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First records of *Chelostoma nasutum*, *Trachusa laeviventris* and *Nomada trispinosa* from Italy, with notes on *Megachile rufescens* in northwestern Italy
(Hymenoptera Apoidea Anthophila)

Abstract: The bees *Chelostoma nasutum*, *Trachusa laeviventris* and *Nomada trispinosa* were collected for the first time in Italy. The occurrence of *Megachile rufescens* in northwestern Italy is discussed.

Riassunto: Prime segnalazioni di *Chelostoma nasutum*, *Trachusa laeviventris* e *Nomada trispinosa* in Italia, con note sulla presenza di *Megachile rufescens* nell'Italia nord-occidentale (Hymenoptera Apoidea Anthophila).
Si segnalano per la prima volta in Italia gli Apoidei *Chelostoma nasutum* Pérez, *Trachusa laeviventris* (Dours) e *Nomada trispinosa* Schmiedeknecht. Viene inoltre discussa la presenza di *Megachile rufescens* (Pérez) nell'Italia nord-occidentale.

Key words: species distribution, wild bees, Italian biodiversity.

Introduction

In the last few years, several species have been added to the list of the bees occurring in Italy (Carisio *et al.,* 2018; Praz *et al.,* 2019; Biella & Galimberti, 2020; Cornalba *et al.,* 2020; Bonifacino, 2021; Gamba & Carta, 2021; Praz *et al.,* 2022; Wood & Le Divelec, 2022; Ghisbain *et al.,* 2023; Flaminio *et al.,* 2023; Wood *et al.,* 2023; Cornalba *et al.,* 2024; Aubert *et al.,* 2024; Flaminio *et al.,* 2024; Le Divelec, 2024). Here, we add three further species to this growing list, namely *Chelostoma (Gyrodromella) nasutum* Pérez, 1895, *Trachusa (Archianthidium) laeviventris* (Dours, 1873), and *Nomada (Gestamen) trispinosa* Schmiedeknecht, 1882, the latter already reported from Italy but based on misidentifications and unverifiable records (see discussion below). We also discuss the distribution of *Megachile (Chalicodoma) rufescens* (Pérez, 1879) in southeastern France and northwestern Italy.

C. nasutum specimens were collected by MB and CM using entomological nets along transects or nearby areas within two Apennine National Parks (Gran Sasso and Monti della Laga; Abruzzo, Lazio, and Molise). Since 2019, both protected areas have been involved in pollinator monitoring activities envisaged by the Biodiversity Directive of the Italian Ministry of the Environment. The monitoring protocol, developed by *Istituto Superiore per la Protezione e la Ricerca Ambientale* and the University of Turin, involves bee sampling along 250-meter-long transects to be covered once a month between April and October. The other *C. nasutum* specimens were collected with Malaise traps in the Abruzzo, Lazio, and Molise National Park or surrounding areas within sampling activities envisaged by the PNNR project detailed in the aknowledgements. The remaining species were collected during random searches by hand-netting, except as explicitly stated in the individual records.

For the specimen identification, we used the keys and descriptions by Tkalců (1974, 1988), Müller (2015, 2025), Kasparek (2017), Schwarz *et al*. (2018) and Smit (2018).

The following abbreviations are used:
- MBC = private collection of Marco Bonifacino, Vado Ligure, Italy;
- MCC = private collection of Maurizio Cornalba, Pavia, Italy;

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- MEC = private collection of Maurizio Mei, Rome, Italy;
- MSNG = Museum of Natural History "Giacomo Doria", Genoa, Italy;
- MZUR = Museum of Zoology of the Sapienza University of Rome, Rome, Italy;
- PNALM = Abruzzo, Lazio and Molise National Park;
- PNGSML = Gran Sasso and Monti della Laga National Park;
- SGC = private collection of Sirio Gamba, San Biagio della Cima, Italy;
- VNC = Vittorio Nobile collection, Museum of Natural History of the University of Florence, Florence, Italy.

