

Short notes

In this section 218 species of arthropods are recorded, collected in Sardinia mainly during the researches carried out by CNBFVR (cf. Bardiani 2011). All or part of the records of most species (207) come from the Marganai and/or Montimannu wilderness areas. They belong to taxa not treated in the previous pages nor by Cerretti et al. (2009). All taxa are listed in alphabetical order according to the nomenclature and systematics of the Fauna Europaea Web Service (de Jong 2011) unless otherwise stated. Collecting sites from the region-owned forests of Marganai and Montimannu and neighbouring areas are listed under "Records", while those from other Sardinian sites are listed under "Other records". Almost all the sites investigated during the faunistic survey carried out by CNBFVR on the island are indicated with abbreviations (see further on), while all the other sites are listed in full. All sites and/or their abbreviations are listed in alphabetical order. Sites listed in full are listed after those abbreviated, alphabetically according to province. Further details on most of the sampling sites are provided by Bardiani (2011). The material, unless otherwise stated, is stored in the CNBFVR collection.

ABBREVIATIONS

CNBFVR SAMPLING SITES. **A01** = Medio Campidano prov., Arbus, Piscinas, dune, 0 m, 32S 452927 4376897; **A02** = Medio Campidano prov., Arbus, Marina di Arbus, 10 m, 32S 454504 4383252; **A04** = Oristano prov., Arborea, Stagno di s'Ena Arrubia, 0 m, 32S 462842 4408878; **A05** = Carbonia-Iglesias prov., Buggerru, R. Mannu, foce, dune, 3 m, 32S 449437 4365545; **A06** = Carbonia-Iglesias prov., Buggerru, Cala Domestica, 10 m, 32S 446540 4358436; **A08** = Medio Campidano prov., Arbus, Capo Pecora, 15 m, 32S 446760 4367599; **A09** = Medio Campidano prov., Arbus, Piscinas, guado del R. Piscinas, 18 m, 32S 454087 4376193; **A10** = Oristano prov., San Vero Milis, sa Marigosa, spiaggia, 5 m, 32T 448490 4432720; **A11** = Oristano prov., San Vero Milis, sa Marigosa, stagno, 5 m, 32T 449217 4432397; **A12** = Cagliari prov., Domus de Maria, Torre di Chia, spiaggia di Su Portu, 1 m, 32S 490072 4305296; **A13** = Carbonia-Iglesias prov., Sant'Anna Arresi, Porto Pino, dune, 5 m, 32S 467025 4311362; **A15** = Carbonia-Iglesias prov., Gonnese, Plage Mesu, Sa Punta e s'Arena, 5 m, 32S 450884 4347330; **A16** = Carbonia-Iglesias prov., Gonnese, Fontanamare, 3 m, 32S 451423 4348717; **A17** = Carbonia-Iglesias prov., Fluminimaggiore, Portixeddu, 6 m, 32S 449437 4365741; **A18** = Carbonia-Iglesias prov., Sant'Antioco, Stagno di S. Caterina, 0 m, 32S 455569 4326716; **A19** = Carbonia-Iglesias prov., Sant'Antioco, Capo Sperone, spiaggia, 0 m, 32S 451831 4314957; **A21** = Oristano prov., Terralba, Stagno di Marceddi, 0 m, 32S 457917 4397594; **C01** = Carbonia-Iglesias prov., Iglesias, Case Marganai, 725 m, 32S 463890 4355925; **C02** = Carbonia-Iglesias prov., Iglesias, Pta Serra Pirastu, 656 m, 32S 463237 4355678; **C03** = Carbonia-Iglesias prov., Iglesias, Vecchia Cantoniera Marganai, 491 m, 32S 462272 4354677; **C05** = Carbonia-Iglesias prov., Iglesias, Pta Cungiaus, 636 m, 32S 462440 4355161; **C06** = Carbonia-Iglesias prov., Domusnovas, Grotta di S. Giovanni, 325 m, 32S 467900 4354891; **C07** = Carbonia-Iglesias prov., Domusnovas, dint. Planargia - Scoveri, 625 m, 32S 465523 4362921; **C08** = Carbonia-Iglesias prov., Domusnovas, Valle Oridda, pineta, 595 m, 32S 466970 4362400; **C10** = Medio Campidano prov., Villacidro, dint. Pta piscina Argiolas, Serbatoio, 282 m, 32S 472049 4360081; **C11** = Medio Campidano prov., Villacidro, Can.li Serci, 381 m, 32S 472208 4359497; **C12** = Medio Campidano prov., Villacidro, Can.li s'Otti, versante destro, 520 m, 32S 471690 4359611; **C13** = Medio Campidano prov., Villacidro, dint. Pta Pranu Ilixis, 563 m, 32S 471221 4359310; **C14** = Carbonia-Iglesias prov., Domusnovas, Sedda Pranu Cardu, 549 m, 32S 470926 4358924; **C15** = Carbonia-Iglesias prov., Domusnovas, Gutturu Seu, 140 m, 32S 471646 4355238; **C16** = Carbonia-Iglesias prov., Domusnovas, Gutturu Seu, 174 m, 32S 471577 4355716; **C19** = Medio Campidano prov., Villacidro, R. Cannisoni, 375 m, 32S 468713 4362692; **C20** = Medio Campidano prov., Villacidro, R. Cannisoni, 382 m, 32S 468980 4362541; **C22** = Medio Campidano prov., Villacidro, R. Cannisoni, sorg. s'acqua Frischedda, 372 m, 32S 468391 4362826; **C23** = Medio Campidano prov., Villacidro, R. Cannisoni, radura sponda sinistra, 401 m, 32S 468459 4362806; **C25** = Medio Campidano prov., Villacidro, Can.le Monincu, 450 m, 32S 468040 4363436; **C26** = Carbonia-Iglesias prov., Domusnovas, Bega d'Aleni, 621 m, 32S 467855 4361336; **C27** = Medio Campidano prov., Gonnosfanàdiga, M. Idda, strada per M. Linas, 474 m, 32S 466946 4368997; **C28** = Medio Campidano prov., Gonnosfanàdiga, sa Pta de s'Erbaceu, strada per M. Linas, 744 m, 32S 465989 4368410; **C29** = Medio Campidano prov., Gonnosfanàdiga, Genna Mirratta, 794 m, 32S 465363 4366138; **C30** = Medio Campidano prov., Gonnosfanàdiga, dint. Ovile Linas, 710 m, 32S 466346 4365201; **C31** = Carbonia-Iglesias prov., Domusnovas, L. Siuru, 322 m, 32S 467069 4357916; **C32** = Medio Campidano prov., Villacidro, L. di Montimannu, diga, 255 m, 32S 475380 4363486; **C33** =

