

## 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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- 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.
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tion methods (Malaise traps, pitfall traps, and some sweep netting) were applied. Except for the dominant *D. subobscura*, one can suppose that the relative abundance of the species would be different, as compared with baiting results (e.g., Argemí et al. 1999).

In the Checklist of the Italian fauna (Bächli et al. 1995), some species were provisionally entered (with question marks) for Sardinia. Among them the presence of *Drosophila ambigua*, *D. buzzatii*, *D. funebris*, *D. immigrans*, *D. simulans*, *Hirtodrosophila cameraria*, and *Lordiphosa andalusiaca* can now be corroborated. On the other hand, some additional species could have been expected within such an extensive study, e.g. certain *Amiota* Loew, 1862, *Phortica* Schiner, 1862 and *Stegana* Meigen, 1830 species.

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## 15. Diptera, LIMONIIDAE

### Sigita PODENAS

Nature Research Centre, Akademijos st. 2, LT-08412 Vilnius, Lithuania. E-mail: sigita.podenas@gf.vu.lt

Short palped crane flies (Limoniidae) are the largest family of crane flies with 10,833 described species (Oosterbroek 2011). They are distributed worldwide (except Antarctica), with an extensive fossil record dating to the late Triassic (Krzeminski 1992).



Limoniidae are characterised by such features as: last segment of maxillary palps short, about as long as the two preceding segments together. Antenna usually with 14 to 16 segments. Rostrum short (exception *Elephantomyia* Osten Sacken, 1860 and *Helius* Lepeletier & Serville, 1828). Nasus always absent. Ocelli absent. Thorax with a transverse V-shaped mesonotal suture. Wings elongate, with two anal veins reaching wing margin. Wings sometimes reduced. Vein Sc<sub>1</sub> present. Legs very long, slender and fragile. Male terminalia (hypopygium) complex, with a variety of diagnostic features. Ovipositor usually with two pairs of valves, cerci elongate, pointed.

Only 13 species of Limoniidae were known from Sardinia, compared to the 82 species recorded from the nearby island of Corsica and the 251 recorded from the whole territory of Italy. Most Sardinian species have wide distribution ranges (mostly West Palaearctic). Only one species is endemic to the island, the only flightless recent species from genus *Rhabdomastix* Skuse, 1890: *R. (R.) incapax* Starý, 2005.

In the present note, 15 species (three of them identified only to genus) of Limoniidae are reported from Sardinia, based mainly on material collected by CNBFVR in the Marganai and Montimannu areas in the south-western part of the island (cf. Mason et al. 2006; Cerretti et al. 2009). The checklist of the Limoniidae of Sardinia was compiled from Bezzi (1892, 1926), Puddu & Pirodda (1973), Starý (1982), Mendl (1985), Starý (1987), Geiger (1993), Starý & Oosterbroek (1996), Starý (2005), and checked with Oosterbroek (2011). The classification and distribution of crane flies follow Oosterbroek (2011). Ecological data are given according to Podenas (1995) and Podenas et al. (2006).

Subfamilies are listed according to Oosterbroek (2011), genera and species are listed alphabetically. Species firstly recorded from Sardinia are marked with an asterisk (\*).

#### LIMNOPHILINAE

\**Austrolimnophila (Austrolimnophila) ochracea* (Meigen, 1804)

OTHER RECORDS. **G06**: 5.IX.2006, GN, nt, 1 ♀.

NOTES. Species recorded from Armenia, Austria, Azerbaijan, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, France, Germany, Georgia, Great Britain, Hungary, Iran, Ireland, Italy, Iran, Lithuania, Luxemburg, Macedonia, Montenegro, Norway, Poland, Romania, Russia, Serbia,

Slovakia, Slovenia, Spain, Sweden, Switzerland and Ukraine. Larvae develop in wet leaf litter of deciduous trees.

\**Dicranophragma (Brachylimnophila) nemorale* (Meigen, 1818)

RECORDS. **C19**: 25.III.2006, DW MB DB PCo, nt, 1 ♂.

