

# 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., Gonnesa, Plage Mesu, Sa Punta e s'Arena, 5 m, 32S 450884 4347330; **A16** = Carbonia-Iglesias prov., Gonnesa, 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 Serici, 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. Oville 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 Figu, 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., Gonnosfanàdiga, M. Linas, P.ta su Filixi, 780 m, 32S 465819 4368289; **C54** = Medio Campidano prov., Gonnosfanàdiga, M. Linas, Genna su Padenti, 853 m, 32S 465485 4367656; **C55** = Medio Campidano prov., Gonnosfanàdiga, M. Linas, Genna Mirratta, sorgente, 793 m, 32S 465136 4366226; **C56** = Medio Campidano prov., Gonnosfanàdiga, 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; eucalipteto = 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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- de Jong Y.S.D.M. (ed.), 2011. Fauna Europaea version 2.4. Web Service available online at <http://www.faunaeur.org> [accessed 1 September 2011 as version 2.4 of 27 January 2011].

species, known in Italy from central-southern regions and Sardinia; it also occurs in Corsica.

On a total of 218 pseudoscorpion species currently known from Italy, 72 are recorded from Sardinia; of these, 28 species are endemic: 8 epigeic and 20 cavernicolous. From a faunistic point of view, it is the Italian region with the highest number of species, mainly thanks to the hypogeic component, which has been subjected to much attention over the years.

Targeted collecting in forest areas of particular ecological and zoogeographical interest, like those of the Sulcis-Iglesiente, highlights the richness of their epigeic assemblage but also our lack of taxonomic knowledge of it, as emphasized by the complicated situation of *Roncus* populations close to *R. dallaii*.

The assemblage of the surveyed forest areas, represented so far by 14 epigeic species, is characterized by 8 phytodetriticolous, moderately hygrophilous elements (*Chthonius leoi*, *C. tenuis*, *C. berninii*, *Neobisium incertum*, *N. sublaeve*, *Roncus* "italicus", *R. sp.*, *Microcreagrina hispanica*), and by 5 more markedly xerophilous elements, which are phytodetriticolous (*Pselaphochernes italicus*), lapidicolous or corticicolous (*Withius hispanus*, *Hysterochelifer tuberculatus*, *P. lacertosus*), sometimes phoretic (*P. anachoreta*) or euryoecious (*P. scorpioides*).

*Neobisium sublaeve* is without a doubt the most hygrophilous element, with a strong ability to colonize cave habitats. The sporadic occurrence of *N. incertum* on *Pistacia* sp. and *Calicotome* sp. shrubs, established by three sweep net catches, is a rare event for *Neobisium* species. Judson & Heurtault (1996), while mentioning the presence of species of the genus *Nanolpium* Beier, 1947 (Olpidae) on herbaceous vegetation in southern Africa, reported a note by Horváth (1885) in which the occurrence of *Neobisium sylvaticum* (C.L. Koch, 1835) on plants, possibly as a consequence of floods, is mentioned.

From a zoogeographical point of view, the assemblage of the study area is composed of 5 endemic species (*Chthonius leoi*, *C. berninii*, *Neobisium incertum*, *Roncus* "italicus", *R. sp.*), 2 Tyrrhenian species (*N. sublaeve*, *Pselaphochernes italicus*), 5 Mediterranean species (*Microcreagrina hispanica*, *Withius hispanus*, *Hysterochelifer tuberculatus*, *Pselaphochernes anachoreta*, *P. lacertosus*), one Euro-Maghrebian species (*Chthonius tenuis*) and one W-Palaearctic species (*P. scorpioides*).

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- 3. Scorpiones, EUSCORPIIDAE**
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- In Europe, the family Euscorpiidae is represented solely by the genus *Euscorpius* Thorell, 1876 (Fet 2010). In Italy, the genus is present with nine species representing all four subgenera (*Alpiscorpius* Gantenbein, Fet, Largiader & Scholl, 1999, *Euscorpius* Thorell, 1876, *Polytrichobothrius* Birula, 1917, *Tetratrichobothrius* Birula, 1917), this being the highest diversity for the genus in the world (Vignoli & Salomone 2008). Two species are known to occur in Sardinia: *Euscorpius* (*E.*) *sicanus* (C.L. Koch, 1837) and *E. (T.) flavicaudis* (De Geer, 1778) (Vignoli 2002). I am grateful to Ms Elizabeth Derbyshire from Liverpool (UK) for revising the English language.
- Euscorpius* (*Euscorpius*) *sicanus* (C.L. Koch, 1837) (fig. 3.1)
- RECORDS. **C06:** 12.VI.2004, MB GN MZ DW, dc, 1 subadult ♀. **C10:** 6.IX.2006, MB GN DB DA, dc night survey, 1 adult



♀. **C18:** 24.III.2006, PC MB GN DB DW, dc under stone, 1 adult ♂; 9.XI.2006, MB GN MZ DW, dc, 1 adult ♀. **C63:** 11.XI.2006, GN, dc under stone, 1 juvenile ♀. **C74:** 9.XI.2006, GN, dc under stone, 1 adult ♀. **Carbonia-Iglesias prov.:** Iglesias (Fanzago 1872, as *Scorpius canestrinii* n.sp.; Di Caporiacco 1950, as *E. carpathicus canestrinii* (Fanzago, 1872)); Fluminimaggiore (Guerra 1979, as *E. carpathicus* L.).



Fig. 3.1. Adult ♀ of *Euscorpius sicanus* (Olbia-Tempio prov., Olbia, Lu Fraili, 16.VIII.2001) (photo by V. Vignoli).

