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ARTICLE

A new species for the bee fauna of Italy: *Dasypoda crassicornis* (FRIESE, 1896) (Hymenoptera: Apoidea: Melittidae: Dasypodainae)

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Abstract

The first records of *Dasypoda crassicornis* (FRIESE, 1896) for Italy are reported. The species was found in three sites in western Liguria and the Piedmont Cottian Alps, thus extending its eastern range limit, previously known in France. The collecting site habitats and wildflowers visited by the species are also described.

Keywords | *Microdasypoda* • solitary bees • Liguria • Piedmont

Une nouvelle espèce pour l'apidofofaune d'Italie : *Dasypoda crassicornis* (FRIESE, 1896) (Hymenoptera : Apoidea : Melittidae : Dasypodainae)

Résumé

Les premières données de *Dasypoda crassicornis* (FRIESE, 1896) pour l'Italie sont mentionnées. L'espèce a été trouvée sur trois sites dans l'ouest de la Ligurie et dans les Alpes cottiennes du Piémont, étendant ainsi la limite orientale de son aire de répartition, précédemment connue en France. Les habitats des sites de capture et les espèces florales visitées sont également décrits.

Mots-clefs | *Microdasypoda* • abeilles solitaires • Ligurie • Piémont

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INTRODUCTION

The genus *Dasypoda* LATREILLE, 1802 includes 39 Palearctic species, of which 19 are known in Europe (MICHEZ *et al.*, 2004a, 2004b; MICHEZ, 2005; MICHEZ & PAULY, 2012; RADCHENKO, 2016, 2017; RADCHENKO *et al.*, 2019, 2020).

In Italy, PAGLIANO (1995) mentions six *Dasypoda* species: *D. hirtipes* (FABRICIUS, 1793), *D. argentata* PANZER, 1809, *D. cingulata* ERICHSON, 1835, *D. pyriformis* RADOSZKOWSKI, 1887, *D. suripes* (CHRIST, 1791) and *D. visnaga* (ROSSI, 1790). In the more recent list by COMBA (2019), *D. braccata* EVERSMAHN, 1852 (discovered in Piedmont by PRAZ *et al.*, 2008) is also included, while the Italian data of *D. pyriformis* and an additional species (*D. spinigera* KOHL, 1905) need

confirmation. Regarding *D. spinigera*, COMBA (2019) refers to the article by MICHEZ *et al.* (2004a), who speculate about the presence of an isolated population in Italy, mapping it in Emilia-Romagna but in fact citing a locality (Agigea) in Romania. This error was confirmed by the first author (D. MICHEZ, *pers. comm.*) and consequently, for the time being at least, *D. spinigera* must be excluded from the Italian fauna.

Research on bees carried out over summer 2020 in northwestern Italy (Liguria and Piedmont regions) led to the discovery of a further species, *D. crassicornis* (FRIESE, 1896), unrecorded in the country.

CHARACTERS OF DASYPODA CRASSICORNIS

Taxonomy and diagnosis

Members of the genus *Dasypoda* are easily recognisable from other European Melittidae (genera *Macropis* PANZER and *Melitta* KIRBY) for the combination of two submarginal cells

of which the first larger than the second, furry body and very long hairs on the female pollen brushes on the hind tibiae and tarsi (MICHEZ *et al.*, 2019).

MICHEZ *et al.* (2004b) described four subgenera based on

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cladistic morphological analyses: *Dasypoda* s. str., *Heterodasypoda*, *Microdasypoda* and *Megadasypoda*. *D. crassicornis* is the type species of *Microdasypoda*, which also includes *D. brevicornis* PÉREZ, 1895, *D. cingulata* ERICHSON, 1835 and *D. iberica* WARNCKE, 1973.

The main distinguishing features of *D. crassicornis* are listed below on the basis of the original description of FRIESE (1896) and the keys by QUILIS (1928), ORNOSA & ORTIZ-SÁNCHEZ (2004) and MICHEZ *et al.* (2004a):

▪ **Males** (figure 1): 10-12 mm long, with sparse yellowish-brown hairs on tergites, a sternite 6 with dense brown radially oriented pilosity and slightly notched sternite 7, without latero-apical extensions; gonostyles with small basal tooth and single lobe not widened apically, while penis valvae are as wide as the gonostyles.