Carbonia-Iglesias prov., Domusnovas, dint. P.ta Planotzara, 360 m, 32S 465515 4356209; **C34** = Carbonia-Iglesias prov., Domusnovas, R. sa Duchessa, greto del R., 270 m, 32S 466700 4356979; **C35** = Carbonia-Iglesias prov., Iglesias, Mamenga, 610 m, 32S 462170 4356618; **C36** = Medio Campidano prov., Villacidro, dint. L. di Montimannu, lungo T. Leni, 256 m, 32S 474156 4363150; **C39** = Carbonia-Iglesias prov., Iglesias, Cuccuruneddu, hill top, 708 m, 32S 472379 4357784; **C41** = Carbonia-Iglesias prov., Domusnovas, su Pranu Pirastu, 147 m, 32S 471365 4353536; **C42** = Carbonia-Iglesias prov., Iglesias, Conca Margiani, 750 m, 32S 462440 4356936; **C43** = Carbonia-Iglesias prov., Iglesias, Conca Margiani, radura, 725 m, 32S 462470 4357011; **C44** = Carbonia-Iglesias prov., Iglesias, Conca Margiani, radura lungo strada, 700 m, 32S 462635 4356866; **C45** = Carbonia-Iglesias prov., Iglesias, dint. P.ta Genna Ollioni, 750 m, 32S 462840 4356811; **C46** = Medio Campidano prov., Villacidro, R. Cannisoni, 400 m, 32S 468858 4362543; **C47** = Carbonia-Iglesias prov., Domusnovas, Valle Oridda, sorg., 590 m, 32S 466681 4362696; **C48** = Carbonia-Iglesias prov., Domusnovas, P.ta Piloni de sa Figù, 750 m, 32S 465958 4360742; **C49** = Medio Campidano prov., Villacidro, T. Leni, 300 m, 32S 471317 4360510; **C50** = Medio Campidano prov., Villacidro, C. Sarais, 251 m, 32S 474215 4361145; **C51** = Carbonia-Iglesias prov., Iglesias, dint. P.ta Campu Spina, 760 m, 32S 462466 4358236; **C52** = Carbonia-Iglesias prov., Iglesias, dint. S. Benedetto, 550 m, 32S 459499 4358405; **C53** = Medio Campidano prov., Gonnostrada, M. Linas, P.ta su Filixi, 780 m, 32S 465819 4368289; **C54** = Medio Campidano prov., Gonnostrada, M. Linas, Genna su Padenti, 853 m, 32S 465485 4367656; **C55** = Medio Campidano prov., Gonnostrada, M. Linas, Genna Mirratta, sorgente, 793 m, 32S 465136 4366226; **C56** = Medio Campidano prov., Gonnostrada, M. Linas, Genna sa Xirra, 847 m, 32S 464114 4366023; **C58** = Medio Campidano prov., Villacidro, dint. P.ta piscina Argiolas, rigagnolo, 282 m, 32S 472049 4360081; **C59** = Medio Campidano prov., Villacidro, dint. M. Anzeddu, 500 m, 32S 469031 4361072; **C60** = Carbonia-Iglesias prov., Domusnovas, dint. Gutturu Abis, 580 m, 32S 468140 4360761; **C61** = Carbonia-Iglesias prov., Domusnovas, dint. P.ta su Fenu, 250 m, 32S 467159 4356713; **C63** = Carbonia-Iglesias prov., Iglesias, dint. P.ta Fenu, 300 m, 32S 472097 4357122; **C64** = Carbonia-Iglesias prov., Iglesias, dint. P.ta Fenu, 225 m, 32S 471850 4356980; **C66** = Carbonia-Iglesias prov., Buggerru, dint. Grugua, 530 m, 32S 454376 4359900; **C67** = Carbonia-Iglesias prov., Buggerru, dint. Miniera S. Luigi, 347 m, 32S 452771 4358704; **C68** = Carbonia-Iglesias prov., Domusnovas, dint. sa Duchessa, 320 m, 32S 466164 4358209; **C69** = Carbonia-Iglesias prov., Domusnovas, dint. sa Duchessa, strada per Perda Niedda, 350 m, 32S 466233 4359025; **C70** = Carbonia-Iglesias prov., Iglesias, dint. Case Marganai, 660 m, 32S 463341 4356196; **C71** = Carbonia-Iglesias prov., Domusnovas, dint. P.ta Genna Ollioni, 650 m, 32S 463293 4356570; **C72** = Carbonia-Iglesias prov., Domusnovas, dint. P.ta Planotzara, 309 m, 32S 465718 4356515; **C74** = Medio