance with field work. This project was supported by TÜBİTAK (The Scientific and Technical Research Council of Turkey, Project Number: 113O603) and University of Adiyaman Scientific Research Projects Unit (Project number: FEFBAP2011/0022).

- **Fig. 1-9.** Male genitalia in dorsal view. **1.** *Adelocera pygmaeus* (Baudi); **2, 2a.** *Mulsanteus kahramanensis* Schimmel, Platia & Tarnawski; **3, 3a.** *Mulsanteus schauimi* (Candèze); **4, 4a.** *Ampedus anatolicus* Platia & Gudenzi; **5, 5a.** *Brachygonus ruficeps* (Mulsant & Guillebeau); **6, 6a.** *Haterumelater fulvago* (Marseul); **7, 7a.** *Elathous tezcani* n. sp.; **8, 8a.** *Melanotus balikesirensis* n. sp.; **9, 9a.** *Cardiophorus adiyamanensis* n. sp. **Fig. 10-11.** Sclerites of bursa copulatrix. **10.** *Melanotus balikesirensis* n. sp.; **11, 11a.** *Cardiophorus adiyamanensis* n. sp. **Fig. 12.** Frons. *Elathous tezcani* n. sp. **Fig. 13-15.** First antennal articles. **13.** *Elathous tezcani* n. sp.; **14.** *Melanotus balikesirensis* n. sp. ♂; **15.** *Melanotus balikesirensis* n. sp. ♀. **Fig. 16-20.** Habitus in partial or total view. **16.** *Elathous tezcani* n. sp.; **17.** *Melanotus balikesirensis* n. sp. ♂; **18.** *Melanotus balikesirensis* n. sp. ♀; **19.** *Cardiophorus adiyamanensis* n. sp. ♂; **20.** *Cardiophorus adiyamanensis* n. sp. ♀. **Fig. 21.** The position of the studied areas in Turkey. **Fig. 22-23.** **22.** One of the studied oaks in Kazdagi National Park near Edremit. **23.** One of the studied oaks at the studied oaks in Komur near Adiyaman.



