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Click beetles from the Talassemtane National Park, Morocco, with description of a new species of Elathous and with new distributional data (Coleoptera: Elateridae)

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Abstract – *Elathous talassemtani* Németh et Platia, sp. n. (Elateridae: Dendrometrinae) is described from Morocco. *Cardiophorus ruficollis* (Linnaeus, 1758) is new to Morocco and North Africa. The male of *Athous* (*Athous*) *olcesei* Buysson, 1905, unknown at the time of the original description, is described. With 19 figures.

Key words – Coleoptera, Elateridae, new species, new records, Morocco, Palaearctic region

INTRODUCTION

From 2013 to 2015, European and local researchers collected hundreds of click beetles in the forests of the Talassemtane National Park, Morocco. Beetles were collected by colour and window traps placed mainly in the old Moroccan fir (*Abies marocana* Trab.) forest and partly in oak forest. The specimens preserved in alcohol were received by the authors, and during the process of identification, we found one species, *Cardiophorus ruficollis* (Linnaeus, 1758), as new to Morocco and North Africa, and one belonging to the genus *Elathous* Reitter, 1890 as new for science. According to the Palaearctic catalogue (Cate 2007) and subsequent contributions (Platia 2008*a*, *b*, 2011, 2013, 2014, Németh & Platia 2014) about 80 species of Elateridae are known from Morocco – the subfamily Cebrioninae with 39 species (Cate 2007) is not included.

Data of all species identified from this material are also provided in this paper.

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METHODS

Measurements – Body length is measured along midline from the anterior margin of the frons to the apex of the elytra; width is measured across the broadest part of the body. Pronotal length is measured along midline; width is at the broadest part, usually at hind angles.

Abbreviations – The names of institutions, museums and collections providing material for this study are abbreviated as follows: CCRF = collection of Centre de Recherche Forestière, Rabat, Morocco, CHB = collection of Hervé Brustel, Toulouse, France, CPG = collection of Giuseppe Platia, Gatteo, Italy, HNHM = Hungarian Natural History Museum, Budapest, Hungary.

Abbreviations of the countries follows Cate (2007): **E** = Europe, AB = Azerbaijan, AL = Albania, AN = Andorra, AR = Armenia, AU = Austria, BE = Belgium, BH = Bosnia Herzegovina, BU = Bulgaria, BY = Belarus, CR = Croatia, CT = Russia: Central European Territory, CZ = Czech Republic, DE = Denmark, EN = Estonia, FI = Finland, FR = France, GB = Great Britain, GE = Germany, GG = Georgia, GR = Greece, HU = Hungary, IT = Italy, LA = Latvia, LT = Lithuania, LU = Luxemburg, MA = Malta, MC = Macedonia, MD = Moldavia, NL = The Netherlands, NR = Norway, NT = Russia: North European Territory, PL = Poland, PT = Portugal, RO = Romania, SK = Slovakia, SL = Slovenia, SP = Spain, ST = Russia: South European Territory, SV = Sweden, SZ = Switzerland, TR = Turkey, UK = Ukraine, YU = Serbia & Montenegro. **A** = Asia, CY = Cyprus, ES = Russia East, FE = Russia Far East, IN=Iran, IS = Israel, JO = Jordan, KZ = Kazakhstan, MG = Mongolia, PA = Pakistan, SY = Syria, TM = Turkmenistan, WS = Russia: West Siberia. **N** = North Africa, CI = Canary Islands, EG = Egypt, AG = Algeria, LY = Lybia, MO = Morocco; TU = Tunisia. **NAR** = Nearctic Region, i = imported.

Tribe Agrypnini Candèze, 1857

Lacon punctatus (Herbst, 1779)

Collected material – 22 specimens (14 males, 8 females): Morocco, 12 km SE Chefchaouen, National Park Talassemtane, fir forest, leg. CRF Rabat Maroc: window traps (Nos 1, 6, 8), 4.V.2013, 24.VI.2013, 20.VI.2013; N35° 7'59"; W5° 8' 22", VII.2013; window traps (Nos 2, 6), 30.IV.2014, 15.V.2014; oak forest, trap (No. 1), 30.VI.2015; Talassemtane (*Abies* forest) 10–13.XI.2015, leg. Hervé Brustel (CCRF, CHB, HNHM).