New records

Chelostoma nasutum. Abruzzo: L'Aquila, Scanno, Riserva di Chiarano-Sparvera, 41.869825 N 13.959594 E, 1500 m, 5-20/VII/2019, 1 ♂, Malaise trap at the edge of beech forest, leg. A. Lenzi, P. Cerretti (MZUR); PNALM, L'Aquila, Lecce nei Marsi, Cicerana, 41.864448 N 13.723234 E, 1520 m, 28/VI/2022, 2 ♀♀, leg. M. Bonifacino (MBC); PNGSML, L'Aquila, Barisciano, San Colombo, 42.335556 N 13.59 E, 1088 m, 1/VI/2023, 1 ♀, on *Campanula sp.*, leg. C. Mantoni (MBC); PNALM, L'Aquila, Pescasseroli, 41.848436 N 13.736550 E, 1548 m, 6-23/VI/2024, 1 ♂ 3 ♀♀, Malaise trap in beech forest, leg. F. Paone, P. Cerretti (MEC, MZUR); PNGSML, Pescara, Farindola, Vado di Sole, 42.395042 N 13.787775 E, 1625 m, 1/VII/2024, 1 ♀, on *Campanula glomerata*, leg. M. Bonifacino (MBC); PNALM, L'Aquila, Scanno, Monte Godi, 41.831565 N 13.904864 E, 1926 m, 28/VII-13/VIII/2024, Malaise trap, 1 ♀, leg. F. Paone, P. Cerretti (MZUR).

Trachusa laeviventris. Liguria: Imperia, San Biagio della Cima, loc. Cloria, 43.822253 N 7.655481 E, 120 m, 30/VI/2024, 1 ♂, on *Melissa officinalis,* leg. S. Gamba (SGC).

Nomada trispinosa. Friuli Venezia Giulia: Gorizia, Cormons, monte Quarin, 45.967222 N 7.471389 E, 179 m, 23/III/2024, 1 ♀, leg. M. Cornalba (MCC).

Megachile rufescens. Liguria: Imperia, Pieve di Teco, 44.001314 N 7.943827 E, 775 m, 01/VI/2019, 1 ♂, leg. M. Bonifacino (MBC); Imperia, Pietrabruna, Boscomare, 43.875966 N 7.898883 E, 500 m, 19/VI/2019, 1 ♀, leg. M. Bonifacino (MBC); Imperia, Pigna, 43.957868 N 7.627478 E, 1220 m, 02/VII/2019, 1 ♀, leg. M. Bonifacino (MBC); Imperia, Pigna, 43.957836 N 7.627753 E, 1235 m, 18/V/2020, 1 ♂, leg. M. Bonifacino (MBC); Imperia, Rocchetta Nervina, Monte Comune, 43.919924 N 7.598967 E, 1145 m, 18/V/2020, 1 ♂, leg. M. Bonifacino (MBC); Imperia, Pietrabruna, Boscomare, 43.877880 N 7.899433 E, 465 m, 22/V/2020, 1 ♀, leg. M. Bonifacino (MBC); Imperia, Ventimiglia, Colla di Bevera, 43.829429 N 7.567070 E, 435 m, 18/VI/2020, 1 ♀, leg. M. Bonifacino (MBC); Imperia, Soldano, 43.83 N 7.657222 E, 96 m, 04/IV/2020, 2 ♂♂ 2 ♀♀, hatched from nest attached to a clay pot, leg. R. Valfiorito (SGC); Imperia, Vallebona, 43.830833 N 7.676389 E, 536 m, 13/IV/2024, 1 ♂, leg. S. Gamba (SGC); Imperia, Airole, 43.875556 N 7.560278 E, 500 m, 11/V/2024, 1 ♂ 2 ♀♀, leg. S. Gamba (SGC); Savona, Stella, Polzemola, 44.397437 N 8.515451 E, 470 m, 10/V/2020, 1 ♂, leg. M. Bonifacino (MBC). Lombardy: Pavia, Cecima, 44.814483 N 9.079114 E, 688 m, 8/V/2016, 1 ♂ 1 ♀, leg. M. Cornalba (MCC); ibidem, 22/V/2016, 1 ♂, leg. M. Cornalba (MCC); Pavia, Cecima, 44.814523 N 9.079262 E, 691 m, 6/V/2018, 1 ♂, leg. M. Cornalba (MCC); Pavia, Cecima, 44.815686 N 9.080285 E, 663 m, 2/VI/2018, 1 ♂, leg. M. Cornalba (MCC); Pavia, Cecima, 44.815463 N 9.079233 E, 678 m, 21/VI/2018, 1 ♀, leg. M. Cornalba (MCC); Pavia, Varzi, calanchi di Nivione, 44.803723 N 9.170478 E, 642 m, 17/VI/2023, 1 ♀, leg. M. Cornalba (MCC). PIEDMONT: Alessandria, Gremiasco, 44.814287 N 9.079112 E, 685 m, 6/V/2018, 1 ♂, leg. M. Cornalba (MCC).

