

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., 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; 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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ARACHNIDA

1. Acari, Ixodida

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The Ixodida, commonly known as ticks, are haematophagous Acari ectoparasitic on terrestrial vertebrates, mainly birds and mammals. The order contains approximately 900 species worldwide, 38 of which are recorded for Italy. The life cycle of ticks comprises the stages of egg, larva, nymph (more than one instar in the Argasina) and adult. The consumption of blood insures moulting, as well as oogenesis and spermatogenesis. Egg deposition and hatching of the larvae always take place in the environment, thus the larvae need to find a host on which to feed. After the blood meal, in most species, the larvae drop off the host and moult. The nymph must then find a new host, feed, and again leave the host before moulting to adult. Males and females must then find a last host – which is sometimes very different from the previous ones – on which to mate and possibly feed again (adult males of Ixodinae do not feed). Some variant life cycles exist within the Ixodida: in some species, after the meal, the larva stays attached to the first host and only the nymph leaves the host to moult, whereas in others the whole cycle (apart from oviposition and hatching) takes place on a single host. Depending on the species, the entire life cycle can last from a few weeks to two–three years.

Several diseases – some of which serious – are transmitted by some tick species, both to humans and domestic animals.

The distribution of Ixodida in Italy is incompletely known: good for some species and in some areas, less so in other cases.

Among the material sent to us for study by Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale "Bosco Fontana" of Verona (Marmirolo, Mantua), we were able to identify 10 species of Ixodida.

The systematic order used in the present note follows Camicas et al. (1998), Manilla (1998) and Apanaskevich et al. (2008); the nomenclature is in conformity with the Pan-European Species-directories Infrastructure (PESI 2011) and notes on ecology and

hosts are taken from Iori et al. (2005).

Label data are given in the following order: code of sampling site, date, acronym of collector, number and life stage/sex of identified specimens. Specimens were collected with a sweep net or directly with forceps from the vegetation, clothes of collectors, etc. Additional information is provided in square brackets.

AMBLYOMMIDAE

Dermacentor marginatus (Sulzer, 1776)

RECORDS. **C16**: 23.III.2006, DW MB DB PCo, 1 ♂. **C18**: 9.XI.2006, MB GN MZ DW, 1 ♂. **C36**: 6.IX.2006, DB, 1 ♀. **C43**: 15.XI.2006, DW, 1 ♀. **S3**: 11.XI.2006, GN, 1 ♀.

OTHER RECORDS. **A01**: 21.IX.2004, DB PCe FM DW, nt, 1 ♀.

NOTES. A common species in pastures and shrublands of medium-high altitudes. The larvae and nymphs are parasites of small mammals and sometimes birds, while the adults prefer larger mammals, including humans. It is known from nearly all Italian regions.

Haemaphysalis (Aboimisalis) punctata Canestrini & Fanzago, 1877

RECORDS. **C35**: 18.XII.2006, MB DB PCe DW, 8 larvae.

NOTES. A species most frequent in relatively arid areas with maquis or woodland vegetation. The larvae and nymphs parasitize ground-dwelling birds or small mammals; the adults prefer medium to large mammals, including humans. It is known from nearly all Italian regions.

Haemaphysalis (Hepetobia) sulcata Canestrini & Fanzago, 1877

OTHER RECORDS. **G41**: 16.V.2008, GN PA MB, 1 ♂.

NOTES. A species most frequent in rather arid habitats. The immature stages parasitize mainly birds and reptiles, while the adults prefer medium to large herbivorous mammals. In Italy it is recorded from all peninsular regions and the large islands.

Hyalomma (Hyalomma) detritum Schulze, 1919

RECORDS. **C81**: 7.VI.2004, GN, 1 ♀. **S3**: 11.XI.2006, MB, 1 ♂.

NOTES. A species usually found in arid pastures at low-medium altitudes. Its preferred hosts are ungu-

lates of medium and large size. Recorded from central-southern Italy and its large islands.

Hyalomma (Hyalomma) lusitanicum C.L. Koch, 1844

OTHER RECORDS. **A16**: 5.VI.2004, DB, 1 ♀. **Carbonia-Iglesias prov.**: Isola di San Pietro, Guardia dei Mori, 27.VI.1987, VV, 1 ♀; Isola di San Pietro, Stagni Vivagno, 27.VI.1987, VV, 2 ♂♂ 1 ♀.