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 (Cate 2007), AL (Kovács & Merkl 2013) MC (Kovács *et al.* 2014). **A**: CY JO SY TR (Cate 2007) PA (Akhter *et al.* 2012). **N**: MO (Cate 2007) AG TU (Platia 2014).

Tribe Ampedini Gistel, 1856

Ampedus rifensis Platia, 2008

Collected material – 14 specimens (10 males, 4 females): Morocco, 12 km SE Chefchaouen, National Park Talassemtane, fir forest, leg. CRF Rabat Maroc: window trap (No. 8), 20.VI.2013, 4.VII.2013; window traps (Nos 2, 3, 10), colour traps (Nos 1, 4, 7), 15.VI.2014, 19.VI.2014, 30.VI.2014, 16.VII.2014, 4.VIII.2014; 16.VI.2015 (CCRF, CHB, HNHM).

Distribution – **N**: MO (Platia 2008*a*).

Ampedus aurilegulus (Schaufuss, 1863)

Collected material – 48 specimens (22 males, 26 females): Morocco, 12 km SE Chefchaouen, National Park Talassemtane, fir forest, leg. CRF Rabat Maroc: window traps (Nos 2, 3, 5, 6, 8, 9), 20.VI.2013, 4.VII.2013, 19.VII.2013, 31.VII.2013; N35° 7' 59"; W5° 8' 22", VII.2013; window traps (Nos 2, 4, 9, 10, 11, 12), colour traps (Nos 1, 2, 4), 22.V.2014, 30.V.2014, 4.VI.2014, 19.VI.2014, 30.VI.2014, 4.VII.2014, 30.VII.2014; 2.VII.2015, 16.VII.2015, N35° 7' 59"; W5° 8' 22", 19.VI.2014; Talassemtane (*Abies* forest) 10–13.XI.2015, leg. Hervé Brustel; Talassemtane, Sapinière [fir forest] à *Abies marocana*, 28.X.2015, leg. Brustel & CRRF Rabat (CCRF, CHB, HNHM).

Distribution – **E**: FR PT SP. **N**: AG MO TU (Cate 2007).

Tribe Denticollini Stein et J. Weise, 1877

Athous (Athous) olcesei Buysson, 1905
(Figs 1–3)

Material examined – 1 specimen (male): Morocco, Rif, Tazaout, pitfall trap, 5.VI.2014 (HNHM).

Description of male – Moderately shiny; entirely yellow-ferruginous, covered with dense, yellow-golden pubescence (Fig. 1). Body length 8.4 mm, width 2.5 mm.

Antennae exceeding by two antennomeres apices of posterior corners of pronotum, slightly serrated from 4th antennomere; 2nd antennomere subconical, a little longer than wide, 3rd conical, 1.5× longer than 2nd; 2nd and 3rd combined 1.25× longer than 4th; 4th to 10th subtriangular, on average more than twice longer than wide, last antennomere subelliptic, pointed at apex, longer than penultimate.

Pronotum 1.2× longer than wide, widest behind middle and at apices of posterior corners, convex, with trace of narrow mid-longitudinal impression before basal slope; sides nearly subparallel, shortly and slightly sinuate just before

posterior corners; posterior corners short, divergent, not carinate; lateral margin nearly straight and complete, visible in dorsal view; punctation uniformly distributed, punctures on disk deep, simple with very short, shiny intervals gradually denser towards sides where become partly contiguous.

Scutellum small, globose, sparsely punctate.

Elytra 2.6× longer than and as wide as pronotum, convex; sides subparallel from base to behind middle, then gradually narrowing to apices; striae clearly marked and deeply punctate, interstriae subconvex, more finely punctate.

Fourth tarsomere extremely small and not surpassing lamella of third in dorsal view.

Aedeagus as in Fig. 2 (length 1.06 mm).

Distribution – MO (Cate 2007).

Remarks – The species was described from a single female specimen (Kocher 1969). Cate (2007) listed it under the subgenus *Orthathous* Reitter, 1905. However, based on the original description of the female (Buysson 1905) and the tarsomeres (Fig. 3) of the examined male it clearly belongs to the subgenus *Athous.* The author himself (Buysson 1905) compared the species to *Athous* (*Athous*) *puncticollis* Kiesenwetter, 1858.

Harminius rifensis (Cobos, 1969)
(Figs 4–5)

Collected material – 1 specimen (male): Morocco, 12 km SE Chefchaouen, National Park Talassemtane, fir forest, leg. CRF Rabat Maroc: window trap (No. 3), 10.IX.2013 (HNHM). Aedeagus as in Fig. 5.