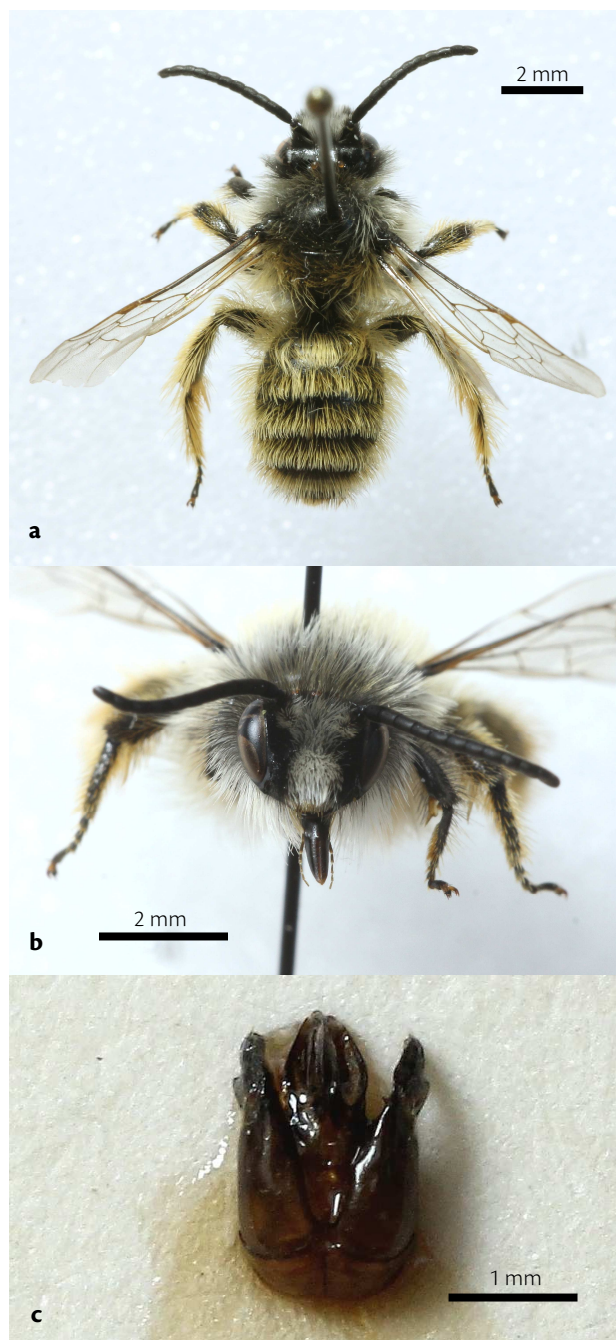


Figure 1. Male of *Dasypoda crassicornis* (Piedmont, Casteldelfino, 5.VII.2020). **a.** Dorsal view. **b.** Front view. **c.** Genitalia. Photos M. BONIFACINO.

▪ **Females** (figure 2): 11-15 mm long, with dark brown pilosity on thorax, whitish apical bands on tergites 2-5 and fulvous apical bands on sternites; clypeus with median area without punctuations, the mid tibiae have partly brownish hairs and bicoloured scopae on hind tibiae (fulvous along inner side and dark brown externally).



Figure 2. Female of *Dasypoda crassicornis* (Piedmont, Casteldelfino, 5.VII.2020). **a.** Dorsal view. **b.** Head details. Photos M. BONIFACINO.

In both sexes:

- facial hairs are white in the centre and black laterally;
- antennae are black with cylindrical 3rd article;
- the malar space does not exceed pedicel length and the galeae are about as long as the maxillary palpi, with short hairs along the outer margin;
- finally, the leg cuticle is dark and the nervulus on forewings is prefurcal.

The combination of these features excludes all other species of *Microdasypoda*. Of these, only *D. cingulata* is recorded in Italy, within a range also covering Northwest Africa, Spain, France and the Balkan Peninsula (ORNOSA & ORTIZ-SÁNCHEZ, 2004; MICHEZ *et al.*, 2004a; COMBA, 2019). *D. iberica*, on the other hand, limited to Spain (ORNOSA & ORTIZ-SÁNCHEZ, 2004; RADCHENKO *et al.*, 2019) and *D. brevicornis* to northern Tunisia and Algeria (PATINY & MICHEZ, 2007).

