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Abstract

At a time when nature conservation has become essential to ensure the long-term sustainability of our environment, it is widely acknowledged that conservation actions must be implemented within a solid taxonomic framework. In preparation for the upcoming update of the IUCN Red List, we here update the European checklist of the wild bees (sensu the IUCN geographical framework). The original checklist, published in 2014, was revised for the first time in 2017. In the present revision, we add one genus, four subgenera and 67 species recently described, 40 species newly recorded since the latest revision (including two species that are not native to Europe), 26 species overlooked in the previous European checklists and 63 published synonymies. We provide original records for eight species previously unknown to the continent and, as original taxonomic acts, we provide three new synonyms, we consider two names as nomina nuda, ten names as nomina dubia, three as species inquirenda, synonymize three species and exclude 40 species from the previous checklist. Around a hundred other taxonomic changes and clarifications are also included and discussed. The present work revises the total number of genera for IUCN Europe to 77 and the total number of species to 2,138. In addition to specifying the taxonomic changes necessary to update the forthcoming Red List of European bees, we discuss the sampling and taxonomic biases that characterise research on the European bee fauna and highlight the growing importance of range expansions and species invasions.

Key words: Biodiversity, conservation, continental checklist, decline, expansion, new synonym, pollinators, species inquirenda, status resurrectus, nomen dubium, non-natives species, nomen nudum, taxonomy

Introduction

Biotic losses are accelerating at an alarming rate globally (Del Claro & Dirzo 2021; Turvey & Crees 2019). Millions of hectares of natural habitats are cleared each year, a large part of the Earth’s suitable land has already been converted to agriculture, and the global climate is changing, causing unprecedented disruptions for wildlife (Curtis et al. 2018; Dirzo et al. 2014; Hautier et al. 2015; IPBES 2019; Raven & Wagner 2021; Storch et al. 2022). There is overwhelming evidence that the combination of these global changes has induced a major biodiversity crisis, compared by some authors to a mass extinction (Ceballos et al. 2020; Cowie et al. 2022). Among the clades most severely affected by the ongoing biodiversity crisis are insects and a flurry of reports has drawn attention to significant declines in their abundance, biomass, diversity and spatial distribution (Forister et al. 2019; Hallman et al. 2020; Lister & Garcia 2018; Loboda et al. 2018; Wagner 2020; Wagner et al. 2021).

Wild bees (Hymenoptera: Anthophila), with over 20,000 species described globally (Michener 2007; Ascher & Pickering 2022), are one example of a highly emblematic insect group for which conservation is tightly linked to both human welfare and ecosystem health (Matias et al. 2017; Potts et al. 2016). Bees are not only key to the yield of ~85% of cultivated crop species globally, but also to the sexual reproduction of hundreds of thousands of other plant species, making them critical providers of ecosystem services (Garibaldi et al. 2013; Ollerton et al. 2011). In the last two decades however, high-profile reports have highlighted steep declines in both bee abundance and species diversity, most clearly in Europe and North America (Biesmeijer et al. 2006; Duchene et al. 2020; LeBuhn & Vargas Luna 2021; Rasmont et al. 2021; Schepet et al. 2014; Zattara & Aizen 2021). Although a large part of the research on non-domesticated bees has focused on bumblebees (Cameron & Sadd 2020; Ghisbain 2021), there is mounting evidence that the patterns of decline are affecting many other bee genera (Nieto et al. 2014; Rasmussen et al. 2021; Zattara & Aizen 2021).

In a time when nature conservation has become key to ensuring the long-term sustainability of our environment, it is acknowledged that conservation actions must be taken within a robust, unambiguous taxonomic background (Garnett & Christidis 2017; Mace 2004; Orr et al. 2021). This is especially true for clades like bees, for which substantial taxonomic revisions are still underway across most genera and families globally (e.g. Bossert et al. 2022; Dorchin et al. 2018; Ferrari et al. 2020; Müller 2020; Onufenko et al. 2019; Orr et al. 2018; Williams et al. 2020). Although the current knowledge of the European bee fauna is substantial (Michez et al. 2019), new species are frequently described (e.g. Praz et al. 2019; Radchenko 2017; Wood et al. 2021), and other major nomenclatural changes still occur after more than 250 years of research on the continent (e.g. the description of a new genus by Wood et al. 2022a). Such updates, fundamental to refine the knowledge of the bee fauna of the continent, also demonstrate that many uncertainties persist regarding the taxonomy and distribution of European wild bees (Rasmont et al. 2017). These uncertainties not only hinder our ability to identify accurately both museum specimens...
...and freshly collected material, but also impede our understanding of their temporal and spatial distributions, limiting the efficiency of action plans. This issue was exemplified in the first Red List of European Bees in which ~55% of all bees reported in the continent had to be classified as “Data Deficient” (DD) (Nieto et al. 2014). In this work, although ~9% of bees were considered threatened, the real percentage of threatened taxa would have been between 4% (if none of the DD species was threatened) and ~60% (if all of the DD species were threatened). With data from other animal groups suggesting that unassessed and DD species are more likely to be threatened with extinction than their fully assessed counterparts (Caetano et al. 2022; Howard & Bickford 2014), it is clear that more work on the taxonomy and natural history of wild bee species is urgently required to accurately implement adequate conservation strategies for the European bee fauna (Potts et al. 2020).

In May 2019, the European Commission mandated a group of experts to develop a proposal for monitoring pollinators (including wild bees) and to analyse the capacity for its implementation. A report evaluating the possibility of an EU Pollinator Monitoring Scheme (‘the EU-PoMS’) was published in October 2020 and pointed out several gaps for its implementation, including insufficient taxonomic resources for bees (Potts et al. 2020). Following this, a series of projects were implemented (i) to strengthen taxonomic capacity in EU Member States regarding wild bees, (ii) to better understand the causes of decline of wild bees on the continent and (iii) to develop capacities to allow for their effective monitoring and conservation. The present work is therefore at the hub of the ongoing European projects ORBIT (Developing resources for European bee inventory and taxonomy, aiming to create and centralise taxonomic information about all the European bee species, 2021-2024), SPRING (Strengthening pollinator recovery through indicators and monitoring, aiming to train researchers on pollinator identification and refine sampling protocols to start a European-wide monitoring of pollinators, 2021-2023), SAFEGUARD (Safeguarding European wild pollinators, aiming to expand current assessments of the status and trends of European wild pollinators, 2021-2025), and PULSE (Providing technical and scientific support in measuring the pulse of European biodiversity using the Red List Index, aiming to update the European Red List of Bees, 2022-2023).

Within the context of the aforementioned projects, we provide a new, updated and annotated checklist of bee species occurring in the spatial area defined by the European borders proposed by the IUCN (henceforth IUCN Europe). The first available update was published by Rasmont et al. (2017), who revised the total number of bee species in Europe from 1,965 (in Nieto et al. 2014) to 2,051, increased the number of recognised genera from 75 to 77, and included changes to taxonomy and nomenclature. The present work is a new revision that includes the most recent taxonomic advances and revisions in order to stabilise the taxonomic backbone of the European bee fauna for the forthcoming European country records of wild bees (Reverté et al. in prep.), the new IUCN Red List (Boustani et al. in prep.) and the online ORBIT platform.

**Material and methods**

Bringing together new literature records and taxonomic updates for this work was made possible by (i) an exhaustive review of the literature published since the last update of the IUCN checklist of European bees (Rasmont et al. 2017), (ii) an in-depth revision of the literature omitted in the latter work and (iii) original information provided by the authors of the present work. For the present checklist, we did not consider the list provided by Michez et al. (2019), as the latter was not built as an update to the previous IUCN checklists and additions. This new list is mostly based on material directly examined by taxonomists and does not include data published online that has not otherwise been verified by European experts (e.g. observations reported on iNaturalist, Discover Life, GBIF).

Authors shared the work based on their own expertise on bee taxonomy: Petr Bogusch and Romain Le Diveslec for Ammobatini, Ammobatoidini, Epeolini and Sphecodes; Thomas J. Wood for Andrenidae and Thyreus; Pierre Rasmont for Anthophorini; Jessica Litman and Max Kasperek for Anthidiiini; Guillaume Ghisbain for Bombini; Michael Kuhlmann and Romain Le Diveslec for Colletidinae; Achik Dorchin for Eucerini; Simone Flaminio and Vladimir G. Radchenko for Halictidae; Christophe Praz for Megachilini; Guillaume Ghisbain, Denis Michez and Vladimir G. Radchenko for Melittidini; Maud Mignot and Jan Smit for Nomada; Andreas Müller for Osmiini. Authors keep the authority on the original taxonomic updates they apply here to their group(s) of expertise.

**European borders**

The geographical scope for this study is the territory considered in the regional assessment of Europe according to...

**FIGURE 1.** Map of IUCN Europe, corresponding to the geographical framework of this study.

**How to read the catalogue**

The species are ordered by family, subfamily and tribe presented in alphabetical order, and listed alphabetically within the following sections:

- Species recently described as new to science (i.e. new species described after 2017);
- Published synonymies (i.e. synonymies published after 2017);
- New synonymies (i.e. new synonymies proposed in this manuscript);
- Synonymic notes (i.e. notes related to future synonymisations in articles currently in preparation);
- Taxonomic changes (i.e. relevant changes published after 2017, such as new combinations, taxa upgraded to species rank or downgraded to subspecies rank);
- Taxonomic acts and clarifications (i.e. taxonomic acts here proposed and clarifications of interesting cases which generally led to changes in the new checklist of the European bees);
- Species recorded in Europe after 2017 (i.e. new to Europe but not new to science);
- Species overlooked in the previous European checklists (i.e. species recorded in Europe before 2017 but not included in the update of Rasmont et al. 2017);
- New species for Europe (new entries presented in this article for the first time);
- Species to be excluded from the European checklist (discussions and explanations of the exclusions of certain species from the new checklist).

The systematics at family, subfamily and tribe levels are mainly based on the hypotheses reviewed by Danforth et al. (2013) and followed by Michez et al. (2019). We considered here the tribes of Andrenidae proposed by Bossert et al. (2022), and the subfamilies of Apidae used in Bossert et al. (2019).

The following abbreviations are used for museums and private collections:

- GGPC—Private collection of Gérard Le Goff, Barentin, (France)
- IZKP—Institute of Systematic and Experimental Zoology, Polish Academy of Sciences, Kraków (Poland)
- MNCN—Museo Nacional de Ciencias Naturales, Madrid (Spain)
- MHNN—Muséum d’histoire naturelle de Neuchâtel (Switzerland)
- MKPC—Private collection of Max Kasparek, Heidelberg (Germany)
- MNHN—Muséum national d’Histoire naturelle, Paris (France)
- MSPC—Private collection of Maximilian Schwarz, Ansfelden (Austria)
- NHMUK—Natural History Museum, London (United Kingdom)
- OÖLM—Oberösterreich Landesmuseum, Biologiezentrum, Linz (Austria)
- PRUN—Research collection of Christophe Praz, University of Neuchatel (Switzerland)
- RMNH—Naturalis Biodiversity Center, Leiden (the Netherlands)
- SMF—Senckenberg Museum, Frankfurt (Germany)
- SDEI—Senckenberg Deutsches Entomologisches Institut, Müncheberg (Germany)
- SMNH—Steinhart Museum of Natural History, University of Tel Aviv (Israel)
- UAL—University of Almeria, La Cañada de San Urbano Almeria (Spain)
- UCSI—Department of Agriculture, Food and Environment, University of Calabria, Rende (Italy)
- UMONS—Laboratory of Zoology, University of Mons (Belgium)
- ZISP—Zoological Institute, St. Petersburg (Russia)
- ZMHB—Museum für Naturkunde, Berlin (Germany)
- ZMKU—Research collection of Michael Kuhlmann, Zoological Museum, University of Kiel (Germany)
- ZSM—Zoologische Staatssammlung München (Germany)

Results

Taxonomic update of the wild bee fauna of IUCN Europe

Family ANDRENIDAE Latreille, 1802

Tribe Andrenini Latreille, 1802

Species recently described as new to science

*Andrena (Euandrena) amieti* Praz, Müller & Genoud, 2019

*Andrena (Euandrena) amieti* Praz, Müller & Genoud, 2019: 20. Holotype ♀; Switzerland: Bernese Oberland: Oeschinensee (MHNN).

**Distribution.** France, Switzerland, Germany, Italy, Austria.

*Andrena (Taeniandrena) antonellae* Praz & Genoud, 2022

*Andrena (Taeniandrena) antonellae* Praz & Genoud in Praz et al., 2022: 390. Holotype ♀; Italy: Sardinia, Buggerru, Cala Domestica (PRUN).
**Distribution.** France (Corsica) and Italy (Sardinia).

*Andrena (Lepidandrena) baetica* Wood, 2020


**Distribution.** Portugal, Spain.

*Andrena (Taeniandrena) benoisti* Wood & Praz, 2021


**Distribution.** Portugal, Spain.

*Andrena (Taeniandrena) contracta* Wood, 2022

*Andrena (Taeniandrena) contracta* Wood, 2022: 2. Holotype ♂; Spain: Sierra Nevada, Puerto de La Ragua, Barranco Maja Caco (OÖLM).

**Distribution.** Spain.

*Andrena (Avandrena) erodiorum* Wood & Ortiz-Sánchez, 2022

(Figs 2A, B)


**Distribution.** Spain.

*Andrena (Notandrena) foeniculae* Wood, 2020


**Distribution.** Portugal, Spain.

*Andrena (Euandrena) fortipunctata* Wood, 2021

*Andrena (Euandrena) fortipunctata* Wood in Wood et al., 2021: 165. Holotype ♂; Spain: in between Asturias and Castilla y León, Puerto de Pajares (RMNH).

**Distribution.** Spain.
Andrena (Suandrena) gades Wood & Ortiz-Sánchez, 2022

Andrena (Suandrena) gades Wood & Ortiz-Sánchez, 2022: 118. Holotype ♂; Spain: Andalusia, Cádiz, Rota, Punta Candor (OÖLM).

Distribution. Spain.

FIGURE 2. A. Andrena erodiorum Wood & Ortiz-Sánchez, 2022 female, habitus in lateral view. The species was recently described in Wood & Ortiz-Sánchez (2022) based on individuals collected in Spain. B. A. erodiorum female, head in oblique view. C. Andrena juliana Wood 2021, habitus in lateral view. The species was recently described in Wood et al. (2021) based on individuals collected in Portugal and Spain. D. A. juliana female, head in oblique view. E. Andrena levante Wood & Praz 2021 male, habitus in lateral view. The species was recently described by Wood et al. (2021) based on individuals collected in Spain. F. A. levante male, head in oblique view. Pictures by Paolo Rosa.
Andrena (Truncandrena) ghisbaini Wood, 2023

Andrena (Truncandrena) ghisbaini Wood, 2023c: 344. Holotype ♂; Spain: Málaga, PN Sierra de las Nieves, mountain peak S of Pinsapo Escalereta (OÖLM).

Distribution. Spain.

Andrena (Ulandrena) graciliata Wood, 2023


Distribution. Cyprus.

Andrena (Euandrena) isolata Wood, 2023


Distribution. Spain.

Andrena (Avandrena) juliae Wood, 2023


Distribution. Spain.

Andrena (Notandrena) juliana Wood in Wood et al., 2021: 174. Holotype ♂; Spain: Andalusia, Málaga, San Julián, 8 km SW of Málaga (RMNH).

Distribution. Portugal, Spain.

Andrena (Simandrena) kocoureki Wood, 2021

(Figs 2C, D)

Andrena (Simandrena) kocoureki Wood, 2021: 5. Holotype ♂; Bulgaria: Blagoevgrad, Sandanski (OÖLM).


Andrena (Taeniandrena) laevicorpus Wood, 2023

Andrena (Taeniandrena) laevicorpus Wood, 2023a: 41. Holotype ♂; Cyprus: W of Polis [Polis Chrysochous], E of Cedar Valley (OÖLM).

Distribution. Cyprus.
**Andrena (Taeniandrena) levante** Wood & Praz, 2021
(Figs 2E, F)


**Distribution.** Spain.

**Andrena (Taeniandrena) lusitania** Wood & Ortiz-Sánchez, 2022

*Andrena (Taeniandrena) lusitania* Wood & Ortiz-Sánchez, 2022: 120. Holotype ♂; Portugal: Castelo Branco, Fundão, Vale Praz (OÖLM).

**Distribution.** Portugal, Spain.

**Andrena (Micrandrena) omnilaevis** Wood, 2020

*Andrena (Micrandrena) omnilaevis* Wood in Wood et al., 2020a: 206. Holotype ♂; Portugal: Braga, Quinta do Confurco, Várzea Cova (OÖLM).

**Distribution.** Portugal, Spain.

**Andrena (Micrandrena) ortizi** Wood, 2023


**Distribution.** Spain.

**Andrena (Euandrena) pelagonia** Wood, 2021


**Distribution.** North Macedonia.

**Andrena (Micrandrena) pirinia** Wood, 2021


**Distribution.** Bulgaria.

**Andrena (?Planiandrena) ramosa** Wood, 2022


**Distribution.** Spain.
Andrena (Taeniandrena) taedium Wood, 2023

Andrena (Taeniandrena) taedium Wood, 2023a: 44. Holotype ♀; Lebanon: Horch Ehden, Ain al Bayada Gate (OÖLM).

Distribution. Greece, Turkey, Lebanon, Iran.

Published synonymies

Andrena (Aciandrena) astrella Warncke, 1975

Synonymised with Andrena fulica Warncke, 1974 (Figs 3A, B), which is the senior synonym according to Wood et al. (2020b: 66).

Andrena (incertae sedis) breviscopa Pérez, 1895

This taxon was misinterpreted by Warncke, and is a synonym of A. numida Lepeletier (Wood 2023c: 298).

Andrena (Andrena) bulgariensis Warncke, 1965

Synonymised with Andrena inconstans Morawitz, 1877, which is the senior synonym according to Wood (2023a: 58).

Andrena (Melandrena) creberrima Pérez, 1895

Synonymised with Andrena discors Erichson, 1841, which is the senior synonym according to Wood (2023c: 267).

Andrena (Micrandrena) curtula Pérez, 1895

Synonymised with A. spreta Pérez, 1895, which is the senior synonym according to Wood (2023c: 287).

Andrena (Truncandrena) espanola Warncke, 1967

Synonymised with A. nigropilosa Warncke, 1967, which is the senior synonym according to Wood (2023c: 306).

Andrena (Melandrena) gallica Schmiedeknecht, 1883

Synonymised with Andrena assimilis Radoszkowski, 1876 (Figs 3C, D), which is the senior synonym according to Wood & Monfared (2022).

Andrena (Melandrena) hispania Warncke, 1967

Synonymised with Andrena morio Brullé, 1832, which is the senior synonym according to Wood (2023c: 263).
**FIGURE 3.** A. *Andrena fulica* Warncke, 1974 male, habitus in lateral view. The taxonomic review of Wood et al. (2020b) shows that the taxon *Andrena astrella* Warncke, 1975 is a junior synonym of this species. B. *A. fulica* male, frontal view of the head. C. *Andrena assimilis* Radoszkowski, 1876 female, habitus in lateral view. The taxonomic review of Wood & Monfared (2022) shows that the taxon *Andrena gallica* Schmiedeknecht, 1883 is a junior synonym of this species. D. *A. assimilis* female, frontal view of the head. E. *Andrena bimaculata* (Kirby, 1802) female, habitus in lateral view. Unpublished data from T.J. Wood agrees with the baseline of Gusenleitner & Schwarz (2002) and indicates that the taxon *Andrena oligotricha* Mavromoustakis, 1952 is a junior synonym of this species. F. *A. bimaculata* female, frontal view of the head. Pictures by Paolo Rosa.
Andrena (Euandrena) impressa Warncke, 1967

Synonymised with Andrena (Euandrena) lavandulae Pérez, 1902, which is the senior synonym according to Wood (2023c: 261).

Andrena (Leimelissa) ispida Warncke, 1965

Synonymised with Andrena fallax Eversmann, 1852, which is the senior synonym according to Astafurova et al. (2022).

Andrena (Avandrena) siciliana Warncke, 1980

Synonymised with Andrena heterodoxa Pérez, 1903, which is the senior synonym according to Wood (2023a: 57).

Andrena (Taeniandrena) similis Smith, 1847

Synonymised with Andrena russula Lepeletier, 1841, which is the senior synonym according to Praz et al. (2022).

Andrena (incertae sedis) toelgiana Friese, 1921

Synonymised with A. limbata Eversmann, 1852 which is the senior synonym according to Wood (2023: 325).

Andrena (Melandrena) vachali Pérez, 1895

Synonymised with Andrena discors Erichson, 1841, which is the senior synonym according to Wood (2023c: 267).

Synonymic notes

Andrena (Plastandrena) cypricola Mavromoustakis, 1952

Synonym of Andrena tibialis (Kirby, 1802). Andrena cypricola was listed at the species rank by Gusenleitner & Schwarz (2002) and Varnava et al. (2020) but we do not consider this to be justified given the lack of variation in the genital capsule. Moreover, given the problems of introgression within the subgenus Plastandrena, detailed genetic work is needed before to be confident that additional taxa exist outside of the ‘core’ Plastandrena taxa.

Andrena (incertae sedis) iohannescaroli Nobile, 2000

In the original description (Nobile 2000), the name and location of the collection housing the holotype are omitted, thereby not complying with Article 16.4.2 of the International Code of Zoological Nomenclature (ICZN, 1999). Consequently, because this species is not correctly described, we consider the name a nomen nudum.

Andrena (Plastandrena) oligotricha Mavromoustakis, 1952

Andrena oligotricha was considered to be a valid species by Varnava et al. (2020). However, we consider it a synonym of Andrena bimaculata (Kirby, 1802) (Figs 3E, F) based on genetic data (Wood 2023b), the lack of
morphological differentiation from *A. bimaculata*, particularly in the genital capsule, the presence of this red colour form in Turkey and the Levant, and we thus return to the hypothesis proposed by Gusenleitner & Schwarz (2002).

**Andrena (Simandrena) palumba** Warncke, 1974

This taxon will be synonymised with *Andrena rhypara* Pérez, 1903 as part of a revision of the Moroccan fauna conducted by Wood (in prep.).

**Taxonomic changes**

**Cubiandrena Warncke, 1968**


**Andrena (Micrandrena) acuta Warncke, 1968**


**Andrena (Taeniandrena) afzeliella** (Kirby, 1802)

*Melitta afzeliella* Kirby, 1802: 169.

**Andrena (Micrandrena) alma Warncke, 1975**

*Andrena mariana alma* Warncke, 1975c: 299

**Andrena (Micrandrena) ampla Warncke, 1967**


**Andrena (Micrandrena) catula Warncke, 1968**


**Andrena (Simandrena) cilissaeformis** Pérez, 1895

*Andrena cilissaeformis* Pérez, 1895: 42.
**Andrena (Euandrena) croatica** Friese, 1887

*Andrena croatica* Friese, 1887: 85.

**Andrena (Taeniandrena) croceiventris** Morawitz, 1871

*Andrena croceiventris*: Praz et al. 2022: 396. Returned to species status.

**Andrena (Taeniandrena) eversmanniana** Ozyshnjuk, 1994

*Andrena fulva* Eversmann, 1852: 31, *nom. praeocc.*, *nec* *Andrena fulva* (Müller, 1776).
*Andrena eversmanniana* Ozyshnjuk, 1994: 35, repl. name for *Andrena fulva* Eversmann.

**Andrena (Leimelissa) fallax** Eversmann, 1852

*Andrena fallax* Eversmann, 1852: 20.
*Andrena fallax*: Astafurova et al. 2022: 396. Returned to species status.

**Andrena (Micrandrena) gomerensis** Warncke, 1993


**Andrena (Euandrena) lavandulae** Pérez, 1902

*Andrena lavandulae* Pérez, 1902: 176

**Andrena (Micrandrena) lecana** Warncke, 1975

*Andrena niveata lecana* Warncke, 1975c: 298.
*Andrena lecana* Wood 2023c: 283. Upgraded to species rank.

**Andrena (Truncandrena) nigropilosa** Warncke, 1967

*Andrena truncatilabris nigropilosa* Warncke, 1967: 225
*Andrena truncatilabris espanola* Warncke, 1967: 224
*Andrena espanola* Nieto et al. 2014: 44.
*Andrena nigropilosa* Wood 2023c: 306. Upgraded to species rank, including *A. espanola* as a junior subjective synonym.
Andrena (Plastandrena) nigrospina Thomson, 1872

*Andrena nigrospina* Thomson, 1872: 80.
*Apis carbonaria* Linnaeus, 1767, auct.

**Notes.** A two-taxon model based on the work of Schmid-Egger & Patiny (1997) is followed here with a bivoltine *A. pilipes* that has a more southerly distribution and a univoltine *A. nigrospina* that has a more northerly distribution. Additional detail is given in Wood (2023b; 2023c)

Andrena (Micrandrena) obsoleta Pérez, 1895

*Andrena obsoleta* Pérez, 1895: 44.
*Andrena mariana solda* Warncke, 1974: 40.

**Notes.** This taxon was used in a *sensu auctorum* by Warncke; it is actually a valid species (Wood 2023c: 273), and in a European context it is found only in Sicily.

Andrena (Taeniandrena) ovata Schenck, 1853

*Andrena ovata* Schenck, 1853: 133.

Andrena (Pruinosandrena) parata Warncke, 1967

*Andrena parata*: Wood 2023c: 311. Upgraded to species status.

Andrena (Euandrena) pileata Warncke, 1975

*Andrena allosa pileata* Warncke, 1975a: 85.

Andrena (Suandrena) portosanctana Cockerell, 1922

*Andrena portosanctana* Cockerell, 1922: 32.

Andrena (Taeniandrena) poupillieri Dours, 1872

*Andrena poupillieri* Dours, 1872: 430.
*Andrena poupillieri*: Wood 2023c: 300. Returned to species status.
Andrena (Micrandrena) tenostra Warncke, 1975

*Andrena mariana* tenostra Warncke, 1975c: 300

Andrena (Notandrena) varuga Warncke, 1975

*Andrena varuga* Warncke, 1975c: 312.
*Andrena varuga*: Wood 2023c: 292. Upgraded to species rank (distinct from *A. reperta*).

Andrena (Taeniandrena) vocifera Warncke, 1975


Cubiandrena cubiceps (Friese, 1914)

*Andrena* cubiceps Friese, 1914: 223.
*Cubiandrena cubiceps*: Dubitzky et al. 2010: 144.

Taxonomic acts and clarifications

Andrena (Hoplandrena) carantonica Pérez, 1902

Considered to be a *nomen dubium* by Wood et al. (2022c).

Andrena (Notandrena) erythrocnemis Morawitz, 1870 *sensu auctorum*

This taxon was used incorrectly by Warncke (Gusenleitner & Schwarz 2002; Proshchalykin et al. 2017) as *Andrena erythrocnemis* *sensu auctorum*, and the name is replaced in the European list by *A. griseobalteata* Dours, 1872. Wood (2023c: 361) designated a neotype for *A. griseobalteata* from southern France.

Andrena (Truncandrena) oulskii Radoszkowski, 1867 *sensu auctorum*

Listed by Nieto et al. (2014). This identification was based on a misapplication of the type concept: the true *Andrena oulskii* belongs to the subgenus *Truncandrena*, whereas European material is a member of the subgenus *Ulandrena*. The type material of *Andrena oulskii* was clarified by Wood (2021); the correct name for European material is *A. (Ulandrena) biguttata* Friese, 1923.

Andrena (Ulandrena) osychniukae Osytshnjuk, 1977 and Andrena (Ulandrena) polemediana Mavromoustakis, 1956

In the new checklist of the European species these two taxa are included within *Andrena abbreviata* Dours, 1873 *sensu lato*. A comprehensive molecular revision of these taxa is required for clarity due to ongoing taxonomic confusion.
Andrena (Hoplandrena) scotica Perkins, 1916

This name replaces the use of Andrena carantonica sensu auctorum, Andrena carantonica Pérez, 1902 is treated as a nomen dubium (see above).

Species recorded in Europe after 2017

Andrena (Notandrena) falcinella Warncke, 1975

Distribution. First recorded for Europe by Wood & Monfared (2022) from Limassol in Cyprus. Outside Europe known from Turkey, Israel and Iran.

Andrena (incertae sedis) laurivora Warncke, 1974

Distribution. First recorded for Europe by Wood et al. (2021) from Huelva and Sevilla in Spain. Outside Europe known only from Morocco.

Andrena (Avandrena) melacana Warncke, 1967


Andrena (Truncandrena) varia Pérez, 1895

Distribution. First recorded for Europe by Ortiz-Sánchez (2020) from Córdoba in Spain. Outside Europe known from Morocco, Algeria, and Tunisia.