Other material examined.
Nomada mutabilis Morawitz, 1870. Sicily: Catania, Paternò, contrada Petulenti, 31/III/1993, 1 ♂, leg. S. Tomarchio (VNC, as *Nomada trispinosa* Schmiedeknecht, 1882, V. Nobile det.).

Discussion and Conclusions

C. nasutum (Fig. 1) was collected in montane areas at elevations between 1088 and 1926 m a.s.l., in a variety of habitats: beech forests, open areas near the edge of woodland, summit grasslands, and open grasslands on the Cicerana karst plateau. The few flower records available all refer to *Campanula* species, in ac-

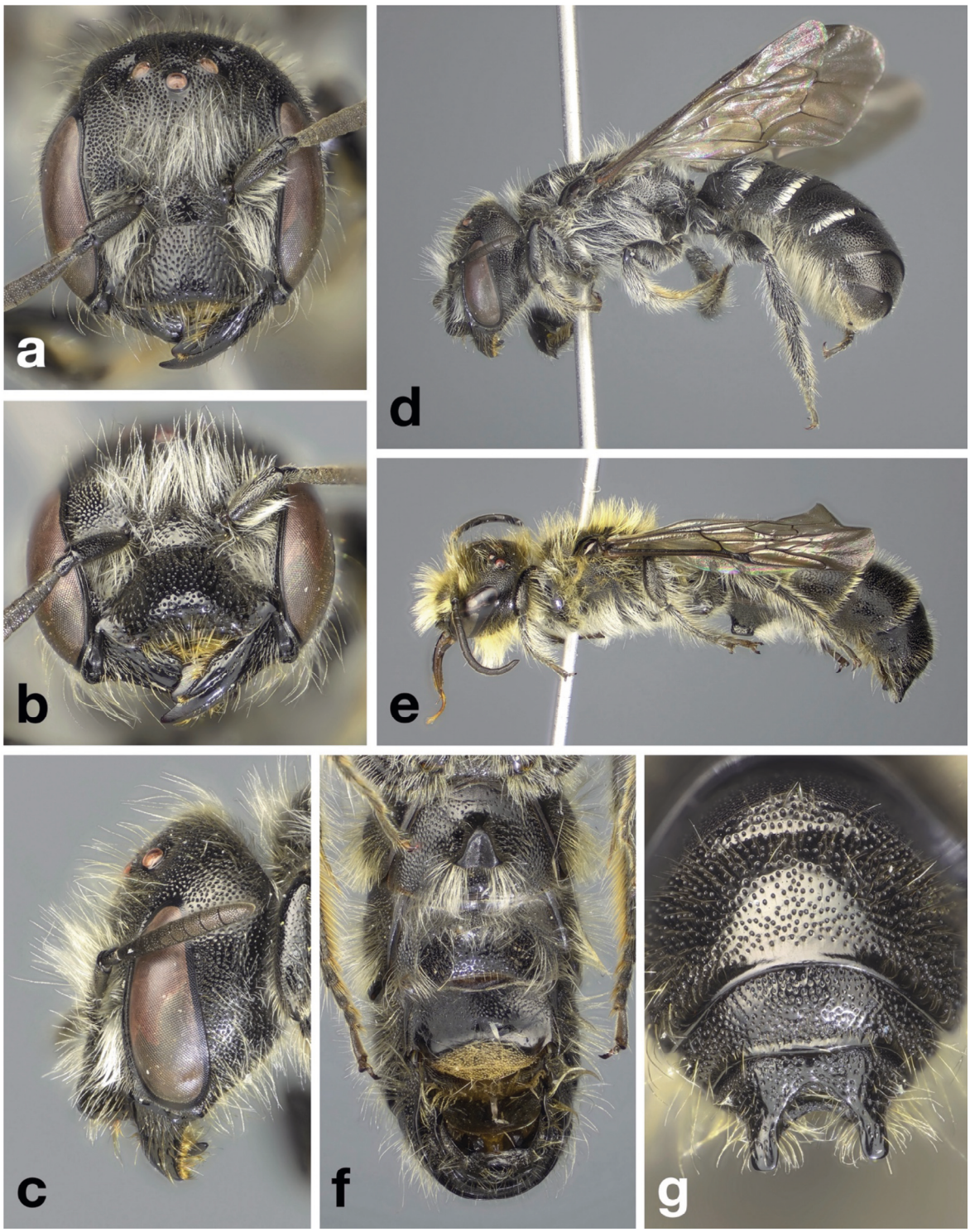

Fig. 1. *Chelostoma nasutum* female from Pescasseroli, head frontal (a), clypeus frontal (b), head lateral (c), habitus lateral (d); male from Pescasseroli, habitus lateral (e), abdominal sterna (f), T5-T7 (g).

cordance with the known foraging preferences of *C. nasutum* (Müller, 2025). According to Müller (2015, 2025), *C. nasutum* occurs in Europe in two disjunct areas, one comprising northernmost Spain and southern France, the other including parts of Romania, Bulgaria, Serbia, and Greece. Therefore, the discovery of *C. nasutum* in the mountains of Abruzzo fills a major gap in the distribution of the species. *C. nasutum* is likely to occur more widely in the Apennines, and the possibility that the range of the species in southern France may extend into Piedmont and Liguria deserves to be investigated. The females of *C. nasutum* can be identified mainly by the strongly protruding clypeus (Fig. 1b and d) and the medioapical impression and sparse punctures on the supraclypeal area (Fig. 1a), while the males are characterized by a roughly triangular projection on sternite 2, large lateral spots of black bristles on sternum 3 reaching the apical margin (Fig. 1f), and two parallel-sided lateral teeth on tergum 7 (Fig. 1g).

Trachusa laeviventris (Fig. 2) has a west-Mediterranean distribution. In Europe, it occurs in Iberia and southern France, east nearly to the Italian border (Kasparek, 2017). It has also been recorded from Monaco (M. Kasparek, pers. comm., 2024). The occurrence of the species in western Liguria is therefore not unexpected. *T. laeviventris* belongs to the *Archianthidium* subgenus, which is characterized by the second recurrent vein entering the second submarginal cell basal to the second submarginal crossvein (Fig. 2a). Within *Archianthidium,* the males of *T. laeviventris* can be identified by the presence of a median tooth on tergite 7 (Fig. 2c), with a keel on the underside not reaching its apex, flanked by two moderate bulges (Fig. 2b).