Distribution, habitat, and floral preferences

D. crassicornis is western-Mediterranean in distribution, living in temperate habitats or mountain areas of Morocco, Spain and France (QUILIS, 1928; ORNOSA & MARTÍNEZ, 1996; ORNOSA & ORTIZ-SÁNCHEZ, 2004; MICHEZ, 2012). In Spain, the species is mostly reported in open habitats with *Quercus*, *Fraxinus* and *Pinus* (ORNOSA & ORTIZ-SÁNCHEZ, 2004).

As pointed out by MICHEZ *et al.* (2004b), *Microdasypoda* species preferably forage on Cistaceae and Malvaceae but they are not strictly oligolectic, as *D. crassicornis* is recorded visiting both Cistaceae and Geraniaceae with the same frequency. In Spain, the species has also been collected on Asteraceae and Brassicaceae (ORNOSA & ORTIZ-SÁNCHEZ, 2004), while TALAVERA *et al.* (2001) report it as one of the most frequent bees pollinating *Cistus libanotis*.

RESULTS AND DISCUSSION

We recorded *D. crassicornis* from three sites in Italy, one in western Liguria and two in Piedmont Cottian Alps (figure 3).

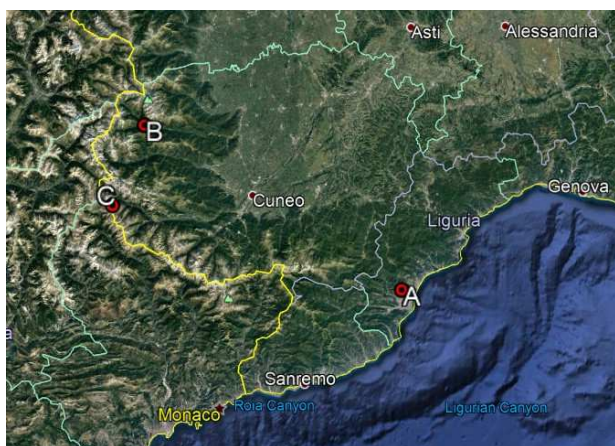


Figure 3. Collecting sites of *D. crassicornis* in northwestern Italy. A. Ceriale (Liguria). B. Casteldelfino (Piedmont). C. Bersezio (Piedmont). Map Google Earth.

The first finding occurred on 28 May 2020 along the hills above the town of Ceriale, near the summit of Monte Acuto (44°6'31.75"N, 8°10'57.56"E, 700 m a.s.l.), which constitutes the current eastern range limit of the species. Here, a single

male was observed and collected on a flower of *Potentilla* sp. along a ridge with arid meadows on a calcareous substrate, interspersed with patches of *Cistus albidus* (figure 4). The area, included in the Natura 2000 site IT1324910 "Monte Acuto - Poggio Grande - Rio Torsero", is of particular interest for the entomofauna, as it hosts many species that occur only in Liguria in Italy and reach their eastern range limit (e.g. the grasshoppers *Calliptamus wattenwylanus* PANTEL, 1896 and *Euchorthippus elegantulus* ZEUNER, 1940; BARONI *et al.*, 2018).



Figure 4. Arid meadows along the summit of Monte Acuto. Photo M. BONIFACINO.



Figure 5. Collecting site near Casteldelfino. Photo M. BONIFACINO.

On 5 July 2020, *D. crassicornis* was found in Val Varaita, near the town of Casteldelfino, (44°35'32.93"N, 7°4'51.11"E, 1520 m a.s.l.), during entomological surveys in the Monviso Regional Park. In this site, located in small meadows next to some rock screes and surrounded by *Pinus cembra* and *Larix decidua* woods (figure 5), many individuals of both sexes were observed; three males and four females were collected. Some females were recorded collecting pollen from *Helianthemum* flowers as well as visiting *Armeria arenaria* inflorescences, in this case probably for nectar (figure 6). The males have been seen feeding on both *A. arenaria* and *Geranium* sp. flowers or briefly resting on other plants, alternating between their patrol flights in search of females (figures 7, 8 & 9).