Campidano prov., Villacidro, dint. T. Leni, eucalipteto, 300 m, 32S 469793 4361088; **C77** = Carbonia-Iglesias prov., Iglesias, dint. Case Marganai, car net from C85 to C01, 650 m; **C80** = Carbonia-Iglesias prov., Domusnovas, M.ti Marganai, Miniera Reigraxius, 465 m, 32S 464160 4357039; **C81** = Carbonia-Iglesias prov., Domusnovas, Valle Oridda, 643 m, 32S 465399 4362770; **C82** = Carbonia-Iglesias prov., Iglesias, M.ti Marganai, Tintillonis, 480 m, 32S 462590 4355061; **C84** = Carbonia-Iglesias prov., Iglesias, S. Benedetto, 500 m, 32S 459882 4357019; **C85** = Carbonia-Iglesias prov., Iglesias, M.ti Marganai, 540 m, 32S 463010 4355249; **G01** = Nuoro prov., Oliena, M. Maggione, 624 m, 32T 535451 4456520; **G02** = Nuoro prov., Oliena, P.ta sos Nidos, 986 m, 32T 536075 4456422; **G03** = Nuoro prov., Oliena, Oliena, 424 m, 32T 534746 4457479; **G04** = Nuoro prov., Orgosolo, Oristillai, 947 m, 32T 529688 4446725; **G05** = Ogliastra prov., Seui, dint. M. Tonneri, 876 m, 3 S 530745 4410020; **G06** = Ogliastra prov., Seui, dint. M. Tonneri, sorg. Nuletta, 892 m, 32S 531716 4412341; **G07** = Ogliastra prov., Seui, dint. M. Tonneri, Sa ucca 'e su Oe, 912 m, 32S 531228 4413496; **G08** = Ogliastra prov., Seui, dint. M. Tonneri, 919 m, 32S 530651 4412895; **G09** = Cagliari prov., Villanovatulo, dint. Nuraghe is Cangialis, 373 m, 32S 517956 4400645; **G11** = Cagliari prov., Sinnai, dint. M. Castangia, 584 m, 32S 532700 4351568; **G12** = Cagliari prov., Burcei, dint. Burcei, 631 m, 32S 528639 4356088; **G13** = Cagliari prov., Burcei, dint. Burcei, 725 m, 32S 528219 4356591; **G14** = Cagliari prov., Burcei, dint. P.ta Serpeddì, 785 m, 32S 526996 4356738; **G15** = Cagliari prov., Burcei, dint. P.ta Serpeddì, 954 m, 32S 525266 4356808; **G31** = Medio Campidano prov., Gesturi, Giara di Gesturi, 568 m, 32S 495926 4401318; **G35** = Nuoro prov., Lodé, S. Anna, strada per Siniscola, 490 m, 32T 554459 4491980; **G36** = Nuoro prov., Lula, dint. Lula, 530 m, 32T 542525 4480254; **G39** = Ogliastra prov., Talana, dint. Talana, 478 m, 32T 542523 4433941; **G41** = Ogliastra prov., Gairo, M. Perda Liana, 1219 m, 32S 535096 4417848; **G44** = Nuoro prov., Desulo, R. Aratu, 958 m, 32T 521882 4431913; **G46** = Nuoro prov., Gadoni, F. Flumendosa, riva, 402 m, 32S 516364 4416019; **G49** = Cagliari prov., Nurri, dint. Nuraghe Tacquara, fontana, 533 m, 32S 515371 4395479; **G50** = Oristano prov., Cabras, Tharros, 9 m, 32S 452048 4414023; **G51** = Cagliari prov., Vallermosa, dint. Cant. de s'Acquacotta, 83 m, 32S 483910 4361992; **G52** = Ogliastra prov., Seui, dint. M. Tonneri, 825 m, 32S 533277 4411585; **G54** = Ogliastra prov., Gairo, M. Tonneri, lecceta, 1020 m, 32S 530263 4415529; **G55** = Ogliastra prov., Gairo, M. Tonneri, dint. nuraghe Ardassai, lecceta, 1020 m, 32S 529111 4415819; **G56** = Ogliastra prov., Seui, Seui, 800 m, 32S 527585 4409970; **S1** = Carbonia-Iglesias prov., Iglesias, dint. colonia Beneck, 636 m, 32S 462391 4355441; **S2** = Carbonia-Iglesias prov., Domusnovas, sa Duchessa, 371 m, 32S 464990 4358384; **S3** = Carbonia-Iglesias prov., Domusnovas, Valle Oridda, 592 m, 32S 466973 4362228; **SAR1** = Carbonia-Iglesias prov., Iglesias, Marganai, plot CONECOFOR SAR1, 700 m, 32S 462853 4355582.

