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ON SOME INTERESTING IBERIAN TRUE BUGS (INSECTA, HEMIPTERA, HETEROPTERA)

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Abstract: Interesting Iberian records for *Drymus (Sylvadrymus) sylvaticus* (Fabricius, 1775), *Engistus boops* (Dufour, 1857), *Orius laevigatus laevigatus* (Fieber, 1860), and *Tarisa flavescens* (Amyot & Serville, 1843) are included. Also data on Heteroptera of three protected areas in the northeastern Iberian Peninsula are recorded, with nine new and/or interesting reports for Sant Llorenç del Munt i l'Obac Natural Park (Barcelona), two new records for Delta de l'Ebre Natural Park (Tarragona) and four new or interesting records for the Planes de Son protected area (Lleida).
Key words: Hemiptera, Heteroptera, true bugs, faunistics, protected areas, Iberian Peninsula.

Sobre algunos heterópteros ibéricos interesantes (Insecta, Hemiptera, Heteroptera)
Resumen: Se presentan algunos datos ibéricos interesantes para *Drymus (Sylvadrymus) sylvaticus* (Fabricius, 1775), *Engistus boops* (Dufour, 1857), *Orius laevigatus laevigatus* (Fieber, 1860) y *Tarisa flavescens* (Amyot & Serville, 1843). También se aportan datos sobre los heterópteros de tres áreas naturales protegidas en el noreste ibérico, con nueve registros nuevos y/o interesantes del Parque Natural de Sant Llorenç del Munt i l'Obac (Barcelona), dos nuevos registros para el Parque Natural del Delta del Ebro (Tarragona) y cuatro registros nuevos o interesantes para la zona protegida de Planes de Son (Lleida).
Palabras clave: Hemiptera, Heteroptera, faunística, áreas naturales protegidas, Península Ibérica.

Introduction

True bugs include the largest group of insects with heterometabolous metamorphosis, with ca. 42,350 species (Henry, 2009). As a group, true bugs may be qualified as very diverse referring to their niche and feeding range (McGavin, 1993). In the Iberian Peninsula, Heteroptera have deserved a growing attention in the last decades, and their inclusion in the Spanish Red List may be taken as a sign of that interest (Verdú & Galante, 2006). The Iberian Peninsula is very large, and its true bug fauna very rich (1536 true bug species and subspecies recorded in the joint count including Spain mainland plus Balearic Islands plus Portugal mainland according to Fauna Europea, http://www.faunaeur.org/; in his recent Ph.D. thesis, Dr. Luis Mata exhaustively explored information both from printed or uploaded data, giving an estimation of 1453 Iberian true bug species species and subspecies, L. Mata *in preparation*, University of Barcelona), thus collection and faunistic works are much needed to complete the knowledge of those insects in the area. The paper is organized in two parts. Novelties concerning more or less large peninsular areas are listed in the first part, while in the second new records for certain northeaster Iberian protected areas are presented. Within each one of these two parts, Heteroptera families and subfamilies are ordered alphabetically. In the first part the interest of each species in reason of the area of collection is emphasized, while in the second part new records for each natural protected area are included, even those involving common or frequent species. The aim of this paper is to enlarge the knowledge of true bugs in the Iberian Peninsula.

Material and methods

This paper includes collected samples, as well as photographed specimens. Collections were performed while casually travelling around the Iberian Peninsula, or in short visits to natural protected areas, thus localities were generally prospected only once or nearly. Specimens were collected using a sweep net and an entomological aspirator, and kept in ethyl acetate and dry mounted, or directly preserved in 70% ethyl alcohol. All the samples are deposited at the Department of Animal Biology, Faculty of Biology, University of Barcelona.