Distribution – **N**: MO (Cate 2007).

Elathous talassemtani Németh et Platia, sp. n.
(Figs 11–14)

Type material – Holotype male: "MOROCCO, 12 km SE of Chefchaouen, National Park Talassemtane, fir forest, window trap No.10, N35° 7' 59", W5° 8' 22", 19.VIII.2014, leg. CRF Rabat Maroc" (HNHM). Paratypes (6 males and 2 females): same data as holotype, but "window trap No. 1, 4.VIII.2014" (1 female, HNHM); same data as holotype, but "window trap No. 8, 15.VIII.2014" (1 male, HNHM); same data as holotype, but "window trap No. 8., 15.VIII.2013" (3 males, CCRF, CHB, CPG); "BRUSTEL & CRRF Rabat leg. MA. Rif Talassemtane, Sapinière [fir forest] à *Abies marocana* (P. vitre [window trap] 5) 5–30.VIII.2014" (1 male, CCRF); same data as previous paratype, but "(P. jaune [yellow trap] 4) 13–30.VIII.2014" (1 male, CHB); "MOROCCO, Rif Talassemtane, *Quercus* forest, 15.VIII.2015, leg. H. Brustel & CRRF Rabat" (1 female, HNHM)." (1 female, HNHM).

Description – Body length 8.0–8.7 mm, width 2.25–2.43 mm. Shiny; colour rather variable from entirely blackish with irregular ferruginous shadings to entirely dark ferruginous (female) with antennae and legs lighter, yellowish; covered with dense, long, at sides of elytra partially erect, yellow pubescence.

Male (Fig. 11). Frons flat between eyes, more or less impressed before anterior margin, this sinuate at middle, moderately thickened, protruding above clypeus, clypeal space regularly visible; punctation coarse, punctures superficial, umbilicate, variable in diameters with very short, variable, shiny intervals to contiguous.

Antennae reaching apices of posterior corners of pronotum, moderately serrated from 4th antennomere on, 2nd and 3rd antennomeres subconical with 2nd little shorter than 3rd, 2nd and 3rd combined 1.25× longer than 4th; 4th to 10th subtriangular, subequal in length, about twice longer than wide, last antennomere as long as penultimate, subelliptic, pointed at apex.

Pronotum (Fig. 13) as long as wide, widest at middle or at apices of posterior corners, regularly convex, with or without trace of mid-longitudinal depression on basal slope; sides regularly arcuate, slightly sinuate just before posterior corners, latter short, truncate, divergent with short carina directed inward; punctation moderate, regularly distributed, punctures on the disk deep, simple, with intervals shiny, on average equal to puncture diameters and only little denser toward sides.

Scutellum small, convex, globose, punctate.

Elytra 2.9–3× longer than and as wide as pronotum, convex; sides gradually dilated from base to behind middle, then regularly narrowing to apices; striae regularly marked and superficially punctate; interstriae flat with rough surface.

Tarsomeres simple and regularly decreasing in length.