COLLECTORS. AB = A. Briganti; AD = A. Dodero; AK = A.H. Krausse; AM = A. Campanaro; AMo = A. Molinu; AT = A. Tenga; BM = B. Merz; CG = C. Giusto; CM = C. Meloni; CT = C. Torti; DA = D. Avesani; DB = D. Birtele; DD = D. Deidda; DW = D. Whitmore; EB

= E. Braga; EG = E. Gatti; EM = E. Minari; FC = F. Chessa; FM = F. Mason; FMa = F. Mazzocchi; GC = G. Chessa; GGa = G. Gardini; GGr = G. Grafitti; GN = G. Nardi; GS = G. Scaglioni; GZ = G. Zandi; IMA = I. Marcellino; JW = J. De Waele; LB = L. Briganti; L? = no collector mentioned; LF = L. Fancello; LS = L. Spada; MA = M. Armeni; MB = M. Bardiani; ME = M. Eggenberger; MM = M. Mei; MMu = M. Mucedda; MR = M. Rampini; MT = M. Tisato; MTr = M. Trizzino; MZ = M. Zapparoli; NS = N. Sanfilippo; PA = P. Audisio; PCe = P. Cerretti; PCo = P. Cornacchia; PL = P. Leo; RA = R. Argano; RM = R. Manconi; RRz = R. Rizzerio; SRi = S. Riese; SZ = S. Zoia; VC = V. Cottarelli; VV = V. Vomero.

SAMPLING METHODS. al = collecting at light; ba = bait (small pieces of meat mixed with hay placed in an open plastic tube); bz = glass trunk trap (beer and sugar); cn = car net; dc = direct collecting; lt = light trap; mt = Malaise trap; nt = hand net; oe = entomological umbrella; pt = pitfall trap (vinegar and salt); sn = sweep net; vg = sieve; wn = water net; wt = window flight trap.