We have collections from three natural protected areas from northeaster Iberian Peninsula: Sant Llorenç del Munt i l'Obac Natural Park (Barcelona), Delta de l'Ebre Natural Park (Tarragona) and Planes de Son (Lleida), an area included in the Natura 2000 Web, and in the Plan for Areas of Natural Interest (PEIN for Catalan name) launched by the Catalan Government. In an attempt to contribute to enlarge the knowledge of these interesting natural areas under some type of protection, we add here Heteroptera new records to their respective biodiversity lists. The specific knowledge on Heteroptera fauna in those three areas is unequal. For Sant Llorenç del Munt i l'Obac Natural Park (Barcelona), we consulted the Park's Flora and Fauna guide (Llobet, 2011), listing 16 bug species, and a list of terrestrial true bug collected in the area in 2007, which adds 33 species to the area (Eduardo Mateos *com. pers*., University of Barcelona). For Delta de l'Ebre Natural Park (Tarragona), very scarce information is known, and we mainly trusted Ribes *et al.* (2004) (see below for the

use of the information from this publication). For Planes de Son (Lleida), a list of 172 species were published (Goula *et al*, 2010). Also, and as general source of information, we used the Catalonia Heteroptera Catalogue (Ribes *et al.,* 2004) and the additions and revision to that catalogue (Ribes *et al.*, 2008), screening whether records within UTM quadrants fall within the limits of these natural areas.

As for photographed specimens, those contributed by the authors were shot also in casual trips. However, most photographed specimens come from the Spanish photosharing website "Biodiversidad Virtual" (http://www.biodiversidadvirtual.org). Biodiversidad Virtual uploads georeferenced pictures only (*i.e*., pictures including latitude and longitude), and appropriate identification is guaranteed as each picture is studied by a specialist. In all pictures borrowed from Biodiversidad Virtual to contribute to this paper, Luis Vivas is responsible for the species identification. It is worth noting that precedence is given to sampled specimens and published information, and information from photographs is used only to complete the other two sources (*i.e*., when it provides new Portuguese districts or Spanish provinces). When listing the material studied, the following abreviations were used: AU, Andreu Ubach; BV, Biodiversidad Virtual, EG, Eulàlia Goula; HN, Helena Navalpotro; LM, Luis Mata; LMP, Laia Montserrat Pardinilla; LT, Laia Torras; MG, Marta Goula.

Specimens were identified using the following literature: Gerromorpha. Gerridae: Tamanini (1979); Cimicomorpha. Anthocoridae: Péricart (1972); Miridae: Ehanno & Ribes (1994), Wagner (1974a, 1974b); Reduviidae: Putshkov & Moulet (2009); Pentatomorpha. Lygaeidae: Péricart (1999a, 1999b); Coreidae, Alydidae and Rhopalidae: Moulet (1995); Pentatomidae: Stichel (1960), Péricart (2010). Also help was provided by Wachmann *et al*. (2004, 2006, 2007, 2008). Seed bugs are treated according to the classic conception of family Lygaeidae, as stated in Péricart (2001). Relevance of true bug species listed in this paper was achieved by means of the general distribution information included in those publications, as well as more specific Iberian contributions, detailed in each true bug species paragraph.

Interesting records from Spanish areas

Family Anthocoridae Fieber, 1836
Subfamily Anthocorinae Fieber, 1836

***Orius* (*Orius*) *laevigatus laevigatus* (Fieber, 1860)**

STUDIED FIELD MATERIAL: Burgos: Sarracín, 31.VIII.2002, MG *leg. et det*., 4 exs.

This species must be widely distributed in the Iberian Peninsula, having already been recorded in the Portuguese districts Algarve and Faro, and the Spanish provinces, Barcelona (Gómez-Menor, 1956a), Ciudad Real, Córdoba, Granada, Guipúzcoa, Huesca, Lleida, Madrid, Murcia, Segovia, Teruel, Toledo and Valencia (Gómez-Menor, 1956b), and Balearic Islands, Cádiz and Málaga (Péricart, 1972). This is the first record for the province of Burgos and the second in Castilla-León autonomous community.

This species is found on a large number of plants species, mostly shrubs and grasses, from different plant families, preying on small arthropods (Péricart, 1972).

Family Lygaeidae Schilling, 1829
Subfamily Cyminae Baerensprung, 1860

***Engistus boops* (Dufour, 1857)**

STUDIED FIELD MATERIAL: Tarragona: Deltebre, Delta de l'Ebre Natural Park, Platja de la Marquesa, 24.V.2009, *Salicornia* sp*.,* MG *leg. et det.*, 2 exs.

