Pollinator Academy

Genus: *Halictus*

Female

Male

Genus: *Halictus* Latreille, 1804

Clade: Anthophila

Family: Halictidae

SubFamily: Halictinae

Tribe: Halictini

Number of species of this genus found in Europe: 49

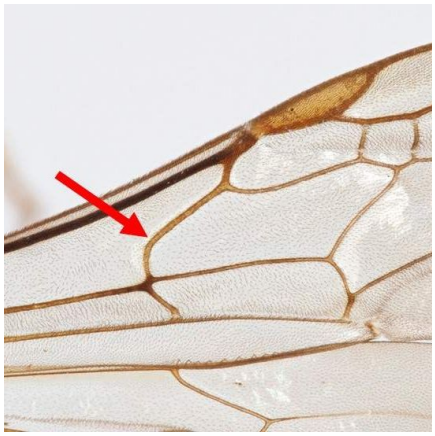
Morphology & diagnosis

Halictus are mostly small to medium sized species (4-15mm). They have a completely black or very dark cuticle, without metallic reflections. Some species present yellow marks on the legs (males and females), clypeus (males) and antennae (males). They are short-tongued bees, with the antennal insertion high on the face, which makes them easy to differentiate from Rophitinae. Their forewings bear three submarginal cells, the first being the largest and the second the smallest. The basal vein from the wing is curved. They show short pilosity on the metasoma, forming bands that can be interrupted in the middle and all or most metasomal hairs are situated near the apical margin of terga. The tergite 5 of females presents a furrow in the middle, called rima, one of the most distinctive traits of female Halictini (with *Seladonia*, *Thrincohalictus* and *Lasioglossum*). Males can present a fine yellow line on the clypeus and are much slimmer than the females, sometimes even distinctly elongated, and present long antennae.

Summary of distinctive traits

- 3 submarginal cells
- Curved basal vein
- Submarginal vein 3 and recurrent vein 2 of similar width than submarginal vein 1
- Females with rima (an apical bald furrow on T5)
- Main metasomal bands at the apex of the tergites
- Cuticle without metallic reflections

(a) *Halictus cochleariatarsis* Female



(b) *Halictus cochleariatarsis* Female

(c) *Halictus cochleariatarsis* Female

(d) *Halictus cochleariatarsis* Female

(e) *Halictus cochleariatarsis* Female

(f) *Halictus cochleariatarsis* Female

General comments on identification to species level

Some of the species identification criteria are located on the wing venation, head shape, legs, scutum, propodeum and first metasomal tergites. The legs and wings need

to be slightly spread out to reveal these characters.
Male identification often requires sternites and genitalia extraction, in addition to antennae and tibial spurs. In general, these characters should be made clearly visible.

Morphologically similar genera, and how to distinguish them

- ***Halictus - Seladonia***
  Halictus species have a black or dark cuticle, without metallic reflections nor short appressed hairs on the lateral and posterior parts of the propodeum.
  Seladonia species have a cuticle with metallic reflections, green or golden at least on the head and mesosoma. Metallic reflections may be reduced in some species, but in this case they have short appressed hairs covering the body, including most of the tergites and the vertical parts of the propodeum.