OTHER ABBREVIATIONS AND RECURRENT TERMS USED IN FAUNISTIC LIST. C. = Casa = House; Can.le = Canale = Canal; Can.li = Canali = Canals; Cant. = Cantoniera = Roadman's house; coll. = collection; D = deutonymph/s; dint. = surroundings of; ex = specimen/s; dune = dunes; eucalipreto = eucalyptus plantation; foce = river mouth; F. = Fiume = River; Foresta = Forest; fontana = fountain; greto del = bed of [river]; Grotta = Cave; ingresso = entrance of; Isola = Island; L. = Lago = Lake; lecceta = holm-oak forest; leg. = collector/s; litoranea = coastal road; loc. = locality; Miniera = Mine; M. = Monte = Mount; M.ti = Monti = Mounts; P = protonymph/s; pineta = pinewood; prov. = province; P.ta = Punta = Peak; R. = Rio = stream; radura = clearing; radura con = clearing with; radura lungo strada = clearing alongside road; reg. = region; rigagnolo = rivulet; riva = bank; S. = San/Santa/Santo = Saint; sdb = same data but; Serbatoio = Reservoir; sorg. = sorgente = spring; sotto corteccia = under bark; spiaggia = beach; sponda sinistra = left bank; Stagno = Pond; strada = road; strada per = road to; su cadavere di = on carcass of; T. = Torrente = Torrent; tfi = translation from Italian; Tr = tritonymph/s; versante = slope; Valle = Valley; verso = in direction of; wdc = without date of collection.

DEPOSITORIES. CGG = G. Gardini collection (Genoa, Italy); CGN = G. Nardi collection (Cisterna di Latina, Latina, Italy); CGP = G. Platia collection (Gatteo, Forlì-Cesena, Italy); CKR = K. Rognes collection (Stavanger, Norway); CMM = M. Mei collection (Rome, Italy); CNBFVR = Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale "Bosco Fontana" di Verona (Marmirolo, Mantua, Italy); CPC = P. Cornacchia collection (Porto Mantovano, Mantua, Italy); MHNG = Muséum d'histoire naturelle (Genève, Switzerland); MSNM = Museo Civico di Storia Naturale di Milano (Milan, Italy); MCZR = Museo Civico di Zoologia (Rome, Italy); TCUB = M. von Tschirnhaus collection, University of Bielefeld (Bielefeld, Germany); ZSM = Zoologische Staatssammlung München (Munich, Germany).

Quotation-sample of single notes:

Podenas S., 2011. Short notes 15. Diptera, Limoniidae, pp. 862-866. In: Nardi G., Whitmore D., Bardiani M., Birtele D., Mason F., Spada L. & Cerretti P. (eds), Biodiversity of Marganai and Montimannu (Sardinia). Research in the framework of the ICP Forests network. Conservazione Habitat Invertebrati, 5. Cierre Edizioni, Sommacampagna, Verona.

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Fig. 4.1. *Trichodes alvearius* (Sassari prov., Villanova Monteleone, 1.V.2007) (photo by P. Niolu).

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5. Coleoptera, ELATERIDAE

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The Elateridae are a family of beetles of worldwide distribution, with over 10,000 described species mainly concentrated in the tropics (Johnson 2002). In Italy, 245 species belonging to 69 genera are recorded (Platia 2005; Platia & Gudenzi 2005a, 2005b; Cate 2007; Platia & Pedroni 2010). The adults can be recognized by their elongated shape and by their ability to jump using particular thoracic structures that emit a clicking sound, hence the common name of click-beetles. Adults can be found all year round, either active or overwintering; the larvae develop mainly in the ground or in rot-holes on old trees, showing extremely varied feeding habits, from phytophagous to saprophagous or carnivorous (Platia 1994). Species are listed following the nomenclature of Cate (2007).

Athous (Orthathous) melonii Platia, 1984

RECORDS. **C82**: 22–25.IX.2004, DB DA MB PCe MM DW, mt glade with *Foeniculum vulgare*, 1 ♂. **S2**: 5–19.IX.2006, GC, mt, 3 ex; 19.IX–3.X.2006, GC, mt, 2 ex. **S3**: 5–19.IX.2006, GC, mt, 2 ex; 3–17.X.2006, GC, mt, 1 ex. **SAR1**: 16.VIII–8.IX.2004,

GC, pt, 2 ex; 16.VIII–8.IX.2004, GC, mt, 1 ex; 8–21.IX.2004, GC, mt, 6 ex (CGP; CNBFVR); 5.VIII–13.IX.2005, GC, mt, 2 ex; 5.VIII–13.IX.2005, GC, pt, 1 ex. **Carbonia-Iglesias prov.:** Domusnovas, dint. Grotta San Giovanni (Platia 1984).

NOTES. A Sardinian endemic described on two males, the female of which was only recently discovered (Platia & Gudenzi 2005a). It is now known from five localities of the Nuoro, Ogliastra and Carbonia-Iglesias provinces (cf. Platia 1984). The larva and biology of this species are unknown. The relatively high number of individuals collected during this study is in disagreement with its apparent rarity, which would appear to be ascribable to its relatively late flight period, from mid August to mid September, and to collecting methods.