This is the first record for *Engistus boops* (fig. 1a) in Catalonia. Other Iberian citations have been reported from Spanish provinces Alicante (Ribes & Sauleda, 1979), Almería, Murcia (Carrillo, 2011), Madrid, Zaragoza (Sierra de los Monegros), and the island of Mallorca, and also the Portuguese district of Setúbal (Péricart, 1999a). It's a Mediterranean species ranging from Israel and Libya to Canary Islands.

According to Péricart (1999a), *E. boops* is a strictly halophile species, like the other ones of the same genus. It inhabits coastal lagoons and interior brackish grounds. It is often located on the ground in the bottom of the vegetation. Its diet is based on plants of the genus *Arthrocnemum,* and in Cyprus it has been recorded on *Arthrocnemum glaucum* and on other species from the same plant genus in Spain. It has also been observed on *Atriplex* and *Mesembryanthemum*, or close to *Salicornia* plants.

Subfamily Rhyparochrominae Amyot & Serville, 1843

***Drymus* (*Sylvadrymus*) *sylvaticus* (Fabricius, 1775)**

STUDIED FIELD MATERIAL: Palencia: Frómista, Canal de Castilla, 28.VII.2002, *Ruta* sp*., Epilobium* sp*.,* MG *leg. et det.,* 1 ex.

STUDIED PHOTOSAMPLES: Pontevedra, Álvarez (2012). Reference number 431841.

D. sylvaticus (fig. 1b) distribution area does not include Portugal, and in Spain it has already been recorded from A Coruña, Huesca, Lleida, Lugo, Madrid, and Santander (Péricart, 1999b), and from Pontevedra (Álvarez, 2012). An imprecise location is given within Picos de Europa, an area extending within the provinces of Asturias (autonomous community Asturias) and León (autonomous community Castilla-León) (Péricart, 1999b). Ours is a new record for Palencia province, and it could even be the first one for the whole Castilla-León autonomous community depending on the Picos de Europa locality.

D. sylvaticus does well on the seeds of several plant species. It also accepts preys although completion of the life cycle in specimens only prey-fed has not been observed (Péricart, 1999b).

Family Pentatomidae Leach, 1815
Subfamily Podopinae Amyot & Serville, 1843

***Tarisa flavescens* (Amyot & Serville, 1843)**

STUDIED FIELD MATERIAL: Lleida: Arbeca, 6.III.2009, *Camphorosoma* sp*.,* MG & LM *leg. et det*., 3 exs.

STUDIED PHOTOSAMPLES: Almería (Rodríguez, 2010). Reference number 151857; Lleida (Turmo, 2013). Reference number 518842.

This is the second report of the species within Catalan territory. Ribes *et al.* (2004) emphasize the fact that in Catalonia *Tarisa flavescens* (fig. 1c) is mostly found in the Segrià county, and in fact the samples studied were collected in the nearby Les Garrigues county. In the Iberian Peninsula it has