New species for Europe

Andrena (Notandrena) hebescens Wood, 2020


Andrena (Chrysandrena) henotica Warncke, 1975


Species overlooked in the previous European checklists

Andrena (Suandrena) portosanctana Cockerell, 1922

Considered as a subspecies of Andrena maderensis by Warncke (1967), returned to species rank by Kratochwil et al. (2014) but overlooked in the last update of Rasmont et al. (2017).
Species to be excluded from the European checklist

Andrena (Trucandrena) derbentina Morawitz, 1886

**Distribution.** The only verified records of this species are from the Caucasus.

Andrena (Melandrena) grandilabris Pérez, 1903

**Distribution.** This species is present only in eastern Turkey and Iran (see Wood & Monfared 2022). European citations from Cyprus refer to misidentified material of Andrena elmaria Gusenleitner, 1998. Not present in Europe.

Andrena (Euandrena) majalis Morawitz, 1876

**Distribution.** The only verified records of this species are from Central Asia.

Andrena (incertae sedis) wolfi Gusenleitner & Scheuchl, 2000

**Distribution.** Levant only, from Israel and to Syria and Jordan (Wood unpublished data). Not present in Europe.

Tribe Panurgini Leach, 1815

Genus described

Halopanurgus Wood, Patiny & Bossert, 2022
(Figs 4A, B)


Species recently described as new to science

Halopanurgus baldocki (Wood & Cross, 2017)
(Figs 4A, B)


**Distribution.** Portugal, Spain.

**Taxonomic changes**

Halopanurgus fuzetus (Patiny, 1999)
(Figs 4C, D)

*Flavipanurgus fuzetus* Patiny, 1999: 58.

FIGURE 4. A. *Halopanurgus baldocki* (Wood & Cross, 2017) male, habitus in lateral view. The species was originally described under the genus *Camptopoeum* Spinola, 1843, and then served as the type species for the newly described genus *Halopanurgus* Wood, Patiny & Bossert, 2022 (Wood et al. 2022a). B. *H. baldocki* male, oblique view of the head. C. *Halopanurgus fuzetus* (Patiny, 1999) female, habitus in lateral view. The species was originally described as *Flavipanurgus fuzetus* by Patiny 1999 but was later shown to belong to the genus *Halopanurgus*. D. *H. fuzetus* female, oblique view of the head. E. *Flavipanurgus kastiliensis* (Warncke, 1987) male, habitus in lateral view. The species was initially considered to be a subspecies of *Flavipanurgus ibericus* (Warncke, 1972) before being upgraded to species rank in Wood & Cross (2018). F. *F. kastiliensis* male, frontal view of the head. Pictures by Paolo Rosa.
*Flavipanurgus kastiliensis* (Warncke, 1987)
(Figs 4E, F)


**Species overlooked in the previous European checklists**

*Panurginus alticolus* Morawitz, 1875

**Distribution.** Russia (Samara Prov., Volgograd Prov., Orenburg Prov., Bashkir Rep.) (Romankova & Astafurova 2011).

**Family APIDAE Latreille, 1802**

**Tribe Ammobatini Handlirsch, 1925**

**Published synonymies**

*Ammobates globosus* Mavromoustakis, 1954

Synonymised with *Ammobates biastoides* (Friese, 1895), which is the senior synonym according to Warncke (1983: 294). This change was overlooked in Nieto *et al.* (2014) and Rasmont *et al.* (2017).

**Tribe Ancylaini Michener, 1944**

**Species to be excluded from the European checklist**

*Ancyla nitida* Friese, 1922

**Distribution.** Given that we could not locate specimens to verify the old and doubtful records of this species from Cyprus, we deleted this taxon from the checklist of the European species (Varnava *et al.* 2020).

*Ancyla oraniensis* Lepeletier, 1841

**Distribution.** North African species, not present in Europe.

**Tribe Anthophorini Dahlbom, 1835**

**Published synonymies**

*Amegilla magnilabris* (Fedtschenko, 1875)

In Nieto *et al.* (2014) as a valid species. This species was synonymised with *Amegilla savignyi* (Lepeletier, 1841) by Brooks (1988), yet never revalidated. In the present list we follow the interpretation of the latter author until further taxonomic work is done.
**Anthophora salviae** (Panzer, 1805)

Synonymised with *Anthophora crinipes* Smith, 1854, which is the valid name according to Maghni *et al.* (2017). The latter authors and Scheuch & Willner (2016) considered the basionym *Lasius salviae* Panzer, 1805 a *nomen dubium*.

**Anthophora thomsonii** (Saunders, 1882)

Synonymised with *Anthophora atriceps* Pérez, 1879, which is the senior synonym, according to Baldock *et al.* (2018). This taxon was described as *Podalirius thomsonii* Saunders, 1882, but the name in use was *thomsonii* (with only one –i), which is an incorrect subsequent spelling.

**New synonymies**

**Anthophora senicula** Pérez, 1902

We synonymise here *Anthophora senicula* Pérez, 1902, *syn. nov.* with *Anthophora* (*Pyganthophora*) *balearica* (Friese, 1896), the name with priority. Type series were revised in MNHN and SMF, respectively.

**Taxonomic acts and clarifications**

**Anthophora andalusica** Pérez, 1902

Morphologically, the type specimen of this taxon (examined in MNHN) is an abraded female belonging to the subgenus *Pyganthophora* Brooks, 1988 that may be synonymous with *Anthophora retusa meridionalis* Pérez, 1879. However, given the degraded nature of the specimen, it is safer to regard *A. andalusica* a *nomen dubium*.

**Anthophora cincrea** (Friese, 1896)

This taxon was described by Friese as *Podalirius cincreus*. The name is a misspelling of the Latin adjective *cinereus* [= grey], referring to the body hair coloration. An original incorrect spelling can be emended, but the emendation would generate a secondary homonym of *A. cinerea* Eversmann, 1852, thus creating instability of the system. We therefore prefer to keep the original misspelling *cincreus*, nevertheless the name is an adjective and must be modified in accordance with the feminine genus gender of *Anthophora*. For this reason, in the new checklist we use the name *Anthophora cincrea* (Friese, 1896).

**Anthophora (Pyganthophora) erschowi** Fedtschenko, 1875

The type series was revised in ZISP. The specimens of the series are only females, all belonging to the difficult group of *Anthophora aestivalis* (Panzer, 1801), in which generally only males can be reliably identified. The name *Anthophora erschowi* is therefore considered as a *species inquirenda* and removed from the present checklist. Material under this name requires revision.

**Anthophora (Pyganthophora) rubricrus** Dours, 1869

The type series of *Anthophora rubricrus* from Greece was destroyed during the WWI bombing of the museum of Amiens (France). Only one species is likely to correspond to *A. rubricrus* Dours which is found in Syros today, and
therefore corresponds with the type locality (J. Devalez, pers. comm.). However, without type material and reliably identified specimens from the taxon author, we consider *Anthophora rubricrus* a **species inquirenda** and remove it from the present checklist.

**Anthophora (Paramegilla) segnis** Eversmann, 1852

Eversmann (1852) gives as *locus typicus* “in prov. Orenburg. Australi, Saratoviensi et Astrachanensi”. Proshchalykin et al. (2019), without revision of the type series, suggest a likely synonymy with *Anthophora podagra* Lepeletier, 1841. However, after examination of the type series in IZKP, the species looks more related to *Anthophora prshewalskyi* Morawitz, 1880. *Anthophora segnis* is here considered as the senior synonym of *Anthophora prshewalskyi* syn. nov.

**Anthophora (Pyganthophora) ventilabris** Lepeletier, 1841

In Nieto et al. (2014) erroneously as *Anthophora ventrilabris* Lepeletier, 1841, an incorrect subsequent spelling.

**Species recorded in Europe after 2017**

**Anthophora (Lophanthophora) cinerascens** Lepeletier, 1841

**Distribution.** Russia (Orenburg Prov.) (Proshchalykin et al. 2019). Outside Europe known from north Africa, Israel, Pakistan, Central Asia.

**Anthophora (Paramegilla) segnis** Eversmann, 1852

**Distribution.** Crimea. Outside Europe known from Turkey, Turkmenistan, Kazakhstan and China (Levchenko et al. 2017).

**New species for Europe**

**Anthophora (Paramegilla) balassogloi** (Radoszkowski, 1877)


**Anthophora (Lophanthophora) crysocnemis** Morawitz, 1877


Anthophora (incertae sedis) raddei Morawitz, 1875

**Distribution.** New record (?) BULGARIA: 1♂ and 4♀, Plovdiv, 6–20.vi.1909, leg. A. Gutbier (ZISP). Outside Europe known from Armenia (Morawitz 1875) and Iran (Alfken 1935).

**Remarks.** This species was classified by Brooks (1988) in the subgenus Paramegilla Friese, 1897 but the species is difficult to classify in the current system.

**Species to be excluded from the European checklist**

Anthophora (Anthophora) lanata (Klug, 1845)

**Remarks.** Listed by Nieto et al. (2014), but the status of this species is doubtful, and it might be a subspecies of *A. (Anthophora) canescens* Brullé, 1832. Waiting for a proper taxonomic revision, we choose to exclude it from the present checklist and to consider it a *species inquirenda*.

Tribe Melectini Westwood, 1839

**Taxonomic changes**

Melecta baerii (Radoszkowski, 1865)

*Melecta baerii* (Radoszkowski, 1865) was previously misspelt as *Melecta baeri* (Radoszkowski, 1865) in the Red List of Nieto et al. (2014).

Thyreus aberrans (Morawitz, 1875)

This taxon has been confused, as the location of the type material is uncertain. According to Proshchalykin (pers. comm.) the type could be located in Moscow. The species was described from Uzbekistan as *Crocisa aberrans*, and its identity is unclear. Lieftinck (1968) notes that in the original description, the scutellum has the posterior margin truncate, with the apex produced into a median lobe. This does not fit any known *Thyreus* species, and is reminiscent of a Dioxyine bee. Without a type, the concept is unclear, and the name must be treated as a *nomen dubium*. Records from the European part of Russia must therefore be considered to be unclear due to this taxonomic uncertainty. We therefore remove this taxon from the European checklist.

Thyreus piceus (Meyer, 1921)

This taxon is known only from the type specimen which is a female collected from the island of Poros in Greece. The type appears to be lost, as it cannot be located in the Berlin collection (Lieftinck 1968). Without a type, this name must be considered a *nomen dubium* given the impossibility to conclusively conclude on its identity based only on the description.

Thyreus plumatus (Meyer, 1921)

This taxon is known only from the type specimen which is a male collected from Milan in Italy. The type appears to be lost, as it cannot be located in the Berlin collection (Lieftinck 1968). Without a type, this name must be considered a *nomen dubium* given the impossibility to conclusively conclude on its identity based only on the description.
Species recorded in Europe after 2017

\textit{Melecta amanda} Lieftinck, 1980

\textbf{Distribution.} Recorded for the first time by Levchenko \textit{et al.} (2017) from the south of the European part of Russia. Outside Europe known from Iran.

Species overlooked in the previous European checklists

\textit{Melecta alcestis} Lieftinck, 1980

\textbf{Distribution.} Described from the European part of Russia (Orenburg). Only known from the type specimens (unpublished).

\textit{Melecta diacantha} Eversmann, 1852

\textbf{Distribution.} Described from the European part of Russia (Urals) (Levchenko \textit{et al.} 2017).

\textit{Melecta eversmanni} Radoszkowski, 1893

\textbf{Distribution.} Described from the European part of Russia (Orenburg) (Radoszkowski 1893; Proshchalykin \textit{et al.} 2019). Outside Europe known from Uzbekistan.

\textit{Melecta rutenica} Radoszkowski, 1893

\textbf{Distribution.} The type locality given by Radoszkowski (1893) is Ciechocinek, Poland. However, as discussed by Lieftinck (1980), this is an error. The lectotype specimens is labelled as “Nickon: p. Stani” which is an unclear locality. However, the specimen is labelled by Radoszkowski and was considered to be a valid lectotype by Lieftinck (1980). In Europe, the species has only confidently been recorded from Ukraine (Kirill ravine, Kiev).

Species to be excluded from the European checklist

\textit{Thyreus tricuspis} (Pérez, 1883)

Listed by Nieto \textit{et al.} (2014) for Europe, but only present in north Africa.

Tribe Bombini Latreille, 1802

Species recently described as new to science

\textit{Bombus} (\textit{Melanobombus}) \textit{bicsicus} Lecocq, Biella, Martinet & Rasmont, 2019


Individuals of the taxon described recently with the name \textit{Bombus bicsicus} have been recorded traditionally as \textit{B. lapidarius decipiens} Pérez, 1879, because individuals of the new taxon share a yellow-banded colour pattern that
has been given by some the status of a subspecies within *B. lapidarius* (Linnaeus, 1758). But based on its divergence from *Bombus lapidarius* in northern Europe in COI barcodes and CLGS (cephalic labial gland secretions, believed to function as sex-specific pheromones in bumblebees), Lecocq et al. (2019) described the new taxon from southern Italy and Sicily as a separate species, *B. bisiculus* Lecocq, Biella, Martinet & Rasmont, 2019 (the name *decipiens* Pérez was applied originally to yellow-banded individuals of *B. lapidarius* from the Pyrenees and the Iberian Peninsula).

In a revision of the *Melanobombus* bumblebees world-wide, Williams et al. (2020) noted from a re-analysis of COI barcodes based in part on sequences provided by Lecocq et al. (2015), that some individuals (‘*lapidarius* SE Europe’) were grouped in the tree together with the new taxon *Bombus bisiculus*. This group of individuals was not explicitly reported or discussed by Lecocq et al. (2019) when they formally described *B. bisiculus*. These SE Europe sequences came from unbanded specimens from Slovakia, the Czech Republic, Serbia, Bulgaria, and Hungary that are phenotypically identical to the typical *B. lapidarius* (Linnaeus, 1758), not to the yellow-banded taxon *bisiculus* of Lecocq et al. (2019).

More significantly, Williams et al. (2020) highlighted that the SE Europe samples also produce CLGS mixtures (as reported by Lecocq et al. 2015), that are typical of *B. lapidarius*, not of *B. bisiculus*. Williams et al. (2020) therefore suggested that the definition of *Bombus bisiculus* by Lecocq et al. (2019) as a yellow-banded bumblebee species diverging in both COI barcodes and CLGS from *B. lapidarius* appears to be contradicted by the dataset of Lecocq et al. (2015) when the whole of Europe is considered. Williams et al. (2020) therefore concluded that there is disagreement between the two independent lines of evidence (COI and CLGS) from Lecocq et al. (2013, 2015, 2019), not the corroboration that would be required to support species status for the taxon *bisiculus*: the SE Europe bees have the COI of *bisiculus* but the CLGS of *lapidarius*.

In the absence of corroboration between COI and CLGS (a required combination for deserving a species status following Lecocq et al. 2013, 2015, 2019), we here consider the taxon *bisiculus* as a subspecies of *B. lapidarius*.

**Distribution.** Southern Italy. Records from Bulgaria, the Czech Republic, Hungary, Serbia, and Slovakia need confirmation.

**Taxonomic changes**

*Bombus (Megabombus) reinigiellus* (Rasmont, 1983)

Megabombus reinigiellus Rasmont, 1983: 43.


The taxon *reinigiellus* Rasmont, 1983 was re-assessed as a subspecies of *Bombus hortorum* (Linnaeus, 1761) by Ghisbain et al. (2021b) based on genetic and semio-chemical analyses.

*Bombus (Pyrobombus) konradini* Reinig, 1965


The taxon *konradini* Reinig, 1965 was re-assessed as a valid species by Martinet et al. (2018a) based on genetic and semio-chemical analyses.

*Bombus (Thoracobombus) mocsaryi* Kriechbaumer, 1877

(Figs 5A, B)

Bombus mocsaryi Kriechbaumer, 1877: 253.

The taxon *mocsaryi* Kriechbaumer, 1877 (Figs 5A, B) was re-assessed as a subspecies of *Bombus laesus* Morawitz (1875) (Figs 5C, D) by Brasero *et al.* (2021) based on genetic and semio-chemical analyses.

**FIGURE 5.** A. *Bombus laesus mocsaryi* Kriechbaumer, 1877 female, habitus in lateral view. The taxon *mocsaryi* was recently shown to be conspecific with the taxon *laesus* Morawitz, 1875 by Brasero *et al.* (2021). B. *B. laesus mocsaryi* female, head in oblique view. C. *Bombus laesus laesus* female, habitus in lateral view. D. *B. laesus laesus* female, head in oblique view. Pictures by Paolo Rosa.

**Taxonomic acts and clarifications**

*Bombus (Alpinobombus) polaris* Curtis, 1835 and *Bombus (Alpinobombus) pyrrhopygus* Friese, 1902

There is an ongoing debate as to whether the Nearctic taxon *polaris* Curtis, 1835 and Palaearctic taxon *pyrrhopygus* Friese, 1902 should be considered as conspecific or heterospecific.

Based on a lack of statistical differentiation in CLGS, Martinet *et al.* (2018b) consider these taxa as conspecific, grouping them under the oldest available name *Bombus (Alpinobombus) polaris* Curtis, 1835. These authors also base their argument on the fact that a previous study by Williams *et al.* (2015) showed no differentiation in the slowly-evolving PEPCK nuclear gene between these two taxa (despite showing a significant differentiation based on COI).

However, a detailed revision of the world *Alpinobombus* Skorikov, 1914 species by Williams *et al.* (2019) concluded that *Bombus polaris* Curtis, 1835 and *Bombus pyrrhopygus* Friese, 1902 could be considered as two differentiated species. The decision of Williams *et al.* (2019) is based on the following evidence: (i) a species coalescent in the COI marker demonstrated by the Poisson-tree-process procedure (cf. Zhang *et al.* 2013); (ii) diagnostic differences in the 16S gene; (iii) differences in morphology and colour patterns between both taxa. Furthermore, according to Williams *et al.* (2019), the lack of statistical differentiation in CLGS cannot be used as a
convincing argument of conspecificity, as the absence of co-occurrence between both taxa might have removed any selective pressure that might otherwise have enhanced barriers to interbreeding by driving evolutionary divergence in sex pheromones. Williams et al. (2019) also note that a significant difference in CLGS would not be required to consider both taxa as conspecific following the unified species concept of de Queiroz (2007) because (i) the status of both taxa as independently evolving lineages (EILs) is automatically maintained by the wide sea barrier and (ii) the existence of these two separate EILs is directly evidenced by their two species’ coalescents in the COI gene.

Here we follow the latter interpretation and consider the Nearctic taxon *polaris* Curtis, 1835 and Palaearctic taxon *pyrrhopygus* Friese, 1902 as distinct species, with only *Bombus pyrrhopygus* occurring in IUCN Europe. Additional work is required to better understand the evolutionary history of this highly interesting species complex.

**Bombus (Thoracobombus) muscorum pereziellus** (Skorikov, 1922)
(Figs 6A, B)

*Agrobombus pereziellus* Skorikov, 1922: 150.

The taxon *pereziellus* (Figs 6A, B) was re-assessed as a subspecies of *Bombus muscorum* (Linnaeus, 1758) (Figs 6C, D) by Lecocq et al. (2014) based on genetic and semio-chemical analyses. This taxonomic update was omitted in Rasmont et al. (2017).

![Figure 6](image_url)

**FIGURE 6.** A. *Bombus muscorum pereziellus* Skorikov, 1922 female, habitus in lateral view. The taxon *pereziellus* was shown to be conspecific with the taxon *muscorum* (Linnaeus, 1758) by Lecocq et al. (2014). This taxonomic update was omitted in Rasmont et al. (2017). B. *B. muscorum pereziellus* female, head in oblique view. C. *Bombus muscorum pereziellus* female, habitus in lateral view. D. *B. muscorum pereziellus* female, head in oblique view. Pictures by Paolo Rosa.
*Bombus (Psithyrus) vestalis perezi* (Schulthess-Rechberg, 1886)

(Figs 7A, B)

*Psithyrus perezi* Schulthess-Rechberg, 1886: 275.

The taxon *perezi* (Figs 7A, B) was re-assessed as a subspecies of *Bombus vestalis* Geoffroy (1785) (Figs 7C, D) by Lecocq et al. (2014) based on genetic and semio-chemical analyses. This taxonomic update was omitted in Rasmont et al. (2017).

**FIGURE 7.** A. *Bombus vestalis perezi* Schulthess-Rechberg, 1886 female, habitus in lateral view. The taxon *perezi* was shown to be conspecific with the taxon *vestalis* Geoffroy, 1785 by Lecocq et al. (2014). This taxonomic update was omitted in Rasmont et al. (2017). B. *B. vestalis perezi* female, head in oblique view. C. *Bombus vestalis vestalis* female, habitus in lateral view. D. *B. vestalis vestalis* female, head in oblique view. Pictures by Paolo Rosa.

**Tribe Ceratinini Latreille, 1802**

**Species to be excluded from the European checklist**

*Ceratina (Euceratina) zwakhalsi* Terzo & Rasmont, 1998

**Remarks.** Listed by Nieto et al. (2014) yet only recorded from SW-Turkey. This species is therefore removed from the present list.
Tribe Epeolini Linsley & Michener, 1939

Species recently described as new to science

*Epeolus ibericus* Bogusch, 2018
(Figs 8A, B)


**Distribution.** Portugal and Spain (Bogusch & Hadrava 2018). Outside Europe known from Morocco (Bogusch 2021).

![Epeolus ibericus](image)

**FIGURE 8.** A. *Epeolus ibericus* Bogusch, 2018 female, habitus in dorsal view. The species was recently described by Bogusch in Bogusch & Hadrava (2018). In Europe, it is found in Portugal and Spain. B. *E. ibericus* male, habitus in dorsal view. Pictures by Petr Bogusch.

Taxonomic acts and clarifications

*Epeolus julliani* Pérez, 1884
(Figs 9A, B)

This taxon was recently synonymised with *Epeolus transitorius* Eversmann, 1852 by Bogusch & Hadrava (2018). However, it is now recognized as a distinct species (Le Divelec 2021b; Astafurova & Proshchalykin 2022). Both *Epeolus julliani* and *E. transitorius* occur in Europe.
**Figure 9.** A. *Epeolus julliani* Pérez, 1884 female, habitus in lateral view. The taxon had been synonymised with *Epeolus transitorius* Eversmann, 1852 by Bogusch & Hadrava (2018) but is now recognized as a distinct species based on the work of Le Divelec (2021b). B. *E. julliani* female, head in oblique view. Pictures by Paolo Rosa.

*Epeolus minutus* Radoszkowski, 1888

This name is here considered to be a *nomen dubium* as no type specimens are preserved, and no further specimens have been attributed to this species (Bogusch & Hadrava 2018).

**Species recorded in Europe after 2017**

*Epeolus bischoffi* (Mavromoustakis, 1954)

**Distribution.** First recorded for Europe by Bogusch & Hadrava (2018) from Cyprus. Outside Europe known from Turkey, Syria, Lebanon, Israel and Jordan.

**Tribe Eucerini Latreille, 1802**

**Species recently described as new to science**

*Eucera (Eucera) dafnii* Dorchin, 2019

*Eucera (Eucera) dafnii* Dorchin, 2019: 465. Holotype ♂; Israel: Tel Yizhaq south NR (SMNH).

**Distribution.** Bulgaria, Greece, North Macedonia. Outside Europe known from Iran, Israel, Palestine, Syria and Turkey (Dorchin 2019).

*Tetralonia gennargentui* (Nobile, Catania & Bella, 2021)


**Distribution.** Italy (Sardinia).
Published synonymies

_Eucera (Synhalonia) alternans_ (Brullé, 1832)

_Eucera rufa_ (Lepeletier, 1841), which is the junior synonym, is retained by Dorchin (2023) as the valid name for this species under the principle of name stability.

_Eucera (Synhalonia) cressa_ (Tkalců, 1984)

Synonymised with _Eucera tricincta_ Erichson, 1835, which is the senior synonym according to Kuhlmann _et al._ (2022).

_Eucera (Eucera) decolorata_ Gribodo, 1924

Synonymised with _Eucera confinis_ Pérez, 1895, which is the senior synonym according to Dorchin (2023).

_Eucera (Eucera) eucnemidea_ Dours, 1873

Synonymised with _Eucera grisea_ Fabricius, 1793, which is the senior synonym according to Dorchin (2023).

_Eucera (Synhalonia) fedtschenkoi_ Dalla Torre, 1896

Synonymised with _Eucera intermedia_ Morawitz, 1875, which is the original name (nec _Melissodes intermedia_ Cresson, 1872 (= _Eucera belfragei_ Cresson 1872), synonymy in: Ascher & Pickering (2022)), listed as _Eucera_ in Dalla Torre (1896)).

_Eucera (Eucera) graeca_ Radoszkowski, 1876

Synonymised with _Eucera proxima_ Morawitz, 1875, which is the senior synonym according to Dorchin (2023).

_Eucera (Eucera) hispalensis_ Pérez, 1902

Synonymised with _Eucera longicornis_ (Linnaeus, 1758), which is the senior synonym according to Dorchin (2023).

_Eucera (Synhalonia) lucasi_ Gribodo, 1893

Synonymised with _Eucera obscura_ (Brullé, 1832) (= _Macroceria obscura_ Brullé, 1832), which is the senior synonym according to Dorchin (2023).

_Eucera (Eucera) maxima_ Tkalců, 1987

Synonymised with _Eucera taurea_ Vachal, 1907, which is the senior synonym according to Dorchin (2023).
**Eucera (Eucera) obsoleta Pérez, 1910**

Synonymised with *Eucera terminata* Pérez, 1895, which is the senior synonym according to Dorchin (2023).

**Eucera (Synhalonia) radoszkovyi (Morawitz, 1872)**

Synonymised with *Eucera alborufa* (Radoszkowski, 1871), which is the senior synonym according to Augul (2018).

**Eucera (Synhalonia) zeta Dalla Torre, 1896**

Synonymised with *Eucera melectoides* (Radoszkowski, 1893), which is the senior synonym [= *Macrocera melectoides* Radoszkowski, 1893, nec *Tetralonia melectoides* Smith, 1879 = *Florilegus melectoides* (Smith, 1879)].

**Taxonomic changes**

Based on Dorchin (2023) and Freitas *et al.* (in press), the following name changes are proposed in Dorchin (2023): *Tetralonia* Spinola, 1838 is re-established as genus, including *Tetraloniella* Ashmead, 1899 (Dorchin *et al.* 2018), *Cubitalia* Friese, 1911 is established as subgenus of *Eucera* Scopoli, 1770 and *Synhalonia* Patton, 1879 is retained as subgenus of *Eucera* as in Michener (2000). Therefore, the following 19 combinations established for species previously included in the genus *Tetraloniella* Ashmead, 1899 (Nieto *et al.* 2014) are now transferred to the genus *Tetralonia* Spinola, 1839.


**Eucera (Eucera) pollinosa Smith, 1854**

This species was previously referred to as *Eucera chrysopyga* Pérez, 1879 (Nieto *et al.* 2014), as when *Eucera* and *Tetralonia* were treated as a single genus *Eucera pollinosa* Smith became a junior homonym of *Eucera pollinosa* Lepeletier, 1841. Now that *Tetralonia* is restored as a genus, *Eucera pollinosa* Lepeletier is moved to *Tetralonia*, and *Eucera pollinosa* Smith is no longer a junior homonym and becomes the senior synonym of *Eucera chrysopyga* Pérez. *Eucera pollinosa* Smith was made a *nomen protectum* by Dorchin (2023).

**Eucera (Eucera) palaestinae Friese, 1922**

This taxon, originally proposed in the combination *Eucera notata var. palaestinae* Friese, 1922, was previously misspelt as *Eucera palestinae* Friese, 1922.

**Eucera (Synhalonia) ruficollis* (Brullé, 1832)**

This name was resurrected from synonymy with *Eucera alternans* (Brullé, 1832) after nearly 200 years (Dorchin 2023), the latter which itself was incorrectly interpreted (see above).
Species recorded in Europe after 2017

*Eucera (Eucera) aequata* Vachal, 1907

(Fig. 10)

**Distribution.** First recorded for Europe by Dorchin (2019) from Cyprus (Akrotiri and Limassol). Outside Europe known from Turkey, Syria, Israel and Palestine (Dorchin 2019).

**FIGURE 10.** A. *Eucera aequata* Vachal, 1907 female, habitus in lateral view. The species was newly recorded for Europe (in Cyprus) by Dorchin et al. (2019). B. *E. aequata* female, frontal view of the head. C. *Eucera aequata* male, habitus in lateral view. D. *E. aequata* male, frontal view of the head. Pictures by Paolo Rosa.

*Eucera (Cubitalia) breviceps* Friese, 1911

**Distribution.** Listed as *Eucera aff. breviceps* Friese, 1911 in the key to Eucerini species of France in Aubert (2020). Reported from northern Italy and south-eastern France by M. Aubert (pers. comm.). Outside Europe known from Turkey, Syria, Georgia.

*Eucera (Eucera) ferganica* Morawitz, 1875

**Distribution.** Recorded for the European part of Russia (south of European part; Levchenko et al. 2017). Outside Europe known from Iran and Uzbekistan.
**Eucera (Eucera) punctatissima** Pérez, 1895

This name was incorrectly interpreted as synonymous with the unrelated species *Eucera impressiventris* Pérez, 1895 from north-western Africa (Dorchin 2023). It was recently found in southern Portugal by Thomas Wood (reported as *E. decolorata* by Baldock et al. 2018).