Cardiophorus (Cardiophorus) argiolus (Gené, 1836)

RECORDS. **C03:** 9.VI.2004, GN, sn, 1 ex. **C07:** 20.V.2006, PCo MB DB, sn, 1 ex; 20–24.V.2006, MB DB PCo DW, mt, 6 ex. **C19:** 19.V.2006, MB DB PCo, sn, 1 ex. **C23:** 19.V.2006, PCo MB DB DW, sn, 1 ex; 19–24.V.2006, MB DB PCo DW, mt, 2 ex. **C26:** 24.V.2006, PCo MB DB, sn, 1 ex. **C27:** 22.V.2006, PCo MB DB, sn, 2 ex. **S2:** 2–16.V.2006, GC, mt, 1 ex; 16–30.V.2006, GC, mt, 1 ex. **S3:** 20.V.2006, DW MB DB PCo, sn on *Ferula* sp., 1 ex.; 18.IV–2.V.2006, GC, mt, 1 ex; 16–30.V.2006, GC, mt, 1 ex; 13–27.VI.2006, GC, mt, 1 ex. **SARI:** 15–30.VI.2004, GC, pt, 1 ex. **Carbonia-Iglesias prov.:** Iglesias, 13.V.1890 (Platia & Marini 1990). **Medio Campidano prov.:** Villacidro (Platia 2005).

NOTES. A Corso-Sardinian endemic – the record from Malta by Cate (2007) actually refers to *C. ulcerosus* (Gené, 1836) – distributed throughout Sardinia in all habitats, from coastal to montane areas (Platia 1994, 2005). The species is extremely variable in the colouration of the pronotum, which is generally red with black markings, very rarely entirely red or almost entirely black. The adults can be found on herbs, flowers, bushes, under bark, almost all year round (Platia 1994). The larva is unknown.

Cardiophorus (Cardiophorus) eleonorae (Gené, 1836)

RECORDS. **C23:** 19–24.V.2006, MB DB PCo DW, mt, 2 ex. **C28:** 22.V.2006, PCo MB DB, sn, 1 ex. **C81:** 10.VI.2004, GN, sn, 1 ex. **S3:** 16–30.V.2006, GC, mt, 9 ex.

NOTES. Species described from Sardinia, occurring also in Corsica, southern France and most of peninsular Italy and Sicily (Platia 1994, 2005). The adults can be found from coastal to montane areas on herbs,

bushes and trees. The larva is unknown (Platia 1994). The mention of *C. (C.) melampus* (Illiger, 1807) from Iglesias (Costa 1883: 43) is undoubtedly due to a misidentification. The species, described from Portugal, is also known from France (Pyrenees), Spain and Morocco; it was cited from Sardinia and Sicily (Porta 1929, as *C. graellsii* Candèze, 1860) but was removed from the Italian fauna by Platia (1994).

Cardiophorus (Cardiophorus) rufipes (Goeze, 1777)

RECORDS. **Carbonia-Iglesias prov.:** Iglesias (Platia 2005, as *C. goezei* Sanchez-Ruiz, 1996).

NOTES. *Cardiophorus (C.) rufipes* is rather widespread from central and southern Europe to North Africa, and reaches western Siberia eastwards (Platia 1994; Sánchez-Ruiz 1996, as *C. goezei*; Cate 2007). It is one of the most common species of the Italian peninsula, but appears to be quite rare in Sardinia (Platia 1994, 2005).

Cardiophorus (Cardiophorus) ulcerosus (Gené, 1836)

RECORDS. **C28:** 22.V.2006, PCo MB DB, sn, 1 ex. **C81:** 7.VI.2004, GN, sn, 3 ex; 12.VI.2004, GN, sn, 3 ex. **S3:** 2–16.V.2006, GC, mt, 5 ex. **Carbonia-Iglesias prov.:** Iglesias, 13.V.1880, A. Fiori leg., 1 ex (cf. Platia & Marini 1990); Iglesias, Lago Corsi, 20.IV.1997, CG, 1 ex (CGP). **Medio-Campidano prov.:** Villacidro, 7.IX.1980, CM, 1 ex (CGP); sdb II.1985, PL, 2 ex (CGP).

NOTES. Species known from Sardinia, Corsica, southern Italy, Sicily, Malta and Tunisia, whereas its presence in Algeria and Morocco needs confirming (Platia 1994; Cate 2007). Among the Sardinian species it can be confused with *C. argiolus* for its similar and equally variable colour pattern. Moreover, both species occur together in the same habitats during the same flight period (Platia 1994). The larva is unknown. The above-mentioned other records were already published, briefly, by Platia (2005).

