

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 Pamenti, 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.

REFERENCES

- Bardiani M., 2011. Introduction, pp. 15–56. 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.
- Cerretti P., Mason F., Minelli A., Nardi G. & Whitmore D., 2009. Foreword, pp. 5–7. In: Cerretti P., Mason F., Minelli A., Nardi G. & Whitmore D. (eds), Research on the terrestrial Arthropods of Sardinia. Zootaxa, 2318.
- 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].

NOTES. This species is recorded from Armenia, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Germany, Georgia, Great Britain, Hungary, Ireland, Italy, Latvia, Lithuania, Montenegro, Netherlands, Norway, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland and Ukraine. Larvae develop under bark in rotten deciduous trees.

In total, 15 species of short palped crane flies were collected by the CNBFVR staff throughout SW Sardinia in 2003–2006. This number is higher than the number of species previously known from the island: 13. Eight species are newly recorded from Sardinia, thus increasing the total number of species to 21. Even that number is very low, when compared with the neighbouring island of Corsica (82 species) and with the list of Limoniidae recorded from the whole territory of Italy. The low number of species probably depends on collecting methods and the fact that sampling was not done by specialists. Hand nets have proved to be the best sampling method for crane flies, because small microhabitats can be evaluated and active species captured and preliminarily identified on the spot. No automatic method can provide a full list of local species, except when the collecting site is very poor in microhabitats, uniform, such as is the case for agricultural landscapes. This is mainly because crane flies are weak flyers, and usually do not fly far from spots where their larvae develop.

Dactylolabis (D.) corsicana, previously known only from Corsica, is here recorded from Sardinia for the first time. Other Sardinian species have wide distribution ranges (mostly covering the largest part of the Western Palaearctic); the only endemic species, *Rhabdomastix (R.) incapax* was not found during the present study, most probably because it is flightless and needs different collecting methods than those applied.

REFERENCES

- Bezzi M., 1892. Contribuzione alla fauna ditteologica della provincia di Pavia, 2. *Bullettino della Società entomologica italiana*, 23: 61–77.
- Bezzi M., 1926. Materiali per una fauna dell'Arcipelago Toscano. XVII. Ditteri del Giglio. *Annali del Museo civico di Storia naturale "Giacomo Doria"*, 50: 291–354.
- Cerretti P., Mason F., Minelli A., Nardi G. & Whitmore D., 2009. Foreword, pp. 5–7. In: Cerretti P., Mason F., Minelli A., Nardi G. & Whitmore D. (eds), *Research on the terrestrial Arthropods of Sardinia*. *Zootaxa*, 2318.
- Geiger W., 1993. Rediscovery of *Dicranomyia (Glochina) mediterranea* Lackschewitz and Pagast, 1942 (Diptera, Limoniidae) in Spain, and neotype designation. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft*, 99: 9–13.
- Krzeminski W., 1992. Triassic and Lower Jurassic stage of Diptera evolution. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft*, 65: 39–59.
- Mason F., Cerretti P., Nardi G., Whitmore D., Birtele D., Hardersen S. & Gatti E., 2006. Aspects of biological diversity in the CONECOFOR plots. IV. The Invertebrate Biodiv pilot project, pp. 51–70. In: Ferretti M., Petriccione B., Bussotti F. & Fabbio G. (eds). *Aspects of biodiversity in selected forest ecosystems in Italy: status and changes over the period 1996–2003. Third report of the Task Force on Integrated and Combined (I&C) evaluation of the CONECOFOR programme*. *Annali dell'Istituto sperimentale per la Selvicoltura*, 30, Supplemento 2.
- Mendl H., 1985. Eine neue *Tasiocera* Art aus dem Mittelmeergebiet (Diptera, Nematocera, Limoniidae). *Articulata*, 2: 199–204.
- Oosterbroek P., 2011. *Catalogue of the Craneflies of the World (CCW)*. Online version available at: <http://nlbif.eti.uva.nl/ccw/index.php/> [accessed October 2011].
- Podenas S., 1995. The families Tipulidae, Limoniidae, Cylindrotomidae, Trichoceridae and Ptychopteridae in Lithuania: an eco-faunistic approach. *Université de Neuchâtel*, 262 pp.
- Podenas S., Geiger W., Haenni J.-P. & Gonseth Y., 2006. *Limoniidae and Pediciidae de Suisse*. *Fauna Helvetica*, Vol. 14, 376 pp.
- Puddu S. & G. Pirodda, 1973. *Catalogo sistematico ragionato della fauna cavernicola della Sardegna*. *Rendiconti del Seminario della Facoltà di Scienze dell'Università di Cagliari*, 43: 151–205.
- Rivalta G., 1982. La fauna cavernicola dell'Iglesiente, pp. 43–48. In: Forti P. & Perna G. (eds), *Le cavità naturali dell'Iglesiente*. *Memorie dell'Istituto italiano di Speleologia*, (Serie 2), 1.
- Starý J., 1982. New species of Limoniidae from the Mediterranean (Diptera). *Bulletin zoological Museum University of Amsterdam*, 9: 25–35.
- Starý J., 1987. Revision of European species of the genus *Cheilotrichia*, subgenus *Empeda* (Diptera, Limoniidae). *Acta entomologica Musei nationalis Pragae*, 42: 249–276.
- Starý J., 2005. A remarkable new *Rhabdomastix* s.str. from Sardinia (Diptera, Limoniidae). *Studia dipterologica*, 11 (2): 489–492.
- Starý J. & Oosterbroek P., 1996. Review of the Limoniidae and Pediciidae of Italy (Diptera, Tipuloidea). *Fragmenta entomologica*, 28 (1): 51–95.