**Eucera (Cubitalia) tristis** Morawitz, 1875

**Distribution.** *Eucera tristis* Morawitz, 1875 as *Cubitalia tristis* was recorded from Crimea (Levchenko et al. 2017). Outside Europe it is known from Russia (Dagestan), Georgia and Turkey.

**Species overlooked in the previous European checklists**

**Eucera (Eucera) atriceps** Morawitz, 1877

The taxonomic status of *Eucera atriceps* is unclear. Further work is needed to evaluate its relationships with *E. nigripes* Morawitz.

**Distribution.** *Eucera atriceps* Morawitz, 1877 was recorded from Crimea (Friese 1896; Sitdikov & Pesenko 1988; Levchenko et al. 2017). Outside Europe it is known from Armenia and Kazakhstan.

**Species to be excluded from the European checklist**

**Eucera commixta** Dalla Torre & Friese, 1895

*Eucera commixta* Dalla Torre & Friese (*nomen novum* proposed for *Tetralonia nigrifacies* Dours, 1873 nec *Eucera nigrifacies* Lepeletier, 1841), listed as such by Nieto et al. (2014), was originally described from Algeria and south France. The type series is considered to be lost and specimens described from France are likely not conspecific (Dorchin, 2023).

**Distribution.** This taxon occurs in Algeria and other reported localities are doubtful due to uncertain identification and confusion with similar species.

**Eucera (Synhalonia) distinguenda** (Morawitz, 1875)

**Distribution.** The data records from Romania (Iuga 1958) are doubtful as the species is only known from dry environments from central Asia.

**Eucera (Eucera) nigripes** Klug, 1845

Listed from Greece in https://westpalbees.myspecies.info and from Italy in www.discoverlife.it, but according to S. Risch (pers. comm.) it does not occur there.

**Distribution.** Turkey, Azerbaijan, Lebanon, Israel and Palestine.

**Eucera (Eucera) sogdiana** Morawitz, 1875

**Distribution.** No verified occurrence data of this species in Europe. The nearest record is from central Anatolia.
**Eucera (Synhalonia) spectabilis (Morawitz, 1875)**

Available records from Europe are probably erroneous.

**Distribution.** Turkey, Georgia, Uzbekistan, Kazakhstan, Kyrgyzstan, Iran, Pakistan.

**Tribe Nomadini Latreille, 1802**

**Species recently described as new to science**

**Nomada achaica Schwarz & Smit, 2020**


**Distribution.** Greece (Peloponnese).

**Nomada acutispina Schwarz & Smit, 2018**


**Distribution.** Greece (Crete). Outside Europe known from Turkey and Israel (Smit 2018).

**Nomada aeginaica Schwarz & Smit, 2018**


**Distribution.** Greece (Peloponnese). Outside Europe known from Armenia and Turkey (Smit 2018).

**Nomada breviceps Schwarz, Smit & Ockermüller, 2019**


**Distribution.** Greece (Peloponnese). Outside Europe known from Turkey (Schwarz et al. 2019).

**Nomada breviscapa Schwarz & Smit, 2018**


**Distribution.** Greece (Samos) (Smit 2018).

**Nomada crenulata Schwarz & Smit, 2018**


Nomada ebmeri Schwarz & Smit, 2018


Distribution. Greece. Outside Europe known from Turkey and Syria (Smit 2018).

Nomada elsei Schwarz & Smit, 2018


Distribution. Spain.

Nomada filicornis Schwarz & Smit, 2018


Distribution. Italy (Sicily), Greece (Crete), Cyprus. Outside Europe known from Turkey, Syria and Jordan (Smit 2018).

Nomada gageae Schwarz & Smit, 2018


Distribution. Cyprus.

Nomada halophila Wood, 2022


Distribution. Spain.

Nomada lapillula Schwarz & Smit, 2018


Distribution. Greece. Outside Europe known from Turkey and Israel (Smit 2018).

Nomada legoffi Dufrêne, 2021

Nomada legoffi Dufrêne, 2021: 438. Holotype ♀; France: Corsica, Saint-Julien valley, east of Bonifacio, 50 m, 7.x.1900, C. Ferton (MNHN).

Distribution. France (Corsica).
Nomada luteipes Schwarz & Smit, 2018


**Distribution.** Bulgaria and Greece (Crete). Outside Europe known from Turkey and Iran (Smit 2018).

Nomada maxschwarzi Smit, 2018


**Distribution.** Greece (Lesvos).

Nomada montarco Álvarez Fidalgo, 2023


**Distribution.** Spain (Montarco).

Nomada nigrifrons Schwarz & Smit, 2018


**Distribution.** Greece (Lesvos) (Smit 2018). Outside Europe known from Turkey and Israel.

Nomada nigrilabris Schwarz & Smit, 2018


**Distribution.** Greece. Outside Europe known from Turkey and Israel (Smit 2018).

Nomada opaciformis Schwarz & Smit, 2018


**Distribution.** Greece (Rhodes). Outside Europe known from Turkey and Israel (Smit 2018).

Nomada ottomanensis Schwarz & Smit, 2018


**Distribution.** Greece (Lesvos, Rhodes). Outside Europe known from Turkey and Israel (Smit 2018).
Nomada pilosa Schwarz & Gusenleitner, 2017

Nomada pilosa Schwarz & Gusenleitner, 2017: 980. Holotype ♀; Turkey: Konya, 5.vi.1967, leg. J. Gusenleitner (MSPC)

**Distribution.** Ukraine, Crimea and southern Russia. Outside Europe known from Turkey and Iran (Smit 2018).

Nomada pyrgosica Schwarz & Smit, 2018


**Distribution.** Cyprus. Outside Europe known from Turkey (Smit 2018).

Nomada simulatrix Schwarz & Smit, 2018


**Distribution.** Greece.

Nomada smiti Schwarz, 2018


**Distribution.** Spain.

Nomada tarsalis Schwarz & Smit, 2018


**Distribution.** Bulgaria, East Aegean Islands. Outside Europe known from Turkey, Israel and Iran (Smit 2018).

Nomada teunisseni Schwarz & Smit, 2018


**Distribution.** Cyprus.

Nomada tuberculifera Schwarz & Smit, 2018


**Distribution.** Greece (Peloponnese, Crete). Outside Europe known from Turkey.
Nomada unica Schwarz & Smit, 2018


Distribution. Greece. Outside Europe known from Turkey and Israel (Smit 2018).

Nomada warnckei Schwarz & Smit, 2018


Distribution. Greece (Lesvos). Outside Europe known from Turkey (Smit 2018).

Nomada yermasoyiae Schwarz, Smit & Gusenleitner 2018


Distribution. Cyprus. Outside Europe known from Israel (Smit 2018).

Published synonymies

Nomada ferghanica Morawitz, 1875

Synonymised with Nomada numida Lepeletier, 1841, which is the senior synonym according to Smit (2018).

Nomada lagrecai Nobile, 1990

Synonymised with Nomada hungarica Dalla Torre & Friese, 1894, which is the senior synonym according to Smit (2018).

Nomada longipalpis Schwarz & Smit, 2020

Described as a new species in Schwarz & Smit. (2020), then synonymised with Nomada kriesteni Schwarz & Gusenleitner, 2013, which is the senior synonym according to Schwarz & Smit (2021).

Nomada obscuriceps Schwarz & Levchenko, 2017

Synonymised with Nomada mitaii Proshchalykin, 2010, which is the senior synonym according to Proshchalykin et al. (2019).

Nomada transitoria Schmiedeknecht, 1882

Synonymised with Nomada corcyraea Schmiedeknecht, 1882, which is the senior synonym according to Schwarz & Gusenleitner (2015).
Taxonomic acts and clarifications

*Nomada cypriaca* (in Schwarz, 1999)

Incorrect subsequent spelling of *Nomada cypria* Mavromoustakis, 1952 and *N. cypricola* Mavromoustakis, 1957 (Schwarz 1999).

*Nomada glabella* Thomson, 1870

More cryptic species are being found in the *Nomada panzeri* group, and future changes are expected based on ongoing studies. The name *Nomada glabella* sensu Stöckert (1954) does not match the lectotype (Falk et al. 2022) and additional work is needed on this species complex. For now *Nomada glabella* is considered as a species inquirenda and therefore not included in the European checklist.

*Nomada jaramense* Dusmet y Alonso, 1913

Incorrect subsequent spelling of *Nomada jaramensis* Dusmet y Alonso, 1913.

*Nomada minuscula* Noskiewicz, 1930

For some authors and in Nieto et al. (2014), *Nomada minuscula* is a subspecies of *Nomada sheppardana* Kirby, 1802 (Smit 2018). Here we follow the opinion Scheuchl (2000) and Scheuchl & Willner (2016) and consider both taxa as heterospecific. Both are therefore listed in the present checklist.

**Distribution.** Portugal, Spain, France, Germany, Switzerland (extinct), Austria, Italy (mainland, Sicily), Slovenia, Czech Republic, Greece, Serbia, Hungary, Poland, Ukraine and European part of Russia (Smit 2018; Baldock et al. 2018). Outside Europe known from Morocco, Algeria, Tunisia.

*Nomada rufa* Rossi, 1790

Species originally described from Italy by Rossi (1790). It was considered as a valid species by Balzan et al. (2016). We here consider the name *Nomada rufa* a nomen dubium; while it likely has priority on other names currently in use, it cannot be correctly attributed to any taxon as the type series is lost and the original description is ambiguous. Material under this name should be revised, and the taxon is for now excluded from the European checklist.

*Nomada siciliensis* Dalla Torre & Friese, 1894

The status of this taxon is uncertain. The description of this species was based on a single male collected in Sicily (Santa Ninfa, Trapani province) (Dalla Torre & Friese 1894). The holotype was destroyed, and no other specimen of this taxon is known (Smit 2018; M. Schwarz, pers. comm.). The name was considered a nomen dubium by Smit (2018) and is therefore not considered in the present checklist.

*Nomada subcornuta* (Kirby, 1802)

A recent genetic study suggests that it is a distinct species from *Nomada fulvicornis* Fabricius, 1793 (Falk et al. 2017). Both species are therefore considered as valid and are included in the present checklist.

**Distribution.** United Kingdom, Belgium, Netherlands, Germany, Czech Republic, Hungary, Estonia, Finland, Sweden, Norway, Russia.
Nomada tormentillae Alfken, 1901

Nomada tormentillae Alfken, 1901 is treated as a valid species by some authors (Scheuchl & Willner 2016) and as a subspecies or form of N. roberjeotiana Panzer, 1799 by others (Amiet et al. 2007; Smit 2018; M. Schwarz, pers. comm.). DNA barcode analyses suggest that the two taxa are genetically very close, but distinct, supporting their treatment as two species (Schmidt et al. 2015). Awaiting future revisions, we consider both species as valid, and both are included in the present checklist.

Species recorded in Europe after 2017

Nomada collarae Schwarz, 1964


Nomada ecarinata Morawitz, 1888

Distribution. First recorded from the central European part of Russia (Levchenko et al. 2017). Also present in Ukraine. Outside Europe known from Mongolia, China and Japan.

Nomada guichardi Schwarz, 1981

Distribution. First recorded for Europe by Smit (2018) from Greece. Outside Europe known from Turkey and Iraq.

Nomada lutea Eversmann, 1852

Distribution. First recorded for Europe by Levchenko et al. (2017) from Crimea. Outside Europe known from Russia and Kazakhstan.

Nomada mitaii Proshchalykin, 2010

Distribution. First recorded for European part of Russia (Udmurtia) by Levchenko et al. (2017, under the name Nomada obscuriceps Schwarz & Levchenko, 2017, later synonymised by Proshchalykin et al. 2019). Also present in Ukraine and Crimea. Outside Europe known from Russia (Eastern Siberia, Far East), Mongolia.

Nomada oralis Schwarz, 1981


Nomada piliventris Morawitz, 1877

Distribution. First recorded for Europe by Smit (2018) from Greece. Outside Europe known from Turkey.
**Nomada yarrowi** Schwarz, 1981

**Distribution.** First recorded for the European part of Russia by Levchenko et al. (2017). Outside Europe known from Turkey.

**Species overlooked in the previous European checklists**

**Nomada dubia** Eversmann, 1852

**Distribution.** Described from European part of Russia (Orenburg Prov.: Spasskoe) (Proshchalykin et al. 2019). Outside Europe known from Western Asia.

**Nomada rubricosa** Eversmann, 1852

**Distribution.** Described from European part of Russia (Orenburg Prov.: Spasskoe) (Proshchalykin et al. 2019). Outside Europe known from Kazakhstan.

**New species for Europe**

**Nomada nigrospina** Schwarz & Smit, 2018


**Distribution.** New record (!) GREECE: Platanos, Keutriki, Lakonia, Taygetos, Sparti (unpublished data from J. Smit). Outside Europe known from Turkey.

**Species to be excluded from the European checklist**

**Nomada perezi** Dusmet y Alonso, 1913

The status of this species is uncertain, therefore this species is not included in the present checklist (Alexander & Schwarz 1994).

**Family COLLETIDAE** Lepeletier, 1841

**Tribe Colletini** Lepeletier, 1841

**Species recently described as new to science**

**Colletes jansmiti** Kuhlmann, 2018

**Colletes jansmiti** Kuhlmann in Kuhlmann & Smit (2018): 1250. Holotype ♀; Spain, Andalusia, Ronda la Vieja (ZMKU).

**Distribution.** Spain.
Species recorded in Europe after 2017

Colletes anceps Radoszkowski, 1891

Distribution. European part of Russia (Proshchalykin & Kuhlmann, 2020). Outside Europe known from Russia, Iran, Kazakhstan, Turkmenistan, Uzbekistan, Pakistan, Tajikistan, Kyrgyzstan and China [Xinjiang].

Colletes conradti Noskiewicz, 1936

Distribution. South of the European part of Russia (Astrakhan Prov.) (Proshchalykin & Kuhlmann 2020). Outside Europe known from Uzbekistan, Kyrgyzstan, Tajikistan, Kazakhstan, China (Qinghai, Xinjiang).

Species overlooked in the previous European checklists

Colletes kozlovi Friese, 1913

Distribution. European part of Russia (Astrakhan Prov., Buryatia Rep.) (Kuhlmann & Proshchalykin 2014). Outside Europe known from Dagestan, Siberia, Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan, Tajikistan, Mongolia, China (Inner Mongolia, Qinghai, Gansu, Ningxia, Xinjiang).

Colletes subnitens Noskiewicz, 1936

Distribution. European part of Russia (Kalmykia Rep.) (Kuhlmann & Proshchalykin 2014). Outside Europe known from Kazakhstan and Iran.

Colletes wacki Kuhlmann, 2002

Distribution. European part of Russia (Astrakhan Prov.) (Kuhlmann & Proshchalykin 2014). Outside Europe known from Siberia and Mongolia.

Tribe Hylaeini Viereck, 1916

Published synonymies

Hylaeus (Prosopis) praenotatus Förster, 1871

This species was reinstated as a European species by Ortiz-Sánchez et al. (2002). The main diagnostic trait that they mention is the red colour of the first tergum (e.g. Ortiz-Sánchez et al. 2003). The type of *H. praenotatus* is a black specimen of *H. gibbus* Saunders, 1850 (Le Divelec 2022). The records of *H. praenotatus* sensu Ortiz-Sánchez et al. (2003) might refer to any of three European species of the *gibbus* species-group that can exhibit black to reddish gaster: *H. gibbus*, *H. incongruus* Förster, 1871 and *H. purpurissatus* (Vachal, 1895). We do not include *H. praenotatus* in the present checklist. Barcoded specimens of this taxon reported from Portugal by Baldock et al. (2018) genetically match *H. incongruus* (T.J. Wood, unpublished data).

Hylaeus (Prosopis) stigmorhinus (Pérez, 1895)

The history of this taxon is rather complex. Depending on the authors, it has been treated as a distinct species (e.g. Nadig & Nadig 1933; Benoist 1959; Leclercq 1964), a synonym either of *H. pictus* (Smith, 1853) (Straka &
Bogusch 2011) or H. praenotatus (Ortiz-Sainchez et al. 2002; Ornosa & Ortiz-Sainchez 2004). Examination of the types reveals it is a junior synonym of Hylaeus purpurissatus (Vachal, 1895) (Le Divelec 2022).

Taxonomic acts and clarifications

**Hylaeus (Dentigera) biarmicus** (Warncke, 1992)

*Hylaeus biarmicus* was removed from the Spanish list because of the many doubts regarding the record of Warncke (Ortiz-Sainchez et al. 2002; Ortiz-Sainchez 2011). However, in a recent publication by Dathe (2022), this species is redescribed, its presence is confirmed in Spain and its status as a valid species is confirmed.

**Hylaeus (Spatulariella) decipiens** Förster, 1871

This species was overlooked in the previous European checklists. Erlandsson (1987) restored the specific status of *Hylaeus decipiens* that was previously considered to be a synonym of *H. hyalinatus* Smith, 1842 (Dathe 1980). The examination of the holotype (Germany, Götting, ♂, Giraud collection, MNHN) however reveals that *H. decipiens* is a distinct species from *H. hyalinatus* Smith, 1842, as Erlandsson (1987) suggested (Le Divelec 2021a). On the other hand, Erlandsson (1987) did not take into account the numerous subspecies within *Spatulariella* described by Pittioni (1950) and Warncke (1981) of which the taxonomic status is still unclear. In addition, Erlandsson (1987) placed great emphasis on coloration, whereas this character is unreliable and highly variable in this group. The published diagnoses for this taxon are therefore unreliable, the association of sexes has to be confirmed and the distribution to be reviewed. It should be noted that the species was described by Förster (1871) based on material collected by J. Giraud from Götting, whereas Giraud in his catalogue ([https://science.mnhn.fr/catalogue/ey-bib-giraud2/page/234](https://science.mnhn.fr/catalogue/ey-bib-giraud2/page/234)) wrote that his specimens of *H. decipiens* were collected on the French Alps. Awaiting a taxonomic revision of the subgenus, we consider *H. decipiens* as a valid species and include it in the present checklist.

**Hylaeus (Spatulariella) hyalinatus milossus** (Warncke, 1981)

This taxon is known only by its original description in which it was described as a subspecies of *Hylaeus hyalinatus*. It was raised to species level on the portal Westpalbees by Kuhlmann et al. (2022), without justification. This taxon is probably a junior synonym, most likely of *H. longimacula* (Alfken, 1936). Awaiting for a revision of the *Spatulariella* subgenus, we leave it as an unclear subspecies of *H. hyalinatus*.

**Hylaeus (Hylaeus) moricei** (Friese, 1898)

Warncke (1972, 1986, 1992a) considered the name *Hylaeus nigrifacies* Bramson, 1879 to have priority over *H. moricei* and designated a neotype of *H. nigrifacies* to fix the nomenclature (Warncke 1986). Although a lectotype is not currently designated, the name *H. moricei* has been used more frequently than *H. nigrifacies* in recent years. We here follow Warncke’s interpretation and consider *H. moricei sensu auctorum* as *H. nigrifacies* Bramson, 1879. This species includes three subspecies that require further investigation: the nominate subspecies which is distributed from eastern Germany to Iran, *H. n. moricei* in Israel and Egypt, and *H. n. rhenana* (Warncke, 1986) distributed from Spain to western Germany (Warncke 1992a). According to Schmidt et al. (2015), European COI sequences are assigned to two significantly divergent BINs (Barcode Index Numbers). Whether these two BINs correspond to distinct subspecies remains to be investigated. We only retain *Hylaenus nigrifacies* in the present checklist, awaiting further revision.

**Hylaeus (Dentigera) pallidicornis** Morawitz, 1876

(Figs 11A, B)

The European records of *Hylaes breviceps* Morawitz, 1876 in Dathe (1980) refer to *Hylaeus (Dentigera) pallidicornis* (Dathe & Proshchalykin 2017).

**Hylaeus (Prosopis) purpurissatus** (Vachal, 1895)
(Figs 11C, D)

A sixth species has been recently recognized within the *H. gibbus* species-group, *H. purpurissatus*, which has regularly been referred to as *Prosopis stigmorhina* Pérez, 1895 (= *H. stigmorhinus*) in the past (Le Divelec 2022).

**Species recorded in Europe after 2017**

**Hylaeus (Prosopis) hyrcanius** Dathe, 1980

**Distribution.** European part of Russia (Astrakhan Prov., Kalmykia Rep.) (Proshchalykin et al. 2017). Outside Europe known for Caucasus, from Krasnodar Prov. to Dagestan, Turkey and Iran (Proshchalykin & Dathe 2021).
Species overlooked in the previous European checklists

**Hylaeus (Hylaeus) mariannae Theunert, 2013**

*Hylaeus (Hylaeus) mariannae* Theunert, 2013: 63. Holotype ♀; France: Corsica, around Punta Stranciacone (SDEI).

**Distribution.** France (Corsica).

**Hylaeus (Spatulariella) moniae Nobile & Tomarchio, 1998**

*Spatulariella moniae* Nobile & Tomarchio, 1998: 294. Holotype ♂; Italy: Sicily, Mount Etna, Monterosso, m 450, m 450, 23.VIII.1996 (Tomarchio coll.)

Species only known by its original description (Nobile & Tomarchio 1998), based on two Sicilian males. According to this description, the species is very close to *H. punctatus* (Brullé, 1832). The species is included in the present checklist, but further investigations of the subgenus *Spatulariella* are needed to assess the taxonomic status of this taxon that could be a synonym.

**Distribution.** Italy (Sicily).

Species to be excluded from the European checklist

**Hylaeus (Dentigera) breviceps Morawitz, 1876**

**Distribution.** The European records of *Hylaeus breviceps* in Dathe (1980) refer to *Hylaeus (Dentigera) pallidicornis* Morawitz, 1876 (Dathe & Proshchalykin 2017). However, a few recent records in Dagestan may indicate that the species could be widely distributed in the European part of Russia (Proshchalykin & Dathe 2021).

Family HALICTIDAE Thomson, 1869

Note: in Europe, within the subfamily Halictinae, the tribe Halictini contains only the genera *Halictus, Lasioglossum, Seladonia, Sphecodes,* and *Thrincohalictus.* The genera *Nomiapis,* and *Pseudapis* are found in the subfamily Nomiinae, the genera *Ceylalictus* and *Nomioides* are found in the subfamily Nomioidinae, while the genera *Dufourea, Rhophitoides, Rophites* and *Systropha* are found in the subfamily Rophitinae. For the two latter subfamilies, the tribal system is not yet well-established. Therefore, the changes and additions proposed here for the family Halictidae will be divided by subfamilies (Halictinae, Nomiinae and Rophitinae).

Moreover, the generic and subgeneric classification of Halictini has remained unclear. We follow the position that *Seladonia* is a valid genus that is sister to *Halictus* (with *Thrincohalictus* being sister to *Seladonia + Halictus*; Danforth et al. 1999). For now, we maintain the *Halictus* subgeneric classification system of Yu. A. Pesenko (2004a); though this system requires molecular appraisal and validation, it is here used as the *status quo* in the absence of supported consensus.

Subgeneric classification of *Lasioglossum* is also highly challenging, due to the substantial incongruence between existing systems and molecular data (Gibbs et al. 2012, 2013). A new, global subgeneric classification system for *Lasioglossum* is currently being prepared (J. Gibbs & J. Gardner, *in litt.*), so for the purpose of this checklist we use the subgeneric classification system adopted by Kuhlmann et al. (2022), which was based on the conclusions of Gibbs et al. (2013). It should therefore be considered an intermediate classification until stability is achieved with the forthcoming global revision.
Subfamily Halictinae Thomson, 1869

Species recently described as new to science

*Halictus* (*Tytthalictus*) *toparensis* Pauly & Ortiz-Sánchez, 2017


**Distribution.** Spain.

**Published synonymies**

*Lasioglossum* (*Hemihalictus*) *sabulosum* (Warncke, 1986)

Synonymised with *Lasioglossum* (*Hemihalictus*) *monstrificum* (Morawitz, 1891), which is the senior synonym according to Pauly & Belval (2017).

*Seladonia* (*Pachyceble*) *nivalis* Ebmer, 1985

Synonymised with *Seladonia* (*Pachyceble*) *leucahenea* (Ebmer, 1972), which is the senior synonym according to Pauly & Ortiz-Sánchez (2017).

*Sphecodes banaszaki* Nobile & Turrisi, 2004

Synonymised with *Sphecodes combai* Nobile & Turrisi, 2004, which is the senior synonym according to Astafurova & Proshchalykin (2021).

*Sphecodes iosephi* Nobile & Turrisi, 2004

Synonymised with *Sphecodes combai* Nobile & Turrisi, 2004, which is the senior synonym according to Astafurova & Proshchalykin (2021).

*Sphecodes marcellinoi* Nobile & Turrisi, 2004

Synonymised with *Sphecodes combai* Nobile & Turrisi, 2004, which is the senior synonym according to Astafurova & Proshchalykin (2021).

*Sphecodes tomarchioi* Nobile & Turrisi, 2004

Synonymised with *Sphecodes combai* Nobile & Turrisi, 2004, which is the senior synonym according to Astafurova & Proshchalykin (2021).

*Sphecodes walteri* Nobile & Turrisi, 2004

Synonymised with *Sphecodes combai* Nobile & Turrisi, 2004, which is the senior synonym according to Astafurova & Proshchalykin (2021).
Taxonomic changes

The following new combinations are proposed for species previously included in the genus *Vestitohalictus* Blüthgen, 1961 (Rasmont et al. 2017) and now transferred to the genus *Seladonia* Robertson, 1918 subgenus *Vestitohalictus*:

*Seladonia* (*Vestitohalictus*) *concinna* (Brullé, 1840); *S. (V.) inpilosa* (Ebmer, 1975); *S. (V.) microcardia* (Pérez, 1895); *S. (V.) vestita* (Lepeletier, 1841).

The following new combinations are proposed for species previously included in the genus *Vestitohalictus* and now transferred to the genus *Seladonia* subgenus *Mucoreohalictus* Pesenko, 2004:

*Seladonia* (*Mucoreohalictus*) *cyprica* (Blüthgen, 1937); *S. (M.) mucorea* (Eversmann, 1852); *S. (M.) pollinosa* (Sichel, 1860); *S. (M.) pseudomucorea* (Ebmer, 1975); *S. (M.) tuberculata* (Blüthgen, 1925).

**Remark.** There is no consensus on the generic treatment of *Seladonia*. Further molecular works are critically needed to clarify the correct placement of this taxon within Halictidae (see comment above).

*Lasiglossum (Hemihalictus) medinai* (Vachal, 1895)

Previously considered as synonym of *Lasiglossum villosulum* (Kirby, 1802) by Blüthgen (1923), resurrected by Pauly et al. (2019).

**Distribution.** Spain, France (mainland, Corsica), Italy, Switzerland, Austria, Bosnia and Herzegovina, Albania, Romania, Greece (including Crete), Russia and Cyprus. Outside Europe known from Turkey and north Africa to Israel (Pauly et al. 2019).

Taxonomic acts and clarifications

*Lasiglossum (Sphecodogastra) algericolellum* (Strand, 1909)

Pauly & Ortiz-Sainchez (2017) consider *L. algericolellum* a valid species and not a synonym of *L. pauxillum* (Schenck, 1853) as pointed out by Blüthgen (1922). This difference is supported by genetic sequences (A. Pauly, unpublished data, T.J. Wood, unpublished data), and so we add it to the European list as a valid species.

**Distribution.** Spain, Portugal, France. Outside Europe in Morocco and Algeria.

*Sphecodes combai* Nobile & Turrisi, 2004

The seven *Sphecodes* described by Nobile & Turrisi (2004) were synonymised by Schwarz & Gusenleitner (2012). They synonymised *S. combai* with *S. marginatus* Hagens, 1882. Nobile & Turrisi (2013) rejected this treatment. Finally, Astafurova & Proshchalykin (2021) examined the holotypes and resurrected *S. combai*. They synonymised five of the *Sphecodes* described by Nobile & Turrisi (2004) with *S. combai* and confirmed the synonymy of *S. campadellii* Nobile & Turrisi, 2004 with *S. geoffrellus* (Kirby, 1802).

**Distribution.** Italy, Sardinia, Sicily, Greece.

*Sphecodes annae* Campadelli & Nobile (2000)

In the original description (Campadelli & Nobile 2000), the name and location of the collection housing the holotype are omitted, thereby not complying with Article 16.4.2 of the International Code of Zoological Nomenclature (ICZN 1999). Consequently, because this species is not correctly described, we consider the name *nomen nudum*. The taxon is therefore not included in the checklist.
Species overlooked in the previous European checklists

*Lasioglossum (Sphecodogastra) edessae* Ebmer, 1974

**Distribution.** Cyprus (Nicosia) (Ebmer 1995). Outside Europe known from Turkey.

*Lasioglossum (Lasioglossum) fallax* (Morawitz, 1874)

**Distribution.** Crimea (Proshchalykin & Astafurova 2012); European part of Russia: Rostov Prov. (Pesenko 1972), Volgograd Prov. (Blüthgen 1925), Bashkir Rep. (Ebmer 1998). Outside Europe known from Georgia, Turkey, Iran and Turkmenistan.