NOTES. Species showing a preference for Mediterranean maquis habitats. The immature stages parasitize small rodents and lagomorphs, while the adults prefer bovines, equines and smaller herbivores. So far, in Italy, the species has been found along the Tyrrhenian coast, in Apulia and on the large islands.

Hyalomma (Hyalomma) marginatum C.L. Koch, 1844

RECORDS. **C31**: 6.VII.2004, DB, 1 ♀. **S3**: 15.VII.2006, MB DB DW PCe MM, 3 ♀♀; 15.VII.2006, MB DA DB PCe MM DW, 2 ♀♀.

NOTES. A species showing a high ecological plasticity, occurring in a large variety of habitats from plains to mountains. It feeds on a wide range of hosts, from birds to mammals including man. Recorded from all Italian regions including the large islands, probably most common in the centre-south.

Rhipicephalus (Digneyus) bursa Canestrini & Fanzago, 1877

RECORDS. **C03**: 23.V.2006, PCo MB DB DW, 1 ♂. **C23**: 19.V.2006, DB, 1 ♀.

OTHER RECORDS. **A02**: 26.V.2006, PCo MB DB DW, 1 ♂; 14.VII.2006, MB DB DA PCe MM DW, 1 ♂ 2 ♀♀. **Carbonia-Iglesias prov.**: Carloforte, Isola di San Pietro, Guardia dei Mori, 27.VI.1987, VV, 2 ♂♂ 2 ♀♀; sdb 17.VII.1987, VV, 1 ♀. **Sassari prov.**: Alghero, Argentiera, nei pressi della miniera [= close to the mine], 21.VII.2004, DB, 1 ♀; [Porto Torres,] Isola Asinara, Cala d'Arena, 1.VII.1987, VV, 1 ♂; sdb 4.VII.1987, 1 ♂.

NOTES. Species most common in dry biotopes with sparse shrubby or arboreal vegetation. It parasitizes medium and large-sized ungulates, occasionally also man. Recorded from nearly all regions of peninsular Italy and the large islands.

Rhipicephalus (Rhipicephalus) pusillus Gil Collado, 1838

OTHER RECORDS. **Oristano prov.**: [Cabras,] Isola Mal di Ventre, 28.VI.1987, VV, 1 ♂ 3 ♀♀.

NOTES. Noteworthy is the confirmed presence in Sardinia of this species, an uncommon tick also due to its very small size; it was already recorded from the above locality (cf. Manilla 1998).

Rhipicephalus (Rhipicephalus) sanguineus (Latreille, 1806)

RECORDS. **C81**: 10.VI.2004, GN, 1 ♂.

OTHER RECORDS. **A16**: 5.VI.2004, DB, 1 ♂.

NOTES. Species occurring in semi-desert environments of the Sahara-Mediterranean area. Even though it is capable of attacking a large variety of mammals, including man, its preferred hosts are canids, and dogs have contributed to its worldwide distribution. In Italy it is recorded from all regions.

Rhipicephalus (Rhipicephalus) turanicus Pomerantsev, 1940

RECORDS. **C25**: 21.V.2006, MB DB PCo DW, 1 ♀. **C80**: 7.VI.2004, GN, 1 ♂. **C81**: 7.VI.2004, GN, 1 ♀. **C82**: 9.VI.2004, MT, 1 ♀ 1 ♂. **S3**: 8.VI.2004, MT, 1 ♂. **Carbonia-Iglesias prov.**: Iglesias, 7.VI.2004, GN, dc in car, 1 ♂.

NOTES. Species most frequent in not too arid open areas. The immatures feed mainly on rodents, whereas the adults usually parasitize medium and large mammals, including man.

All the above species were already known for Sardinia, where they had been found also in areas close to those of the present records (Sobrero & Manilla 1988; Manilla 1998).