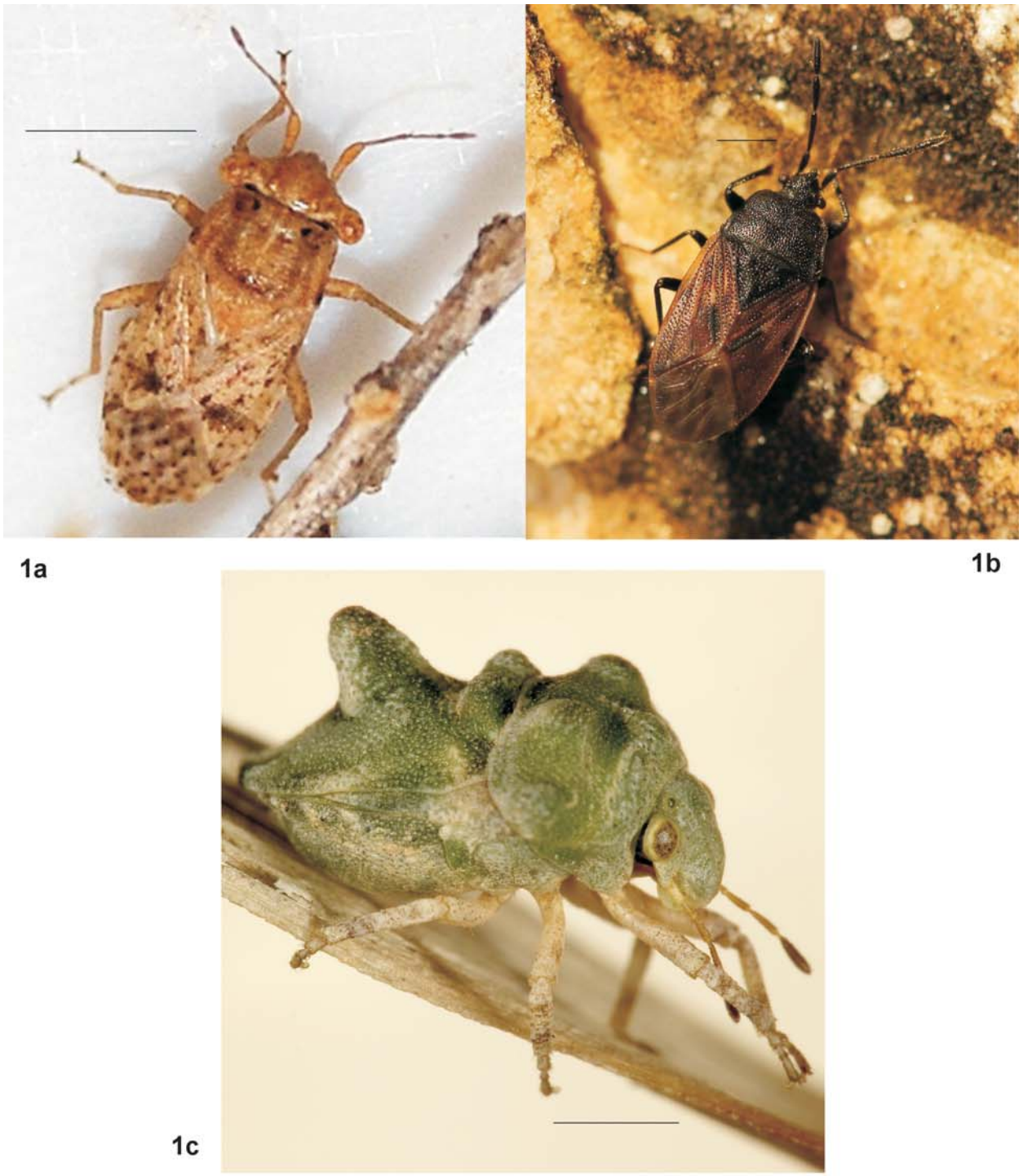

Figure 1. a, *Engistus boops*. Photo: J. Carrillo (BV. Reference number 257973); **b,** *Drymus sylvaticus*. Photo: L. Álvarez (BV. Reference number 431841); c, *Tarisa flavescens*. Photo: E. Ussia (BV. Reference number 206237). Scale bars represent 1 mm. BV, Biodiversidad Virtual (http:www.biodiversidadvirtual.org)

been found in Alicante, Guadalajara, Huesca, Madrid, Teruel and Zaragoza (Péricart, 2010), and also in Almería (Rodríguez, 2010) and Lleida (Turmo, 2013). This species has a large Mediterranean distribution, being found from the Canary Islands and Madeira to Jordan.

T. flavescens inhabits brackish grounds. It has been found on *Artemisia herba-alba* (Ribes, 1981) and *Salsola vermiculata* (Ribes & Sauleda, 1979), and also sweeping on a mixture of *Frankenia thymifolia, Gypsophila struthium, Juniperus thurifera, Salsola vermiculata, Salvia lavandulifolia, Santolina chamaecyparissus* and *Suaeda* sp. (Ribes *et al.*, 1997).