*Lasioglossum (Hemihalictus) pallidum* (Radoszkowski, 1888)

**Distribution.** European part of Russia (Volgograd Prov.) (Proshchalykin et al. 2017). Outside Europe known from Turkmenistan and Afghanistan.

*Lasioglossum (Dialictus) pseudoleptocephalum* (Blüthgen, 1923)

**Distribution.** Spain and Portugal (Ebmer 1976; Pauly & Ortiz-Sánchez 2017; Baldock et al. 2018). Outside Europe known from Morocco.

*Seladonia (Vestitohalictus) pulverea* (Morawitz, 1873)

**Distribution.** Cyprus (Astafurova et al. 2017). Also present in Ukraine, Crimea and European part of Russia. Outside Europe known from Dagestan, Turkey, Iran, Afghanistan, Central Asia, Mongolia, China.

*Sphecodes aetnensis* Nobile, 1996

*Sphecodes aetnensis* Nobile, 1996: 149. Holotype ♂; Italy: Sicily, Tremestieri Etneo, 300 m, 20.x.1992 (Turrisi Coll.).

Species only known by its original description (Nobile 1996), based on a single male. The species is included in the European checklist but further investigations are needed to validate the status of this taxon.

Species to be excluded from the European checklist

*Lasioglossum (Sphecodogastra) rupestre* (Warncke, 1984)

The only report for Europe of this species is erroneous because it is based on a single deformed specimen of *Lasioglossum tricinctum* (Schenck, 1874) (Ebmer 1995).
Subfamily Nomiinae

Species recently described as new to science

*Nomiapis paulyi* Wood & Le Divelec, 2022
(Fig. 12)


Some specimens from Corsica and Sardinia have been assigned with doubt to *Nomiapis rufiventris* that is known from Sicily and north Africa (see Wood & Le Divelec 2022). The recent acquisition of COI sequences of Sardinian specimens supports the assignment of Sardinian records to *N. paulyi* (Wood, unpublished data). A Corsican specimen from Cavallo Island is also morphologically similar to *N. paulyi*.

**Distribution.** Portugal, Spain, Corsica and Sardinia.

![Nomiapis paulyi](image)

**FIGURE 12.** A. *Nomiapis paulyi* Wood & Le Divelec, 2022 male paratype, habitus in lateral view. The species was recently described in Wood & Le Divelec (2022) based on individuals collected in Portugal and Spain. B. *N. paulyi* male paratype, head in oblique view. Pictures by Paolo Rosa.

*Nomiapis susannae* Arens, 2018


Taxonomic acts and clarifications

*Nomiapis rufiventris* (Spinola, 1838)

This taxon is now considered to be a distinct species from *Nomiapis bispinosa* (Brullé, 1832) (Wood & Le Divelec 2022). It was previously referred to as *Nomiapis unidentata albocincta* (Lucas, 1849) but at least two taxa (*N. rufiventris* and *N. paulyi*) have been confused under this name.

**Distribution.** Italy (Sicily). Some populations from eastern Spain and the Balearic Islands require further investigations. According to new molecular data (COI), specimens mentioned from Sardinia and Corsica can be assigned with confidence to *N. paulyi* (see above). Outside Europe known from Morocco, Algeria, Tunisia, Libya, and Egypt.
Species recorded in Europe after 2017

*Nomiapis fugax* (Morawitz, 1877)

Recorded in the European part of Russia (Astrakhan Prov., Kalmyk Rep.) by Astafurova & Proshchalykin (2017). It had been listed by Pittioni (1950) from Cyprus based on a misidentification (Varnava *et al.* 2020).

**Distribution.** Russia (south of the European part). Outside Europe known from northern Africa, Armenia, Azerbaijan, Turkey, Iran, Pakistan, Central Asia and China (Levchenko *et al.* 2017).

Species overlooked in the previous European checklists

*Pseudapis elegantissima* (Popov, 1959)

**Distribution.** European part of Russia: Astrakhan Prov., Baskunchak Lake (Astafurova & Pesenko 2006). Outside Europe known from Azerbaijan, Iran, Kazakhstan, Turkmenistan, Uzbekistan, and Tajikistan.

*Nomioides (Nomioides) pulverosus* Handlirsch, 1888

**Distribution.** European part of Russia: Kalmyk Rep., Artezian (Pesenko 2004b).

Subfamily Rophitinae Schenk, 1866

Taxonomic acts and clarifications

*Systropha grandimargo* Pérez, 1905

This taxon is now recognized as distinct from *Systropha planidens* Giraud, 1861 (Wood & Le Divelec 2022).

**Distribution.** Portugal, Spain, France.

Species to be excluded from the European checklist

*Rophites foveolatus* Friese, 1900

Friese (1900) described this species from a single male specimen from ‘Greece’, providing only a very short diagnosis “standing between *R. canus* and *R. quinquespinosus*”. Warncke (1979) treated this taxon as a valid species but raised doubts as to the correctness of this locality, suggesting that it is more likely to be in Turkey. Ebmer & Schwammberger (1986) found no European material in their revision of *Rophites*, supporting the position of Warncke. We exclude this species from the European list until European specimens are found.

**Distribution.** Turkey, Armenia, Azerbaijan.

Family MEGACHILIDAE Latreille, 1802

Tribe Anthidiini Ashmead, 1899

Species recently described as new to science

*Pseudoanthidium (Pseudoanthidium) kaspareki* Le Divelec & Litman, 2021

(Fig. 13A)

**Distribution.** Greece (mainland and East Aegean Islands) (Litman et al. 2021; Kasparek, unpublished data). Outside of Europe, known from Turkey.

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**FIGURE 13.** A. *Pseudoanthidium kaspareki* Le Divelec & Litman, 2021 male, habitus in dorsal view. The species was recently described by Le Divelec & Litman in Litman et al. (2021). In Europe, it is found in mainland Greece and the East Aegean Islands. Picture by Jessica Litman. B. *Rhodanthidium rufocinctum* (Alfken, 1930) female, habitus in dorsal view. This taxon was recently upgraded to species rank by Kasparek (2019a). It is endemic to Crete and Malta and is the only island-endemic anthidiine species in Europe. Picture by Max Kasparek.

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**FIGURE 14.** A. *Trachusa balcanica* Kasparek, 2018 male, habitus in dorsal view. This species was recently described by Kasparek (2018) from Bulgaria. It is also recorded from Greece, Hungary, North Macedonia and Serbia. B. *Trachusa varia* (Oliver, 1789) female, habitus in dorsal view. This species was originally described from Spain but has not been found in Europe for more than 200 years. It is possible that the holotype was caught in Melilla, a Spanish enclave in Morocco. Pictures by Max Kasparek.
Trachusa (Archianthidium) balcanica Kasparek, 2018 (Fig. 14A)


Published synonyms

Rhodanthidium (Asianthidium) ducale (Morawitz, 1875)

Synonymised with Rhodanthidium caturigense (Giraud, 1863), which is the senior synonym according to Kasparek (2021: 50).

Taxonomic changes

Rhodanthidium (Rhodanthidium) rufocinctum (Alfken, 1930) (Fig. 13B)

Anthidium rufocinctum Alfken, 1930: 28.
Anthidium (Rhodanthidium) septemdentatum rufocinctum: Warncke 1980: 156.

Trachusa (Paraanthidium) integra (Eversmann, 1852)

Anthidium integrum Eversmann, 1852: 83.
Anthidium interruptum Fabricius, 1781 (partim): Anthidium integrum Eversmann, 1852 regarded as synonym of A. interruptum by Friese (1898), Warncke (1980) and others.


Taxonomic acts and clarifications

Afranthidium (Mesanthidium) carduele malacopygum (Gribodo, 1894)

In keeping with Warncke (1980), Afranthidium malacopygum is regarded as a subspecies of Afranthidium carduele: Afranthidium (Mesanthidium) carduele malacopygum (Gribodo, 1894). In Europe, this subspecies is found in Iberia; it is also known from Morocco and Algeria. The subspecies Afranthidium (Mesanthidium) carduele carduele (Morawitz, 1875) is known from North Macedonia, Greece, Bulgaria, the Caucasus and the Middle East, but the characters of the two subspecies are sometimes overlapping (Kasparek, 2022).

Anthidiellum troodicum Mavromoustakis, 1949

(Fig. 15)

In keeping with Müller (1996), the east Mediterranean populations (south-eastern Europe and Turkey) of Anthidiellum breviusculum (Pérez, 1890) s.l. are assigned species rank as Anthidiellum troodicum Mavromoustakis, 1949. The
name *Anthidiellum breviusculum* (Pérez, 1890) is to be applied to the west Mediterranean populations only (France, Portugal, Spain; Kasparek et al. 2023).

**FIGURE 15.** A. *Anthidium troodicum* Mavromoustakis, 1949 female, habitus in dorsal view. The taxon was considered as a subspecies of *A. breviusculum* (Pérez, 1890) but has recently been upgraded to species rank by Kasparek et al. (2022). B. *A. troodicum* male, habitus in dorsal view. Pictures by Max Kasparek.

*Eoanthidium nasiculum* Pasteels, 1969

*Eoanthidium nasicum* (Friese, 1917) was listed as present in the East Aegean islands by Rasmont et al. (2017) and Michez et al. (2019). This taxon is now attributed to *Eoanthidium nasiculum* Pasteels, 1969 (Kasparek 2019b). Its distribution in Europe is limited to these islands.

*Icteranthidium ovasi* (Warncke, 1980)

The taxonomic identity of the specimens reported from Bulgaria on DiscoverLife (Ascher & Pickering 2022 and previous versions) and subsequently cited in various papers is unclear. It is most likely that these individuals do not belong to this taxon but rather to an as-of-yet undescribed species (Kasparek 2022). We do not include this species in the new list.
Stelis (Heterostelis) hungarica Noskiewicz, 1962

Described by Noskiewicz (1962) from Hungary and not found again since then (Kasparek 2015). Treated as a synonym of Stelis annulata (Lepeletier, 1841) by Warncke (1992c), but considered a valid species by Kasparek (2015). The species is therefore included in the present checklist.

Trachusa (Paraanthidium) varia (Olivier, 1789)
(Fig. 14B)

The species was described from “Spain” by Fabricius as Apis rufipes Fabricius, 1787 nec Fabricius, 1781 (note that Apis varia Olivier is a replacement name) and has not been found again in Europe since then. It cannot be ruled out that the material actually came from northern Africa, for instance from Melilla, the Spanish enclave in Morocco (Kasparek 2020b). We keep the species in the present checklist, but surveys further confirming the presence of the species in Europe would be welcome.

Species recorded in Europe after 2017

Eoanthidium (Eoanthidium) pasteelsi (Warncke, 1980)

Distribution. First recorded for Europe by Grace (2010) from Lesvos as Anthidiellum judaeense anale Pasteels, 1969. It was later recorded from Chios (Kasparek 2020a) and from Kato Fana, leg. J. Devalez (Ascher & Pickering 2022). The latter record is listed under Eoanthidium judaeense anale, which was replaced by the name E. pasteelsi in Warncke (1980). See also Kasparek (2022). Outside Europe known from Armenia and Turkey.

Pseudoanthidium (Pseudoanthidium) stigmaticorne (Dours, 1873)

Distribution. Both Warncke (1980) and Aguib et al. (2010) considered Pseudoanthidium (Pseudoanthidium) stigmaticorne (Dours, 1873) as restricted to northern Africa but both morphological and molecular data indicate that P. stigmaticorne is also present throughout much of Europe (Litman et al. 2021). Portugal, Spain, France (including Corsica), Italy (including Sardinia and Sicily), Croatia, Greece, Bulgaria, Romania, Crimea, Russia (European part), Cyprus. Outside Europe known from Algeria, Azerbaijan, Iran, Israel and Palestine, Jordan, Morocco, Syria, Tunisia, Turkey and Turkmenistan.

Stelis (Stelis) murina Pérez, 1884

This taxon was treated as subspecies of Stelis phaeoptera (Kirby, 1802) by Warncke (1992c) and others, but was re-established as a valid species by Baker (1999). Recorded from several (mainly southern) European countries, although not all records are clearly separated from S. phaeoptera (see Kasparek 2015). The subspecies Stelis (Stelis) murina cretica Mavromoustakis, 1963 was described from Crete (Mavromoustakis 1963).

Distribution. Spain (including Canary Islands), France, Italy, Croatia, and Greece. Outside Europe, it occurs in northern Africa. Occurrence in Cyprus needs confirmation (Varnava et al. 2020).

Species overlooked in the previous European checklists

Stelis (Stelis) aculeata Morawitz, 1880

Distribution. First recorded for Europe in Crimea by Fateryga et al. (2013). Outside Europe known from Turkey to Kazakhstan, Turkmenistan, Tajikistan, Mongolia, south and east Siberia and NE China.
Species to be excluded from the European checklist

*Eoanthidium judaeense* (Mavromoustakis, 1945)

Listed by Rasmont et al. (2017) and Michez et al. (2019) as a European species. The relevant taxon should be treated as *Eoanthidium* (*Eoanthidium*) *pasteelsi* (Warncke, 1980), previously regarded as a subspecies of *E. judaeense* (see above).

**Distribution.** *Eoanthidium judaeense* is found in the countries of the Levant and south-eastern Turkey. The distribution of *E. pasteelsi* extends from the eastern Aegean islands across Turkey to the Caucasus (Kasperek 2020a).

*Pseudoanthidium* (*Pseudoanthidium*) *cribratum* (Morawitz, 1875)

**Distribution.** *Pseudoanthidium cribratum* was listed as present on mainland Greece and the East Aegean Islands (Lesvos and Rhodes) on the last European Red List. A recent taxonomic revision, however, demonstrated that the distribution of *P. cribratum* lies entirely outside of Europe. This species is found in Iran, Israel and Palestine, Jordan, Kazakhstan, Kyrgyzstan, Syria, Tajikistan, Turkey (the Asian part), Turkmenistan and Uzbekistan (Litman et al. 2021).

**Tribe Megachilini Latreille, 1802**

**Published synonyms**

*Megachile* (*Eutricharaea*) *atratula* Rebmann, 1968

The species was described from Italy but was overlooked in previous checklists. It was synonymised with *Megachile* (*Eutricharaea*) *pusilla* Pérez, 1894, which is the senior synonym according to Praz & Bénon (2023).

*Megachile* (*Eutricharaea*) *bioculata* Pérez, 1902

Synonymised with *Megachile* (*Eutricharaea*) *leachella* Curtis 1828, which is the senior synonym according to Praz & Bénon (2023).

*Megachile* (*Eutricharaea*) *discriminata* Rebmann, 1968

Synonymised with *Megachile* (*Eutricharaea*) *leachella* Curtis, 1828, which is the senior synonym according to Praz & Bénon (2023).

*Megachile* (*Creightonella*) *heinrichi* (Tkalců, 1979)

Synonymised with *Megachile* (*Eutricharae*) *doriae* Magretti, 1890, which is the senior synonym according to Praz (2017).

*Megachile* (*Eutricharaea*) *ichnusae* Rebmann, 1968

Synonymised with *Megachile* (*Eutricharaea*) *leachella* Curtis, 1828, which is the senior synonym according to Praz & Bénon (2023).
Megachile (Anodonteutricharaea) lanigera Alfken, 1933
Synonymised with Megachile (Anodonteutricharaea) albohirta (Brullé, 1839), which is the senior synonym according to Praz (2017).

Megachile (Anodonteutricharaea) larochei Tkalců, 1993
Synonymised with Megachile (Anodonteutricharaea) albohirta (Brullé, 1839), which is the senior synonym according to Praz (2017).

Megachile (Eutricharaea) mavromoustakisi van der Zanden, 1992
Synonymised with Megachile (Eutricharaea) troodica Mavromoustakis, 1953, which is the senior synonym according to Praz (2017).

Megachile (Eutricharaea) picicornis Morawitz, 1877
Synonymised with Megachile (Eutricharaea) marginata Smith, 1853, which is the senior synonym according to Praz (2017).

Megachile (Eutricharaea) pilidens Alfken, 1924
Synonymised with Megachile (Eutricharaea) argentata (Fabricius, 1793), which is the senior synonym according to Praz & Bénon (2023).

Megachile (Creightonella) rhodosiaca Rehmann, 1972
Synonymised with Megachile (Creightonella) doriae Magretti, 1890, which is the senior synonym according to Praz (2017).

Megachile (Megachile) semipleta Cockerell, 1921
Synonymised with Megachile (Megachile) versicolor Smith, 1844, which is the senior synonym according to Praz (2017).

Megachile (Eutricharaea) sexmaculata Alfken, 1924
Synonymised with Megachile (Eutricharaea) melanogaster Eversmann, 1852, which is the senior synonym according to Praz (2017).

Megachile (Eutricharaea) striatella Rehmann, 1968
The species was considered as doubtfully European by Rasmont et al. (2017). It was later synonymised with Megachile (Eutricharaea) pusilla Pérez, 1894 (a European species), which is the senior synonym according to Praz & Bénon (2023).
New synonymies

*Megachile (Eutrichaeae) atlantica* Benoist, 1934

*Megachile atlantica* Benoist, 1934, syn. nov. of *Megachile (Eutricharaea) giraudi* Gerstäcker, 1869. This widely distributed taxon shows some geographic variation in the colour of the vestiture. In western Europe [Spain, France and in the Susa Valley (type locality of *M. giraudi*; see lectotype designation in Praz 2017: 9)], the scopa is dark on S5 and S6, white on S2–S4. In eastern Europe (populations sometimes delineated as “*M. bicoloriventris* Mocsáry, 1878”) and in southern Italy, the scopa is nearly entirely dark, white only on S2 and medially on S3. North-western African populations are as the western European ones, except that the entire body vestiture (except the scopa) is orange-red. Benoist (1934) described *M. atlantica* based on a single female specimen from Morocco (holotype, MNHN). He then described the male of *M. atlantica*, pointing to some minor differences compared to *M. giraudi* (Benoist 1940). Zanden (1989: 80) treats *M. atlantica* as a valid species and reports it from Sicily and Algeria. Upon inspection of additional specimens from the entire range of *M. giraudi*, these minor morphological differences fall within the range of variation observed within *M. giraudi*, and *M. atlantica* syn. nov. is placed in synonymy with *M. giraudi*.


Taxonomic acts and clarifications

*Megachile (Chalicodoma) albocristata* Smith, 1853, *M. hungarica* Mocsáry, 1877, *M. lefebvrei* (Lepeletier, 1841), *M. lucidifrons* Ferton, 1905 and *M. roeweri* (Alfken, 1927)

This group includes five taxa in Europe, known as the *lefebvrei* group (Praz 2017): *Megachile albocristata* Smith, 1853, *M. hungarica* Mocsáry, 1877, *M. lefebvrei* (Lepeletier, 1841) (with the subspecies *M. lefebvrei albida* Pérez, 1897), *M. lucidifrons* Ferton, 1905 and *M. roeweri* (Alfken, 1927). The status of these five taxa requires further investigation. They differ in the colour of the vestiture and the nature of the tergal fasciae in the female sex (see Fateryga & Proshchalykin 2020): in *Megachile lefebvrei*, the vestiture is predominantly grey-white and the tergal fasciae are interrupted medially; in *M. albocristata*, the vestiture is predominantly black, sometimes with spots of white hairs laterally on the tergites; *M. lucidifrons* is similar to the latter, but the vestiture is entirely black; in *M. hungarica*, the vestiture is grey-white and the tergal fasciae are continuous; *M. roeweri* is similar to *M. hungarica* but the vestiture is predominantly brown. Each taxon has a distinct geographic distribution: in the narrow sense, *M. lefebvrei* is present in northern Africa and on the Iberian Peninsula (subspecies *albida*: Ortiz-Sainchez et al. 2012), and possibly in southern France (Benoist 1940); *M. roeweri* on the islands of Crete and Cyprus; *M. albocristata* in south-eastern Europe (Greece, Balkans, Italy) and as far east as Crimea (Fateryga & Proshchalykin 2020); *M. lucidifrons* in Sardinia and Corsica; and *M. hungarica* in central Europe (Slovakia, parts of Greece, Hungary, Ukraine), but also in the Levant (Tkalcú 1973). Some authors have considered one widely distributed, geographically variable species, *M. lefebvrei* (e.g. Fateryga et al. 2018). While *Megachile lefebvrei*, *M. lucidifrons* and *M. roeweri* have clearly delimited geographic distributions, *M. hungarica* and *M. albocristata* have a parapatric distribution in south-east Europe; in addition, the disjunct presence of *M. albocristata* on Crimea suggests that both taxa may have overlapping ranges. Based on this distribution pattern and the narrow contact zone in south-east Europe, Tkalcú (1973) advocates for the recognition of *M. albocristata*, *M. hungarica* and *M. lefebvrei* as distinct species. In addition, he mentions subtle, but constant sculptural differences among these taxa, without giving further details. By contrast Fateryga and Proshchalykin (2020) mention that the populations from Dagestan are intermediate between *Megachile albocristata* and *M. hungarica*. Future work is needed to settle the status of the taxa allied to *M. lefebvrei* in Europe (Praz et al., in prep.), and for now these five taxa are treated as separate species.
Megachile (Chalicodoma) albonotata Radoszkowski, 1886, M. cressa (Tkalců, 1988) and M. rufescens Pérez, 1879

This group includes three taxa in Europe: Megachile rufescens Pérez, 1879, M. cressa (Tkalců, 1988) and M. albonotata Radoszkowski, 1886 (with the subspecies M. albonotata setulosa (Pérez, 1895) and M. albonotata italic (Tkalců, 1988)). The taxa represent allopatric, geographic forms mostly differing in the colour of the vestiture in the female sex: Megachile albonotata s. str. has brownish grey vestiture with conspicuous lateral spots of hairs on the tergal margins, and is present in south-east Europe (Tkalců 1974). The subspecies Megachile albonotata italic, restricted to central and southern Italy, differs in the absence of spots of hairs on the tergal margins (Tkalců 1988), and the subspecies M. albonotata setulosa, restricted to the Iberian Peninsula by the lighter vestiture (Ortiz-Sainchez et al. 2012). M. cressa, only known from the island of Crete, differs in the narrower tergal fasciae and, according to Tkalců (1988), subtle sculptural differences. Lastly, Tkalců (1974) treats M. rufescens as a distinct species, present only in southern France, differing from M. albonotata in the reduced tergal fasciae. Future work is needed to elucidate the status of these taxa forms, all three of which are retained as valid species here.

Megachile (Chalicodoma) apennina Benoist, 1940

Megachile muraria var. apennina Benoist, 1940: 43.

This taxon differs from Megachile pyrenaica Lepeletier, 1841 in the dark, nearly entirely black vestiture. No sculptural differences are known between the two taxa. It is closely allied to Megachile pyrenaica and may be an infraspecific form of the latter. While Megachile pyrenaica is widely distributed throughout the mountainous areas of the Palearctic, M. apennina is nearly entirely restricted to central and southern Italy. While it could easily be treated as a geographic form (e.g., a subspecies) of M. pyrenaica, two facts support its recognition as a distinct taxon: first, a disjunct population of M. apennina is present on the island of Cephalonia (H. Paulus and C. Praz, unpublished data), next to nominal populations of M. pyrenaica in the Peloponnes; second, no intermediate population is known between M. pyrenaica and M. apennina. The status of Megachile apennina requires further investigation, and for now this taxon is retained as a valid species.

Megachile (Eutricharaea) argentata (Fabricius, 1793)

This species was confirmed as a senior synonym of the widespread European species Megachile pilidens Alfken, 1924. It is therefore reported new to Europe, but has always been a widespread species considered under previous names (Praz & Bénon 2023).

Megachile (Chalicodoma) baetica (Gerstaecker, 1869)

This taxon has often been considered as a subspecies or a “form” of the widely distributed Megachile parietina (Geoffroy, 1785). Megachile baetica differs from the latter in the colour of the vestiture in the female sex (predominantly brown in M. baetica, black in M. parietina). Megachile baetica is mostly found on the Iberian Peninsula, although it reaches the south-eastern part of France. Benoist (1940) noted that no sculptural character separates the two taxa, and that the populations in south-eastern France are intermediate, leading him to treat M. baetica as an infraspecific “form” of M. parietina. By contrast, Ortiz-Sainchez et al. (2012) report both taxa from the Iberian Peninsula, each with a distinct geographic distribution pattern: M. baetica is present at low elevations in various locations in Spain and Portugal, while M. parietina is mostly found at high elevations in the Sierra Nevada. This pattern suggests that the range of both taxa overlap and that each shows a distinct climatic niche, supporting their recognition as valid taxa. Future work is needed to settle the status of M. baetica (Praz et al., in prep.), and we treat both species as valid for now.
Megachile (Callomegachile) breviceps Friese, 1898

Considered to be a *nomen dubium* by Praz (2017). This taxon, described based on a single female putatively from Spain, was probably based upon a mislabeled specimen, as it does not belong to any known Palearctic taxon. It is therefore not regarded as a European species for the purposes of this work.

Megachile (Megachile) dacica Mocsáry, 1879

Considered to be a *nomen dubium* by Praz (2017). The taxon is therefore not included in the present checklist.

Megachile (Creightonella) doriae Magretti, 1890

**Distribution.** Included in the new checklist of the European bees as a consequence of the synonymisation of *Megachile rhodosiaca* Rebmann, 1972 and *M. heinrichi* (Tkalců, 1979) with *Megachile doriae* Magretti, 1890 by Praz (2017) (see below).

Megachile (Chalicodoma) ghilianii Spinola, 1843

The type specimen appears to be missing from the Spinola collection (Casolari & Casolari 1980). The original description suggests it could be a specimen of *Megachile pyrenaica*. In the absence of type, this name is here treated as a *nomen dubium* and therefore not included in the present checklist.

Megachile (Eutricharaea) gothalauniensis Pérez, 1902

Unclear taxonomic status. The name is treated as a *nomen dubium* here, and therefore not included in the present checklist.

Megachile (Xanthosarus) maackii Radoszkowski, 1874

Considered to be a *nomen dubium* by Praz (2017), who examined the syntype in Krakow, concluding that the material was ambiguous. Future work is needed to assess whether it truly is a synonym of *M. nigriventris* or a valid species, but what is clear is that no European material matches the type of *M. maackii*. Therefore, *M. maackii* is excluded from the present checklist.

Megachile (Eutricharaea) posti Mavromoustakis, 1952

In Nieto *et al.* (2014) considered as subspecies of *Megachile basilaris* Morawitz, 1875. Praz (2017) elevated *Megachile posti* to species rank and, as a consequence, in the list of European bees, *Megachile posti* Mavromoustakis is listed and no longer *M. basilaris*.

Megachile (Eutricharaea) pruinosa Pérez, 1897

The type of this species was investigated, it is a female collected in France (Avignon). Its identity remains unclear; the name is here treated as a *nomen dubium* and is excluded from the present checklist.
Megachile pugillatoria Costa, 1863

The type of this species could not be located. This name is treated here as a *nomen dubium* and is excluded from the present checklist.

Megachile (Eutricharaea) pusilla Pérez, 1884

This species has previously been referred to as *M. concinna* in Europe, a taxon considered to be restricted to the Afrotropical region by Soltani *et al*. (2017). The taxon occurring in Europe is referred to as *M. pusilla* Pérez, 1884.

Megachile punctatissima Spinola, 1806 (in: Nieto *et al*. 2014)

Incorrect subsequent spelling of *Stelis punctulatissima* (Kirby, 1802) (Praz 2017), listed in the present checklist.

Megachile (Eutricharaea) schmiedeknechtii Costa, 1884

This taxon is treated as a subspecies of *M. argentata* (Praz & Bénon 2023). It is restricted to the islands of Corsica, Sardinia and Malta.

Species recorded in Europe after 2017

Coelioxys (Allallocaelioxys) mielbergii Morawitz, 1880

*Distribution*. Russia (Sarepta [=Volgograd]). Outside Europe known from Uzbekistan, Turkmenistan and Tajikistan (Fateryga & Proshchalykin 2020).

Megachile (Callomegachile) disjunctiformis Cockerell, 1911

*Distribution*. First recorded for Europe from Italy (Bortolotti *et al*. 2018). Non-native species. Outside Europe known from East Asia, from China to Japan.

Megachile (Pseudomegachile) flavipes Spinola, 1838

*Distribution*. First recorded from Europe by Dorchin & Praz (2018) from Greece (Crete, Heraklion). In addition, Dorchin & Praz (2018) mention doubtful records from Cyprus. Possibly these specimens have been mislabeled, or are based on introduced individuals, which is not impossible given that the species nests in above-ground cavities. Outside Europe known from northern Africa to Middle East and Central Asia (Ascher & Pickering 2022).

Megachile (Eutricharaea) inexspectata Rebmann, 1968

*Distribution*. First recorded for Europe by Varnava *et al*. (2020) from Paphos, Cyprus. Also present in East Aegean Islands. Outside Europe known from northern Africa (Morocco) and western Asia (Praz & Bénon 2023).
*Megachile (Chelostomoides) otomita* Cresson, 1878

**Distribution.** First recorded for Europe from Tenerife by Strudwick & Jacobi (2018). Non-native species. Outside Europe known from Central America.