The list of the Ixodida currently known from Sardinia comprises, besides these 10 species, 13 additional taxa belonging to three families: *Alectorobius (A.) maritimus* (Vermeil & Marguet, 1967) (Argasidae); *Eschatocephalus simplex* (Neumann, 1906), *E. vespertilionis* (Koch, 1844), *Ixodes (I.) gibbosus* Nuttall, 1916, *I. (I.) ricinus* (Linnaeus, 1758), *I. (I.) ventralloii* Gil Collado, 1936, *Pholeoixodes canisuga* (Johnston, 1849), *P. hexagonus* (Leach, 1815), *Scaphixodes (S.) caledonicus* (Nuttall, 1910), *S. (Trichotoixodes) frontalis* (Panzer, 1798) (Ixodidae); *Boophilus annulatus* (Say, 1821), *Haemaphysalis (Segalia) parva* (Neumann, 1897) and *Hyalomma (H.) anatolicum excavatum* Pomerantsev 1946 (Amblyommidae).

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2. Pseudoscorpiones

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Pseudoscorpions are predacious terrestrial arachnids, and a quantitatively constant and numerically important component of the soil mesofauna of the temperate and tropical regions of the Earth. Many species are bark-dwellers, others are phleophilous, myrmecophilous, termitophilous or anthropophilous.

Over a sixth of the 3,385 nominal species described by 2007 (Harvey 2009) are cave-dwellers, many of which display extraordinary troglomorphic features. Currently, 218 species are recorded for Italy (Gardini 2005 and unpublished data) but our knowledge is certainly still patchy, from both a taxonomic – especially for the most species-rich genera *Chthonius* C.L. Koch, 1843 (Chthoniidae), *Neobisium* J.C. Chamberlin, 1930 and *Roncus* L. Koch, 1873 (Neobisiidae) – and faunistic point of view. The systematic order adopted here is that used by Harvey (2009); geographic dis-

tributions are taken from Gardini (2000). The examined material, with the exception of specimens in the author's collection (CGG), is stored in the collection of CNBFVR. All the listed caves are followed by the code of the regional speleological cadastre register. Data from the literature are listed after unpublished records and the source is cited after locality data.

CHELIFERIDAE

Hysterochelifer tuberculatus (Lucas, 1849)

RECORDS. **C01**: 5.VI.2004, GN, dc, 1 ♀. **C31**: 7.IX.2006, MB DA DB GN, dc, 1 ♀. **C35**: 1.III.2006, FL, vg, 2 ♀. **C43**: 6.VI.2004, DB PCe GN MT DW, al, 1 ♀. **C51**: 8.IX.2006, DB GN, under stones, 1 ♂. **SAR1**: 30.VI–16.VII.2004, GC, pt, 1 Tr; 5.VIII–13.IX.2005, GC, pt, 1 ♀. **Carbonia-Iglesias prov.**: Domusnovas, Grotta di San Giovanni (entrance), 21.V.1994, CM, 2 ex (CGG); Iglesias, dint. Iglesias, 300 m, 13.IV.1980, IMa, 1 ex (CGG). **Medio Campidano prov.**: Villacidro, San Sinnio, 2.I.1987, PL, 1 ex (CGG).

NOTES. A Mediterranean species known from almost all of Italy, rare in the northern Apennine regions and in the Alps; widespread throughout Sardinia.

CHERNETIDAE

Pselaphochernes anachoreta (E. Simon, 1878)

RECORDS. **C31**: 20–23.V.2006, MB DB PCo DW, mt, 1 ♀.

NOTES. A corticolous, phleophilous, sometimes phoretic species, known from the West Mediterranean and Iran, and already cited from southern Sardinian localities.

Pselaphochernes italicus Beier, 1966

RECORDS. **S1**: 16–30.V.2006, GC, mt, 1 ♂; 8–22.VIII.2006, FC, mt, 1 ♀; 3–17.X.2006, GC, mt, 1 ♂. **S2**: 13–27.VI.2006, mt, GC, 1 ♀. **S3**: 25.VII–8.VIII.2006, GC, mt, 1 ♀. **Carbonia-Iglesias prov.**: Domusnovas, 18.XII.1991, LF PL, 2 ex (CGG).

NOTES. Species described from Scavi di Velia near Salerno in the Campania region (Beier 1966); to this species were doubtfully attributed some Sardinian specimens from Ardara and Fluminimaggiore (Calaini 1983). Only the redescription of the types of *P. italicus* and of the closely related *P. balearicus* Beier, 1961 will allow to establish the identity of the Sardinian populations.