16. Diptera, MILICHIIDAE**Irina BRAKE**

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Freeloader flies, or Milichiidae, are a family of small

acalyptrates present in all biogeographic regions with 347 extant species, about 35 of which occur in Europe. The biology of these insects is rather diverse, although the larvae are generally saprophagous and live in decaying plants. The behaviour of several species of Milichiidae is very specialized. For example, in some species the adults are ant-loving, whilst in some others they are kleptoparasitic, feeding on the prey of spiders or predaceous insects (Brake 2009).

Canzoneri et al. (1995) recorded nine species of Milichiidae from mainland Italy. The present list provides the first data on the family for Sardinia. Seven species are listed altogether, all newly recorded from the island. Three species represent new records for the Italian fauna, and one species is new to science which is left undescribed.

For more information on the cited species (e.g. distribution maps and all references) check the respective species pages by Brake (2009).

Desmometopa m-nigrum (Zetterstedt, 1848)

RECORDS. **C70**: 8.VI.2004, DB PCe GN MT DW, cn, 1 ♀. **C85**: 3–4.IX.2003, DB PCe EM MT DW, mt, 1 ♀. **S1**: 13–27.VI.2006, GC, mt, 40 ♀♀; 27.VI–11.VII.2006, GC, mt, 1 ♀; 5–19.IX.2006, GC, mt, 1 ♂. **S3**: 17–31.X.2006, GC, mt, 1 ♂ 3 ♀♀.

NOTES. *Desmometopa m-nigrum* is a cosmopolitan species and common in Europe. Larvae are coprophagous and necrophagous and adults are attracted to honey bees caught by spiders or predaceous insects. Its peak occurrence in the study area was in June.

Leptomotopa niveipennis fascifrons (Becker, 1907)

RECORDS. **C23**: 19–24.V.2006, MB DB PCo DW, mt, 1 ♀. **C43**: 7.IX.2006, DA MB DB GN, at light, 1 ♂ 1 ♀. **C85**: 3–4.IX.2003, DB PCe EM MT DW, mt, 3 ♂♂; **C85**: 3–4.IX.2003, DB PCe EM MT DW, mt, 1 ♀; 5.IX.2003, DB PCe EM MT DW, mt, 1 ♀. **S1**: 18.IV–2.V.2006, GC, mt, 1 ♀; 16–30.V.2006, GC, mt, 3 ♀♀; 30.V–13.VI.2006, GC, mt, 8 ♀♀; 3–27.VI.2006, GC, mt, 3 ♀♀; 27.VI–11.VII.2006, GC, mt, 5 ♀♀; 11–25.VII.2006, GC, mt, 1 ♂ 3 ♀♀; 25.VII–8.VIII.2006, GC, mt, 1 ♂ 2 ♀♀; 8–22.VIII.2006, GC, mt, 2 ♀♀; 5–19.IX.2006, GC, mt, 4 ♀♀; 19.IX–3.X.2006, GC, mt, 2 ♀♀; 3–17.X.2006, GC, mt, 1 ♀; 17–31.X.2006, GC, mt, 1 ♂ 1 ♀. **S2**: 8–22.VIII.2006, GC, mt, 4 ♂♂ 2 ♀♀; 22.VIII–5.IX.2006, GC, mt, 2 ♀♀; 5–19.IX.2006, GC, mt, 13 ♂♂ 12 ♀♀; 19.IX–3.X.2006, GC, mt, 1 ♀; 3–17.X.2006, GC, mt, 3 ♀♀. **S3**: 11–25.VII.2006, GC, mt, 1 ♀; 25.VII–8.VIII.2006, GC, mt, 1 ♂; 8–22.VIII.2006, GC, mt, 2 ♀♀; 22.VIII–5.IX.2006, GC, mt, 3 ♀♀; 5–19.IX.2006, GC, mt, 23 ♂♂ 15 ♀♀; 19.IX–3.X.2006, GC, mt, 5 ♂♂ 8 ♀♀; 3–17.X.2006, GC,

mt, 3 ♂♂; 17–31.X.2006, GC, mt, 1 ♀.