Bibliography

- AKHTER, A.M., A. DRUMONT, A.S. RIZVI & Z. AHMED 2012. Contribution to the knowledge of Agrypninae (Coleoptera Elateridae) with description of new species and new records from Pakistan. *Zootaxa*, **3223**: 40-54.
- BOUCHARD P., Y. BOUSQUET, A.E. DAVIES, M.A. ALONSO-ZARAZAGA, J.F. LAWRENCE, C.H.C. LYAL, A.F. NEWTON, C.A.M. REID, M. SCHMITT, S.A. ŚLIPŃSKI & A.B.T. SMITH 2011. 2011. Family-group names in Coleoptera (Insecta). *ZooKeys*, **88**: 1-972.
- CATE, P.C. 2007. Family Elateridae, pp. 89-209, in Löbl I. & Smetana A. (ed.): *Catalogue of Palaearctic Coleoptera, Vol. 4. Elateroidea – Derontoidea -Bostrichoidea - Limexyloidea-Cleroidae-Cucujoidea*. Stenstrup: Apollo Books, 935pp.
- HANNAH, L., J. L. CARR & A. LANKERANI 1995. Human disturbance and natural habitat: a biome level analysis of a global data set. *Biodiversity and Conservation*, **4**:128-155.
- JANSSON, N. & M. COSKUN 2008. How similar is the saproxylic beetle fauna on old oaks (*Quercus* spp) in Turkey and Sweden? *Revue d'Ecologie (Terre et Vie) Suppl.*, **10**: 91-99.
- JANSSON, N. & S. LUNDBERG 2000. Beetles in hollow broadleaved deciduous trees - Two species new to Sweden and the staphylinid beetles (Coleoptera: Staphylinidae) *Hypnogyra glabra* and *Meliceria tragardhi* found again in Sweden. *Entomologisk Tidskrift*, **121**: 93-97.
- JARZABEK-MÜLLER, A. 2013. First records for eight click-beetles (Coleoptera Elateridae) in Greece. *Elateridarium*, **7**: 77-83. www.elateridae.com
- KABALAK, M., G. PLATIA & M. AVCI 2013. A new species of *Elathous* Reitter (Coleoptera: Elateridae) from Turkey. *Zootaxa*, **3737**(1): 85-91.
- KIRBY, K.J. & C. WATKINS 1998. The ecological history of European forests. *CAB International, Oxon*.
- KOVACS, T. & O. MERKL 2013. Beetles from Albania, Macedonia and Montenegro, with new country records (Coleoptera). *Folia Historico Naturalia Musei Matraensis*, **37**: 89-92.
- MAZUR, S., ÖT. ABAIGIL, V.S. VARLI, T. MOKRZYCKI & N. JANSSON 2013. *Hister arboricavus* sp. n., a new denrophilous species from Turkey (Coleoptera: Histeridae). *Baltic Journal of Coleoptology*, **13**: 51-56.
- MCLEAN, I.F.G. & M.C.D. SPEIGHT 1993. Saproxylic invertebrates. The European context., p. 21-32, In: K. J. Kirby & Drake, C. M. (Eds). *Dead wood matters: the ecology and conservation of saproxylic invertebrates in Britain. English Nature Science*, **7**: 857 pp.
- MERKL O., T. NEMETH, Z. GYORGY, A. PODLUSSANY, B. SZELENCZEY & K. VIG 2010. Further new species beetles in the Hungarian Fauna (Coleoptera). *Folia Entomologica Hungarica*, **71**: 23-29.
- MERTLIK, J. & G. PLATIA 2008. Catalogue of the families Cebreniidae, Elateridae, Lissomidae and Eucnemidae from Turkey. *Elateridarium*: 1-40. www.elateridae.com
- NEMETH, T. & G. PLATIA 2014. On some Palaearctic click beetles deposited in the Hungarian Natural History Museum, 2 (Coleoptera: Elateridae). *Zootaxa*, **3841**(4): 451-490.
- NIETO, A. & K.N.A. ALEXANDER 2010. European Red List of Saproxylic Beetles. *Luxembourg: Publications Office of the European Union*.
- NILSSON, S. G. 1997. Forests in the temperate-boreal transition: natural and man-made features. *Ecological Bulletins*, **46**: 61-71.
- NOVAK, V., N. JANSSON, M. AVCI, O. SARIKAYA, M. COSKUN, E. ATAY & T. GÜRKAN 2011. New Allecula species (Coleoptera: Tenebrionidae: Alleculinae) from Turkey. *Studies and Reports. Taxonomical Series*, **7**(1-2): 335-346.
- PALM, T. 1959. Die Holz- und Rindenkäfer der Süd- und Mittelschwedischen Laubbäume (The wood and bark coleoptera on deciduous trees in southern and central Sweden). *Opuscula Entomologica Suppl.* **16**: 258.
- PEDRONI, G. & G. PLATIA 2010. Il popolamento a Coleotteri Elateridi dell'Albania (Coleoptera, Elateridae). *Bollettino del Museo Civico di Storia Naturale di Verona, Botanica Zoologia*, **34**: 65-86.
- PLATIA, G. 2008. New species and chorological data of click-beetles from western and southern palaearctic region (Coleoptera, Elateridae). *Biocosme Méditerranéenne*, **25**(3): 137-150.
- PLATIA, G. 2010. New species and chorological notes of click beetles from Palearctic Region, especially from the Middle East (Coleoptera Elateridae). *Boletín de la Sociedad Entomológica Aragonesa*, **46**: 23-49.
- PLATIA, G. 2011. New species and new records of click beetles from the Palearctic region (Coleoptera Elateridae). *Boletín de la Sociedad Entomológica Aragonesa*, **48**: 47-60.
- PLATIA, G. 2014. New species and new records of click-beetles from the Palearctic region (Coleoptera, Elateridae). *Boletín de la Sociedad Entomológica Aragonesa*, **54**: 73-83.
- PLATIA, G. & I. GUDENZI 2000. Revisione dei *Cardiophorus* della Turchia. I. Le specie bicolori. *Lambillionea*, **100**(4): 601-612.
- PLATIA, G. & I. GUDENZI 2002. Descrizione di venti nuove specie di Elateridi della regione paleartica (Insecta Coleoptera Elateridae). *Quaderno di Studi e Notizie di Storia Naturale della Romagna*, **16** suppl.: 73-98.
- PLATIA, G. & I. GUDENZI 2007. Click-beetles species and records new to the palearctic region (Insecta Coleoptera Elateridae). *Quaderno di Studi e Notizie di Storia Naturale della Romagna*, **24**: 79-86.
- PLATIA, G. & T. NEMETH 2011. On some Palearctic click-beetles deposited in the Hungarian Natural History Museum (Coleoptera: Elateridae). *Annales Historico-Naturales Musei nationali Hungarici*, **103**: 65-106.
- PLATIA, G., N. JANSSON, M. AVCI, O. SARIKAYA, M. COSKUN & T. KAYIS 2011. New species of click beetles from Turkey (Coleoptera, Elateridae). *Boletín de la Sociedad Entomológica Aragonesa*, **48**: 207-215.
- PROSVIROV, A.S. 2013. To the knowledge of the fauna of click-beetles (Coleoptera: Elateridae) of south of European Russia and the Caucasus. *Caucasian Entomological Bulletin*, **9**(2): 253-259.
- SAMA, G., N. JANSSON, M. AVCI, O. SARIKAYA, M. COSKUN, T. KAYIS & H. ÖZDIKMEN 2011. Preliminary Report on a Survey of the Saproxylic Beetle Fauna Living on Old Hollow Oaks (*Quercus* spp.) and Oak Wood in Turkey (Coleoptera: Cerambycidae). *Munis Entomology & Zoology*, **6**: 819-831.
- SCHIMMEL, R., G. PLATIA & D. TARNAWSKI 2009. Two new species of the genus *Mulsanteus* Gozis from Turkey (Insecta: Coleoptera: Elateridae). *Genus, Wrocław*, **20**(2): 249-255.