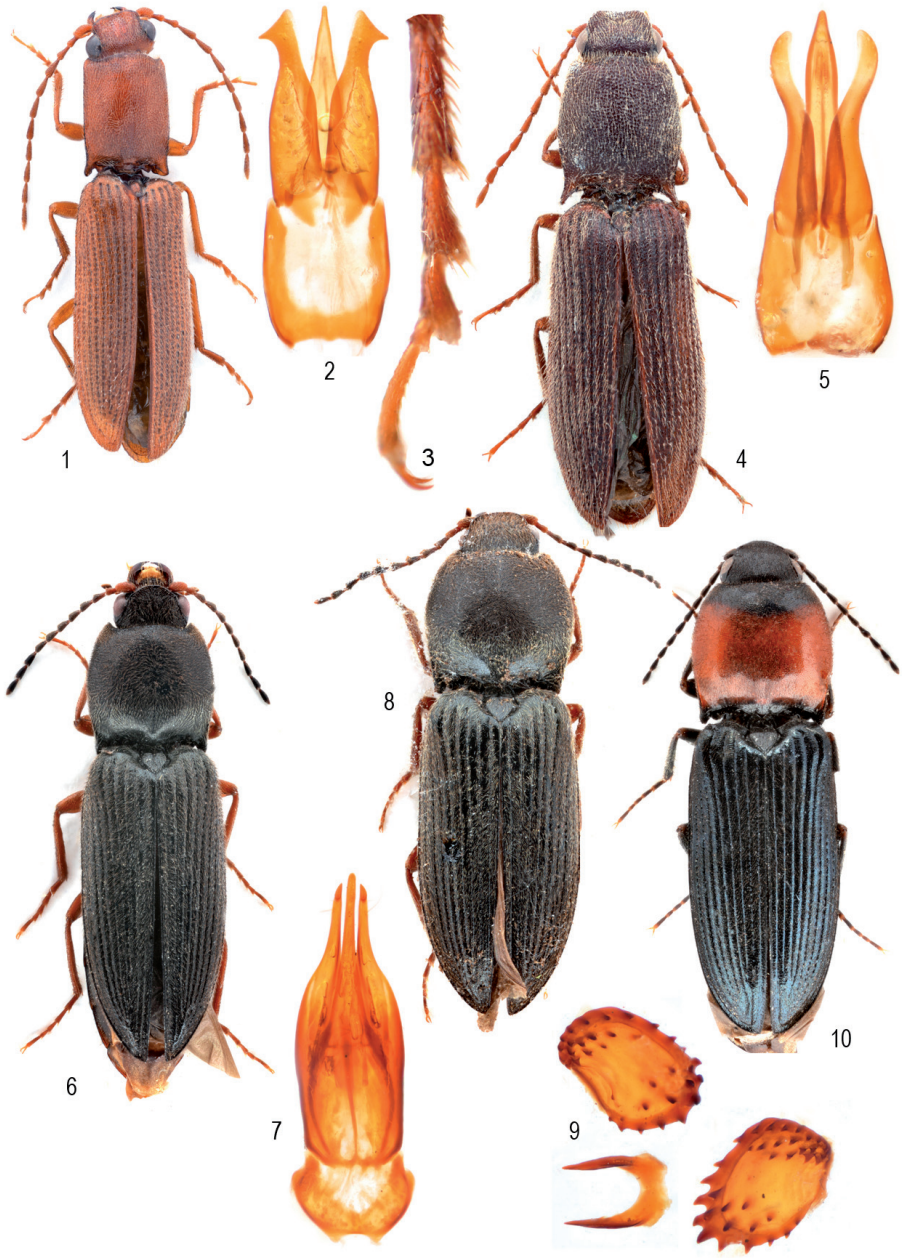
Aedeagus (Fig. 12) 2.6× longer than wide, median lobe constricted before apex; length 1.1 mm.

Female (Fig. 14). Body more convex with antennae a little shorter and elytra more dilated behind middle.