*Megachile (Pseudomegachile) syriaca* Dorchin & Praz, 2018

**Distribution.** Recorded from two females from Spain. Since this occurrence represents a distant and isolated record for a species otherwise known from the Levant, Dorchin & Praz (2018) indicated that these two specimens could have been mislabelled. We temporarily keep the species in the present checklist but further surveys confirming its occurrence are needed.

*Megachile (Pseudomegachile) tecta* Radoszkowski, 1888

**Distribution.** First recorded for Europe from Russia (Kalmyk Rep.) by Fateryga *et al.* (2018). Outside Europe known from Dagestan, Kazakhstan, Turkmenistan, Iran, Kyrgyzstan, and China.

*Megachile (Anodonteutricharaea) thevestensis* Ferton, 1908

**Distribution.** First recorded for Europe from Portugal by Baldock *et al.* (2018). Also present in Spain (Ortiz-Sánchez 2020). Outside Europe known from northern Africa.

**Species overlooked in the previous European checklists**

*Megachile saussurei* Radoszkowski, 1874

**Distribution.** Described from the European part of Russia (Saratov). Outside Europe known from Turkey and Central Asia. Mentions from Spain are erroneous and refer to *Megachile syriaca* (Dorchin & Praz 2018; see note above).

**Species to be excluded from the European checklist**

*Megachile (Chalicodoma) rufitarsis* (Lepeletier, 1841)

**Distribution.** The presence of *Megachile rufitarsis* only relies on old unverified literature records (Benoist 1935, from the Balearic Islands). Given that we could not locate specimens to verify this doubtful record, we deleted this taxon from the checklist of the European species.

*Megachile (Eutricharaea) walkeri* Dalla Torre, 1896

**Distribution.** The presence of *Megachile walkeri* relies on old, unverified literature records. We delete this taxon from the checklist of the European species.
Tribe Osmiini Newman, 1834

Species recently described as new to science

*Hoplitis (Hoplitis) galichicae* Müller, 2016


**Distribution.** North Macedonia.

*Protosmia (Protosmia) lusitanica* Le Goff & Gonçalves, 2018

*Protosmia (Protosmia) lusitanica* Le Goff & Gonçalves, 2018: 188. Holotype ♀; Portugal, Beja, Mértola, São Sebastião dos Carros (GGPC).

**Distribution.** Portugal, Spain.

**Published synonymies**

*Chelostoma (Gyrodromella) proximum* Schletterer, 1889

Synonym of *Chelostoma (Gyrodromella) rapunculi* (Lepeletier, 1841), the senior synonym according to Müller (2015).

*Chelostoma (Chelostoma) siciliae* Müller, 2012

Synonym of *Chelostoma (Chelostoma) stefanii* Nobile, 1995, the senior synonym as proposed by Müller (2022).

*Hoplitis (Alcidamea) abnormis* Zanden, 1992

Synonym of *Hoplitis (Alcidamea) subbutea* (Warncke, 1991), the senior synonym as proposed by Müller (2022).

*Hoplitis (Anthocopa) cretaea* (Tkalců, 1992)

Synonym of *Hoplitis (Anthocopa) bisulca* (Gerstaecker, 1869), the senior synonym as proposed by Müller (2022).

*Stenoheriades hofferi* Tkalců, 1984

Synonym of *Stenoheriades coelostoma* (Benoist, 1935), the senior synonym as proposed Müller & Trunz (2014).

**Taxonomic changes**

*Hoplitis (Anthocopa) corcyraea* (Tkalců, 1979)


*Hoplitis corcyraea*: Müller 2022: Upgraded to species rank.
Hoplitis (Hoplitis) perambigua (Peters, 1975)

Hoplitis perambigua: Müller 2016: 171. Upgraded to species rank.

Hoplitis (Hoplitis) stecki (Frey-Gessner, 1908)

Osmia mucida stecki Frey-Gessner, 1908: 283.

Hoplitis (Anthocopa) taurica (Radoszkowski, 1874)


Hoplitis (Alcidamea) turcestanica (Dalla Torre, 1896)

Osmia turcestanica Dalla Torre, 1896: 414.

Osmia (Osmia) kohlii Ducke, 1899

Osmia kohlii Ducke, 1899 was previously misspelt as Osmia kohli Ducke, 1899.

Osmia (Pyrosmia) leucopyga Ducke, 1899

Osmia (Pyrosmia) leucopyga Ducke, 1899: 214.
Osmia (Pyrosmia) leucopyga: Müller 2022. Resurrected to species status.

Osmia (Allosmia) nuda Friese, 1899

Osmia nuda Friese, 1899: 328.
Osmia (Allosmia) rufohirta Latreille, 1811: Synonymy proposed online by Müller (2022), but not formally published.
Osmia (Allosmia) nuda: Müller 2022. Resurrected to species status.

Taxonomic acts and clarifications

Osmia (Helicosmia) cinctella Dours, 1873

Considered to be a nomen dubium by Müller (2022) and therefore not included in the present checklist.
Species recorded in Europe after 2017

_Hoplitis (Anthocopa) caucasicola_ Müller, 2012

**Distribution.** First recorded for Europe by Levchenko et al. (2017) for the European part of Russia. Outside Europe known from Turkey and Georgia (Levchenko et al. 2017).

_Osmia (Melanosmia) disjuncta_ Tkalců, 1995

First recorded for Europe by Johansson & Paukkunen (2017) from Sweden, Finland and Russia. Outside Europe known from Siberia and Mongolia (Müller 2022).

New species for Europe

_Hoplitis (Chlidoplitis) onychophora_ (Mavromoustakis, 1939)


Species overlooked in the previous European checklists

_Hoplitis (Chlidoplitis) teucrii_ (Benoist, 1927)


**Distribution.** The species occurs in southern Spain and Morocco.

Species to be excluded from the European checklist

_Haetosmia vechti_ (Peters, 1974)

**Distribution.** Listed for Europe by Nieto et al. (2014) based on a highly doubtful record from Greece. The species occurs from central Turkey eastwards over northern Iran to south-eastern Turkmenistan and southwards to the Levant (Müller & Griswold 2017).

_Heriades (Heriades) labiata_ Pérez, 1895

**Distribution.** Listed for Europe by Nieto et al. (2014) based on doubtful records from Spain. Confidently determined records are currently known only from Algeria (Müller 2022).

_Hoplitis (Alcidamea) caularis_ (Morawitz, 1875)

**Distribution.** Listed for Europe by Nieto et al. (2014). The species presumed occurrence in Europe was based on the erroneous synonymisation of _Hoplitis (Alcidamea) turcestanica_ (Dalla Torre, 1896) with _H. caularis_ by Warncke (1991) (Fateryga & Proshchalykin 2020). Confidently determined records of _Hoplitis caularis_ are currently known only from Central Asia (Müller 2022).
**Hoplitis (Anthocopa) furcula (Morawitz, 1875)**

**Distribution.** Listed for Europe by Nieto *et al.* (2014) based on doubtful records from Greece. Confidently determined records are currently known only from central Asia (Müller 2022).

**Hoplitis (Alcidamea) grandiscapa (Pérez, 1895)**

**Distribution.** Listed for Europe by Nieto *et al.* (2014) based on a highly doubtful record from Sardinia. Confidently determined records are currently known only from Algeria (Müller 2022).

**Hoplitis (Alcidamea) laboriosa (Smith, 1878)**

**Distribution.** Listed for Europe by Nieto *et al.* (2014). The species occurs in Kazakhstan, Mongolia and China (Müller 2022).

**Hoplitis (Formicapis) maritima (Romankova, 1985)**


**Hoplitis (Hoplitis) mucida (Dours, 1873)**

**Distribution.** Listed for Europe by Nieto *et al.* (2014) as the European subspecies *Hoplitis mucida stecki* (Frey-Gessner, 1908), which was recently elevated to species rank by Müller *et al.* (2017). *Hoplitis mucida* occurs in northern Africa and the Levant.

**Hoplitis (Pentadentosmia) nitidula (Morawitz, 1877)**

**Distribution.** Listed for Europe by Nieto *et al.* (2014) based on doubtful records from southern European Russia. The species occurs from Armenia eastwards to western and central Asia (Müller 2022).

**Osmia (Helicosmia) cyanescens Morawitz, 1875**


**Osmia (Helicosmia) dlabolae Tkalců, 1978**

**Distribution.** Listed for Europe by Nieto *et al.* (2014) based on doubtful records from Greece. Confidently determined records are currently known only from central Turkey (Müller 2022).

**Osmia (Pyrosmia) lobata Friese, 1899**

**Distribution.** Listed for Europe by Nieto *et al.* (2014). The species presumed occurrence in Europe was based on the erroneous synonymisation of *Osmia (Pyrosmia) leucopyga* Ducke, 1899 with *Osmia lobata* by Warncke (1992b). Confidently determined records of *Osmia lobata* are currently known only from Algeria (Müller 2022).
**Osmia (Helicosmia) tunensis** (Fabricius, 1787)

**Distribution.** Listed for Europe by Nieto *et al.* (2014). The species occurs in northern Africa and was assumed by several authors to be present also on Sicily and Malta. However, as the specimens from Sicily and Malta differ from mainland European individuals of *Osmia (Helicosmia) aurulenta* (Panzer, 1799) only by the length and colour of the body pilosity, they were assigned to the latter species by Müller (2022).

**Protosmia (Protosmia) stigmatica** (Pérez, 1895)

**Distribution.** Listed for Europe by Nieto *et al.* (2014) based on doubtful records from Spain, France and Greece. Confidently determined records are currently known only from Algeria (Müller 2022).

**Stenoheriades asiatica** (Friese, 1921)

**Distribution.** Listed for Europe by Nieto *et al.* (2014) based on previously rejected synonymy with *Stenoheriades coelostoma* (Benoist, 1935). Currently known only from Turkey and Syria.

**Family MELITTIDAE Schenck, 1860**

**Tribe Dasypodaini Sagemehl, 1882**

**Species recently described as new to science**

**Dasypoda (Heterodasypoda) michezi** Radchenko, 2017


**Remarks.** Original description based only on males. The female of the species was later described by Ghisbain *et al.* (2021c).

**Synonymic notes**

**Dasypoda sinuata** Pérez, 1895

(Fig. 16)

This taxon will be synonymised with *Dasypoda panzeri* Spinola, 1838 as part of a revision of the north African fauna of *Dasypoda* conducted by Ghisbain *et al.* (in prep).

**Species overlooked in the previous European checklists**

**Melitta sibirica** (Morawitz, 1888)

**Distribution.** East of European part of Russia. Outside Europe known from Tajikistan, Kyrgyzstan, Mongolia, China (NC) and India (Proshchalykin & Astafurova 2017).
FIGURE 16. A. *Dasypoda panzeri* Spinola, 1838 female, habitus in lateral view. The taxon is included in the European checklist solely because of its presence in the Canary Islands, an archipelago showing strong biogeographic affinities with north Africa. 
Updated checklist of the wild bee fauna of Europe

Family Andrenidae Latreille, 1802

Tribe Andrenini Latreille, 1802

Genus *Andrena* Fabricius, 1775

Subgenus *Aciandrena* Warncke, 1968
- *Andrena aciculata* Morawitz, 1886
- *Andrena chelma* Warncke, 1975
- *Andrena chersona* Warncke, 1972
- *Andrena fulica* Warncke, 1974
- *Andrena hillana* Warncke, 1968
- *Andrena lamiana* Warncke, 1965
- *Andrena spolata* Warncke, 1968
- *Andrena tenuiformis* Pittioni, 1950
- *Andrena vacella* Warncke, 1975
- *Andrena volgensis* Osytshnjuk, 1994

Subgenus *Aenandrena* Warncke, 1968
- *Andrena aeneiventris* Morawitz, 1872
- *Andrena bisulcata* Morawitz, 1877
- *Andrena chaetogastra* Pittioni, 1950
- *Andrena hedikae* Jaeger, 1934
- *Andrena hystrix* Schmiedeknecht, 1883

Subgenus *Andrena* Fabricius, 1775
- *Andrena apicata* Smith, 1847
- *Andrena batava* Pérez, 1902
- *Andrena clarkella* (Kirby, 1802)
- *Andrena fucata* Smith, 1847
- *Andrena fulva* (Müller, 1766)
- *Andrena helvola* (Linnaeus, 1758)
- *Andrena inconstans* Morawitz, 1877
- *Andrena lapponica* Zetterstedt, 1838
- *Andrena mitis* Schmiedeknecht, 1883
- *Andrena nychemera* Imhoff, 1868
- *Andrena praecox* (Scopoli, 1763)
- *Andrena rogenhoferi* Morawitz, 1872
- *Andrena synadelpha* Perkins, 1914
- *Andrena varians* (Kirby, 1802)

Subgenus *Avandrena* Warncke, 1968
- *Andrena avara* Warncke, 1967
- *Andrena canohirta* (Friese, 1923)
- *Andrena erodiorum* Wood & Ortiz-Sánchez, 2022
- *Andrena heterodoxa* Pérez, 1903
- *Andrena juliae* Wood, 2023
- *Andrena melacana* Warncke, 1967
- *Andrena panurgina* De Stefani, 1889
Subgenus Biareolina Dours, 1873
Andrena lagopus Latreille, 1809

Subgenus Blandandrena Wood, 2023
Andrena blanda Pérez, 1895

Subgenus Brachyandrena Pittioni, 1948
Andrena colletiformis Morawitz, 1874
Andrena limonii Osytshnjuk, 1983
Andrena miegiella Dours, 1873

Subgenus Bryandrena Wood, 2023
Andrena florea Fabricius, 1793

Subgenus Campylogaster Dours, 1873
Andrena erberi Morawitz, 1871

Subgenus Charitandrena Hedicke, 1933
Andrena hattorfiana (Fabricius, 1775)

Subgenus Chlorandrena Pérez, 1890
Andrena abrupta Warncke, 1967
Andrena agnata Warncke, 1967
Andrena astica Warncke, 1967
Andrena boyerella Dours, 1872
Andrena cinerea Brullé, 1832
Andrena cinereophila Warncke, 1965
Andrena clypella Strand, 1921
Andrena crepidis Schwenninger, 2015
Andrena curtivalvis Morice, 1899
Andrena damara Warncke, 1968
Andrena elata Warncke, 1975
Andrena exquisita Warncke, 1975
Andrena gordia Warncke, 1975
Andrena humabilis Warncke, 1965
Andrena humilis Imhoff, 1832
Andrena isis Schmiedeknecht, 1900
Andrena kamarti Schmiedeknecht, 1900
Andrena leucolippa Pérez, 1895
Andrena livens Pérez, 1895
Andrena nigroolivacea Dours, 1873
Andrena orientana Warncke, 1965
Andrena panurgimorpha Mavromoustakis, 1957
Andrena pastellensis Schwenninger, 2007
Andrena rhenana Stöckhert, 1930
Andrena rhyssonota Pérez, 1895
Andrena sagittaria Warncke, 1968
Andrena senecionis Pérez, 1895
Andrena stabiana Morice, 1899
Andrena taraxaci Giraud, 1861
Andrena tricuspidata Scheuchl, 2010
Subgenus *Chrysandrena* Hedicke, 1933
*Andrena colonialis* Morawitz, 1886
*Andrena fertoni* Pérez, 1895
*Andrena fulvago* (Christ, 1791)
*Andrena glandaria* Warncke, 1975
*Andrena henotica* Warncke, 1975
*Andrena hesperia* Smith, 1853
*Andrena merula* Warncke, 1969

Subgenus *Cnemidandrena* Hedicke, 1933
*Andrena denticulata* (Kirby, 1802)
*Andrena freygessneri* Alfken, 1904
*Andrena fuscipes* (Kirby, 1802)
*Andrena nigriceps* (Kirby, 1802)
*Andrena simillima* Smith, 1851
*Andrena tridentata* (Kirby, 1802)

Subgenus *Cordandrena* Warncke, 1968
*Andrena cordialis* Morawitz, 1877
*Andrena cypria* Pittioni, 1950
*Andrena torda* Warncke, 1965
*Andrena vaulogeri* Pérez, 1895

Subgenus *Cryptandrena* Pittioni, 1948
*Andrena brumanensis* Friese, 1899
*Andrena rotundata* Pérez, 1895
*Andrena ventricosa* Dours, 1873

Subgenus *Didonia* Gribodo, 1894
*Andrena mucida* Kriechbaumer, 1873

Subgenus *Euandrena* Hedicke, 1933
*Andrena allosa* Warncke, 1975
*Andrena amieti* Praz, Müller & Genoud, 2019
*Andrena angustior* (Kirby, 1802)
*Andrena asperula* Osytshnjuk, 1977
*Andrena bicolor* Fabricius, 1775
*Andrena capillosa* Morawitz, 1876
*Andrena chrysopus* Pérez, 1903
*Andrena croatica* Friese, 1887
*Andrena fortipunctata* Wood, 2021
*Andrena fulvata* Stöckhert, 1930
*Andrena fulvida* Schenck, 1853
*Andrena glidia* Warncke, 1965
*Andrena granulosa* Pérez, 1902
*Andrena isolata* Wood, 2023
*Andrena kornosica* Mavromoustakis, 1954
*Andrena lavandulae* Pérez, 1902
*Andrena limosa* Warncke, 1969
*Andrena montana* Warncke, 1973
*Andrena pelagonia* Wood, 2021
*Andrena pileata* Warncke, 1975
Andrena ramosa Wood, 2022
Andrena robusta Warncke, 1975
Andrena roseipes Alfken, 1933
Andrena rudolfae Osytshnjuk, 1986
Andrena ruficrus Nylander, 1848
Andrena rufula Schmiedeknecht, 1883
Andrena solenopalpa Benoist, 1945
Andrena symphyti Schmiedeknecht, 1883
Andrena verae Osytshnjuk, 1986
Andrena vulpecula Kriechbaumer, 1873

Subgenus Graecandrena Warncke, 1968
Andrena graecella Warncke, 1965
Andrena helenica Warncke, 1965
Andrena hyemala Warncke, 1973
Andrena impunctata Pérez, 1895
Andrena montarca Warncke, 1975
Andrena nebularia Warncke, 1975
Andrena passerina Warncke, 1974
Andrena pelopa Warncke, 1975
Andrena schwarzi Warncke, 1975
Andrena verticalis Pérez, 1895
Andrena walishanovi Osytshnjuk, 1994

Subgenus Hamandrena Dubitzky, 2010
Andrena grozdanici Osytshnjuk, 1975
Andrena nasuta Giraud, 1863
Andrena stepposa Osytshnjuk, 1977

Subgenus Holandrena Pérez, 1890
Andrena decipiens Schenck, 1861
Andrena fimbriata Brullé, 1832
Andrena flavilabris Schenck, 1874
Andrena forsterella Osytshnjuk, 1978
Andrena labialis (Kirby, 1802)
Andrena labiatula Osytshnjuk, 1993
Andrena variabilis Smith, 1853
Andrena wilhelmi Schuberth, 1995

Subgenus Hoplandrena Pérez, 1890
Andrena bucephala Stephens, 1846
Andrena clusia Warncke, 1966
Andrena ferox Smith, 1847
Andrena nuptialis Pérez, 1902
Andrena rosae Panzer, 1801
Andrena scotica Perkins, 1916
Andrena trimmerana (Kirby, 1802)

incertae sedis
Andrena aegyptiaca Friese, 1899
Andrena alluaudi Benoist, 1961
Andrena chalcogaster Brullé, 1839
Andrena corax Warncke, 1967
Andrena curiosa (Morawitz, 1877)
Andrena ebermerella Scheuchl, 2011
Andrena garrula Warncke, 1965
Andrena grossella Grünwaldt, 1976
Andrena hyacintina Mavromoustakis, 1958
Andrena hypopolia Schmiedeknecht, 1884
Andrena incisa Eversmann, 1852
Andrena lateralis Morawitz, 1876
Andrena laurivora Warncke, 1974
Andrena macroptera Warncke, 1974
Andrena mediovittata Pérez, 1895
Andrena monacha Warncke, 1965
Andrena murana Warncke, 1967
Andrena muscaria Warncke, 1965
Andrena numida Lepeletier, 1841
Andrena ornata Morawitz, 1866
Andrena rammuncorum Morawitz, 1877
Andrena relata Warncke, 1967
Andrena seminuda Friese, 1896
Andrena sibthorpi Mavromoustakis, 1952

Subgenus Leimelissa Osychnyuk, 1984
Andrena fallax Eversmann, 1852

Subgenus Lepidandrena Hedicke, 1933
Andrena baetica Wood, 2020
Andrena caprimalga Warncke, 1975
Andrena curvungula Thomson, 1870
Andrena dorsalis Brüllé, 1832
Andrena florivaga Eversmann, 1852
Andrena gamskrucki Warncke, 1965
Andrena mocsaryi Schmiedeknecht, 1884
Andrena pandellei Pérez, 1895
Andrena paucisquama Noskiewicz, 1924
Andrena rufizona Imhoff, 1834
Andrena sardoa Lepeletier, 1841
Andrena tuberculifera Pérez, 1895

Subgenus Leucandrena Hedicke, 1933
Andrena argentata Smith, 1844
Andrena barbilabris (Kirby, 1802)
Andrena dinizi Warncke, 1975
Andrena larisana Warncke, 1965
Andrena leptapyga Pérez, 1895
Andrena mistrensis Grünwaldt, 2005
Andrena parviceps Kriechbaumer, 1873
Andrena sericata Imhoff, 1868
Andrena tunetana Schmiedeknecht, 1900
Andrena ventralis Imhoff, 1832

Subgenus Limbandrena Wood, 2023
Andrena limbata Eversmann, 1852
Subgenus *Margandrena* Warncke, 1968
*Andrena marginata* Fabricius, 1776
*Andrena pellucens* Pérez, 1895

Subgenus *Melanapis* Cameron, 1902
*Andrena fuscosa* Erichson, 1835

Subgenus *Melandrena* Pérez, 1890
*Andrena albopunctata* (Rossi, 1792)
*Andrena assimilis* Radoszkowski, 1876
*Andrena atrotegularis* Hedieke, 1923
*Andrena barbareae* Panzer, 1805
*Andrena bicolorata* (Rossi, 1790)
*Andrena chrysopyga* Schenck, 1853
*Andrena cineraria* (Linnaeus, 1758)
*Andrena comta* Eversmann, 1852
*Andrena cussariensis* Morawitz, 1886
*Andrena damvia* Stöckhert, 1950
*Andrena discors* Erichson, 1841
*Andrena dubiosa* Kohl, 1905
*Andrena elmaria* Gusenleitner, 1998
*Andrena flavipes* Panzer, 1799
*Andrena florentina* Magretti, 1883
*Andrena fuscoscalcarata* Morawitz, 1877
*Andrena gravida* Imhoff, 1832
*Andrena hungarica* Friese, 1887
*Andrena korduciana* Friese, 1887
*Andrena limata* Smith, 1853
*Andrena magna* Warncke, 1965
*Andrena metallescens* Cockerell, 1906
*Andrena morio* Brullé, 1832
*Andrena nigraena* Kirby, 1802
*Andrena nitida* (Müller, 1776)
*Andrena nitidemula* Scheuchl & Hazir, 2012
*Andrena pyropygia* Kriechbaumer, 1873
*Andrena pyrozonata* Friese, 1921
*Andrena soror* Dours, 1872
*Andrena stigmatic* Morawitz, 1895
*Andrena thoracica* (Fabricius, 1775)
*Andrena vaga* Panzer, 1799
*Andrena vulcana* Dours, 1873

Subgenus *Micrandrena* Ashmead, 1899
*Andrena abjecta* Pérez, 1895
*Andrena acuta* Warncke, 1968
*Andrena alfkenella* Perkins, 1914
*Andrena alfkenelloides* Warncke, 1965
*Andrena alma* Warncke, 1975
*Andrena alutacea* Stöckhert, 1942
*Andrena ampla* Warncke, 1967
*Andrena anthrisci* Blüthgen, 1925
*Andrena bayona* Warncke, 1975

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*Zootaxa* 5327 (1) © 2023 Magnolia Press · 79
Andrena biarmica Warncke, 1975
Andrena caneibia Strand, 1915
Andrena catula Warncke, 1968
Andrena cervina Warncke, 1975
Andrena corssubalpina Theunert, 2006
Andrena dargia Warncke, 1965
Andrena distinguenda Schenk, 1871
Andrena djelfensis Pérez, 1895
Andrena dourada Kratochwil & Scheuchl, 2013
Andrena enslinella Stöckhert, 1924
Andrena exigua Erichson, 1835
Andrena fabrella Pérez, 1903
Andrena falsifica Perkins, 1915
Andrena floricola Eversmann, 1852
Andrena fria Warncke, 1975
Andrena fumida Pérez, 1895
Andrena gomerensis Warncke, 1993
Andrena icterina Warncke, 1974
Andrena illyrica Warncke, 1975
Andrena lecana Warncke, 1975
Andrena lindbergella Pittioni, 1950
Andrena lineolata Warncke, 1968
Andrena longibarbis Pérez, 1895
Andrena magunta Warncke, 1965
Andrena mariana Warncke, 1968
Andrena minutula (Kirby, 1802)
Andrena minutuloides Perkins, 1914
Andrena nana (Kirby, 1802)
Andrena nanaeformis Noskiewicz, 1925
Andrena namula Nylander, 1848
Andrena nitidula Pérez, 1903
Andrena niveata Friese, 1887
Andrena obsoleta Pérez, 1895
Andrena oedicnema Warncke, 1975
Andrena omnilaevis Wood, 2020
Andrena orana Warncke, 1975
Andrena ortizi Wood, 2023
Andrena paganettina Warncke, 1965
Andrena pandosa Warncke, 1968
Andrena pauxilla Stöckhert, 1935
Andrena pirinia Wood, 2021
Andrena proxima (Kirby, 1802)
Andrena pusilla Pérez, 1903
Andrena quadrimaculata Friese, 1921
Andrena querquedula Warncke, 1975
Andrena roripae Osytshnjuk, 1993
Andrena rugothorace Warncke, 1965
Andrena rugulosa Stöckhert, 1935
Andrena rugulosella Osytshnjuk, 1993
Andrena sandanskia Warncke, 1973
Andrena saxonica Stöckhert, 1935
Andrena semilaevis Pérez, 1903
Andrena sillata Warncke, 1975
Andrena simontornyella Noskiewicz, 1939
Andrena spreta Pérez, 1895
Andrena stoeckhertiella Pittoni, 1948
Andrena strophemella Stöckhert, 1928
Andrena subopaca Nylander, 1848
Andrena taprobana Warncke, 1975
Andrena tenostra Warncke, 1975
Andrena tenuistrata Pérez, 1895
Andrena tiaretta Warncke, 1974
Andrena tomorora Warncke, 1975
Andrena tringa Warncke, 1973
Andrena wollastoni Cockerell, 1922

Subgenus Nobandrena Warncke, 1968
Andrena anatolica Alfken, 1935
Andrena asiatica Friese, 1921
Andrena athenensis Warncke, 1965
Andrena compta Lepeletier, 1841
Andrena flavobila Warncke, 1965
Andrena funerea Warncke, 1967
Andrena nobilis Morawitz, 1874
Andrena probata Warncke, 1973

Subgenus Notandrena Pérez, 1890
Andrena aerinifrons Dours, 1873
Andrena bellidis Pérez, 1895
Andrena binominata Smith, 1853
Andrena chrysosceles (Kirby, 1802)
Andrena curvana Warncke, 1965
Andrena falcinella Warncke, 1975
Andrena foeniculcae Wood, 2020
Andrena fulvicornis (Schenck, 1853)
Andrena griseobalteata Dours, 1872
Andrena hebescens Wood, 2020
Andrena juliana Wood, 2021
Andrena langadensis Warncke, 1965
Andrena leucophaea Lepeletier, 1841
Andrena microthorax Pérez, 1895
Andrena nigroviridula Dours, 1873
Andrena nitidiuscula Schenck, 1853
Andrena pallitarsis Pérez, 1903
Andrena pontica Warncke, 1972
Andrena ramunculi Schmiedeknecht, 1883
Andrena schleckereri Friese, 1896
Andrena semiflava Lebedev, 1932
Andrena stellaris Warncke, 1965
Andrena ungeri Mavromoustakis, 1952
Andrena urdula Warncke, 1965
Andrena varuga Warncke, 1975
Subgenus *Opandrena* Robertson, 1902
*Andrena schencki* Morawitz, 1866

Subgenus *Orandrena* Warncke, 1968
*Andrena monilia* Warncke, 1967
*Andrena oralis* Morawitz, 1876

Subgenus *Oreomelissa* Hirashima & Tadauchi, 1975
*Andrena coitana* (Kirby, 1802)

Subgenus *Ovandrena* Wood, 2023
*Andrena farinosa* Pérez, 1895
*Andrena oviventris* Pérez, 1895

Subgenus *Pallandrena* Warncke, 1968
*Andrena braunsianna* Friese, 1887
*Andrena pallidicincta* Brullé, 1832