In the nineteenth century a new Sardinian scorpion, *Scorpius canestrinii*, was named by Fanzago (1872) in honour of Professor Giovanni Canestrini, an Austro-Hungarian biologist who collected the specimens. Canestrini is famous in several scientific fields such as arachnology, anthropology and bacteriology, but mainly as one of the pioneers who introduced Charles Darwin's evolution theory to Italy. The type series of *S. canestrinii* consists of 30 specimens collected in six distinct places, including Iglesias in the former province of Cagliari. The genus *Scorpius* Poda, 1761 was later replaced with *Euscorpius* by Thorell (1876).

Lodovico Di Caporiacco (1950) published a large morphological study based on the analysis of around 1,500 specimens of *Euscorpius* from Italy and other neighbouring Mediterranean countries, in which he recognized 38 subspecies belonging to four valid species. Following the study of 75 specimens from several areas (including Iglesias), he considered the Sardinian scorpion *E. carpathicus canestrinii* (Fanzago, 1872) as highly polymorphic but prevalently characterized as follows: large in size (reaching a maximum length of 41 mm), yellowish-brown with reddish pedipalps, and mesotrichous in trichobothriotaxy (i.e., with an intermediate number of trichobothria on the pedipalps).

Even though this taxon has received much attention from arachnologists, the accentuated polymorphism of the Sardinian populations did not allow a clear distinction of the insular scorpion from the other known morphotypes (Valle 1975; Vachon 1978). A new taxonomic arrangement was published by Fet et al. (2003) with the aid of the first molecular data. The Sardinian clade showed a small genetic divergence from the other similar taxa but was part of the so-called "*E. sicanus* clade" (6 subspecies described by Di Caporiacco (1950), all with a unique pattern and number of trichobothria on the external pedipalp patella surface) (Vignoli 2002; Fet et al. 2003). Combining these results with a morphological analysis, Fet et al. (2003) maintained seven distinct subspecies from the central Mediterranean area including *E. carpathicus canestrinii*, and synonymized them all under *E. sicanus*.

A total of six specimens (5 ♀♀, 1 ♂) were collected in the study area (see Bardiani 2011), and all show the typical trichobothriotaxy of *E. sicanus*. The analysed specimens are light brownish in general colour, with reddish pedipalps and darker metasomal segments (I–IV). The legs, chelicerae and telson are yellowish. Pectinal teeth reach a maximum of 8/8 in the females (8/7, 7/8, 8/8, 6/7, 7/6) and 9/9 in the male. The telson is visibly more swollen in the male than in the females (secondary dimorphic character). *Euscorpius* (*E.*) *sicanus* is easily distinguishable from the other Sardinian scorpion, *E. (T.) flavicaudis*, by having four trichobothria on the ventral surface of the pedipalp chela instead of five (see Vignoli & Salomone 2008: figs 44, 46).

In Sardinia, *Euscorpius sicanus* occurs from north to south, both in coastal and inland environments (Di Caporiacco 1950; Vachon 1978; Fet et al. 2003; Vignoli unpublished data). All *Euscorpius* species are hygrophilous and occur in humid habitats. *Euscorpius sicanus* is a highly tolerant species and can be both corticolous and lapidicolous. During the dry season it is difficult to detect specimens in their habitat, because they concentrate only in areas where humidity is maintained by shade. The use of portable ultraviolet lamps at night is practically the only way to detect specimens and study the scorpiofauna during the summer (Vignoli, unpublished data).

In places where *E. sicanus* and *E. flavicaudis* occur syntopically, the occupation of habitats by both species is strongly dependent upon intraguild predation interaction. This interspecific competition among similar sympatric predators is well known in scorpion ecology (Polis & McCormick 1987), also in the genus *Euscorpius* (Vignoli et al. 2005) where the stronger (larger) *E. flavicaudis* colonizes the most favourable micro-

habitats, while the smaller *E. sicanus* mainly colonizes peripheral areas. Crevices of man-made structures (e.g. walls, houses) represent some of the most favourable microhabitats, as they retain humidity and mild temperatures during the seasons. For this reason, *E. sicanus* populations can be common in the most humid microhabitats around houses where populations of the larger competitor, *E. flavicaudis*, are absent.

Although the Sardinian scorpiofauna has been extensively studied in the past, it is still of high interest. Further studies on the still unresolved Balkan and Aegean *Euscorpius* taxonomy (Kaltas et al. 2008; Fet 2010) could bring to a better understanding of the entire genus, including the Sardinian *E. sicanus*. Also, distributional data on Sardinian scorpions are still deficient, especially for *E. flavicaudis*, which appears to be present only in the northern part of the island (Crucitti et al. 1998). Both Sardinian scorpions are not of medical importance since the sting, apart from rare exceptions, only causes local effects (Torregiani & La Cavera 1990).

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## INSECTA

## 4. Coleoptera, CLERIDAE

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This family is distributed chiefly in the tropical and subtropical regions. Thirty-three species are known from Italy, more than half of which (19) are known also from Sardinia (Audisio et al. 1995; Löbl et al. 2007; Zappi & Pantaleoni 2010). The larvae of most species of the subfamilies Tillinae and Clerinae are predaceous on larvae of saproxylic beetles (Bostrichidae, Cerambycidae, Scolytidae, etc.) (cf. Gobbi 1984; Gerstmeier et al. 1999; Opitz 2002), whereas those of many species of *Trichodes* Herbst, 1792 (Clerinae) are predaceous on the pre-imaginal stages of Hymenoptera Apoidea (Gerstmeier et al. 1999). Both the larvae and adults of the Korinetinae develop in carrion (cf. Opitz 2002).