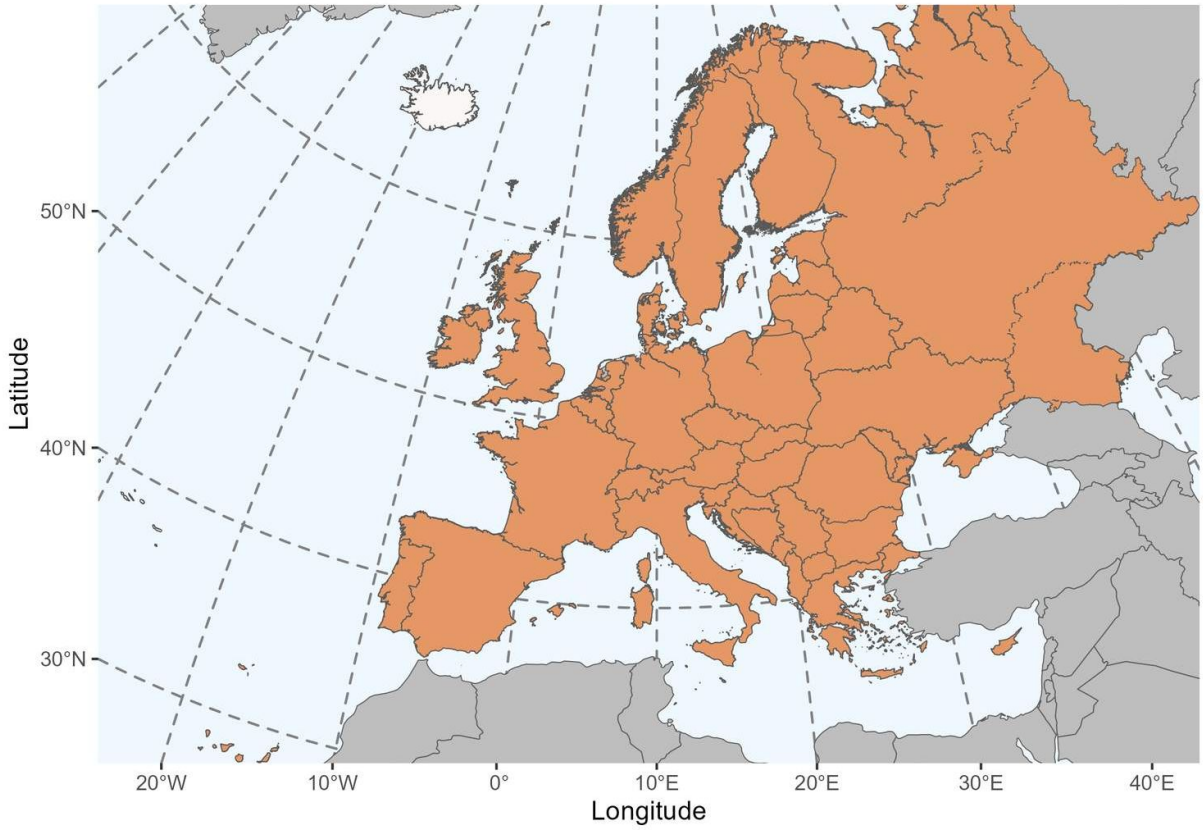
- ***Halictus - Lasioglossum***
  Halictus species have submarginal vein 3 and recurrent vein 2 of similar strength than submarginal vein 1. Hairs bands on the metasoma are at the apex of the segments (not always clearly visible in *Seladonia* and *Vestitohalictus*). Cuticle without metallic reflection.
  Lasioglossum species have submarginal vein 3 and recurrent vein 2 much less visible than submarginal vein 1. Hairs bands on the metasoma are at the basal part of the segments. Cuticle with metallic reflections in some species (subgenus *Dialictus*).

- ***Halictus - Thrincohalictus***
  Halictus females have a truncated clypeus extended downward at each side of labrum as a small, rather sharp, impunctate projection. Males head is rarely elongated (malar space < 1x flagellum width).
  Thrincohalictus females have a truncated clypeus with only a short, rounded projection. Males have a strongly elongated head (malar space > 2x flagellum width).

- ***Halictus - Ceylalictus & Nomioides***
  Halictus species are much larger with a marginal cell pointed. Females have a rima. *Ceylalictus* & *Nomioides* species are very small with a marginal cell rounded to truncated. Females have no rima.

Geographical distribution and global diversity

This genus is almost cosmopolite, being distributed through Europe, Asia, Africa, North and South America. Most species occur in temperate areas of Europe, Asia and Africa. Southern Africa and South America are poorer in diversity. The taxonomy of this genus is controversial, with some authors recognizing one genus with three subgenera (*Halictus* s.str., *Seladonia* and *Vestitohalictus*) (Ebmer 1988, Michener 2007, and Nieto et al. 2014) while other authors recognize Seladiona and Vestitohalictus as independent genera (Pesenko 2004, Pauly 2016, Rasmont et al. 2017). Currently, Halictus and Seladonia are considered as valid genus and Vestitohalictus as a subgenus of Seladonia (for more details see Ghisbain, Rosa et al. (2023)).



Presence in Europe

Albania, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Russian Federation - European Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey - European part, Ukraine, United Kingdom.

Biology

Seasonal life cycle

Most species spend the winter in the form of adults. Normally they are uni- or bivoltine, a few species showing three generations per year. Their flight season is very long, starting at the beginning of spring until the end of summer. Males start flying later, at the beginning of summer. Fecundated females overwinter until the beginning of spring. Reproductive females are the only ones surviving the winter.

Reproduction

Fecundated females from last year emerge when weather conditions are appropriate. They show the entire range of social behaviours, from solitary to eusocial, but the sociality in this genus is highly flexible: it can change between species and even within species. There are species representing all intermediate stages. For many species, social behaviour is still unknown. In social and semi-social species, once the foundress female starts her nest, the next generation contributes to the foraging and building activities. In many cases, this generation is chemically castrated.

Nesting

They nest in the ground, in flat open areas or with sparse vegetation, occasionally in another substrate like rotting wood. Aggregations of nests are common, up to thousands of nests. In some species there is one female guarding the entrance of the nest with her head. The communities are usually small, with up to ten workers recorded at one time in a nest. Some species such as *H. scabiosae* may use already existing nests initiated by other species, sometimes killing the initial foundress and laying eggs on their provisions.

Parasites

Species of the genus *Sphecodes* are known cleptoparasites of *Halictus* nests. Some *Nomada* may also attack *Halictus* nests.