NOTES. Species recorded from Albania, Andorra, Armenia, Austria, Azerbaijan, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Kazakhstan, Kyrgyzstan, Luxembourg, Macedonia, Mongolia, Morocco, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russia (European part, West and East Siberia, Far East), Ukraine and Tajikistan. Larvae develop in damp soil near water reservoirs.

*Phylidorea (Phylidorea) ferruginea* (Meigen, 1818)

RECORDS. **C31**: 12.XI.2006, DW, nt, 1 ♂.

NOTES. Species recorded from Armenia, Austria, Azerbaijan, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Georgia, Great Britain, Hungary, Ireland, Italy, Kazakhstan, Kyrgyzstan, Lithuania, Macedonia, Mongolia, Montenegro, Netherlands, Norway, Poland, Romania, Russia (European part, West and East Siberia, Far East), Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, Uzbekistan, Tajikistan and Turkmenistan. Larvae develop in damp soil near water reservoirs.

#### DACTYLOLABINAE

\**Dactylolabis (Dactylolabis) corsicana* Edwards, 1928 (fig. 15.1)

RECORDS. **C19**: 24.III.2006, DW MB DB PCo, nt, 1 ♂ 2 ♀♀. **S2**: 4–18.IV.2006, GC, mt, 1 ♂.

NOTES. Species recorded only from Corsica (France). Larvae of this species are unknown, but other species of this genus develop in running water.

#### CHIONEINAE

*Cheilotrichia* sp.

RECORDS. **SARI**: 21.I–16.II.2004, GC, mt, 1 ♀.



Fig. 15.1. *Dactylolabis corsicana* ♂ (Carbonia-Iglesias prov., Marganai, 2006) (drawing by S. Podenas).

NOTES. Diagnostic features of many *Cheilotrichia* species are based on structures found in male genitalia only and thus many females cannot be identified to species with certainty, as is the case with this particular female.

\**Molophilus (Molophilus) bifidus* Goetghebuer, 1920

RECORDS. **C19**: 25.III.2006, DW MB DB PCo, nt, 5 ♂♂ 1 ♀.

NOTES. Species recorded from Albania, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Iran, Ireland, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Netherlands, Norway, Poland, Romania, northwest part of Russia, Slovakia, Sweden, Switzerland and Ukraine. Larvae unknown, but related species develop in the riparian zone of rivers and damp soils near water reservoirs.

\**Molophilus (Molophilus) griseus* (Meigen, 1804)

RECORDS. **C31**: 20–23.V.2006, MB DB PCo DW, mt, 1 ♂; 12–17.VII.2006, DA MB DB PCe MM DW, mt, 1 ♂ 1 ♀.

NOTES. Species recorded from Armenia, Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Georgia, Great Britain, Ireland, Italy, Latvia, Lithuania, Macedonia, Montenegro, Netherlands, Norway, Poland, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland and Ukraine. Larvae develop in sand and silt of the riparian zone.

*Molophilus (Molophilus) sp.*

RECORDS. **C31**: 22.III.2006, DW MB DB PCo, nt, 1 ♀.

NOTES. This specimen does not belong to *M. bifidus* or *M. griseus*. Many descriptions of *Molophilus* species are based on structures found in male genitalia only and many females cannot be identified to species with certainty, as is the case with this particular female.

LIMONIINAE

*Dicranomyia (Glochina) sericata* (Meigen, 1830)

RECORDS. **S2**: 21.III–4.IV.2006, GC, mt, 3 ♂♂ 2 ♀♀; 4–18.IV.2006, GC, mt, 11 ♂♂ 3 ♀♀.

NOTES. Species recorded from Albania, Austria, Azerbaijan, Belgium, Bosnia-Herzegovina, Croatia, Czech Republic, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Macedonia, Romania, Serbia, Slovakia, Spain, Switzerland, Turkey and Ukraine. Larvae unknown, but most probably terrestrial, developing in soil.

*Dicranomyia* sp. (fig. 15.2)

RECORDS. **C82**: 11–12.VI.2004, DB PCe GN MT DW, mt, 1 ♀.

NOTES. Many descriptions of *Dicranomyia* species are based on structures found in the male genitalia only and many females cannot be identified to species with certainty, as is the case with this particular female.