Subgenus *Parandrenella* Popov, 1958
*Andrena atrata* Friese, 1887
*Andrena dentiventris* Morawitz, 1874
*Andrena figurata* Morawitz, 1866
*Andrena nisoria* Warncke, 1969
*Andrena taxana* Warncke, 1975

Subgenus *Plastandrena* Hedicke, 1933
*Andrena afrensis* Warncke, 1967
*Andrena agilissima* (Scopoli, 1770)
*Andrena apiiformis* Kriechbaumer, 1873
*Andrena asperrima* Pérez, 1895
*Andrena bimaculata* (Kirby, 1802)
*Andrena nigrospina* Thomson, 1872
*Andrena pilipes* Fabricius, 1781
*Andrena tibialis* (Kirby, 1802)

Subgenus *Poecilandrena* Hedicke, 1933
*Andrena crassana* Warncke, 1965
*Andrena hybrida* Warncke, 1975
*Andrena labiata* Fabricius, 1781
*Andrena limassolica* Mavromoustakis, 1948
*Andrena neovirida* Grünwaldt, 2005
*Andrena olympica* Grünwaldt, 2005
*Andrena potentillae* Panzer, 1809
*Andrena semirubra* Morawitz, 1876
*Andrena sphecodimorpha* Hedicke, 1942
*Andrena standfussorum* Scheuchl, 2010
*Andrena viridescens* Viereck, 1916

Subgenus *Pruinosandrena* Wood, 2023
*Andrena nilotica* Warncke, 1967
*Andrena parata* Warncke, 1967
*Andrena pruinosa* Erichson, 1835
Subgenus *Rufandrena* Warncke, 1968
*Andrena orbitalis* Morawitz, 1871

Subgenus *Scitandrena* Warncke, 1968
*Andrena scita* Eversmann, 1852

Subgenus *Simandrena* Pérez, 1890
*Andrena antigana* Pérez, 1895
*Andrena cilissaeformis* Pérez, 1895
*Andrena combinata* (Christ, 1791)
*Andrena confinis* Stöckhert, 1930
*Andrena congruens* Schmiedeknecht, 1884
*Andrena dorsata* (Kirby, 1802)
*Andrena kocoureki* Wood, 2021
*Andrena lepida* Schenck, 1861
*Andrena mehelyi* Alfken, 1936
*Andrena nucleola* Warncke, 1973
*Andrena propinqua* Schenck, 1853
*Andrena rhypara* Pérez, 1903
*Andrena susterai* Alfken, 1914
*Andrena thomsonii* Ducke, 1898
*Andrena transitoria* Morawitz, 1871
*Andrena vetula* Lepeletier, 1841

Subgenus *Stenomelissa* Hirashima & LaBerge, 1965
*Andrena lonicera* Warncke, 1973

Subgenus *Suandrena* Warncke, 1968
*Andrena aegypticola* Friese, 1899
*Andrena cyanomicans* Pérez, 1895
*Andrena gades* Wood & Ortiz-Sánchez, 2022
*Andrena maderensis* Cockerell, 1922
*Andrena notata* Warncke, 1968
*Andrena portosanctana* Cockerell, 1922
*Andrena savignyi* Spinola, 1838
*Andrena suerinensis* Friese, 1884

Subgenus *Taeniandrena* Hedicke, 1933
*Andrena aberrans* Eversmann, 1852
*Andrena afzeliella* (Kirby, 1802)
*Andrena antonellae* Praz & Genoud, 2022
*Andrena benoisti* Wood & Praz, 2021
*Andrena contracta* Wood, 2022
*Andrena croceiventris* Morawitz, 1871
*Andrena eversmanniana* Osytnshujuk, 1994
*Andrena fuliginata* Pérez, 1895
*Andrena gelriae* van der Vecht, 1927
*Andrena gredana* Warncke, 1975
*Andrena intermedia* Thomson, 1870
*Andrena laevicorpus* Wood, 2023
*Andrena lathyri* Alfken, 1899
*Andrena leucopsis* Warncke, 1967
Andrena levante Wood & Praz, 2021
Andrena lusitania Wood & Ortiz-Sánchez, 2022
Andrena ovata Schenck, 1853
Andrena ovatula (Kirby, 1802)
Andrena phoenicura Warncke, 1975
Andrena poupillieri Dours, 1872
Andrena producta Warncke, 1973
Andrena russula Lepeletier, 1841
Andrena taedium Wood, 2023
Andrena vocifera Warncke, 1975
Andrena wilkella (Kirby, 1802)

Subgenus Tarsandrena Osychnyuk, 1984
Andrena ehnbergi Morawitz, 1888
Andrena tarsata Nylander, 1848

Subgenus Trachandrena Robertson, 1902
Andrena haemorrhoa (Fabricius, 1781)

Subgenus Troandrena Warncke, 1975
Andrena saettana Warncke, 1975
Andrena troodica Warncke, 1975

Subgenus Truncandrena Warncke, 1968
Andrena albopicta Radoszkowski, 1874
Andrena caneae Strand, 1915
Andrena delphiensis Warncke, 1965
Andrena doursana Dufour, 1853
Andrena ghishaini Wood, 2023
Andrena ferrugineicrus Dours, 1872
Andrena fuligula Warncke, 1965
Andrena medeninensis Pérez, 1895
Andrena minapalumboi Gribodo, 1894
Andrena mucronata Morawitz, 1871
Andrena nigropilosa Warncke, 1967
Andrena optata Warncke, 1975
Andrena paramythensis Mavromoustakis, 1957
Andrena parekliyaevae Mavromoustakis, 1957
Andrena rotundilabris Morawitz, 1878
Andrena schmiedeknechti Maggetti, 1883
Andrena serraticornis Warncke, 1965
Andrena truncatilabris Morawitz, 1877
Andrena tscheki Morawitz, 1872
Andrena ulula Warncke, 1969
Andrena varia Pérez, 1895
Andrena villipes Pérez, 1895

Subgenus Ulandrena Warncke, 1968
Andrena abbreviata Dours, 1873
Andrena acerba Warncke, 1967
Andrena biguttata Friese, 1923
Andrena cantica Warncke, 1975
Andrena combaella Warncke, 1966
Andrena concinna Smith, 1853
Andrena crecca Warncke, 1965
Andrena elegans Giraud, 1863
Andrena fulvitasris Brullé, 1832
Andrena graciliata Wood, 2023
Andrena heinrichi Grünwaldt, 2005
Andrena kriechbaumeri Schmiedeknecht, 1883
Andrena neocypriaca Mavromoustakis, 1956
Andrena polita Smith, 1847
Andrena resoluta Warncke, 1973
Andrena schulzi Strand, 1921
Andrena trikalensis Warncke, 1965
Andrena westensis Warncke, 1965

Genus Cubiandrena Warncke, 1968
Cubiandrena cubiceps (Friese, 1914)

Tribe Melliturgini Newman, 1834

Genus Melitturga Latreille, 1809
Subgenus Melitturga Latreille, 1809
Melitturga clavicornis (Latreille, 1806)
Melitturga praestans Giraud, 1861
Melitturga syriaca Friese, 1899
Melitturga taurica Friese, 1922
Subgenus Petrusianna Patiny, 1998
Melitturga caudata Pérez, 1879
Melitturga spinosa Morawitz, 1892

Tribe Panurgini Leach, 1815

Genus Camptopoeum Spinola, 1843
Subgenus Camptopoeum Spinola, 1843
Camptopoeum friesei Mocsáry, 1894
Camptopoeum frontale (Fabricius, 1804)
Camptopoeum nasutum (Spinola, 1838)
Subgenus Epimethea Morawitz, 1876
Camptopoeum variegatum (Morawitz, 1876)

Genus Clavipanurgus Warncke, 1972
Clavipanurgus sculpturatus (Morawitz, 1873)
Genus Flavipanurgus Warncke, 1972

Flavipanurgus flavus (Friese, 1897)
Flavipanurgus granadensis (Warncke, 1987)
Flavipanurgus ibericus (Warncke, 1972)
Flavipanurgus kastiliensis (Warncke, 1987)
Flavipanurgus merceti (Vachal, 1910)
Flavipanurgus venustus (Erichson, 1835)

Genus Halopanurgus Wood, Patiny & Bossert, 2022

Halopanurgus baldocki (Wood & Cross, 2017)
Halopanurgus fuzetus (Patiny, 1999)

Genus Panurginus Nylander, 1848

Panurginus albipilosus (Lucas, 1849)
Panurginus alpinus (Warncke, 1972)
Panurginus alticolus Morawitz, 1875
Panurginus annulatus (Sichel, 1859)
Panurginus brullei (Lepeletier, 1841)
Panurginus corpanus (Warncke, 1972)
Panurginus herzi Morawitz, 1892
Panurginus labiatus (Eversmann, 1852)
Panurginus lactipennis Friese, 1897
Panurginus montanus Giraud, 1861
Panurginus romani Aurivillius, 1914
Panurginus schwarzi (Warncke, 1972)
Panurginus sericatus (Warncke, 1972)
Panurginus turcomanicus Popov, 1936
Panurginus tyroensis Richards, 1932

Genus Panurgus Panzer, 1806

Subgenus Pachycephalopanurgus Patiny, 1999
Panurgus canescens Latreille, 1811
Panurgus meridionalis Patiny, Ortiz-Sánchez & Michez, 2005

Subgenus Panurgus Panzer, 1806
Panurgus banksianus (Kirby, 1802)
Panurgus calcarius (Scopoli, 1763)
Panurgus canarius Warncke, 1972
Panurgus cephalotes Latreille, 1811
Panurgus corsicus Warncke, 1972
Panurgus dargius Warncke, 1972
Panurgus dentipes Latreille, 1811
Panurgus oblitus Warncke, 1972
Panurgus perezi Saunders, 1882
Panurgus pici Pérez, 1895
Panurgus siculus Morawitz, 1872
Genus *Simpanurgus* Warncke, 1972

*Simpanurgus phyllopodus* (Warncke, 1972)

Family *Apidae* Latreille, 1802

Tribe *Ammobatini* Handlirsch, 1925

Genus *Ammobates* Latreille, 1809

Subgenus *Ammobates* Latreille, 1809
*Ammobates armeniacus* Morawitz, 1876
*Ammobates biastoides* (Friese, 1895)
*Ammobates dusmeti* Popov, 1951
*Ammobates mavromoustakisi* Popov, 1944
*Ammobates opacus* Popov, 1951
*Ammobates punctatus* (Fabricius, 1804)
*Ammobates rufiventris* Latreille, 1809
*Ammobates sanguineus* Friese, 1911
*Ammobates similis* Mocsáry, 1894
*Ammobates verhoeffi* Mavromoustakis, 1959
*Ammobates vinctus* Gerstaecker, 1869

Subgenus *Euphileremus* Popov, 1951
*Ammobates melectoides* (Smith, 1854)
*Ammobates muticus* Spinola, 1843
*Ammobates oraniensis* (Lepeletier, 1841)

Genus *Chiasmognathus* Engel, 2006

*Chiasmognathus orientanus* (Warncke, 1983)

Genus *Parammobatodes* Popov, 1931

*Parammobatodes maroccanus* (Warncke, 1983)
*Parammobatodes minutus* (Mocsáry, 1878)

Genus *Pasites* Jurine, 1807

*Pasites maculatus* Jurine, 1807

Tribe *Ammobatoidini* Michener, 1944

Genus *Ammobatoides* Radoszkowski, 1867

*Ammobatoides abdominalis* (Eversmann, 1852)
*Ammobatoides luctuosus* (Friese, 1911)
*Ammobatoides okalii* Kocourek, 1990
*Ammobatoides scriptus* (Gerstaecker, 1869)
Genus *Schmiedeknechtia* Friese, 1896

*Schmiedeknechtia oraniensis* Friese, 1896

**Tribe Ancylaini** Michener, 1944

Genus *Ancyla* Lepeletier, 1841

*Ancyla asiatica* Friese, 1922
*Ancyla cretensis* Friese, 1902
*Ancyla holtzi* Friese, 1902
*Ancyla nigricornis* Friese, 1902
*Ancyla orientalica* Warncke, 1979

Genus *Tarsalia* Morawitz, 1895

*Tarsalia ancylliformis* Popov, 1935
*Tarsalia hirtipes* Morawitz, 1895

**Tribe Anthophorini** Dahlbom, 1835

Genus *Amegilla* Friese, 1897

Subgenus *Amegilla* Friese, 1897
*Amegilla canifrons* (Smith, 1854)
*Amegilla garrula* (Rossi, 1790)
*Amegilla ochroleuca* (Pérez, 1879)
*Amegilla quadrifasciata* (de Villers, 1789)

Subgenus *Micramegilla* Brooks, 1988
*Amegilla andresi* (Friese, 1914)
*Amegilla fasciata* (Fabricius, 1775)
*Amegilla nigricornis* (Morawitz, 1873)
*Amegilla velocissima* (Fedtschenko, 1875)

Subgenus *Zebramegilla* Brooks, 1988
*Amegilla albigena* (Lepeletier, 1841)
*Amegilla salviae* (Morawitz, 1876)
*Amegilla savignyi* (Lepeletier, 1841)

Genus *Anthophora* Latreille, 1803

Subgenus *Anthophora* Latreille, 1803
*Anthophora canescens* Brullé, 1832
*Anthophora crinipes* Smith, 1854
*Anthophora fulvitarsis* Brullé, 1832
*Anthophora plumipes* (Pallas, 1772)
*Anthophora punctilabris* Pérez, 1879
*Anthophora senescens* Lepeletier, 1841
Subgenus *Caranthophora* Brooks, 1988
Anthophora dufourii Lepeletier, 1841
Anthophora pubescens (Fabricius, 1781)

Subgenus Clisodon Patton, 1879
Anthophora furcata (Panzer, 1798)

Subgenus Dasymegilla Brooks, 1988
Anthophora quadrimaculata (Panzer, 1798)

Subgenus Heliophila Klug, 1807
Anthophora bimaculata (Panzer, 1798)
Anthophora fulvodimidiata Dours, 1869
Anthophora lanzarotensis (Tkalců, 1993)
Anthophora liefincki (Tkalců, 1993)
Anthophora pulverosa Smith, 1854

incertae sedis
Anthophora laevigata Spinola, 1808
Anthophora porphyrea Westrich, 1993
Anthophora purpuraria Westrich, 1993
Anthophora raddei Morawitz, 1875
Anthophora uniciliata Sichel, 1860

Subgenus Lophanthophora Brooks, 1988
Anthophora affinis Brullé, 1832
Anthophora agama Radoszkowski, 1869
Anthophora atricilla Eversmann, 1846
Anthophora cinerascens Lepeletier, 1841
Anthophora crysocnemis Morawitz, 1877
Anthophora dispar Lepeletier, 1841
Anthophora hispanica (Fabricius, 1787)
Anthophora mucida Gribodo, 1873
Anthophora robusta (Klug, 1845)
Anthophora rutilans Dours, 1869

Subgenus Melea Sandhouse, 1943
Anthophora plagiata (Illiger, 1806)

Subgenus Mystacanthophora Brooks, 1988
Anthophora borealis Morawitz, 1864

Subgenus Paramegilla Friese, 1897
Anthophora astragali Morawitz, 1878
Anthophora balassogloi (Radoszkowski, 1877)
Anthophora balneorum Lepeletier, 1841
Anthophora deserticola Morawitz, 1873
Anthophora dubia Eversmann, 1852
Anthophora femorata (Olivier, 1789)
Anthophora ferruginea Lepeletier, 1841
Anthophora fulvipes Eversmann, 1846
Anthophora gallica Dalla Torre & Friese, 1895
Anthophora gracilipes Morawitz, 1873
Anthophora harmalae Morawitz, 1878
Anthophora ireos (Pallas, 1773)  
Anthophora larvata Giraud, 1863  
Anthophora nigrovittata Dours, 1869  
Anthophora podagra Lepeletier, 1841  
Anthophora ponomarevae Brooks, 1988  
Anthophora quadricolor (Erichson, 1840)  
Anthophora segnis Eversmann, 1852  
Anthophora socia (Klug, 1845)  

Subgenus Petalosternon Brooks, 1988  
Anthophora calcarata Lepeletier, 1841  
Anthophora crassipes Lepeletier, 1841  
Anthophora orotavae (Saunders, 1904)  

Subgenus Pyganthophora Brooks, 1988  
Anthophora aestivalis (Panzar, 1801)  
Anthophora albosignata (Friese, 1896)  
Anthophora alluaudi Pérez, 1902  
Anthophora altaica Radoszkowski, 1882  
Anthophora atriceps Pérez, 1879  
Anthophora atroalba Lepeletier, 1841  
Anthophora balearica (Friese, 1896)  
Anthophora cincrea (Friese, 1896)  
Anthophora dalmatica Pérez, 1902  
Anthophora leucophaea Pérez, 1879  
Anthophora monacha (Erichson, 1849)  
Anthophora nigriceps Morawitz, 1886  
Anthophora orientalis Morawitz, 1877  
Anthophora pedata Eversmann, 1852  
Anthophora pruinosas Smith, 1854  
Anthophora retusa (Linnaeus, 1758)  
Anthophora rogenhoferi Morawitz, 1872  
Anthophora romandii Dours, 1869  
Anthophora senilis Eversmann, 1846  
Anthophora sichelii Radoszkowski, 1869  
Anthophora testaceipes Morawitz, 1888  
Anthophora ventilabris Lepeletier, 1841  
Anthophora vernalis Morawitz, 1877  

Genus Habropoda Smith, 1854  

Habropoda ezonata Smith, 1854  
Habropoda tarsata (Spinola, 1838)  
Habropoda zonatula Smith, 1854  

Tribe Apini Latreille, 1802  

Genus Apis Linnaeus, 1758  

Subgenus Apis Linnaeus, 1758  
Apis mellifera Linnaeus, 1758
Tribe Biastini Linsley & Michener, 1939

Genus *Biastes* Panzer, 1806

*Biastes brevicornis* (Panzer, 1798)
*Biastes emarginatus* (Schenck, 1853)
*Biastes truncatus* (Nylander, 1848)

Tribe Bombini Latreille, 1802

Genus *Bombus* Latreille, 1802

Subgenus *Alpigenobombus* Skorikov, 1914
*Bombus wurfleii* Radoszkowski, 1859

Subgenus *Alpinobombus* Skorikov, 1914
*Bombus alpinus* (Linnaeus, 1758)
*Bombus balteatus* Dahlbom, 1832
*Bombus hyperboreus* Schonherr, 1809
*Bombus pyrrhopygus* Friese, 1902

Subgenus *Bombias* Robertson, 1903
*Bombus confusus* Schenck, 1861

Subgenus *Bombus* Latreille, 1802
*Bombus crysperum* (Fabricius, 1775)
*Bombus lucorum* (Linnaeus, 1761)
*Bombus magnus* Vogt, 1911
*Bombus patagiatus* Nylander, 1848
*Bombus renardi* Radoszkowski, 1884
*Bombus sporadicus* Nylander, 1848
*Bombus terrestris* (Linnaeus, 1758)
*Bombus xanthopus* (Kiriehbaumer, 1870)

Subgenus *Cullumanobombus* Vogt, 1911
*Bombus cullumanus* (Kirby, 1802)
*Bombus semenoviellus* Skorikov, 1910
Subgenus *Kallobombus* Dalla Torre, 1880
*Bombus soroeensis* (Fabricius, 1777)

Subgenus *Megabombus* Dalla Torre, 1880
*Bombus argillaceus* Scopoli, 1763
*Bombus consobrinus* Dahlbom, 1832
*Bombus gerstaeckeri* Morawitz, 1881
*Bombus hortorum* (Linnaeus, 1761)
*Bombus ruderatus* (Fabricius, 1775)
*Bombus saltuarius* (Skorikov, 1923)

Subgenus *Melanobombus* Dalla Torre, 1880
*Bombus lapidarius* (Linnaeus, 1758)
*Bombus sichelii* Radoszkowski, 1859
Subgenus *Mendacibombus* Skorikov, 1914
Bombus mendax Gerstäcker, 1869

Subgenus *Psithyrus* Lepeletier, 1833
Bombus barbatellus (Kirby, 1802)
Bombus bohemicus Seidl, 1838
Bombus campestris (Panzer, 1801)
Bombus flavidus Eversmann, 1852
Bombus norvegicus (Sparre-Schneider, 1918)
Bombus quadricolor (Lepeletier, 1832)
Bombus rupestris (Fabricius, 1793)
Bombus sylvestris (Lepeletier, 1832)
Bombus vestalis (Geoffroy, 1785)

Subgenus *Pyrobombus* Dalla Torre, 1880
Bombus brodmannicus Vogt, 1909
Bombus cingulatus Wahlberg, 1854
Bombus glacialis Friese, 1902
Bombus haematurus Kriechbaumer, 1870
Bombus hypnorum (Linnaeus, 1758)
Bombus jonellus (Kirby, 1802)
Bombus konradini Reinig, 1965
Bombus lapponicus (Fabricius, 1793)
Bombus modestus Eversmann, 1852
Bombus monticola Smith, 1849
Bombus pratorum (Linnaeus, 1761)
Bombus pyrenaeus Pérez, 1879

Subgenus *Sibiricobombus* Vogt, 1911
Bombus niveatus Kriechbaumer, 1870

Subgenus *Subterraneobombus* Vogt, 1911
Bombus distinguishens Morawitz, 1869
Bombus fragrans (Pallas, 1771)
Bombus subterraneus (Linnaeus, 1758)

Subgenus *Thoracobombus* Dalla Torre, 1880
Bombus armeniacus Radoszkowski, 1877
Bombus deuteronymus Schulz, 1879
Bombus humilis Illiger, 1806
Bombus inexpectatus (Tkalců, 1963)
Bombus laesus Morawitz, 1875
Bombus mesomelas Gerstäcker, 1869
Bombus mlokosievizii Radoszkowski, 1877
Bombus mucidus Gerstäcker, 1869
Bombus muscorum (Linnaeus, 1758)
Bombus pascuorum (Scopoli, 1763)
Bombus pomorum (Panzer, 1805)
Bombus ruderarius (Müller, 1776)
Bombus schrencki Morawitz, 1881
Bombus sylvarum (Linnaeus, 1761)
Bombus veteranus (Fabricius, 1793)
Bombus zonatus Smith, 1854
Tribe Ceratinini Latreille, 1802

Genus Ceratina Latreille, 1802

Subgenus Ceratina Latreille, 1802
Ceratina cucurbita (Rossi, 1792)

Subgenus Dalyatina Terzo, 2007
Ceratina parvula Smith, 1854

Subgenus Euceratina Hirashima, Moure & Daly, 1971
Ceratina acuta Friese, 1896
Ceratina albovestita Cockerell, 1931
Ceratina callosa (Fabricius, 1794)
Ceratina chalcites Germar, 1839
Ceratina chalybea Chevrier, 1872
Ceratina chrysomalla Gerstaecker, 1869
Ceratina cyanea (Kirby, 1802)
Ceratina cyriaca Mavromoustakis, 1949
Ceratina dallatorreana Friese, 1896
Ceratina dentiventris Gerstaecker, 1869
Ceratina gravidula Gerstaecker, 1869
Ceratina loewi Gerstaecker, 1869
Ceratina mandibularis Friese, 1896
Ceratina mocsaryi Friese, 1896
Ceratina moricei Friese, 1899
Ceratina nigraeoenea Gerstaecker, 1869
Ceratina nigrolabiata Friese, 1896
Ceratina sakagamii Terzo, 1998
Ceratina saundersi Daly, 1983
Ceratina teunisseni Terzo & Rasmont, 1997
Ceratina zandeni Terzo, 1998

Subgenus Neoceratina Perkins, 1912
Ceratina bispinosa Handlirsch, 1889
Ceratina schwarzi Kocourek 1998

Subgenus Pithitis Klug, 1807
Ceratina tarsata Morawitz, 1872

Tribe Epeolini Robertson, 1903

Genus Epeolus Latreille, 1802

Epeolus alpinus Friese, 1893
Epeolus aureovestitus Dours, 1873
Epeolus bischoffi (Mavromoustakis, 1954)
Epeolus compar Alfken, 1938
Epeolus cruciger (Panzer, 1799)
Epeolus fallax Morawitz, 1872
Epeolus fasciatus Friese, 1895
Epeolus flavociliatus Friese, 1899
Epeolus ibericus Bogusch, 2018
Epeolus intermedius Pérez, 1884
Epeolus julliani Pérez, 1884
Epeolus productulus Bischoff, 1930
Epeolus schimmelli Schilling, 1849
Epeolus siculus Soika, 1944
Epeolus sigillatus Alfken, 1930
Epeolus tarsalis Morawitz, 1874
Epeolus transitorius Eversmann, 1852
Epeolus variegatus (Linnaeus, 1758)

Genus Triepeolus Robertson, 1901

Triepeolus tristis (Smith, 1854)

Tribe Epeoloidini Linsley & Michener, 1939

Genus Epeoloides Giraud, 1863

Epeoloides coecutiens (Fabricius, 1775)

Tribe Eucerini Latreille, 1802

Genus Eucera Scopoli, 1770

Subgenus Cubitalia Friese, 1911
Eucera breviceps Friese, 1911
Eucera morio Friese, 1911
Eucera parvicorns Mocsáry, 1878
Eucera tristis Morawitz, 1875
Subgenus Eucera Scopoli, 1770
Eucera aequata Vachal, 1907
Eucera albofasciata Friese, 1895
Eucera algira Lepeletier, 1841
Eucera atriceps Morawitz, 1877
Eucera barbiventris Pérez, 1902
Eucera bidentata Pérez, 1887
Eucera caerulescens Friese, 1899
Eucera caspica Morawitz, 1873
Eucera cineraria Eversmann, 1852
Eucera clypeata Erichson, 1835
Eucera codinai Dusmet y Alonso, 1926
Eucera collaris Dours, 1873
Eucera confinis Pérez, 1895
Eucera curvitarsis Mocsáry, 1879
Eucera cypria Alfken, 1933
Eucera dafnii Dorchin, 2019
Eucera dalmatica Lepeletier, 1841
Eucera digitata Friese, 1896
Eucera dimidiata Brullé, 1832
Eucera ebmeri Risch, 1999
Eucera elongatula Vachal, 1907
Eucera excisa Mocsáry, 1879
Eucera fasciata Risch, 1999
Eucera ferghanica Morawitz, 1875
Eucera flavicornis Risch, 2003
Eucera furfurea Vachal, 1907
Eucera gaullei Vachal, 1907
Eucera gracilipes Pérez, 1895
Eucera grisea Fabricius, 1793
Eucera helvola Klug, 1845
Eucera hispana Lepeletier, 1841
Eucera interrupta Bär, 1850
Eucera kullenbergi Tkalců, 1978
Eucera laxiscopa Alfken, 1935
Eucera longicornis (Linnaeus, 1758)
Eucera matalae Tkalců, 2003
Eucera microsoma Cockerell, 1922
Eucera nigrescens Pérez, 1879
Eucera nigrifacies Lepeletier, 1841
Eucera nigrilabris Lepeletier, 1841
Eucera notata Lepeletier, 1841
Eucera numida Lepeletier, 1841
Eucera obliterata Pérez, 1896
Eucera oraniensis Lepeletier, 1841
Eucera palaestinae Friese, 1922
Eucera pannonica Mocsáry, 1878
Eucera paraclypeata Sitdikov, 1988
Eucera parnassia Pérez, 1902
Eucera penicillata Risch, 1997
Eucera pollinosa Smith, 1854
Eucera proxima Morawitz, 1875
Eucera pseudoucnemidea Risch, 1997
Eucera punctatissima Pérez, 1895
Eucera puncticollis Morawitz, 1876
Eucera punctulata Alfken, 1942
Eucera pythagoras Risch, 2003
Eucera rufipes Smith, 1879
Eucera seminuda Brullé, 1832
Eucera squamosa Lepeletier, 1841
Eucera syriaca Dalla Torre, 1896
Eucera taurea Vachal, 1907
Eucera taurica Morawitz, 1871
Eucera terminata Pérez, 1895
Eucera vittulata Noskiewicz, 1934
Eucera vulpes Brullé, 1832

Subgenus Synhalonia Patton, 1879
Eucera brachycera (Gribodo, 1893)
Eucera hungarica Friese, 1896
Eucera intermedia (Morawitz, 1875)
Eucera lanuginosa Klug, 1845
Eucera maroccana (Dusmet y Alonso, 1928)
Eucera mastrucata (Morawitz, 1875)
Eucera mediterranea Friese, 1896
Eucera melectoides (Radoszkowski, 1893)
Eucera obscura (Brullé, 1832)
Eucera plumiger (Kohl, 1905)
Eucera pollinaris (Kirby, 1802)
Eucera quilisi (Dusmet y Alonso, 1926)
Eucera rafa (Lepeletier, 1841)
Eucera ruficollis (Brullé, 1832)
Eucera transitoria (Morawitz, 1875)
Eucera tricincta Erichson, 1835
Eucera velutina (Morawitz, 1873)
Eucera vernalis (Morawitz, 1875)
Eucera alborufa (Radoszkowski, 1872)