Interesting records from natural protected areas

• Sant Llorenç del Munt i l'Obac Natural Park (Barcelona)

Among the new records to the area stated below, *Aquarius najas* (De Geer, 1773), *Lasiocoris anomalus* (Kolenati, 1845) *Coranus* (*Coranus*) *griseus* (Rossi, 1790), and *Chorosoma schillingi* (Schummel, 1829) are not so frequently reported species, while all the others were already well known from adjacent areas, thus making their presence predictable within the Natural Park. The number of species now recorded in the area increases from 49 to 54 species.

Family Gerridae Leach, 1815
Subfamily Gerrinae Leach, 1815

***Aquarius najas* (De Geer, 1773)**
STUDIED FIELD MATERIAL: Barcelona: Mura, 2.X.2012, LMP *leg*. AU *det*., 1 ex.

Family Lygaeidae Schilling, 1829
Subfamily Geocorinae Dahlbom, 1851

***Geocoris* (*Geocoris*) *megacephalus* (Rossi, 1790)**
STUDIED FIELD MATERIAL: Barcelona: Matadepera, Coll d'Estenalles, 2.X.2012, LMP *leg*. AU *det*., 1 ex.

Subfamily Rhyparochrominae Amyot & Serville, 1843

***Lasiocoris anomalus* (Kolenati, 1845)**
STUDIED FIELD MATERIAL: Barcelona: Mura, 2.X.2012, HN *leg. et det*., 1 ex.

Family Miridae Hahn, 1833
Subfamily Mirinae Hahn, 1833

***Phytocoris* (*Ktenocoris*) *austriacus* Wagner, 1954**
STUDIED FIELD MATERIAL: Barcelona: Mura, 2.X.2012, AU *leg. et det.,* 1 ex.

***Stenodema* (*Brachystira*) *calcarata* (Fallén, 1807)**
STUDIED FIELD MATERIAL: Barcelona: Mura, 2.X.2012, C. Allué *leg*., AU *det*.; Barcelona: Mura, 2.X.2012, A. Rivas *leg*., LT *det*., 1 ex.

Family Reduviidae Latreille, 1807
Subfamily Harpactorinae Amyot & Serville, 1843

***Coranus (Coranus) griseus* (Rossi, 1790)**
STUDIED FIELD MATERIAL: Barcelona: Matadepera, Coll d'Estenalles, 2.X.2012, A. Rivas *leg*., LT *det*., 1 ex.

Subfamily Peiratinae Amyot & Serville, 1843

***Peirates stridulus* (Fabricius, 1787)**
STUDIED FIELD MATERIAL: Barcelona: Matadepera, Torre de l'Àngel, 2.X.2012, L. Bernaus *leg*., AU *det*., 1 ex.

Family Rhopalidae Amyot & Serville, 1843
Subfamily Rhopalinae Amyot & Serville, 1843

***Chorosoma schillingi* (Schummel, 1829)**
STUDIED FIELD MATERIAL: Barcelona: Matadepera, Coll d'Estenalles, 2.X.2012, C. Allué & V. Osorio *leg*. HN. *det*., 2 exs.

***Stictopleurus abutilon* (Rossi, 1790)**
STUDIED FIELD MATERIAL: Barcelona: Mura, 2.X.2012, HN *leg*., LT *det*., 1 ex.

• Delta de l'Ebre Natural Park (Tarragona)

Engistus boops is the most important record among the Heteroptera we report as new for Delta de l'Ebre Natural Park, and it has been already commented in this paper (see before). In the list below, *P. quadratum* is quite remarkable too, and ours confirms a previous collection (Gómez-Menor, 1955; Costas *et al*., 2007). No list of true bugs in Delta de l'Ebre Natural Park is available nowadays. However, we can state that this paper contributes with two new species to the biodiversity list of that protected area.

Family Cydnidae Billberg, 1820
Subfamily Cydninae Billberg, 1820

***Cydnus aterrimus* (Foster, 1771)**
STUDIED FIELD MATERIAL: Tarragona: Deltebre, Delta de l'Ebre Natural Park, Platja de la Marquesa, 24.IX.2009, *Salicornia* sp., LM & MG *leg*., MG *det*., 4 exs.