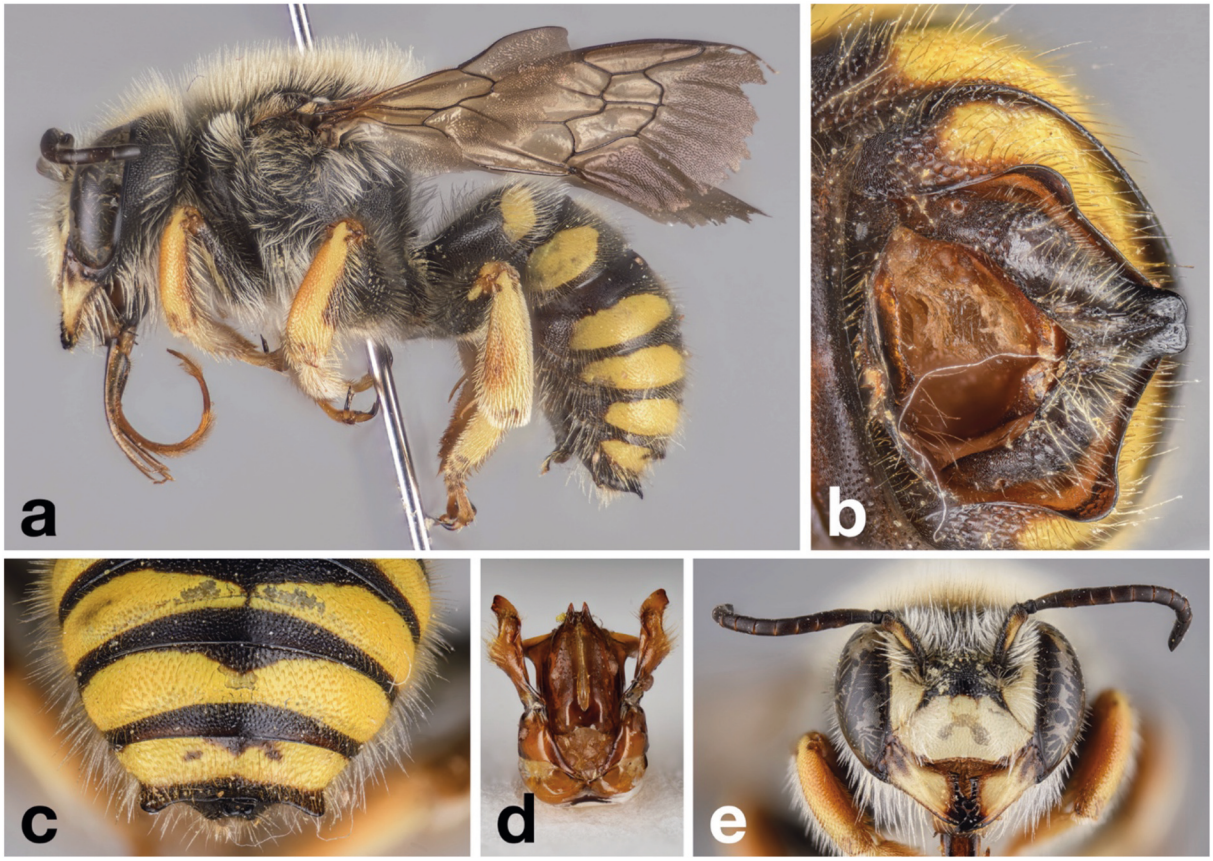

Fig. 2. *Trachusa laeviventris*, male from San Biagio della Cima. a) Habitus lateral; b) T7 ventral; c) T4-T7; d) genitalia dorsal; e) head frontal.

Nobile & Turrisi (2016) reported *N. trispinosa* (Fig. 3) from Latium and Sicily, with 3 males and 1 male, respectively. We examined the specimen from Sicily, now in the Nobile collection, deposited in the "La Specola" Museum of Natural History of the University of Florence, and we found it to be a misidentified male of *Nomada mutabilis* Morawitz, 1870. Despite exhaustive searches, the specimens from Latium could not be located and may be lost. What Nobile & Turrisi (2016) write offers clues to a possible reason for their misidentification. They claim to have relied on Stoeckhert's keys (Schmiedeknecht, 1930) and on other keys, all derived from Stoeckhert's. In the key for males, *N. trispinosa* and *N. mutabilis* appear as the two alternatives in the same couplet, and the distinction between them comes down to differences in the pilosity of the hind femur. Using this character may be tricky, particularly with dirty or worn specimens. On the other hand, males of the two species can be readily distinguished by the absence, in *N. trispinosa*, or presence, in *N. mutabilis*, of the oblique, slightly elevated areas with dense micropunctuation beside the compound eyes, just above the antennas, called "eye plates" by Smit (2018). Males of the two species can also be distinguished by other characters, including the different arrangements of the metatibial spines and of the labral spines and carinas.

The most striking distinguishing feature of the females of *N. trispinosa* (Fig. 3) is the arrangement of the tibial spines. The apex of the hind tibia bears three (four) closely standing short, blunt, almost globular, dark spines (Fig. 3b). Further characters, such as the uniformly expanded red hind basitarsus (Fig. 3c) and