Cardiophorus (Cardiophorus) vestigialis Erichson, 1840

RECORDS. **C10:** 19.V.2006, DW MB GN, sn, 1 ex. **C26:** 24.V.2006, MB DB PC, sn, 3 ex. **C35:** 23.VI.2003, LF, 1 ex. **C81:** 10.VI.2004, GN, sn, 2 ex. **C82:** 7.VI.2004, GN, sn, 1 ex; 13.VI.2004, GN, sn, 3 ex. **S1:** 18.IV–2.V.2006, GC, mt, 1 ex; 2–16.V.2006, GC, mt, 1 ex; 16–30.V.2006, GC, mt, 1 ex; 30.V–13.VI.2006, GC, mt, 2 ex. **S2:** 30.V–13.VI.2006, GC, mt, 1 ex. **S3:** 5–19.IX.2006, GC, mt, 2 ex; 18.IV–2.V.2006, GC, mt, 2 ex; 13–27.VI.2006, GC, mt, 3 ex. **Carbonia-Iglesias prov.:** Iglesias,

Lago Corsi, 20.IV.1997, CG, 1 ex (CGP) (cf. Platia 2005).

NOTES. Species widespread in Europe, North Africa and Palaearctic Asia where it reaches far-eastern Russia (Platia 1994; Cate 2007). It is one of the most common Sardinian species, occurring in all habitats from the coast to the mountains, almost all year round (Platia 1994). The larvae live in the ground and in humus (Platia 1994).

Drasterius bimaculatus (P. Rossi, 1790)

RECORDS. **C32**: 22.V.2006, MB DB PCo, sn on the ground, 1 ex. **S2**: 13–27.VI.2006, GC, mt, 1 ex. **S3**: 12.VI.2004, GN, sn, 7 ex. **Carbonia-Iglesias prov.**: Fluminimaggiore, wdc, Solari leg. (Binaghi 1941, as *D. b. ab. sexsignatus* Buysson, 1895); Iglesias, (Platia 2005).

NOTES. Species widespread throughout the whole of Europe, North Africa, Asia Minor, the Caucasus, the Middle East, Iran and central Asia (Platia 1994; Cate 2007). It is extremely common and can be found almost all year round in all habitats, usually actively roaming on the ground (Platia 1994).

Elathous perrisi (Desbrochers des Loges, 1873)

RECORDS. **C31**: 12.XI.2006, GN, sn under stones, 1 ex. **S2**: 8–22.VII.2006, FC, mt, 2 ex; 22.VIII–5.IX.2006, FC, mt, 1 ex. **SARI**: 16.VIII–8.IX.2004, GC, mt, 14 ex (CGP; CNBFVR; CPC); 1–16.VIII.2004, GC, pt, 1 ex; 16.VIII–8.IX.2004, GC, pt, 1 ex; 5.VII–13.IX.2005, GC, mt, 10 ex (CNBFVR; CPC); 5.VII–13.IX.2005, GC, pt, 4 ex; 13–30.IX.2005, GC, mt, 1 ex. **Medio Campidano prov.**: Villacidro, 200 m (Platia 2005).

NOTES. A Corso-Sardinian endemic (Platia 1994; Cate 2007) found in large numbers in the study area. The same considerations made for *Athous melonii* can also be applied to this species, i.e. its apparent rarity is probably due to the late flight period (mid August to mid September) and to sampling methods. Adults are usually attracted by light sources, whereas its biology and larva are unknown (Platia 1994).

Lacon punctatus punctatus (Herbst, 1779)

RECORDS. **C07**: 8.VI.2004, DW, sn, 1 ex. **S3**: 23.III.2006, MB, dc under bark, 2 ex; 23.III.2006, PCo, dc under bark, 1 ex. **Medio Campidano prov.**: Villacidro (Platia 2005, as *L. punctatus*).

NOTES. Species widespread in central-southern and

eastern Europe, the Caucasus, the Near East and Morocco (Platia 1994, as *L. punctatus*; Cate 2007), present with a subspecies in Kashmir (cf. Cate 2007). It is rather common; the adults are nocturnal and can be found mainly under the bark of partly decayed tree trunks, and in stumps of various tree species including conifers (*Pinus* spp.). The larvae are zoosaprophagous (Platia 1994).

Melanotus (Melanotus) dichrous (Erichson, 1841)

RECORDS. **C10**: 11.VII.2006, MB DA DB, sn, 1 ex. **SARI**: 16.VIII–8.IX.2004, GC, wt, 1 ex; 5.VIII–13.IX.2005, GC, pt, 1 ex.