Figure 6. Females collecting pollen from *Helianthemum* flowers (left) and visiting *Armeria arenaria* inflorescence (right).
Photos M. BONIFACINO.

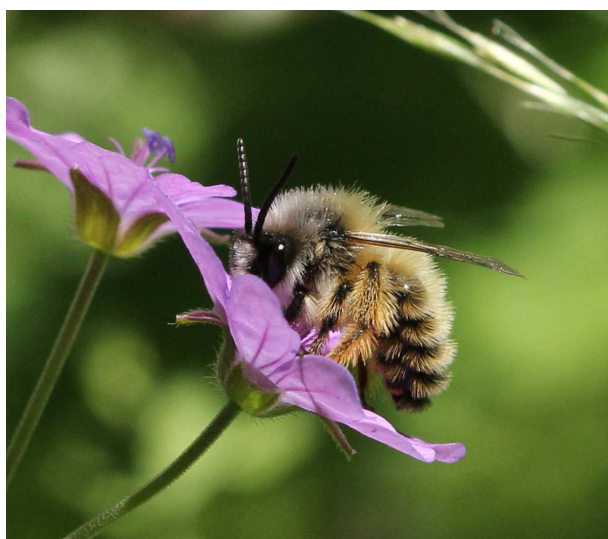


Figure 7. Male taking nectar from *Geranium* flower.
Photo M. BONIFACINO.

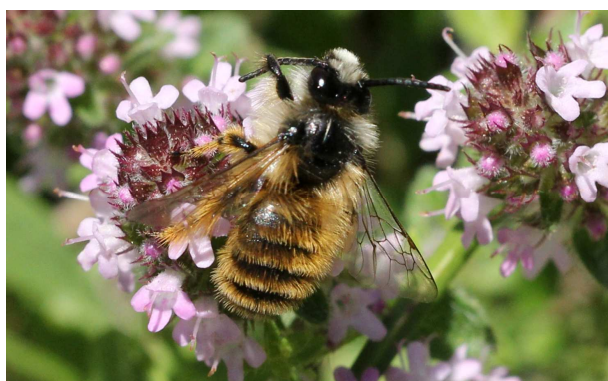


Figure 8. Male cleaning its antennae on *Thymus* inflorescence.
Photo M. BONIFACINO.

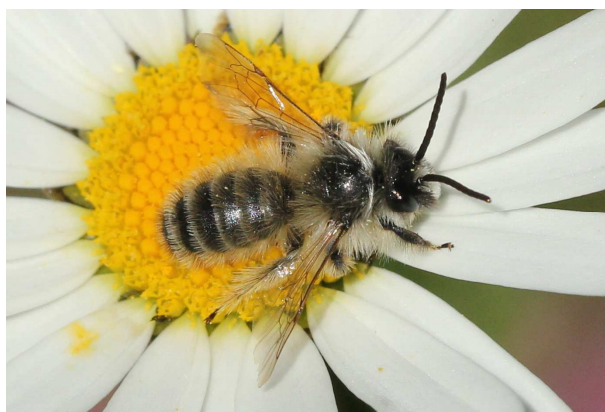


Figure 9. Worn male resting on a *Leucanthemum* inflorescence.
Photo M. BONIFACINO.

Finally, an additional male was collected on 9 July 2020 in Valle Stura, near the township of Ferrere (municipality of Bersezio, 44°20'51.04"N, 6°57'16.23"E) at an altitude of 1960 m. The site, very close to the French border, lies in an alpine meadow, with an abundant presence of *Lychnis flos-jovis*, *Ranunculus* sp. and other wildflowers (figure 10). In the same area, many mountain bee species were observed, such as *Bombus mesomelas* GERSTAECKER, 1869 and *Bombus pyraeneus* PÉREZ, 1879.