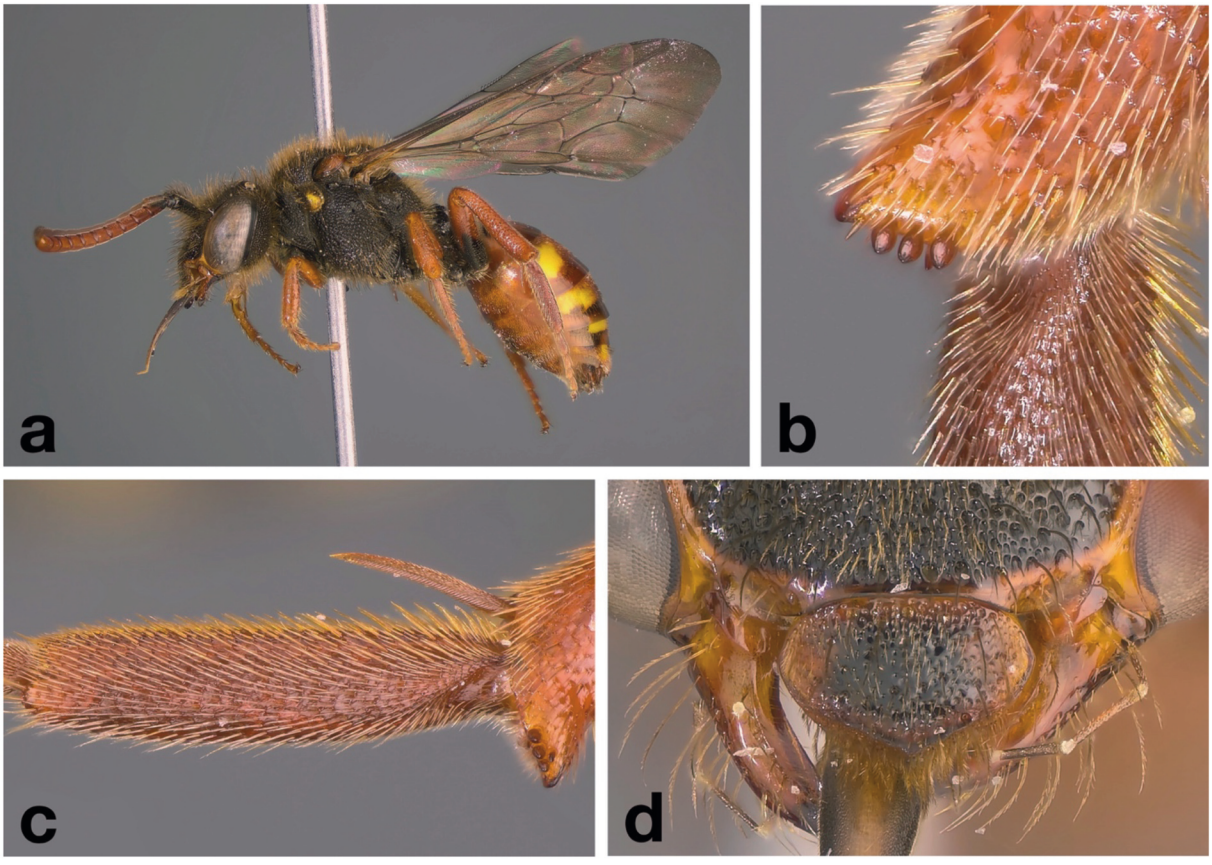

Fig. 3. *Nomada trispinosa*, female from Cormons. a) habitus lateral; b) metatibial spines; c) metabasitarsus; d) labrum.

the densely punctured scutellum without shining interspaces, distinguish *N. trispinosa* from other species in the same group occurring in SE Europe. The labrum (Fig. 3d) bears a sharp carina just before its distal margin, the hair on the head and mesosoma is long and erect, without clear hair tufts on mesopleura and propodeum (Fig. 3a).

In Europe, *N. trispinosa* is distributed in the center and east, extending west to eastern Austria and western Slovenia. Its presence in northeastern Italy close to the Slovenian border is therefore not surprising. *N. trispinosa* is believed to parasitize *Andrena taraxaci* Giraud, 1861 (Smit, 2018). In Italy, *A. taraxaci* occurs only near Trieste (Schwenninger, 2007) and is replaced in most of the country by the closely related *Andrena pastellensis* Schwenninger, 2007. *A. taraxaci* was not observed near the locality where we found *N. trispinosa*. On the other hand, we collected males of *A. pastellensis* just two kilometers away in the same municipality of Cormons. This raises various questions, as *A. pastellensis* is possibly conspecific with *A. taraxaci* (Wood *et al.,* 2023). Does *N. trispinosa* also parasitize *A. pastellensis*? Is it more widely distributed in Italy or essentially restricted to the range of *A. taraxaci*? An answer to these questions might help to shed light on the species status of *A. pastellensis*.