NOTES. This subspecies – described from Corsica (Becker 1907, as *Desmometopa niveipennis fascifrons*) and possibly endemic to Corsica and Sardinia – is here newly recorded for Italy, whereas the nominal subspecies had already been listed from the mainland by Canzoneri et al. (1995). It was the most abundant milichiid in the study area, with peak occurrence in September.

Madiza glabra Fallén, 1820

RECORDS. **C31**: 12–17.VII.2006, DA MB DB PCe DW, mt, 1 ♀. **C85**: 3–4.IX.2003, DB PCe EM MT DW, mt, 1 ♀. **S2**: 30.V–13.VI.2006, GC, mt, 1 ♂. **S3**: 11–25.VII.2006, GC, mt, 5 ♂♂ 2 ♀♀; 8–22.VIII.2006, GC, mt, 1 ♂.

NOTES. *Madiza glabra* is common in Europe and occurs in the Holarctic region. Larvae are coprophagous and adults visit Apiaceae and Asteraceae flowers as well as pollinate Asclepiadaceae.

Madiza sp.

RECORDS. **C70**: 8.VI.2004, DB PCe GN MT DW, cn, 1 ♂.

NOTES. This is an undescribed species of the genus *Madiza* Fallén, 1810, which includes six species, of which four occur in Europe. Due to the limited number of just one specimen I refrain from describing this new species.

Milichia speciosa Meigen, 1830

RECORDS. **S3**: 18.IV–2.V.2006, GC, mt, 1 ♀; 2–16.V.2006, GC, mt, 1 ♂.

NOTES. *Milichia speciosa* occurs in the southern parts of the Palaearctic region. Adults visit Apiaceae and Asteraceae flowers and may have a connection to aphids. The males form swarms.

Milichiella iberica Carles-Tolrà, 2001

RECORDS. **C23**: 19–24.V.2006, MB DB PCo DW, mt, 2 ♀♀. **C85**: 3–4.IX.2003, DB PCe EM MT DW, mt, 1 ♂ 5 ♀♀. **S1**: 16–30.V.2006, GC, mt, 2 ♀♀; 13–27.VI.2006, GC, mt, 3 ♀♀; 27.VI–11.VII.2006, GC, mt, 2 ♀♀; 25.VII–8.VIII.2006, GC, mt, 2 ♀♀; 8–22.VIII.2006, GC, mt, 2 ♀♀; 5–19.IX.2006, GC, mt, 1 ♀. **S2**: 27.VI–11.VII.2006, GC, mt, 1 ♀; 25.VII–8.VIII.2006, GC, mt, 1 ♀; 8–22.VIII.2006, GC, mt, 6 ♀♀; 22.VIII–5.IX.2006, GC, mt, 5 ♀♀; 5–19.IX.2006, GC, mt, 2

♀♀; 19.IX–3.X.2006, GC, mt, 1 ♀. **S3**: 13–27.VI.2006, GC, mt, 2 ♀♀; 27.VI–11.VII.2006, GC, mt, 2 ♀♀; 11–25.VII.2006, GC, mt, 2 ♀♀; 25.VII–8.VIII.2006, GC, mt, 2 ♀♀; 8–22.VIII.2006, GC, mt, 11 ♀♀; 5–19.IX.2006, GC, mt, 5 ♀♀.

NOTES. First record for Italy of this species which occurs from Spain to Turkey. Adults visit Apiaceae and Helicarionidae flowers. Its peak occurrence in the study area was in August.

Milichiella lacteipennis (Loew, 1866)

RECORDS. **S1**: 8–22.VIII.2006, GC, mt, 1 ♀. **S3**: 27.VI–11.VII.2006, GC, mt, 1 ♂; 11–25.VII.2006, GC, mt, 1 ♀; 19.IX–3.X.2006, GC, mt, 1 ♂; 3–17.X.2006, GC, mt, 1 ♂ 2 ♀♀; 17–31.X.2006, GC, mt, 1 ♀.

NOTES. First record for Italy. *Milichiella lacteipennis* is almost cosmopolitan and occurs in warm (Mediterranean to tropical) areas. Larvae are saprophagous, coprophagous and necrophagous. Females are kleptoparasitic on spiders and predaceous insects.