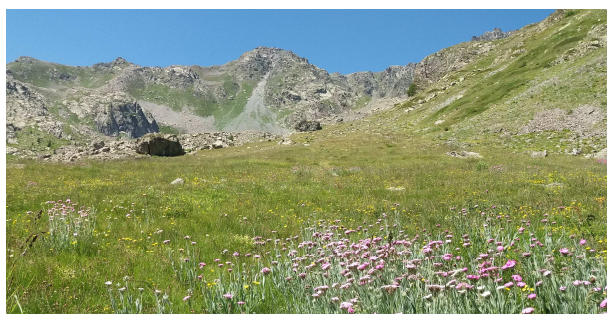


Figure 10. Alpine meadows of the collecting site in Stura valley.
Photo M. BONIFACINO.

Since they are rather uncommon and infrequently recorded, *Dasypoda* species are a good example of bees that can lead to new recorded sightings even in areas already well examined (GHISBAIN *et al.*, 2018; RADCHENKO *et al.*, 2020). The discovery of *D. crassicornis* in Italy increases the already high number of bee species reported in the country and further research in Liguria and Piedmont will very probably lead to the detection of other western-Mediterranean taxa.

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REFERENCES

- BARONI, D., M. BONIFACINO & R. VALFIORITO (2018). *Euchorthippus elegantulus* ZEUNER, 1940 e *Calliptamus wattenwylanus* PANTEL, 1896 al limite nord-orientale d'areale: due specie nuove per l'Italia. *Doriana – Supplemento agli Annali del Museo Civico di Storia Naturale "G. Doria"*, **IX**(406): 1–9.
https://www.researchgate.net/publication/330202733_Euchorthippus_elegantulus_Zeuner_1940_e_Calliptamus_wattenwylanus_Pantel_1896_al_limite_nord-orientale_d'areale_due_specie_nuove_per_l'Italia-Insecta_Orthoptera_Acrididae [accessed 15 November 2020]
- COMBA, M. (2019). *Hymenoptera Apoidea: Anthophila of Italy. Bibliographic checklist of Italian wild bees with notes on taxonomy, biology, and distribution.*
<https://digilander.libero.it/mario.comba/> [accessed 15 November 2020]
- FRIESE, H. (1896). Neue und wenig bekannte südeuropäische Apiden. *Természeti Füzetek*, **19**: 277–284.
- GHISBAIN, G., V. G. RADCHENKO & D. MICHEZ (2018). *Dasypoda morawitzi* RADCHENKO 2016 (Apoidea – Melittidae – Dasypodaini), une espèce nouvelle pour la faune de France. *Osmia*, **7**: 10–13.
<https://doi.org/10.47446/OSMIA7.2>
- MICHEZ, D. (2005). *Dasypoda* (*Megadasypoda*) *intermedia* spec. nov. (Hymenoptera: Apoidea: Melittidae), a new species from Iran. *Zoologische Mededelingen*, **79**(6): 123–127.
https://www.researchgate.net/publication/237520408_Dasypoda_Megadasypoda_intermedia_spec_nov_Hymenoptera_Apoidea_Melittidae_a_new_species_from_Iran [accessed 15 November 2020]
- MICHEZ, D. (2012). Atlas of the European Bees: genus *Dasypoda*. STEP Project, Atlas Hymenoptera. Mons (B).
<http://www.zoologie.umh.ac.be/hymenoptera/page.aspx?ID=195> [accessed 15 November 2020]
- MICHEZ, D., M. TERZO & P. RASMONT (2004a). Révision des espèces ouest-paléarctiques du genre *Dasypoda* LATREILLE, 1802 (Hymenoptera, Apoidea, Melittidae). *Linzer biologische Beiträge*, **36**: 847–900.
https://www.zobodat.at/pdf/LBB_0036_2_0847-0900.pdf [accessed 15 November 2020]
- MICHEZ, D., M. TERZO & P. RASMONT (2004b). Phylogénie, biogéographie et choix floraux des abeilles oligolectiques du genre *Dasypoda* LATREILLE 1802 (Hymenoptera, Apoidea, Melittidae). *Annales de la Société entomologique de France (n.s.)*, **40**(3–4): 421–435.
<https://doi.org/10.1080/00379271.2004.10697431>
- MICHEZ, D. & A. PAULY (2012). A new species of the palaearctic genus *Dasypoda* LATREILLE 1802 (Hymenoptera: Dasypodidae) from the Great Rift Valley in Ethiopia. *Zootaxa*, **3181**(1): 63–68.