Family Piesmatidae Amyot & Serville, 1843

***Parapiesma quadratum* (Fieber, 1844)**
STUDIED FIELD MATERIAL: Tarragona: Deltebre, Delta de l'Ebre Natural Park, El Garxal, 24.IX.2009, *Salicornia* sp., MG & LM *leg*, MG *det*., 1 ex.

Parapiesma quadratum is believed to be present all over Catalonia (Ribes *et al*., 2004), but only four citations have been published in this autonomous community: one in La Cava (Tarragona) from Gil Collado collection (Gómez-Menor, 1955), a second at Llobregat beach 10 km south of Barcelona city (named as *Piesma rotundicollis* Rey 1888, 15.VII.1959, on *Atriplex*, Wagner, 1960), a third one in the Collserola Natural Park by the city of Barcelona (Ribes & Ribes, 2001), both compiled by Ribes *et al.* (2004), and a fourth again from La Cava (Tarragona) (Costas *et al*., 2007), which is in fact the second record for *P. quadratum* in Tarragona province. Ours is the fourth record in Catalonia, confirming the Delta de l'Ebre Natural Park location, and the expected distribution of *P. quadratum* all along the mediterranean iberian coast (Heiss & Péricart, 2007).

Family Rhopalidae Amyot & Serville, 1843
Subfamily Rhopalinae Amyot & Serville, 1843

***Liorhyssus hyalinus* (Fabricius, 1794)**
STUDIED FIELD MATERIAL: Tarragona: Delta de l'Ebre Natural Park, Platja de la Marquesa, 24.IX.2009, *Salicornia* sp., LM

& MG *leg*., MG *det*., 4 exs; Tarragona: Delta de l'Ebre Natural Park, El Garxal, 24.IX.2009, MG & LM *leg*, MG *det*., 1 ex.

● Planes de Son Protected Area (Lleida)

Species stated are common, but not cited from the area yet. Thus, the true bug species list in this area increases from 172 to 176 species.

Family Coreidae Leach, 1815
Subfamily Pseudophloeinae Stål, 1872

***Coriomeris denticulatus* (Scopoli, 1763)**
STUDIED FIELD MATERIAL: Lleida: Alt Àneu, Son, Planes de Son, 14.VII.2007, MG & EG *leg*., MG *det*., 1 ex.

Family Miridae Hahn, 1833
Subfamily Orthotylinae Van Duzee, 1916 (1865)

***Dimorphocoris* (*Dimorphocoris*) *pericarti* Tamanini, 1972**
STUDIED FIELD MATERIAL: Lleida: Alt Àneu, Son, Planes de Son, Mirador de Fogueruix, 15.VII.2007, MG & EG *leg*., MG *det*., 2 exs.

Subfamily Mirinae Hahn, 1833

***Lygus gemellatus gemellatus* (Herrich-Schaeffer, 1835)**
STUDIED FIELD MATERIAL: Lleida: Alt Àneu, Son, Carretera Jou-Son, 15.VII.2009, MG & EG *leg*., MG *det*., 2 exs.

Family Rhopalidae Amyot & Serville, 1843
Subfamily Rhopalinae Amyot & Serville, 1843

***Rhopalus* (*Rhopalus*) *subrufus* (Gmelin, 1790)**
STUDIED FIELD MATERIAL: Lleida: Alt Àneu, Son, Planes de Son, 14.VII.2009, MG & EG *leg*., MG *det*., 3 exs.

Conclusion

Iberian true bug fauna needs to be better studied, and the large Iberian Peninsula deserves a greater number of collectors and researchers to approximate to its very interesting biodiversity. Even casual collections here and there frequently provide valuable, until now ignored information, which is particularly appreciated when it concerns protected areas, where invertebrates are generally not so deeply studied. Field samples may be successfully completed with photo sampled specimens, when the pictures are uploaded in photo sharing websites. These are growing, powerful tools (Goula *et al*., 2013), which can no more be ignored, where citizens may help scientist's to fit their common interest, *i.e* the knowledge of biodiversity.

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