REFERENCES

- Becker T., 1907. Die Dipteren-Gruppe Milichinae. *Annales Historico-Naturales Musei Nationalis Hungarici*, 5: 507–550.
- Brake I., 2009. Milichiidae online; available at <http://milichiidae.info> [accessed 28 September 2009].
- Canzoneri S., Gorodkov K., Krivosheina N.P., Munari L., Nartshuk E.P., Papp L. & Süß L., 1995. Diptera Opomyzoidea, Carnoidea, Sphaeroceroidea, pp. 1–27. In: Minelli A., Ruffo S. & La Posta S. (eds), Checklist delle specie della fauna italiana, Fascicolo 75. Calderini, Bologna.

17. Diptera, MYDIDAE

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The adults of Mydidae are medium to large (9–60 mm long) (Richter & Zaitzev 1988) heliophilous and floricolous Diptera, with elongated abdomen and antennae. Generally, the larvae are predators of Coleoptera that live in stumps and logs or in sandy soils (cf. Richter 1997). The family includes 471 species, distributed in warmer climates throughout the world, the highest species diversity existing in southern Africa (Dikow 2010a). Six species of Mydidae are reported from Europe (Spain, Portugal,

France (Corsica), Greece (Skiathos) and Italy (Sicily and Sardinia)) (Contini et al. 1995; Carles-Tolrà & Hjorth-Andersen 2002; Greathead 2004; Carles-Tolrà 2006). Of these, two species of the genus *Leptomysdas* Gerstaecker, 1868 are known from Italy: *L. rufipes* (Westwood, 1841), endemic of Sicily, and *L. sardous* (A. Costa, 1884), endemic of Sardinia and Corsica (Tomasovic 2002). A detailed study of the Mydidae fauna of Sicily has so far not been carried out, and therefore the total number of species present in Italy cannot be considered definitive.

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Leptomysdas sardous (A. Costa, 1884) (fig. 17.1)

RECORDS. **C23**: 11.VIII.2006, DB, nt, 1 ♂.

OTHER RECORDS. **A18**: 22.VI.2007, DB, nt, 1 ♂. **Cagliari prov.**: Sarroch, 2.VII.2003, LF, nt, 1 ♀. **Carbonia-Iglesias prov.**: Isola di San Pietro, Geniò, dunes, 10–15.VII.2004, MM, nt, 1 ♀; Isola di Sant'Antioco, Calasetta, VI.2003, MA, nt, 1 ♂. **Ogliastra prov.**: Tortoli, Lido di Orri, 2 m, 32S 558470 4417827, 2.VIII.2009, DB, nt, 6 ♂♂ 3 ♀♀. **Olbia-Tempio prov.**: Costa Paradiso, Cala Sarraina, 5 m, 32T 498360 4548316, 19.VII.2004, DB, nt, 1 ♂ 3 ♀♀. **Sassari prov.**: Porto Ferro, 29.VII.2007, P. Niolu vidit, 1 ♂.

NOTES. In Sardinia, this species was so far known from Olbia-Tempio prov. (San Teodoro (Dikow 2010b)), Sassari prov. (Alghero, Porto Ferro (Dikow 2010b), Sorso, Stagno di Sorso (Costa 1884)), Ori-

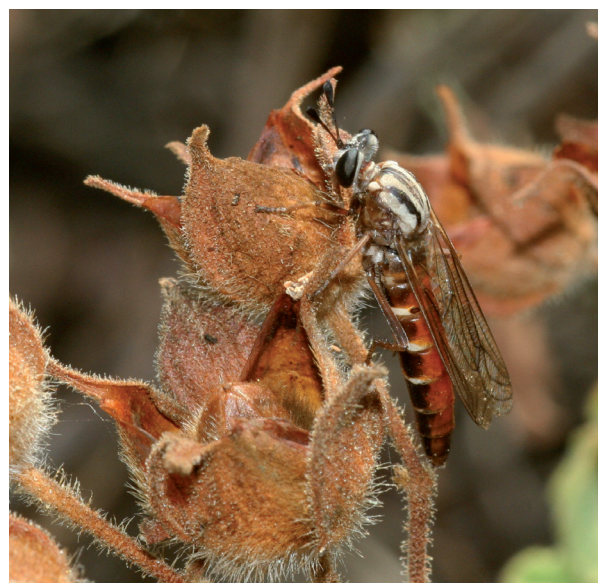


Fig. 17.1. *Leptomysdas sardous* ♀ (Sassari prov., Porto Ferro, 29.VII.2007) (photo by P. Niolu).