NOTES. Species widespread in southern Europe, Asia Minor, North Africa; introduced to North America (Platia 1994; Cate 2007). It is extremely common and can be found in all habitats, especially in July and August (Platia 1994). The adults are particularly attracted by light sources, whereas the larvae live in the ground (Platia 1994).

The ten species listed herein represent little less than a third of the currently known Sardinian elaterid fauna (32 species) (Platia 2005). Two endemics were found during this study, whereas the remaining species are amongst the most common ones occurring on the island. Other species could potentially occur in the study area, such as *Adrastus melonii* Platia & Gudenzi, 2000, *Athous (Haplathous) brevicornis* Desbrochers des Loges, 1875, *A. (H.) villosulus* Desbrochers des Loges, 1875, and *Stenagostus sardiniensis* (Reitter, 1914). The first and last of these species are Sardinian endemics, while both species of *Athous* Eschscholtz, 1829 are Corso-Sardinian endemics.

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6. Coleoptera, HELOPHORIDAE

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The Helophoridae are a fairly large family with about 180 species world-wide, about 150 of which occur in the Palearctic. There are three species in the Ethiopian region and one in the Oriental. Most species

occur in temporary pools (the larvae are terrestrial), a few in rivers, and a small number are terrestrial. Rocchi (2005) lists 15 species from Sardinia, and the seven species listed here include two, *Helophorus* (*Rhopalhelophorus*) *longitarsis* Wollaston, 1864 and *H. (R.) rinki* Angus, 1985, which are not on that list, and which would bring the total to 17, a not unreasonable number for an island of the size of Sardinia. However, some of the records appear doubtful. Thus, *H. (R.) flavipes* Fabricius, 1792 and *H. (R.) obscurus* Mulsant, 1844 are likely to refer to *H. (R.) subarcuatus* Rey, 1885, *H. (H.) aquaticus* (Linnaeus, 1758) may well refer to *H. (H.) milleri* Kuwert, 1886 – especially as where it occurs *H. (H.) aquaticus* is a common species and more records would be expected – and *H. (R.) dorsalis* (Marsham, 1802) is also doubtful. This would take the total down to 13 species, perhaps reflecting an impoverished island fauna. Classification and nomenclature follow Angus (1992).

Helophorus (*Trichelophorus*) *alternans* Gené, 1836

RECORDS. **C25**: 21.V.2006, PCo MB DB DW, wn, 1 ex. **C31**: 6.VI.2004, GN, wn in small mouth of an affluent, 2 ex. **S3**: 8.VI.2004, GN, wn, 1 ex; 11–25.VII.2006, GC, mt, 1 ex. **Carbonia-Iglesias prov.**: Iglesias (cf. Gené 1836; Rocchi 2005).

OTHER RECORDS. **G06**: 5.IX.2006, GN, wn, 2 ex. **G31**: 15.VI.2004, GN, wn, 2 ex.

NOTES. *Helophorus* (*T.*) *alternans* was described from Sardinia: "In aquis stagnatibus frequens Karali, Pulae, Iglesias, Cabras, etc." (Gené 1836: 184, as *Elophorus alternans*). It is widespread in the western Mediterranean and western Europe as far north as southern England (Angus 1992).

Helophorus (*Helophorus*) *milleri* Kuwert, 1886

RECORDS. **C19**: 21.V.2006, PCo MB DB DW, wn residual pools, 1 ex; 24.V.2006, PCo MB DB DW, wn, 1 ex. **C22**: 25.III.2006, DW, nt, 1 ex. **C25**: 21.V.2006, PCo MB DB DW, wn, 7 ex. **C27**: 22.V.2006, PCo MB DB DW, attracted by green car roof, 30 ex; 22.V.2006, MB DB PCo DW, sn, 1 ex. **C28**: 22.V.2006, PCo MB DB DW, fallen on a car during flight, 3 ex. **C30**: 22.V.2008, PCo MB DB DW, wn in bath used as drinking trough, 5 ex. **C31**: 6.VI.2004, GN, wn in small mouth of an affluent, 3 ex; 23.V.2006, PCo MB DB DW, wn, 8 ex. **C69**: 8.VI.2004, GN, wn in small stream in a holm-oak forest, 3 ex. **S3**: 15.VI.2004, GN, wn, 6 ex; 11–25.VII.2006, GC, mt, 1 ex. **Carbonia-Iglesias prov.**: Iglesias (cf. Rocchi 2005).

OTHER RECORDS. **G31**: 15.VI.2004, GN, wn, 9 ex.