Genus Tetralonia Spinola, 1839

Tetralonia alticincta (Lepeletier, 1841)
Tetralonia cinctella Saunders, 1908
Tetralonia dentata (Germar, 1839)
Tetralonia fulvescens Giraud, 1863
Tetralonia gennargentui (Nobile, Catania & Bella, 2021)
Tetralonia glauca (Fabricius, 1775)
Tetralonia graja (Eversmann, 1852)
Tetralonia hohmanni Tkalců, 1993
Tetralonia iberica Dusmet y Alonso, 1926
Tetralonia inulae Tkalců, 1979
Tetralonia julliani (Pérez, 1879)
Tetralonia lanzarotensis Tkalců, 1993
Tetralonia lyncea Mocsáry, 1879
Tetralonia malvae (Rossi, 1790)
Tetralonia nana Morawitz, 1874
Tetralonia pollinosa (Lepeletier, 1841)
Tetralonia ruficornis (Fabricius, 1804)
Tetralonia salicariae (Lepeletier, 1841)
Tetralonia scabiosae Mocsáry, 1881
Tetralonia strigata (Lepeletier, 1841)
Tetralonia vicina Morawitz, 1876

Tribe Melectini Westwood, 1839

Genus Melecta Latreille, 1802

Subgenus Eupavlovskia Popov, 1955
Melecta funeraria Smith, 1854
Melecta obscura Friese, 1895

Subgenus Melecta Latreille, 1802
Melecta aegyptiaca Radoszkowski, 1876
Melecta albifrons (Forster, 1771)
Melecta alcestis Lieftinck, 1980
Melecta amanda Lieftinck, 1980
Melecta baerii (Radoszkowski, 1865)
Melecta canariensis Lieftinck, 1958
Melecta caroli Lieftinck, 1958
Melecta curvispina Lieftinck, 1958
Melecta diacantha Eversmann, 1852
Melecta duodecimmaculata (Rossi, 1790)
Melecta eversmanni Radoszkowski, 1893
Melecta festiva Lieftinck, 1980
Melecta fulgida Lieftinck, 1980
Melecta gracilipes Lieftinck, 1980
Melecta grandis Lepeletier, 1841
Melecta guichardi Lieftinck, 1980
Melecta italica Radoszkowski, 1876
Melecta leucorhyncha Gribodo, 1893
Melecta luctuosa (Scopoli, 1770)
Melecta mundula Lieftinck, 1983
Melecta prophanta Lieftinck, 1980
Melecta rutenica Radoszkowski, 1893
Melecta tuberculata Lieftinck, 1980

Subgenus Paracrocisa Alfken, 1937
Melecta guilochei Dusmet y Alonso, 1915

Genus Thyreus Panzer, 1806
Thyreus affinis (Morawitz, 1874)
Thyreus elegans (Morawitz, 1877)
Thyreus hellenicus Lieftinck, 1968
Thyreus hirtus (De Beaumont, 1940)
Thyreus histrionicus (Illiger, 1806)
Thyreus hohmanni Schwarz, 1993
Thyreus orbatus (Lepeletier, 1841)
Thyreus picaron Lieftinck, 1968
Thyreus ramosus (Lepeletier, 1841)
Thyreus scutellaris (Fabricius, 1781)
Thyreus truncatus (Pérez, 1883)

Tribe Nomadini Latreille, 1802

Genus Nomada Scopoli, 1770
Nomada accentifera Pérez, 1895
Nomada achaica Schwarz & Smit, 2020
Nomada acutispina Schwarz & Smit, 2018
Nomada aeginaica Schwarz & Smit, 2018
Nomada agrestis Fabricius, 1787
Nomada alboguttata Herrick-Schäffer, 1839
Nomada alpigena Schwarz, Gusenleitner & Mazzucco, 1999
Nomada argentata Herrich-Schäffer, 1839
Nomada argentea (Schwarz, 1966)
Nomada ariasi Dusmet y Alonso, 1913
Nomada armata Herrich-Schäffer, 1839
Nomada arrogens Schmiedeknecht, 1882
Nomada atroscutellaris Strand, 1921
Nomada babyi Schwarz & Standfuss, 2007
Nomada baccata Smith, 1844
Nomada barcelonensis Cockerell, 1917
Nomada basalis Herrich-Schäffer, 1839
Nomada beaumonti Schwarz, 1967
Nomada bifasciata Olivier, 1811
Nomada bispinosa Mocsáry, 1883
Nomada blepharipes Schmiedeknecht, 1882
Nomada bluegeni Stöckhert, 1943
Nomada bolivari Dusmet y Alonso, 1913
Nomada bouceki Kocourek, 1985
Nomada braunsiana Schmiedeknecht, 1882
Nomada breviceps Schwarz, Smit & Ockermüller, 2019
Nomada breviscapa Schwarz & Smit, 2018
Nomada cadiza Schwarz & Gusenleitner, 2013
Nomada calimorpha Schmiedeknecht, 1882
Nomada carnifex Mocsáry, 1883
Nomada caspia Morawitz, 1895
Nomada castellana Dusmet y Alonso, 1913
Nomada cherkesiana Mavromoustakis, 1955
Nomada collarae Schwarz, 1964
Nomada concolor Schmiedeknecht, 1882
Nomada confinis Schmiedeknecht, 1882
Nomada conjungens Herrich-Schäffer, 1839
Nomada connectens Pérez, 1884
Nomada corcyraea Schmiedeknecht, 1882
Nomada coronata Pérez, 1895
Nomada coxalis Morawitz, 1877
Nomada crenulata Schwarz & Smit, 2018
Nomada cretensis Schulz, 1906
Nomada cristata Pérez, 1895
Nomada cruenta Schmiedeknecht, 1882
Nomada cypria Mavromoustakis, 1952
Nomada cypricola Mavromoustakis, 1955
Nomada diacantha Schwarz, 1981
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Lasioglossum buccale (Pérez, 1903)
Lasioglossum clupeare (Schenck, 1853)
Lasioglossum clupeiferellum (Strand, 1909)
Lasioglossum convexusculum (Schenck, 1853)
Lasioglossum corvinum (Morawitz, 1877)
Lasioglossum crassepunctatum (Blüthgen, 1923)
Lasioglossum denisterculum (Strand, 1909)
Lasioglossum dolichocephalum (Blüthgen, 1923)
Lasioglossum elegans (Lepeletier, 1841)
Lasioglossum erraticum (Blüthgen, 1931)
Lasioglossum griseolum (Morawitz, 1872)
Lasioglossum hilare Ebmer, 1972
Lasioglossum ibericum Ebmer, 1975
Lasioglossum intermedium (Schenck, 1868)
Lasioglossum laevidorsum (Blüthgen, 1923)
Lasioglossum limbellum (Morawitz, 1876)
Lasioglossum lucidulum (Schenck, 1861)
Lasioglossum marginellum (Schenck, 1853)
Lasioglossum maurusium (Blüthgen, 1935)
Lasioglossum medinai (Vachal, 1895)
Lasioglossum mesosclerum (Pérez, 1903)
Lasioglossum minutissimum (Kirby, 1802)
Lasioglossum monstricicum (Morawitz, 1891)
Lasioglossum nitidiusculum (Kirby, 1802)
Lasioglossum pallidum (Radoszkowski, 1888)
Lasioglossum parvulum (Schenck, 1853)
Lasioglossum pauperatum (Brullé, 1832)
Lasioglossum peregrinum (Blüthgen, 1923)
Lasioglossum phoenicurum (Warncke, 1975)
Lasioglossum pleurospeculum Herrmann, 2001
Lasioglossum pressithorax Ebmer, 1974
Lasioglossum pseudoplanulum (Blüthgen, 1924)
Lasioglossum punctatissimum (Schenck, 1853)
Lasioglossum puncticolle (Morawitz, 1872)
Lasioglossum pygmaeum (Schenck, 1853)
Lasioglossum quadrinotatulum (Schenck, 1861)
Lasioglossum quadririsignatum (Schenck, 1853)
Lasioglossum rufitarse (Zetterstedt, 1838)
Lasioglossum salinum (Morawitz, 1876)
Lasioglossum samaricum (Blüthgen, 1935)
Lasioglossum semilucens (Alfken, 1914)
Lasioglossum sexstrigatum (Schenck, 1870)
Lasioglossum sphecodimorphum (Vachal, 1892)
Lasioglossum strictifrons (Vachal, 1895)
Lasioglossum subaenescens (Pérez, 1896)
Lasioglossum tarsatum (Schenck, 1868)
Lasioglossum transitorium (Schenck, 1868)
Lasioglossum truncaticolle (Morawitz, 1877)
Lasioglossum tschibuklinum (Blüthgen, 1931)
Lasioglossum villosulum (Kirby, 1802)

Subgenus Lasioglossum Curtis, 1833
Lasioglossum acephaloides (Blüthgen, 1931)
Lasioglossum aphrodite Ebmer, 2014
Lasioglossum bicallosum (Morawitz, 1873)
Lasioglossum bimaculatum (Dours, 1872)
Lasioglossum bischoffi (Blüthgen, 1931)
Lasioglossum breviventre (Schenck, 1853)
Lasioglossum chalcodes (Brullé, 1839)
Lasioglossum costulatum (Kriechbaumer, 1873)
Lasioglossum cristula (Pérez, 1896)
Lasioglossum eurasicum Ebmer, 1972
Lasioglossum euxanthopus Pesenko, 1986
Lasioglossum euxinicum Ebmer, 1972
Lasioglossum fallax (Morawitz, 1874)
Lasioglossum glaciegenitum Ebmer, 1972
Lasioglossum haestians (Blüthgen, 1931)
Lasioglossum kotschyi Ebmer, 1981
Lasioglossum kussariense (Blüthgen, 1925)
Lasioglossum laevigatum (Kirby, 1802)
Lasioglossum laterale (Brullé, 1832)
Lasioglossum lativentre (Schenck, 1853)
Lasioglossum leucomontanum Ebmer, 1981
Lasioglossum niveocinctum (Blüthgen, 1923)
Lasioglossum pallens (Brullé, 1832)
Lasioglossum perclavipes (Blüthgen, 1934)
Lasioglossum prasinum (Smith, 1848)
Lasioglossum prunellum (Warncke, 1975)
Lasioglossum pseudocaspicum (Blüthgen, 1923)
Lasioglossum quadrinotatum (Kirby, 1802)
Lasioglossum raganum (Blüthgen, 1931)
Lasioglossum rostraturn (Eversmann, 1852)
Lasioglossum sexmaculatum (Schenck, 1853)
Lasioglossum sexnotatum (Nylander, 1852)
Lasioglossum sexnotatum (Kirby, 1802)
Lasioglossum subfasciatum (Imhoff, 1832)
Lasioglossum tungusicum Ebmer, 1978
Lasioglossum xanthopus (Kirby, 1802)

Subgenus Leuchalictus Warnke, 1975
Lasioglossum aegyptiellum (Strand, 1909)
Lasioglossum albocinctum (Lucas, 1849)
Lasioglossum alinense (Cockerell, 1924)
Lasioglossum callizonium (Pérez, 1896)
Lasioglossum discus (Smith, 1853)
Lasioglossum gorkiense (Blüthgen, 1931)
Lasioglossum leucozonium (Schrank, 1781)
Lasioglossum majus (Nylander, 1852)
Lasioglossum zonulus (Smith, 1848)

Subgenus Pyghalictus Warncke, 1975
Lasioglossum castilianum (Blüthgen, 1931)
Lasioglossum glabriusculum (Morawitz, 1872)
Lasioglossum politum (Schenck, 1853)
Lasioglossum trichopygum (Blüthgen, 1923)

Subgenus Rostrohalictus Warncke, 1975
Lasioglossum longirostre (Morawitz, 1876)

Subgenus Sphecodogastra Ashmead, 1899
Lasioglossum albipes (Fabricius, 1781)
Lasioglossum algericolellum (Strand, 1909)
Lasioglossum anellum (Vachal, 1905)
Lasioglossum articulare (Pérez, 1895)
Lasioglossum boreale Svensson, Ebmer & Sakagami, 1977
Lasioglossum calceatum (Scopoli, 1763)
Lasioglossum capitale (Pérez, 1903)
Lasioglossum damascenum (Pérez, 1910)
Lasioglossum debiliior (Pérez, 1910)
Lasioglossum dusmeti (Blüthgen, 1924)
Lasioglossum edessae (Ebmer, 1974)
Lasioglossum epipygiale (Blüthgen, 1924)
Lasioglossum euboeense (Strand, 1909)
Lasioglossum fratellum (Pérez, 1903)
Lasioglossum fulvicorne (Kirby, 1802)
Lasioglossum imbecillum Ebmer, 1974
Lasioglossum immunitum (Vachal, 1895)
Lasioglossum interruptum (Panzer, 1798)
Lasioglossum laeve (Kirby, 1802)
Lasioglossum laticeps (Schenck, 1868)
Lasioglossum limbelloides (Blüthgen, 1931)
Lasioglossum lineare (Schenck, 1868)
Lasioglossum malachurum (Kirby, 1802)
Lasioglossum mediterraneum (Blüthgen, 1926)
Lasioglossum minutulum (Schenck, 1853)
Lasioglossum nigripes (Lepeletier, 1841)
Lasioglossum obscuratum (Morawitz, 1876)
Lasioglossum paucillum (Schenck, 1853)
Lasioglossum setulellum (Strand, 1909)
Lasioglossum setulosum (Strand, 1909)
Lasioglossum subfulvicorne (Blüthgen, 1934)
Lasioglossum subhirtum (Lepeletier, 1841)
Lasioglossum tricinctum (Schenck, 1874)
Lasioglossum vergilianum (Pérez, 1903)

Genus Seladonia Robertson, 1918

Subgenus Mucoreohalictus Pesenko, 2004
Seladonia cyprica (Blüthgen, 1937)
Seladonia mucorea (Eversmann, 1852)
Seladonia pollinosa (Sichel, 1860)
Seladonia pseudomucorea (Ebmer, 1975)
Seladonia tuberculata (Blüthgen, 1925)

Subgenus Pachyceble Moure, 1940
Seladonia confusa (Smith, 1853)
Seladonia gavarnica (Pérez, 1903)
Seladonia leucahenea (Ebmer, 1972)
Seladonia tumulorum (Linnaeus, 1758)

Subgenus Seladonia Robertson, 1918
Seladonia cephalica (Morawitz, 1874)
Seladonia cretella Pauly & Devalez, 2015
Seladonia gemnea (Dours, 1872)
Seladonia gemmella Pauly, 2015
Seladonia kessleri (Bramson, 1879)
Seladonia orientana Pauly & Devalez, 2015
Seladonia phryganica Pauly & Devalez, 2015
Seladonia seladonia (Fabricius, 1794)
Seladonia semiteecta (Morawitz, 1874)
Seladonia submediterranea Pauly, 2015
Seladonia smaragdula (Vachal, 1895)
Seladonia subaurata (Rossi, 1792)
Subgenus Vestitohalictus Blüthgen, 1961
Seladonia concinna (Brullé, 1840)
Seladonia in pilosa (Ebmer, 1975)
Seladonia microcardia (Pérez, 1895)
Seladonia pulvere a (Morawitz, 1873)
Seladonia semitica (Blüthgen, 1955)
Seladonia vestita (Lepeletier, 1841)

Genus Sphecodes Latreille, 1804

Sphecodes aetnensis Nobile, 1996
Sphecodes albilabris (Fabricius, 1793)
Sphecodes algeriensis Alfken, 1914
Sphecodes alternatus Smith, 1853
Sphecodes anatolicus Warncke, 1992
Sphecodes atlanticus Warncke, 1992
Sphecodes barbatus Blüthgen, 1923
Sphecodes combai Nobile & Turrisi, 2004
Sphecodes crassanus Warncke, 1992
Sphecodes crassus Thomson, 1870
Sphecodes creticus Warncke, 1992
Sphecodes cristatus Hagens, 1882
Sphecodes croaticus Meyer, 1921
Sphecodes cypricus Blüthgen, 1938
Sphecodes dusmeti Blüthgen, 1924
Sphecodes ephippius (Linnaeus, 1767)
Sphecodes ferruginatus Hagens, 1882
Sphecodes geoffrellus (Kirby, 1802)
Sphecodes gibbus (Linnaeus, 1758)
Sphecodes gomerensis Warncke, 1992
Sphecodes hirtellus Blüthgen, 1923
Sphecodes hyalinatus Hagens, 1882
Sphecodes intermedius Blüthgen, 1923
Sphecodes larochet Warncke, 1992
Sphecodes longuloides Blüthgen, 1923
Sphecodes longulus Hagens, 1882
Sphecodes majalis Pérez, 1903
Sphecodes marginatus Hagens, 1882
Sphecodes miniatus Hagens, 1882
Sphecodes monilicornis (Kirby, 1802)
Sphecodes niger Hagens, 1874
Sphecodes nomioidis Pesenko, 1979
Sphecodes olivieri Lepeletier, 1825
Sphecodes pellucidus Smith, 1845
Sphecodes piceohirtus Blüthgen, 1958
Sphecodes pinguiculus Pérez, 1903
Sphecodes pseudocrassus Blüthgen, 1924
Sphecodes pseudofasciatus Blüthgen, 1925
Sphecodes puncticeps Thomson, 1870
Sphecodes reticulatus Thomson, 1870
Sphecodes rubicundus Hagens, 1875
Sphecodes rubripes Spinola, 1838
Sphecodes ruficus (Erichson, 1835)
Sphecodes rufiventris (Panzer, 1798)
Sphecodes scabricollis Wesmael, 1835
Sphecodes schenckii Hagens, 1882
Sphecodes spinulosus Hagens, 1875
Sphecodes zangherii Noskiewicz, 1931

Genus *Thrincohalictus* Blüthgen, 1955

*Thrincohalictus* prognathus (Pérez, 1912)

Subfamily Nomiinae Robertson, 1904

Genus *Nomiapis* Cockerell, 1919

*Nomiapis* bispinosa (Brullé, 1832)
*Nomiapis* diversipes (Latreille, 1806)
*Nomiapis* equestris (Gerstaecker, 1872)
*Nomiapis* femoralis (Pallas, 1773)
*Nomiapis* fugax (Morawitz, 1877)
*Nomiapis* monstrosa (Costa, 1861)
*Nomiapis* paulyi Wood & Le Divelec, 2022
*Nomiapis* rufiventris (Spinola, 1838)
*Nomiapis* susannae Arens, 2018
*Nomiapis* valga (Gerstaecker, 1872)

Genus *Pseudapis* Kirby, 1900

*Pseudapis* elegantissima (Popov, 1949)

Subfamily Nomioidinae Börner, 1919

Genus *Ceylalictus* Strand, 1913

*Ceylalictus* variegatus (Olivier, 1789)

Genus *Nomioides* Schenck, 1867

*Nomioides* chalybeatus Blüthgen, 1934
*Nomioides* deceptor Blüthgen, 1937
*Nomioides* facilis (Smith, 1853)
*Nomioides* fortunatus Blüthgen, 1937
*Nomioides* minutissimus (Rossi, 1790)
*Nomioides* pulverosus Handlirsch, 1888
Subfamily Rophitinae Schenck, 1866

Genus Dufourea Lepeletier, 1841

Subgenus Cephalictoides Cockerell, 1924
Dufourea paradoxa (Morawitz, 1867)

Subgenus Cyprrophites Warncke, 1979
Dufourea coeruleocephala Morawitz, 1872
Dufourea cypria Mavromoustakis, 1952
Dufourea iris Ebmer, 1987
Dufourea styx Ebmer, 1976

Subgenus Dentirophites Warncke, 1979
Dufourea gaullei Vachal, 1897
Dufourea lusitanica Ebmer, 1999

Subgenus Dufourea Lepeletier, 1841
Dufourea alpina Morawitz, 1865
Dufourea balearica Ebmer, 2015
Dufourea fortunata Ebmer, 1993
Dufourea halictula (Nylander, 1852)
Dufourea minuta Lepeletier, 1841
Dufourea similis Friese, 1898
Dufourea trautmanni Dusmet, 1935
Dufourea wolfi Ebmer, 1989

Subgenus Glossadufourea Ebmer, 1993
Dufourea longiglossa Ebmer, 1993

Subgenus Halictoides Nylander, 1848
Dufourea dentiventris (Nylander, 1848)
Dufourea graeca Ebmer, 1976
Dufourea inermis (Nylander, 1848)

Subgenus Merrophites Warncke, 1979
Dufourea merceti Vachal, 1907

Genus Rhophitoides Schenck, 1861

Rhophitoides canus (Eversmann, 1852)
Rhophitoides epiroticus Schwammberger, 1975

Genus Rophites Spinola, 1808

Rophites algirus Pérez 1895
Rophites clypealis Schwammberger, 1976
Rophites hartmanni Friese, 1902
Rophites hellenicus Ebmer, 1984
Rophites leclercqi Schwammberger, 1971
Rophites quinquespinosus Spinola, 1808
Rophites thracius Ebmer, 1993

Genus Systropha Illiger, 1805

Systropha curvicornis (Scopoli, 1770)
Systropha grandimargo Pérez, 1905
Systropha planidens Giraud, 1861

Family Megachilidae Latreille, 1802

Tribe Anthidiini Ashmead, 1899

Genus Afranthidium Michener, 1948

Subgenus Capanthidium Pasteels, 1969
Afranthidium schulthessii (Friese, 1897)

Subgenus Mesanthidium Popov, 1950
Afranthidium carduele (Morawitz, 1875)

Genus Anthidiellum Cockerell, 1904

Anthidiellum breviusculum (Pérez, 1890)
Anthidiellum strigatum (Panzer, 1805)
Anthidiellum troodicum Mavromoustakis, 1949

Genus Anthidium Fabricius, 1804

Subgenus Anthidium Fabricius, 1804
Anthidium caspicum Morawitz, 1880
Anthidium cingulatum Latreille, 1809
Anthidium dalmaticum Mocsáry, 1884
Anthidium diadema Latreille, 1809
Anthidium florentinum (Fabricius, 1775)
Anthidium loti Perris, 1852
Anthidium manicatum (Linnaeus, 1758)
Anthidium montanum Morawitz, 1865
Anthidium punctatum Latreille, 1809
Anthidium septemspinosum Lepeletier, 1841
Anthidium spiniventre Friese, 1899
Anthidium taeniatum Latreille, 1809
Anthidium wuestneii Mocsáry, 1887

Subgenus Galanthidium Pasteels, 1969
Anthidium rotundum Warncke, 1980

Subgenus Proanthidium Friese, 1898
Anthidium oblongatum (Illiger, 1806)
Anthidium undulatiforme Friese, 1917
Anthidium undulatum Dours, 1873

Genus Eoanthidium Popov, 1950

Subgenus Eoanthidium Popov, 1950
Eoanthidium clypeare (Morawitz, 1874)
Eoanthidium insulare (Morawitz, 1874)
Eoanthidium nasiculum Pasteels, 1969
Eoanthidium pasteelsi (Warncke, 1980)

Genus Icteranthidium Michener, 1948

Icteranthidium cimbiciforme (Smith, 1854)
Icteranthidium ferrugineum (Fabricius, 1787)
Icteranthidium grohmanni (Spinola, 1838)
Icteranthidium laterale (Latreille, 1809)

Genus Pseudoanthidium Friese, 1898

Subgenus Exanthidium Pasteels, 1969
Pseudoanthidium eximium (Giraud, 1863)

Subgenus Pseudoanthidium Friese, 1898
Pseudoanthidium alpinum (Morawitz, 1874)
Pseudoanthidium canariense (Mavromoustakis, 1954)
Pseudoanthidium kaspureki Le Divelec & Litman, 2021
Pseudoanthidium nanum (Mocsáry, 1880)
Pseudoanthidium scapulare (Latreille, 1809)
Pseudoanthidium stigmaticorne (Dours, 1873)
Pseudoanthidium tenellum (Mocsáry, 1880)

Subgenus Royanthidium Pasteels, 1969
Pseudoanthidium melanurum (Klug, 1832)
Pseudoanthidium reticulatum (Mocsáry, 1884)

Genus Rhodanthidium Isensee, 1927

Subgenus Asianthidium Popov, 1950
Rhodanthidium caturigense (Giraud, 1863)

Subgenus Rhodanthidium Isensee, 1927
Rhodanthidium acuminatum (Mocsáry, 1884)
Rhodanthidium infuscatum (Erichson, 1835)
Rhodanthidium rufocinctum (Alfken, 1930)
Rhodanthidium septendentatum (Latreille, 1809)
Rhodanthidium siculum (Spinola, 1838)
Rhodanthidium sticticum (Fabricius, 1787)
Genus *Stelis* Panzer, 1806

Subgenus *Heterostelis* Timberlake, 1941
*Stelis annulata* (Lepeletier, 1841)
*Stelis gigantea* Friese, 1921
*Stelis hispanica* Dusmet y Alonso, 1921
*Stelis hungarica* Noskiewicz, 1962
*Stelis ruficornis* Morawitz, 1872

incertae sedis
*Stelis ortizi* Schwarz & Gusenleitner, 2010
*Stelis rhodia* Mavromoustakis, 1960

Subgenus *Protostelis* Friese, 1895
*Stelis signata* (Latreille, 1809)

Subgenus *Pseudostelis* Popov, 1956
*Stelis denticulata* Friese, 1899
*Stelis minuta* Lepeletier & Audinet-Serville, 1825

Subgenus *Stelidomorpha* Morawitz, 1875
*Stelis aegyptiaca* (Radoszkowski, 1876)
*Stelis nasuta* (Latreille, 1809)
*Stelis pentelica* Mavromoustakis, 1963

Subgenus *Stelis* Panzer, 1806
*Stelis aculeata* Morawitz, 1880
*Stelis breviuscula* (Nylander, 1848)
*Stelis franconica* Blüthgen, 1930
*Stelis iugae* Noskiewicz, 1962
*Stelis minima* Schenck, 1861
*Stelis murina* Pérez, 1884
*Stelis odontopyga* Noskiewicz, 1926
*Stelis orientalis* Warncke, 1992
*Stelis ornatula* (Klug, 1807)
*Stelis phaeoptera* (Kirby, 1802)
*Stelis punctulatissima* (Kirby, 1802)
*Stelis scutellaris* Morawitz, 1894
*Stelis simillima* Morawitz, 1876

Genus *Trachusa* Panzer, 1804

Subgenus *Archianthidium* Mavromoustakis, 1939
*Trachusa balcanica* Kasparek, 2018
*Trachusa laeviventris* (Dours, 1873)
*Trachusa lateceps* (Morawitz, 1873)
*Trachusa pubescens* (Morawitz, 1872)

Subgenus *Paraanthidium* Friese, 1898
*Trachusa dumerlei* (Warncke, 1980)
*Trachusa integra* (Eversmann, 1852)
Trachusa interrupta (Fabricius, 1781)
Trachusa varia (Olivier, 1789)

Subgenus Trachusa Panzer, 1804
Trachusa byssina (Panzer, 1798)

Tribe Dioxyini Cockerell, 1902

Genus Aglaoapis Cameron, 1901
Aglaoapis tridentata (Nylander, 1848)

Genus Dioxys Lepeletier & Serville, 1825

Dioxys ardens Gerstaecker, 1869
Dioxys atlantica Saunders, 1904
Dioxys cincta (Jurine, 1807)
Dioxys lanzarotensis Tkalců, 2001
Dioxys moesta Costa, 1883
Dioxys pumila Gerstaecker, 1869

Genus Ensliniana Cameron, 1901
Ensliniana bidentata (Friese, 1899)

Genus Metadioxys Popov, 1947
Metadioxys graecus (Mocsáry, 1877)

Genus Paradioxys Mocsáry, 1894
Paradioxys pannonicus (Mocsáry, 1877)

Tribe Lithurgini Newman, 1834

Genus Lithurgus Latreille, 1825
Lithurgus chrysurus Fonscolombe, 1834
Lithurgus cornutus (Fabricius, 1787)
Lithurgus tibialis Morawitz, 1875

Tribe Megachilini Latreille, 1802

Genus Coelioxys Latreille, 1809
Subgenus Allocoelioxys Tkalců, 1974
Coelioxys acanthopyga Alfken, 1940
Coelioxys acanthurus (Illiger, 1806)
Coelioxys argenteus Lepeletier, 1841
Coelioxys artemis Schwarz, 2001
Coelioxys brevis Eversmann, 1852
Coelioxys caudatus Spinola, 1838
Coelioxys coturnix Pérez, 1884
Coelioxys echinatus Förster, 1853
Coelioxys elegantulus Alfken, 1934
Coelioxys elsei Schwarz, 2001
Coelioxys emarginatus Förster, 1853
Coelioxys haemorrhhoa Förster, 1853
Coelioxys mielbergi Morawitz, 1880
Coelioxys obtusus Pérez, 1884
Coelioxys polycentris Förster, 1853

Subgenus Austroleptria Rocha-Filho, 2016
Coelioxys afer Lepeletier, 1841

Subgenus Coelioxys Latreille, 1809
Coelioxys quadridentatus (L., 1758)

incertae sedis
Coelioxys lanceolatus Nylander, 1852
Coelioxys obtusispina Thomson, 1872