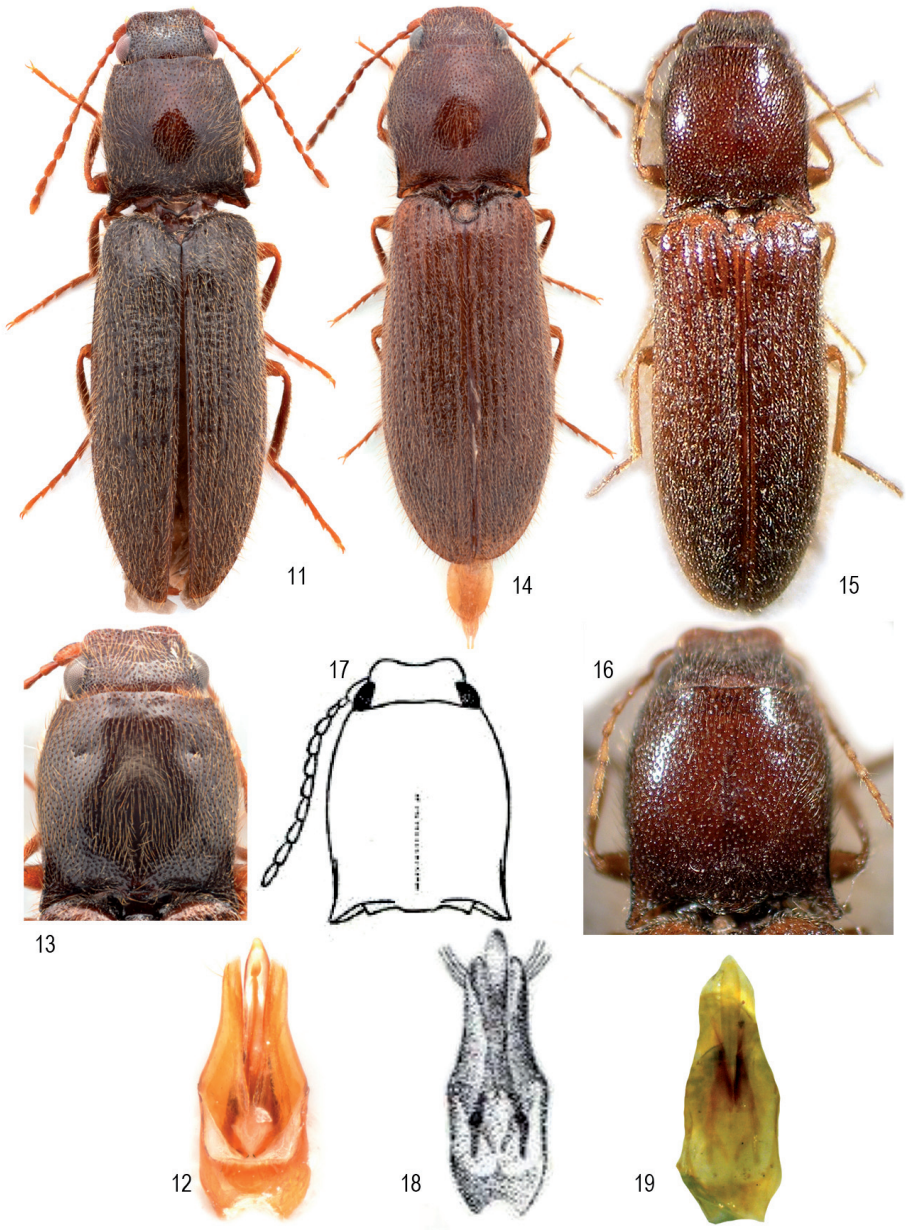
Diagnosis – Elathous talassemtani sp. n. is separated from *E. vazquezi* (Cobos, 1969) (Fig. 15), the only *Elathous* species known from Morocco, by the longer antennae (antennae not reaching posterior corners of pronotum in *E. vazquezi*), by the pronotum as long as wide (longer than wide in *E. vazquezi,* Figs 16–17), by the lighter punctation of pronotum and by the shape of the male genitalia (median lobe not constricted before apex in *E. vazquezi,* Figs 18–19).

Ecology – It inhabits fir and oak forest.

Etymology – The name is derived from the Talassemtane National Park, where the species was collected.



Figs 1–10. 1–3: *Athous olcesei* Buysson, 1905, male, 1 = habitus, 2 = aedeagus, 3 = tarsomeres. 4–5: *Harminius rifensis* (Cobos, 1969), 4 = habitus, 5 = aedeagus. 6–9: *Cardiophorus poncyi* Buysson, 1903, 6 = male habitus, 7 = aedeagus, 8 = female habitus, 9 = sclerites of bursa copulatrix. 10: *Cardiophorus ruficollis* (Linnaeus, 1758), habitus



Figs 11–19. 11–14: *Elathous talassemtani* Németh et Platia, sp. n., 11 = holotype, male habitus, 12 = paratype, aedeagus, 13 = pronotum, 14 = paratype, female habitus. 15–19: *Elathous vazquezi* (Cobos, 1969), 15 = holotype, dorsal view, 16 = pronotum of holotype, 17 = pronotum of holotype, 18 = male genitalia, 19 = male genitalia (Figs 16, 19: photo A. Sánchez Ruiz; Figs 17–18: drawings from the original description by Cobos 1969)

Megathous escalerai Cobos, 1958

Collected material – 20 specimens (14 males, 6 females): Morocco, 12 km SE Chefchaouen, National Park Talassemtane, fir forest, leg. CRF Rabat Maroc: window traps (Nos 2, 8), 15.VIII.2013; window traps (Nos 1, 4, 6, 8, 11), colour trap (No. 1), 4.VIII.2014, 15.VIII.2014, 15.IX.2014, 15.VIII.2015 (CCRF, CHB, HNHM).

Distribution – **N**: MO (Cate 2007).