Megachile rufescens (Pérez, 1879) belongs to a complex of taxa that includes, among others, *Megachile albonotata* Radoszkowski, 1886, and whose taxonomy is not completely settled. This complex is traditionally thought to be represented in Italy by the subspecies *M. albonotata italica* (Tkalců, 1988), which occurs in central and southern Italy, while *M. rufescens* is viewed as endemic to southern France (Ghisbain *et al.,* 2023). No clear sculptural differences are known between *M. rufescens* and *M. albonotata italica*, the distinction between the two coming down to differences in the color of the vestiture of females, which is darker and rufous with reduced light rufous tergal fasciae in *rufescens* and whitish-grey or brownish-grey with white tergal fasciae in *italica*. The two taxa are probably conspecific (C. Praz, pers. comm., 2022). Our specimens show the typical vestiture of *rufescens* and are indistinguishable from French ones. It is apparent from the distribution of *M. rufescens* in France and the one of our Italian specimens that the two represent a single continuous population extending from France across the border with Italy along the Ligurian Alps and Apennines east

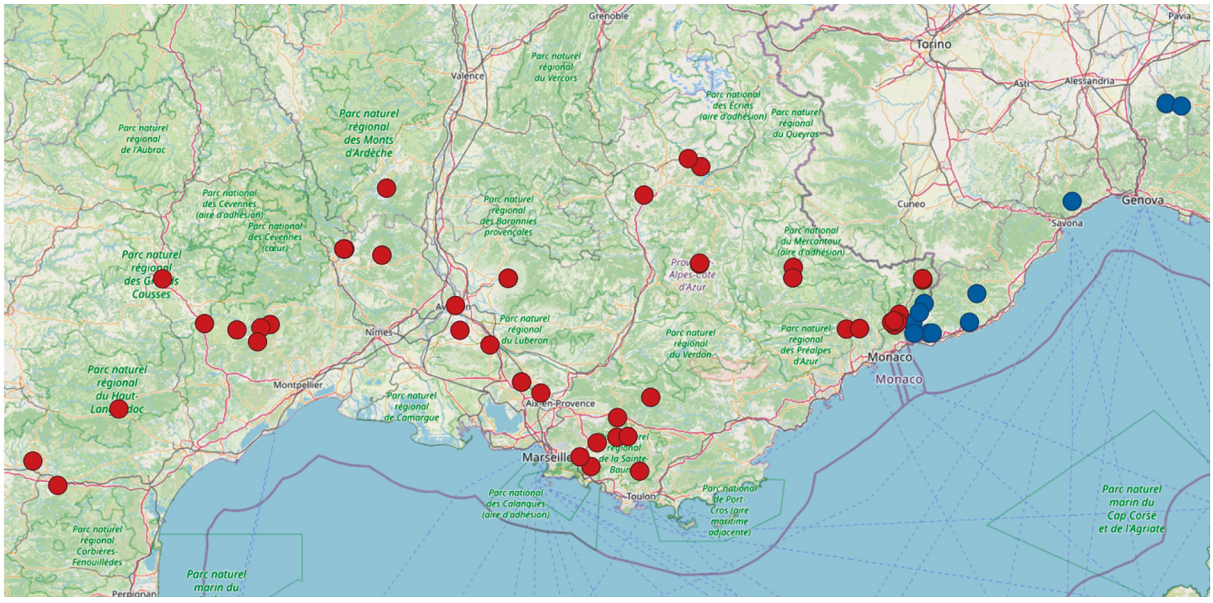

Fig. 4. *Megachile rufescens* in France and northwest Italy. Red dots: GBIF records from France with coordinates. Blue dots: new Italian records. Data source: GBIF.org (19 March 2025) GBIF Occurrence Download (https://doi.org/10.15468/dl.5v9mhy). Map source: OpenStreetMap.

to beyond Genoa (Fig. 4). The population of *M. rufescens* in northwestern Italy might well be connected and intergrade with the one of *M. albonotata italica* in central and southern Italy, but we are not aware of any records from the intervening areas.

In Italy, *M. rufescens* and *M. albonotata* can be confused mainly with *Megachile pyrenaica* (Lepeletier, 1841), but in the females, the tarsi are dark, while in the males, the apex of sternite 6 bears two slender processes and shorter hairs.

There seems to be no literature mentioning *M. rufescens* from northwestern Italy, but the occurrence of the species did not go unnoticed. In the Magretti collection (MSNG) there is a series of seven specimens collected around the year 1900 by Felice Mazza near Varzi, one of our localities, and correctly determined as *Chalicodoma rufescens*, probably by Mazza himself or by Magretti. The absence of literature records is perhaps due to confusion with *M. pyrenaica*, with which *M. rufescens* was viewed as conspecific by some authors, for instance by Benoist (1935,1940). In fact, it is quite possible that some records of *M. pyrenaica* from Italy, particularly low elevation ones, should instead be referred to *M. rufescens*.

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