<https://doi.org/10.11646/zootaxa.3181.1.5>
- MICHEZ, D., P. RASMONT, M. TERZO & N. J. VEREECKEN (2019). *Bees of Europe*. NAP Éditions, Verrières-le-Buisson (France), 547 pp.
- ORNOSA, C. & M. D. MARTÍNEZ (1996). Apoidea de la Cuenca Occidental Alta del Duero (España). Familias Melittidae, Megachilidae, Anthophoridae y Apidae (Hymenoptera). *Boletín de la Asociación española de Entomología*, **20**(3–4): 93–106.
https://www.researchgate.net/publication/296456660_Apoidea_from_Cuenca_Occidental_Alta_of_the_Duero_River_Spain_Families_Melittidae_Megachilidae_Anthophoridae_and_Apidae_Hymenoptera [accessed 15 November 2020]
- ORNOSA, C. & ORTIZ-SÁNCHEZ, F.J. (2004). *Fauna Ibérica. Vol. 23. Hymenoptera, Apoidea I*. Museo Nacional de Ciencias Naturales, CSIC, Madrid, 556 pp.
- PAGLIANO, G., (1995). Hymenoptera Apoidea. In A. MINELLI, S. RUFFO & S. LA POSTA (ed.). *Check-list delle specie della fauna Italiana*, **106**. Calderini, Bologna, 25 pp.
https://www.researchgate.net/publication/322978045_Hymenoptera_Apoidea [accessed 15 November 2020]
- PATINY, S. & D. MICHEZ (2007). Biogeography of bees (Hymenoptera, Apoidea) in Sahara and in the Arabian deserts. *Insect Systematics & Evolution*, **38**(1): 19–34.
<https://doi.org/10.1163/187631207788784012>
- PRAZ, C., G. CARRON & D. MICHEZ (2008). *Dasypoda braccata* EVERSMAHN (Hymenoptera, Dasypodidae), nouvelle espèce pour l'apidofoaune italienne. *Osmia*, **2**: 16–20.
<https://doi.org/10.47446/OSMIA2>
- QUILIS, M. (1928). Los Ápidos de España. Estudio monográfico de las *Dasypoda* LATR. *Eos, Revista Española de Entomología*, **4**(2): 173–241. <http://hdl.handle.net/10261/140778>
- RADCHENKO, V.G. (2016). A new widespread European bee species of the genus *Dasypoda* LATREILLE (Hymenoptera, Apoidea). *Zootaxa*, **4184**(3): 491–504.
<http://doi.org/10.11646/zootaxa.4184.3.4>
- RADCHENKO, V.G. (2017). A new bee species of the genus *Dasypoda* LATREILLE (Hymenoptera, Apoidea) from Portugal with comparative remarks on the subgenus *Heterodasypoda* MICHEZ. *Zootaxa*, **4350**(1): 164–176.
<https://doi.org/10.11646/zootaxa.4350.1.10>
- RADCHENKO, V. G., G. GHISBAIN & D. MICHEZ (2019). Redescription of three rare species of *Dasypoda* bees with first description of *D. iberica* and *D. tibialis* females (Hymenoptera, Apoidea, Melittidae). *Zootaxa*, **4700**(3): 326–344.
<https://doi.org/10.11646/zootaxa.4700.3.2>
- RADCHENKO V.G., B. TOMOZIL, G. GHISBAIN & D. MICHEZ (2020). New data on the morphology and distribution of the cryptic species *Dasypoda morawitzi* RADCHENKO, 2016 (Hymenoptera: Melittidae) with corrections to the diagnosis of *Dasypoda* s. str. *Annales de la Société entomologique de France (n.s.)*, **56**(6): 455–470. <https://doi.org/10.1080/00379271.2020.1841570>
- TALAVERA, S., F. BASTIDA, P. L. ORTIZ & M. ARISTA (2001). Pollinator Attendance and Reproductive Success in *Cistus libanotis* L. (Cistaceae). *International Journal of Plant Sciences*, **162**(2): 343–352. <https://doi.org/10.1086/319573>



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