*Dicranoptycha fuscescens* (Schummel, 1829)

RECORDS. **C12**: 21.V.2006, DW MB DB PCo, lt, 1 ♂. **C70**: 7.VI.2004, DB PCe GN MT DW, lt, 1 ♂; 8.VI.2004, DB PCe GN MT DW, cn, 1 ♂. **C82**: 6.VI.2004, GN, nt, 1 ♀; 7.VI.2004, DB PCe GN MT DW, nt, 1 ♂; 11–12.VI.2004, DB PCe GN MT DW, mt, 1 ♂ 33 ♀♀. **S1**: 30.V–13.VI.2006, GC, mt, 1 ♂ 3 ♀♀; 13–27.VI.2006, GC, mt, 2 ♂♂ 13 ♀♀; 27.VI–11.VII.2006, GC, mt, 1 ♂. **S3**: 13–27.VI.2006, GC, mt, 1 ♀. **SAR1**: 15–30.VI.2004, GC, mt, 5 ♂♂ 40 ♀♀; 30.VI–16.VIII.2004, GC, mt, 1 ♂ 27 ♀♀; 16.VI–14.VII.2005, GC, mt, 6 ♂♂ 25 ♀♀.

NOTES. Species recorded from Albania, Algeria, Armenia, Austria, Azerbaijan, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Georgia, Great Britain, Greece, Hungary, Iran, Italy, Lebanon, Li-



Fig. 15.2. *Dicranomyia* sp. ♀ (Lithuania, Sakiai district, forest Juskinė) (photo by R. Ferencs).

thuania, Macedonia, Moldavia, Montenegro, Morocco, Netherlands, Norway, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and Ukraine. Larvae develop in deciduous forests in light soil, usually under leaf litter.

\**Helius (Helius) calviensis* Edwards, 1928

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

NOTES. Species recorded from Bulgaria, France and Italy. Larvae unknown, but other species of this genus develop in damp soils near water reservoirs.

\**Helius (Helius) pallirostris* Edwards, 1921

RECORDS. **C31**: 12–17.VII.2006, DA MB DB PCe MM DW, mt, 1 ♀.

OTHER RECORDS. **A09**: 10. IX.2006, GN, nt, 1 ♂.

NOTES. Species recorded from Austria, Azerbaijan, Czech Republic, Denmark, Germany, Great Britain, Hungary, Iran, Ireland, Italy, Latvia, Lithuania, Moldavia, Netherlands, Poland, Romania, Russia, Slovakia, Sweden, Switzerland, Turkmenistan, Tajikistan and Ukraine. The larvae of this species develop in damp soil (usually clay) near water.