Tribe Cardiophorini Candèze, 1859

Cardiophorus castillanus Buysson, 1902

Collected material – 15 specimens (11 males, 4 females): Morocco, 12 km SE Chefchaouen, National Park Talassemtane, fir forest, leg. CRF Rabat Maroc: window trap (No. 7), 4.VII.2013; window traps (Nos 2, 5, 6, 10, 11), colour trap (No. 1), 15.VI.2014, 19.VI.2014, 30.VI.2014, 16.VII.2014 (CCRF, CHB, HNHM).

Distribution – **E**: FR IT PT SP. **N**: AG MO (Cate 2007).

Cardiophorus poncyi Buysson, 1903
(Figs 6–9)

Collected material – 3 specimens (2 males, 1 female): Morocco, 12 km SE Chefchaouen, National Park Talassemtane, fir forest, leg. CRF Rabat Maroc: window trap (No. 3), 4.VII.2013; window trap (No. 2), 15.V.2014; window trap (No. 10), 24.V.2013 (CPG, HNHM).

Distribution – **E**: SP. **N**: MO (Cate 2007).

Remarks – The specimens fit the variety *tingitanus* described together with the typical form. *C. poncyi* var. *tingitanus* is merely a colour variety with unicoloured blackish pronotum (now synonym of *C. poncyi*). Aedeagus as in the Fig. 7 (length 1.1 mm). Bursa copulatrix as in Fig. 9. Body length 7.8–8.5 mm, width 2.37–2.62 mm.

Cardiophorus ruficollis (Linnaeus, 1758)
(Fig. 10)

Collected material – 2 specimens (1 male, 1 female): Morocco, 12 km SE Chefchaouen, National Park Talassemtane, fir forest, leg. CRF Rabat Maroc: window traps (Nos 6, 7), 4.VII.2013 (CHB, HNHM).

Distribution – **E**: AU BE BU BY CT CZ DE EN FI FR GE GR HU IT LA LT LU NL NR NT PL RO SK SP SV SZ UK **A**: WS (Cate 2007). New for North Africa and Morocco.

Cardiophorus vestigialis Erichson, 1840

Collected material – 686 specimens (484 males, 202 females): Morocco, 12 km SE Chefchaouen, National Park Talassemtane, fir forest, leg. CRF Rabat Maroc: window traps (Nos 1, 2, 3, 4, 5, 6, 8, 10), 4.V.2013, 9.V.2013, 24.V.2013, 4.VI.2013, 20.VI.2013, 4.VII.2013, 9.VII.2013, 19.VII.2013, 31.VII.2013, 26.IX.2013, 31.X.2013; window traps (Nos 1, 2, 3, 4, 5, 6, 8, 9, 10, 11), 30.V.2014, 15.V.2014, 22.V.2014, 30.V.2014, 4.VI.2014, 15.VI.2014, 19.VI.2014, 30.VI.2014, 15.X.2014; fir forest, window trap, 30.X.2015, oak forest, trap (No. 2), 7.V.2015, 22.V.2015 (CCRF, CHB, HNHM).

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), JO LE SY (Platia 2010).

Tribe Melanotini Candèze, 1859

Melanotus dichrous (Erichson, 1841)

Collected material – 16 specimens (11 males, 5 females): Morocco, 12 km SE Chefchaouen, National Park Talassemtane, fir forest, leg. CRF Rabat Maroc: window trap (No. 10), 15.VIII.2013; window traps (Nos 7, 8), 15.VIII.2014; fir forest, window trap (No. 5), 15.VIII.2015, oak forest, traps (Nos 2, 3, 4), 15.VIII.2015, 30.VIII.2015, 30.X.2015 (CCRF, CHB, HNHM).

Distribution – **E**: AZ BU CR FR GR IT MC PT SP TR (Cate 2007), AL (Pedroni & Platia 2010). A: TR "Palestina" (Cate 2007), IS (Platia 2010). **N**: AG CI (Fuerteventura, La Palma) EG MO TU (Cate 2007). **NAR**: i (Cate 2007).

Melanotus (*Spheniscosomus*) sulcicollis (Mulsant et Guillebeau, 1855)

Collected material – 1 specimen (male): Morocco, 12 km SE Chefchaouen, National Park Talassemtane, fir forest, N35° 7' 59"; W5° 8' 22", leg. CRF Rabat Maroc, VII.2013 (HNHM).

Distribution – **E**: CR FR GR IT SP (Cate 2007) AL (Platia & Németh 2011). **N**: MO (Cate 2007).

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