Subgenus Liothyrapis Cockerell, 1911
Coelioxys decipiens Spinola, 1838

Subgenus Melissoctonia Rocha-Filho, 2016
Coelioxys conoideus (Illiger, 1806)

Subgenus Paracoelioxys Gribodo, 1884
Coelioxys alatus Förster, 1853
Coelioxys elongatus Lepeletier, 1841
Coelioxys inermis (Kirby, 1802)
Coelioxys mandibularis Nylander, 1848
Coelioxys osmiae Alfken, 1928

Subgenus Rozeniana Rocha-Filho, 2016
Coelioxys aurolimbatus Förster, 1853
Coelioxys rufescens Lepeletier & Serville, 1825

Genus Megachile Latreille, 1802

Subgenus Anodonteutricharacea Tkalcú, 1993
Megachile albohirta (Brullé, 1839)
Megachile thevestensis Ferton, 1908
Megachile troodica Mavromoustakis, 1953

Subgenus Callomegachile Michener, 1962
Megachile disjunctiformis Cockerell, 1911
Megachile sculpturalis Smith, 1853
Subgenus *Chalicodoma* Lepeletier, 1841
Megachile albochristata Smith, 1853
Megachile albonotata Radoszkowski, 1886
Megachile apennina Benoist, 1940
Megachile baetica (Gerstaecker, 1869)
Megachile canescens (Brullé, 1832)
Megachile cressa (Tkalců, 1988)
Megachile cypricola Mavromoustakis, 1938
Megachile fuerteventurae Tkalců, 1993
Megachile hungarica Mocsáry, 1877
Megachile lefebvrei (Lepeletier, 1841)
Megachile lucidifrons Ferton, 1905
Megachile manicata Giraud, 1861
Megachile montenegrensis Dours, 1873
Megachile parietina (Geoffroy, 1785)
Megachile pyrenaica (Lepeletier, 1841)
Megachile roeweri Alfken, 1928
Megachile rufescens (Pérez, 1879)
Megachile sicula (Rossi, 1792)

Subgenus *Chelostomoides* Robertson, 1901
Megachile otomita Cresson, 1878

Subgenus *Creightonella* Cockerell, 1908
Megachile albisecta (Klug, 1817)
Megachile doriae Magretti, 1890
Subgenus *Eurymella* Pasteels, 1965
Megachile patellimana Spinola, 1838

Subgenus *Eutricharaea* Thomson, 1872
Megachile argentata (Fabricius, 1793)
Megachile anatolica Rebnann, 1968
Megachile apicalis Spinola, 1808
Megachile binominata Smith, 1853
Megachile burdigalensis Benoist, 1940
Megachile canariensis Pérez, 1902
Megachile deception Pérez, 1890
Megachile ferton Pérez, 1895
Megachile flavellipes Pérez, 1895
Megachile giraudi Gerstaecker, 1869
Megachile hohmanni Tkalců, 1994
Megachile inexpectata Rebnann, 1968
Megachile leachella Curtis, 1828
Megachile leucomalla Gerstaecker, 1869
Megachile marginata Smith, 1853
Megachile melanogaster Eversmann, 1852
Megachile minutissima Radoszkowski, 1876
Megachile opacifrons Pérez, 1897
Megachile posti Mavromoustakis, 1952
Megachile pusilla Pérez, 1884
Megachile rotundata (Fabricius, 1787)
Megachile semicircularis van der Zanden, 1996
Megachile tenuistriga Alfken, 1938
Subgenus **Megachile** Latreille, 1802
- *Megachile alpicola* Alfken, 1924
- *Megachile bombycina* Radoszkowski, 1874
- *Megachile centuncularis* (Linnaeus, 1758)
- *Megachile genalis* Morawitz, 1880
- *Megachile lapponica* Thomson, 1872
- *Megachile ligniseca* (Kirby, 1802)
- *Megachile melanopyga* Costa, 1863
- *Megachile octosignata* Nylander, 1852
- *Megachile pyrenaea* Pérez, 1890
- *Megachile versicolor* Smith, 1844

Subgenus **Pseudomegachile** Friese, 1898
- *Megachile ericetorum* (Lepeletier, 1841)
- *Megachile farinosa* Smith, 1853
- *Megachile flavipes* Spinola, 1838
- *Megachile foersteri* Gerstäcker, 1869
- *Megachile saussurei* Radoszkowski, 1874
- *Megachile syriaca* Dorchin & Praz, 2018
- *Megachile tecta* Radoszkowski, 1888

Subgenus **Xanthosarus** Robertson, 1903
- *Megachile analis* Nylander, 1852
- *Megachile circumcincta* (Kirby, 1802)
- *Megachile diabolica* Friese, 1898
- *Megachile fulvimana* Eversmann, 1852
- *Megachile lagopoda* (Linnaeus, 1761)
- *Megachile maritima* (Kirby, 1802)
- *Megachile willughbiella* (Kirby, 1802)
- *Megachile nigriventris* Schenck, 1870

**Tribe Osmiini** Newman, 1834

**Genus Chelostoma** Latreille, 1809

Subgenus **Chelostoma** Latreille, 1809
- *Chelostoma comosum* Müller, 2012
- *Chelostoma diodon* Schletterer, 1889
- *Chelostoma edentulum* Pérez, 1895
- *Chelostoma emarginatum* (Nylander, 1856)
- *Chelostoma florisomne* (Linnaeus, 1758)
- *Chelostoma grande* (Nylander, 1852)
- *Chelostoma lucens* (Benoist, 1928)
- *Chelostoma mocsaryi* Schletterer, 1889
- *Chelostoma stefanii* Nobile, 1995
- *Chelostoma transversum* (Friese, 1897)

Subgenus **Foveosmia** Warncke, 1991
- *Chelostoma campanularum* (Kirby, 1802)
- *Chelostoma distinctum* (Stoeckhert, 1929)
Chelostoma forcipatum (Benoist, 1928)
Chelostoma foveolatum (Morawitz, 1868)
Chelostoma hellenicum (Benoist, 1938)
Chelostoma incognitum Müller, 2012
Chelostoma laticaudum (Benoist, 1938)
Chelostoma longifacies Müller, 2012
Chelostoma styriacum Schwarz & Gusenleitner, 1999

Subgenus Gyrodromella Michener, 1997
Chelostoma aegaeicum Müller, 2012
Chelostoma handlirschi Schletterer, 1889
Chelostoma nasutum Pérez, 1895
Chelostoma rapunculi (Lepeletier, 1841)

incertae sedis
Chelostoma ventrale Schletterer, 1889

Genus Haetosmia Popov, 1952
Haetosmia circumventa (Peters, 1974)

Genus Heriades Spinola, 1808

Subgenus Heriades Spinola, 1808
Heriades crenulata Nylander, 1856
Heriades rubicola Pérez, 1890
Heriades truncorum (Linnaeus, 1758)

Subgenus Michenerella Krombein, 1950
Heriades punctulifera Schletterer, 1889

Subgenus Rhopaloheriades Griswold & Michener, 1998
Heriades clavicornis Morawitz, 1875

Genus Hofferia Tkalců, 1984
Hofferia schmiedeknechtii (Schletterer, 1889)

Genus Hoplitis Klug, 1807

Subgenus Alcidamea Cresson, 1864
Hoplitis acuticornis (Dufour & Perris, 1840)
Hoplitis bicallosa (Morawitz, 1876)
Hoplitis bispinosa van der Zanden, 1992
Hoplitis brachypogon (Pérez, 1879)
Hoplitis campanularis (Morawitz, 1877)
Hoplitis ciliaris (Pérez, 1902)
Hoplitis claviventris (Thomson, 1872)
Hoplitis curtula (Pérez, 1896)
Hoplitis curvipes (Morawitz, 1871)
Hoplitis fulva (Eversmann, 1852)
Hoplitis galbula (Warncke, 1991)
Hoplitis grossepunctata (Kohl, 1905)
Hoplitis leucomelana (Kirby, 1802)
Hoplitis limassolica (Mavromoustakis, 1937)
Hoplitis mitis (Nylander, 1852)
Hoplitis mollis Tkalců, 2000
Hoplitis occidentalis Müller, 2012
Hoplitis praestans (Morawitz, 1893)
Hoplitis princeps (Morawitz, 1872)
Hoplitis stellaris (Warncke, 1991)
Hoplitis subbutea (Warncke, 1991)
Hoplitis tridentata (Dufour & Perris, 1840)
Hoplitis tuberculata (Nylander, 1848)
Hoplitis turcestanica (Dalla Torre, 1896)

Subgenus Anthocopa Lepeletier & Serville, 1825
Hoplitis agis (Benoist, 1929)
Hoplitis albiscopa (Friese, 1899)
Hoplitis anipuncta (Alfken, 1935)
Hoplitis antigae (Pérez, 1895)
Hoplitis batyamae (van der Zanden, 1986)
Hoplitis bisulca (Gerstaecker, 1869)
Hoplitis caucasicola Müller, 2012
Hoplitis coryraea (Tkalců, 1979)
Hoplitis cristatula (Van der Zanden, 1990)
Hoplitis cypriaca (Mavromoustakis, 1938)
Hoplitis dalmatica (Morawitz, 1871)
Hoplitis fasciculata (Alfken, 1934)
Hoplitis graeca (Tkalců, 2001)
Hoplitis grumi (Morawitz, 1894)
Hoplitis jakovlevi (Radoszkowski, 1874)
Hoplitis manuelae Müller, 2012
Hoplitis mocsaryi (Friese, 1895)
Hoplitis nicolai Müller, 2012
Hoplitis obtusa (Friese, 1899)
Hoplitis papaveris (Latreille, 1799)
Hoplitis peniculifera Müller, 2012
Hoplitis perezi (Ferton, 1895)
Hoplitis pulchella (Pérez, 1895)
Hoplitis saundersi (Vachal, 1891)
Hoplitis saxialis (van der Zanden, 1994)
Hoplitis serainae Müller, 2012
Hoplitis taurica (Radoszkowski, 1874)
Hoplitis villosa (Schenck, 1853)
Hoplitis yermasoyiae (Mavromoustakis, 1938)
Hoplitis zaianorum (Benoist, 1927)

Subgenus Chlidoplitis Griswold, 1998
Hoplitis lysholmi (Friese, 1899)
Hoplitis onychophora (Mavromoustakis, 1939)
Hoplitis teurii (Benoist, 1927)

Subgenus Formicapis Sladen, 1916
Hoplitis robusta (Nylander, 1848)

Subgenus Hoplitis Klug, 1807
Hoplitis adunca (Panzer, 1798)
Hoplitis annullata (Latreille, 1811)
Hoplitis anthocapoides (Schenek, 1853)
Hoplitis benoisti (Alfken, 1935)
Hoplitis bihamata (Costa, 1885)
Hoplitis carinata (Stanek, 1969)
Hoplitis fabrei van der Zanden, 1987
Hoplitis fertoni (Pérez, 1891)
Hoplitis galichicae Müller, 2016
Hoplitis hilbera Müller, 2012
Hoplitis holmboei (Mavromoustakis, 1949)
Hoplitis idaensis (Warncke, 1991)
Hoplitis insularis (Schmiedeknecht, 1885)
Hoplitis jheringii (Ducke, 1898)
Hoplitis lepeletieri (Pérez, 1879)
Hoplitis lindodora Müller, 2012
Hoplitis loti (Morawitz, 1867)
Hoplitis manicata (Morice, 1901)
Hoplitis marchali (Pérez, 1902)
Hoplitis monticola Müller, 2012
Hoplitis ochraceicornis (Ferton, 1902)
Hoplitis pallicornis (Friese, 1895)
Hoplitis perambigua (Peters, 1975)
Hoplitis pici (Friese, 1899)
Hoplitis ravouxi (Pérez, 1902)
Hoplitis stecki (Frey-Gessner, 1908)
Hoplitis strymonia Tkalcê, 1999
Hoplitis submanicata van der Zanden, 1984
Hoplitis tkalcuellia Le Goff, 2003

Subgenus Megahoplitis Tkalcê, 1993
Hoplitis tigrina (Morawitz, 1972)

Subgenus Micreriades Mavromoustakis, 1958
Hoplitis antalyae Tkalcê, 2000
Hoplitis haemi Tkalcê, 2001
Hoplitis illyrica (Noskiewicz, 1926)
Hoplitis mazzuccoi (Schwarz & Gusenleitner, 2005)
Hoplitis parnesica (Mavromoustakis, 1958)
Hoplitis tenuispina (Alfken, 1936)

Subgenus Pentadentosmia Warncke, 1991
Hoplitis cadiza (Warncke, 1991)
Hoplitis laevifrons (Morawitz, 1872)
Hoplitis moricei (Friese, 1899)
Hoplitis pomarina (Warncke, 1991)
Hoplitis quinquespinosa (Friese, 1899)

Subgenus Stenosmia Michener, 1941
Hoplitis albatera (Warncke, 1991)

Subgenus Tkalcua Kocak & Kemal 2010
Hoplitis zandeni (Teunissen & van Achterberg, 1992)

Genus Osmia Panzer, 1806

Subgenus Allosmia Tkalců, 1974
Osmia bischoffi Atanassov, 1938
Osmia melanura Morawitz, 1871
Osmia nuda Friese, 1899
Osmia rufohirta Latreille, 1811
Osmia rutila Erichson, 1835
Osmia sybarita Smith, 1853

Subgenus Erythrosmia Schmiedeknecht, 1885
Osmia andrenoides Spinola, 1808
Osmia erythrogastra Ferton, 1905

Subgenus Helicosmia Thomson, 1872
Osmia aeruginosa Warncke, 1988
Osmia alfkenii Ducke, 1900
Osmia aurulenta Panzer, 1799
Osmia breviata Warncke, 1988
Osmia caerulescens (Linnaeus, 1758)
Osmia clypearis Morawitz, 1872
Osmia dimidiata Morawitz, 1871
Osmia dives Mocsáry, 1877
Osmia dusmeti van der Zanden, 1998
Osmia frieseana Ducke, 1899
Osmia heteracantha Pérez, 1895
Osmia labialis Pérez, 1879
Osmia latreillei (Spinola, 1806)
Osmia leaiana (Kirby, 1802)
Osmia madeirensis van der Zanden, 1991
Osmia melanogaster Spinola, 1808
Osmia nasoproducta Ferton, 1909
Osmia niveata (Fabricius, 1804)
Osmia niveocincta Pérez, 1897
Osmia notata (Fabricius, 1804)
Osmia palmae Tkalců, 2001
Osmia signata Erichson, 1835
Osmia subcornuta Morawitz, 1875

Subgenus Hemiosmia Tkalců, 1975
Osmia argyropyga Pérez, 1879
Osmia balearica (Schmiedeknecht, 1885)
Osmia iberica van der Zanden, 1987
Osmia uncicornis Pérez, 1895

Subgenus Hoplosmia Thomson, 1872
Osmia anceyi Pérez, 1879
Osmia bidentata Morawitz, 1876
Osmia croatica Friese, 1893
Osmia distinguenda (Tkalců, 1974)
Osmia elegans (Tkalců, 1992)
Osmia fallax Pérez, 1895
Osmia larochei Tkalců, 1993
Osmia ligurica Morawitz, 1868
Osmia olgae (Tkalců, 1978)
Osmia padri (Tkalců, 1974)
Osmia picena (Tkalců, 1999)
Osmia pinguis Pérez, 1895
Osmia scutellaris Morawitz, 1868
Osmia spinigera Latreille, 1811
Osmia spinulosa (Kirby, 1802)

Subgenus Melanosmia Schmiedeknecht, 1885
Osmia alticola Benoist, 1922
Osmia disjuncta Tkalců, 1995
Osmia inermis (Zetterstedt, 1838)
Osmia laticeps Thomson, 1872
Osmia maritima Friese, 1885
Osmia nigriventris (Zetterstedt, 1838)
Osmia parietina Curtis, 1828
Osmia pilicornis Smith, 1846
Osmia steinmanni Müller, 2002
Osmia svenssoni Tkalců, 1983
Osmia uncinata Gerstaecker, 1869
Osmia xanthomelana (Kirby, 1802)

Subgenus Metallinella Tkalců, 1966
Osmia brevicornis (Fabricius, 1798)

Subgenus Nasutosmia Griswold & Michener, 1998
Osmia corniculata (van der Zanden, 1989)
Osmia nasuta (Friese, 1899)

Subgenus Neosmia Tkalců, 1974
Osmia bicolor (Schrank, 1781)
Osmia cinnabarina Pérez, 1895
Osmia jason Benoist, 1929

Subgenus Osmia Panzer, 1806
Osmia apicata Smith, 1853
Osmia ariadne Peters, 1978
Osmia bicornis (Linnaeus, 1758)
Osmia cerinthidis Morawitz, 1875
Osmia cornuta (Latreille, 1805)
Osmia emarginata Lepelletier, 1841
Osmia kohlii Ducke, 1899  
Osmia mustelina Gerstaecker, 1869  
Osmia nigrohirta Friese, 1899  
Osmia tricornis Latreille, 1811  

Subgenus Pyrosmia Tkalců, 1975  
Osmia amathusica Mavromoustakis, 1937  
Osmia cephalotes Morawitz, 1870  
Osmia cyanoxantha Pérez, 1879  
Osmia dilaticornis Morawitz, 1875  
Osmia ferruginea Latreille, 1811  
Osmia forticorns van der Zanden, 1989  
Osmia gallarum Spinola, 1808  
Osmia hellados van der Zanden, 1984  
Osmia laticauda Stanek, 1969  
Osmia leucopyga Ducke, 1899  
Osmia moreensis van der Zanden, 1984  
Osmia nana Morawitz, 1873  
Osmia saxicola Ducke, 1899  
Osmia submicans Morawitz, 1870  
Osmia teunisseni van der Zanden, 1981  
Osmia versicolor Latreille, 1811  
Osmia viridana Morawitz, 1874  

Subgenus Tergosmia Warncke, 1988  
Osmia lunata Benoist, 1928  
Osmia mirhiji Mavromoustakis, 1957  
Osmia rhodoensis (van der Zanden, 1983)  
Osmia tergestensis Ducke, 1897  

Genus Protosmia Ducke, 1900  

Subgenus Chelostomopsis Cockerell, 1925  
Protosmia capitata (Schletterer, 1889)  
Protosmia longiceps (Friese, 1899)  

Subgenus Nanosmia Griswold, 1998  
Protosmia asensioi Griswold & Parker, 1988  
Protosmia minutula (Pérez, 1896)  
Protosmia montana Müller, 2012  

Subgenus Protosmia Ducke, 1900  
Protosmia exenterata (Pérez, 1895)  
Protosmia glutinosa (Giraud, 1871)  
Protosmia lusitanica Le Goff & Gonçalves, 2018  
Protosmia monstrosa (Pérez, 1895)  
Protosmia paradoxa (Friese, 1899)  
Protosmia sideritis Tkalců, 1978  
Protosmia tauricola Popov, 1961  
Protosmia tiflensis (Morawitz, 1876)
Genus *Stenoheriades* Tkalců, 1984

*Stenoheriades coelostoma* (Benoist, 1935)
*Stenoheriades maroccana* (Benoist, 1928)

Family Melittidae Schenck, 1860

Tribe Dasypodaini Sagemehl, 1882

Genus *Dasypoda* Latreille, 1802

Subgenus *Dasypoda* Latreille, 1802
*Dasypoda dusmeti* Quilis, 1928
*Dasypoda hirtipes* (Fabricius, 1793)
*Dasypoda morawitzi* Radchenko, 2016
*Dasypoda panzeri* Spinola, 1838
*Dasypoda pyriformis* Radoszkowski, 1887

Subgenus *Heterodasypoda* Míchěz, 2004
*Dasypoda albimana* Pérez, 1905
*Dasypoda michezi* Radchenko, 2017
*Dasypoda morotei* Quilis, 1928
*Dasypoda pyrotrichia* Förster, 1855

Subgenus *Megadasypoda* Míchěz, 2004
*Dasypoda argentata* Panzer, 1809
*Dasypoda braccata* Eversmann, 1852
*Dasypoda frieseana* Schletterer, 1890
*Dasypoda spinigera* Kohl, 1905
*Dasypoda suripes* (Christ, 1791)
*Dasypoda toroki* Míchěz, 2004
*Dasypoda visnaga* (Rossi, 1790)

Subgenus *Microdasypoda* Míchěz, 2004
*Dasypoda cingulata* Erichson, 1835
*Dasypoda crassicornis* Friese, 1896
*Dasypoda iberica* Warncke, 1973

Tribe Macropidini Robertson, 1904

Genus *Macropis* Panzer, 1809

*Macropis europaea* Warncke, 1973
*Macropis frivaldszkyi* Mocsáry, 1878
*Macropis fulvipes* (Fabricius, 1804)

Tribe Melittini Schenck, 1860

Genus *Melitta* Kirby, 1802
Melitta aegyptiaca (Radoszkowski, 1891)
Melitta budashkini Radchenko & Ivanov, 2012
Melitta budensis (Mocsáry, 1878)
Melitta dimidiata Morawitz, 1876
Melitta haemorrhoidalis (Fabricius, 1775)
Melitta hispanica Friese, 1900
Melitta iberica Warncke, 1973
Melitta kastiliensis Warncke, 1973
Melitta leporina (Panzer, 1799)
Melitta maura (Pérez, 1896)
Melitta melanura (Nylander, 1852)
Melitta murciana Warncke, 1973
Melitta nigricans Alfken, 1905
Melitta seitzi Alfken, 1927
Melitta sibirica (Morawitz, 1888)
Melitta tomentosa Friese, 1900
Melitta tricincta Kirby, 1802
Melitta udmurtica Sîtdikov, 1986

Discussion

Here we present an update on the knowledge to the species diversity and taxonomy of the bee fauna of Europe, considering all the advances made after the publication of the last addition to the checklist of IUCN European bees (Rasmont et al. 2017) and considering material that was overlooked by that work. An updated total of 2,138 species belonging to 77 genera are recorded within IUCN Europe.

After the latest revision of the first checklist (Rasmont et al. 2017), we report one new genus for science (Halopanurgus), four new subgenera, 67 species recently described, 40 species newly recorded since the latest revision (including two species non-native to Europe), 26 species overlooked in the previous European checklists and 63 published synonymies. We provide original records for eight species previously unknown to the continent and, as original taxonomic acts, we consider two names as a nomina nuda, ten names as nomina dubia, three species inquirenda, synonymise three species and exclude 37 species from the previous checklist. Around a hundred other taxonomic changes and clarifications are also included. The final count of species per family, tribe and genus is available in Table 1, and the cumulative number of valid bee species by year of description for Europe is shown in Fig. 17.

Biases in taxonomic knowledge

Despite all the work that has been, and is being, conducted in bee taxonomy in Europe, substantial knowledge gaps are still present, hampering the complete understanding of the bee fauna of the continent. Three main phenomena are causing this bias: (i) large parts of Europe are still poorly investigated, (ii) some bee genera and species-groups have not received proper taxonomic attention and (iii) the lack of centralised online data storage system that includes digitised, verified species data (including high quality pictures of type specimens and available occurrence data) at the European level. These points are discussed in the next paragraphs.

Despite a long tradition of sampling and research on the natural history of wild bees in Europe (Michez et al. 2019), some geographic areas remain largely overlooked. A notable example is the Iberian peninsula, from where a large proportion of the total number of recently described species (after the update of 2017) come. Despite a long history of study of this fauna (e.g. the early works of Erichson 1835; Lepeletier 1841; Dours 1873; Pérez 1895; Friese 1897), numerous bee species continue to be described from the peninsula (since 2017 see Radchenko 2017; Wood & Cross 2017; Kuhlmann & Smit 2018; Le Goff & Gonçalves 2018; Smit 2018; Wood et al. 2020a, 2021, 2022; Wood, 2023c). The region was also shown to host a new, unexpected bee genus, Halopanurgus, which is endemic to the Iberian peninsula (Wood et al. 2022a). It is therefore clear that more field work and taxonomic
revisions will likely highlight the presence of additional new species, most probably including endemics, with a subsequent need to continuously update the checklists and occurrence data from Spain and Portugal (Baldo et al. 2018; Bartomeus et al. 2022). Another important example is Greece, from where many of the new species added to the European checklist have been found (mostly brood parasitic bees belonging to the genus *Nomada*). Due to its clear faunal affinity with Turkey, the most species-rich country of the Mediterranean (cf. Lhomme et al. 2020), there is no doubt that Greece remains a country with a high potential, both for discovering new species for science and new species for Europe.

In addition to geographical biases, some genera have received very little attention in recent decades, preventing any taxonomic update and addition to the IUCN checklist of the European bee fauna. This is particularly notable for the tribe Melectini, a tribe of parasitic bees including two genera in Europe (*Melecta* Latreille and *Thyreus* Panzer) whose natural rarity in the wild largely hampers taxonomic revisions. In the case of *Melecta*, no large-scale revision has followed the monograph of Lieftinck (1980) on the Palaearctic species, which was published more than 40 years ago. There is no doubt that in-depth genetic and phylogeographic analyses would illuminate taxonomic changes in this poorly studied group of bees, as it has been the case for the closely related bee genus *Brachymelecata* Linsley in North America (Onuferko et al. 2021). In the absence of proper taxonomic revisions and resources to identify these bees, limited verified occurrence data are published, hampering conservation efforts for these rare insects. Other bee genera such as *Eucera*, *Tarsalia*, and *Megachile* also fall into the category of bees that have received very little to no attention over recent years. In the absence of proper taxonomic works that elucidate the species boundaries and refine our understanding of the distribution of species in these groups, unambiguous updates of their conservation status remain pending.

In parallel to the needs to overcome the geographical sampling biases and taxonomic gaps, there is an urgent need for a centralised online data storage system allowing open access to digitised data of bee species. This type of storage system would include a unified list of the bee species found across the continent and would be enriched with taxonomic references, species (re-)description and diagnoses (if no updated species key is available at the continental scale), high quality pictures of the most important diagnostic characters, life history traits, ecological data and a section gathering the available genetic data on the species in question (Garnett et al. 2020; Orr et al. 2021).

![Graph showing cumulative number of valid bee species by year of description for IUCN Europe following the present update.](image)  

**FIGURE 17.** Cumulative number of valid bee species by year of description for IUCN Europe following the present update.

In parallel to the needs to overcome the geographical sampling biases and taxonomic gaps, there is an urgent need for a centralised online data storage system allowing open access to digitised data of bee species. This type of storage system would include a unified list of the bee species found across the continent and would be enriched with taxonomic references, species (re-)description and diagnoses (if no updated species key is available at the continental scale), high quality pictures of the most important diagnostic characters, life history traits, ecological data and a section gathering the available genetic data on the species in question (Garnett et al. 2020; Orr et al. 2021).
In this context, the digitisation and photographic documentation of type specimens (currently scattered across the continent) would be a priority, in particular for the type specimens that are not hosted in their country of origin.

**Species expansions and invasions**

From the point of view of biodiversity, recent decades have been marked by waves of species extinctions and negative population trends in bees (Nieto et al. 2014; Zattara & Aizen 2021). These declines have understandably received attention from naturalists and conservation biologists, as highlighted by numerous country checklists and reports (e.g. Drossart et al. 2019; Quaranta et al. 2018; Ghisbain & Rasmont 2022). What is slightly overshadowed however when considering the interaction between global changes and bees is the fact that changes in climate, land-use and global human trading systems can also facilitate the invasion and subsequent expansion of new bee species from other continents (reviewed in Ghisbain et al. 2021a). A noticeable example of such an invasion in Europe is that of the giant resin bee (*Megachile sculpturalis* Smith) and its fast progression across the continent over the last few years (Ivanov & Fateryga 2019; Lanner et al. 2021; Le Fénô et al. 2021; Ortiz-Sánchez & Baquero 2021; Ribas-Marquès & Diaz-Calafat 2021). Other non-native congeneric species have recently been added to the European fauna, including *Megachile disjunctiformis* Cockerell (Bortolotti et al. 2018) and *Megachile otomita* Cresson (Strudwick & Jacobi 2018). Other recent examples of non-native species recorded in Rasmont et al. (2017) involve carpenter bees (genus *Xylocopa* Latreille) whose transport worldwide is largely facilitated by the trade of wood (Ghisbain et al. 2021a). As international trades continue to intensify with Europe, further newcomers are expected to establish on the continent in coming years. In parallel to human-driven transport, steadily increasing evidence shows that a subset of bee species and populations are expanding along at least one margin of their distribution range following global changes in temperature and habitats, as for instance observed in the expanding bumblebee species *B. haematurus*, *B. schrenki* and *B. semenoviellus* (reviewed in Ghisbain et al. 2021a and Rasmont et al. 2021).

**Final perspectives**

Taxonomy is a constantly evolving science. In this regard, further improvements, re-assessments and revisions will be needed for better understanding the bee fauna of Europe. At the time of writing, several works are revising the taxonomic status of large species complexes, including “well-known bee groups”. Validating our present knowledge should therefore also remain a priority, as our knowledge about a significant part of the currently accepted European fauna cannot be taken for granted.

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| TOTAL   |       | 31 tribes       | 77 genera        | 2138 species |

TABLE 1. (Continued)
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