*Limonia nubeculosa* Meigen, 1804

RECORDS. **C19**: 25.III.2006, DW MB DB PCo, nt, 1 ♂. **C29**: 2.IX.2006, GN, nt, 1 ♀. **C43**: 15.XI.2006, GN, sn, 1 ♂ 3 ♀♀. **C45**: 14.XI.2006, MB GN DW MZ, oe, 1 ♂. **C70**: 6.VI.2004, GN, dc, 1 ♂ 2 ♀♀; 7.VI.2004, DB PCe GN MT DW, lt, 2 ♀♀; 8.VI.2004, DB PCe GN MT DW, cn, 10 ♂♂ 7 ♀♀; 9.VI.2004, DB PCe GN MT DW, cn, 6 ♂♂ 2 ♀♀; 23.IX.2004, PCe, lt, 1 ♂; 20.III.2006, DW MB DB PCo, nt, 1 ♀; 14.XI.2006, MB GN MZ DW, nt, 2 ♂♂ 2 ♀♀. **C82**: 7.VI.2004, DB PCe GN MT DW, nt, 1 ♂; 11–12.VI.2004, DB PCe GN MT DW, mt, 7 ♂♂ 9 ♀♀. **C85**: 3–4.IX.2003, DB PCe EM MT DW, mt, 2 ♂♂ 41 ♀♀; 5.IX.2003, DB PCe EM MT DW, mt, 1 ♂ 4 ♀♀; 22–25.IX.2004, DB PCe EG FM DW, mt, 1 ♂. **S1**: 21.III–4. IV.2006, GC, mt, 1 ♀; 4–18.IV.2006, GC, mt, 2 ♂♂ 1 ♀; 18.IV–2.V.2006, GC, mt, 3 ♂♂ 3 ♀♀. **S2**: 21.III–4.IV.2006, GC, mt, 1 ♀; 4–18.IV.2006, GC, mt, 1 ♂ 1 ♀. **S3**: 21.III–4. IV.2006, GC, mt, 1 ♂. **SAR1**: 31.VIII–14.IX.2003, DB PCe EM MT DW, mt, 1 ♀; 14–29.IX.2003, DB PCe EM MT DW, mt, 2 ♀♀; 29.IX–21.X.2003, DB PCe EM MT DW, mt, 1 ♂; 21.X–17.XI.2003, GC, mt, 2 ♂♂ 9 ♀♀; 2.XII.2003–8.I.2004, GC, mt, 58 ♂♂ 60 ♀♀; 21.I–16.II.2004, GC, 49 ♂♂ 45 ♀♀; 16.II–15.VI.2004, GC, mt, 75 ♂♂ 86 ♀♀; 21.IX–6.X.2004, GC, mt, 1 ♂; 21.IX–6.X.2004, GC, pt, 1 ♂ 2 ♀♀; 21.IX–6.X.2004, GC, wt, 2 ♀♀; 5–22.XI.2004, GC, mt, 2 ♂♂ 9 ♀♀; 5–22.XI.2004, GC, pt, 2 ♂♂ 4 ♀♀; 22.XI–17.XII.2004, GC, mt, 1 ♂ 10 ♀♀; 17.XII.2004–4.I.2005, GC, mt, 5 ♂♂ 8 ♀♀; 4–18.I.2004, GC, mt, 19 ♂♂ 27 ♀♀; 4–18.I.2005, GC, pt, 1 ♂ 2 ♀♀; 18.I–1.III.2005, GC, mt, 21 ♂♂ 21 ♀♀; 5.VIII–3. IX.2005, GC, mt, 1 ♀; 13–30.IX.2005, GC, mt, 1 ♂; 30.XI–17.X.2005, GC, mt, 1 ♂ 3 ♀♀; 30.IX–17.X.2005, GC, pt, 1 ♀; 17.X–3.XI.2005, GC, pt, 1 ♀; 3–16.XI.2005, GC, mt, 1 ♂ 5 ♀♀; 16.XI–2.XII.2005, GC, mt, 4 ♂♂ 7 ♀♀; 2–16.XII.2005, GC, pt, 1 ♀; 16.XII.2005–3.I.2006, GC, mt, 3 ♂♂ 6 ♀♀; 16.XII.2005–3.I.2006, GC, pt, 1 ♀.

OTHER RECORDS. **A06**: 11.XI.2006, GN, nt, 1 ♀.

NOTES. Species recorded from Canada, USA, Algeria, Armenia, Austria, Azerbaijan, Belgium, Bosnia-Herzegovina, Bulgaria, Canary Isl., Croatia, Czech Republic, Denmark, Finland, France, Germany, Georgia, Great Britain, Greece, Hungary, Ireland, Italy, Japan, Lithuania, Macedonia, Montenegro, Morocco, Netherlands, Norway, North Korea, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, and Ukraine. The larvae develop in mud and wet leaf litter. Adults of this species occur also in caves, including some in the study area (cf. Puddu & Pirodda 1973; Rivalta 1982, as *L. (L.) nubeculosa*).

\**Neolimonia dumetorum* (Meigen, 1804)

RECORDS. **SAR1**: 30.IX–17.X.2005, GC, mt, 1 ♂ 2 ♀♀.



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.

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## 16. Diptera, MILICHIIDAE

## Irina BRAKE

Department of Entomology, Natural History Museum, Cromwell Road, London SW7 5BD, UK. E-mail: i.brake@nhm.ac.uk

Freeloader flies, or Milichiidae, are a family of small