Floral preferences

Their long flying period forces them to forage in what is available and thus most species are polylectic on accessible flowers. Some species show floral preferences for members of the family Asteraceae.

Type species: *Apis quadricincta* Fabricius, 1776, by designation of Richards, 1935: 170.

Synonyms: *Placidohalictus* Pesenko, 2004.

Etymology: the name of this genus comes from the Greek root '*halizo*', meaning '*group*', and '*alekto*', meaning '*never resting*'.

Common names:
FR: les halictes
GER: der Furchenbienen
NL: de groefbijen
EN: the furrow bees

List of species found in Europe:

1. *(Monilapis) adjikenticus* Blüthgen, 1923
2. *Halictus (Platyhalictus) alfkenellus* Strand, 1909
3. *Halictus (Tytthalictus) asperulus* Pérez, 1895
4. *Halictus (Halictus) brunnescens* (Eversmann, 1852)
5. *Halictus (Halictus) candiae* Ebmer, 2014
6. *Halictus (Monilapis) carinthiacus* Blüthgen, 1936
7. *Halictus (Monilapis) centaureae* Ebmer, 1985
8. *Halictus (Hexataenites) cochleariitarsis* (Dours, 1872)
9. *Halictus (Monilapis) compressus* (Walckenaer, 1802)
10. *Halictus (Monilapis) consobrinus* Pérez, 1895
11. *Halictus (Platyhalictus) constantinensis* Strand, 1910

12. *Halictus (Monilapis) crenicornis* Blüthgen, 1923

13. *Halictus (Argalictus) fatsensis* Blüthgen, 1936

14. *Halictus (Hexataenites) frontalis* Smith, 1853

15. *Halictus (Hexataenites) fulvipes* (Klug, 1817)

16. *Halictus (Platyhalictus) fumatipennis* Blüthgen, 1923

17. *Halictus (Platyhalictus) graecus* Blüthgen, 1933

18. *Halictus (Monilapis) grossellus* Ebmer, 1978

19. *Halictus (Monilapis) gruenwaldti* Ebmer, 1975

20. *Halictus (Platyhalictus) holomelaenus* Blüthgen, 1936

21. *Halictus (Platyhalictus) jaramielicus* Blüthgen, 1923

22. *Halictus (Monilapis) langobardicus* Blüthgen, 1944

23. *Halictus (Argalictus) luganicus* Blüthgen, 1936

24. *Halictus (Platyhalictus) lussinicus* Blüthgen, 1936

25. *Halictus (Tytthalictus) maculatus* Smith, 1848

26. *Halictus (Platyhalictus) mediterranellus* Strand, 1909

27. *Halictus (Platyhalictus) minor* Morawitz, 1876

28. *Halictus (Monilapis) nicosiae* Blüthgen, 1923

29. *Halictus (Acalcaripes) patellatus* Morawitz, 1874

30. *Halictus (Monilapis) pentheri* Blüthgen, 1923

31. *Halictus (Monilapis) ponticus* Blüthgen, 1934

32. *Halictus (Monilapis) pseudotetrazonius* Strand, 1921

33. *Halictus (Monilapis) pyrenaeus* Pérez, 1903

34. *Halictus (Halictus) quadricinctus* (Fabricius, 1777)

35. *Halictus (Monilapis) quadripartitus* Blüthgen, 1923
36. *Halictus (Hexataenites) resurgens* Nurse, 1903
37. *Halictus (Monilapis) rossicus* Ebmer, 1978
38. *Halictus (Protohalictus) rubicundus* (Christ, 1791)
39. *Halictus (Halictus) rufipes* (Fabricius, 1793)
40. *Halictus (Monilapis) sajoi* Blüthgen, 1923
41. *Halictus (Hexataenites) scabiosae* (Rossi, 1790)
42. *Halictus (Argalictus) senilis* (Eversmann, 1852)
43. *Halictus (Hexataenites) sexcinctus* (Fabricius, 1775)
44. *Halictus (Monilapis) simplex* Blüthgen, 1923
45. *Halictus (Argalictus) subsenilis* Blüthgen, 1955
46. *Halictus (Monilapis) tetrazonianellus* Strand, 1909
47. *Halictus (Monilapis) tetrazonius* (Klug, 1817)
48. *Halictus (Tytthalictus) toparensis* Pauly & Ortiz-Sánchez, 2017
49. *Halictus (Platyhalictus) tridivisus* Blüthgen, 1923

Subgenera found in Europe:

- *Acalcaripes* Pesenko, 1984
- *Argalictus* Pesenko, 1984
- *Halictus* Latreille, 1804
- *Hexataenites* Pesenko, 1984
- *Monilapis* Cockerell, 1931
- *Platyhalictus* Pesenko, 1984
- *Protohalictus* Pesenko, 1985

- *Tytthalictus* Pesenko, 1984

References

Alfken, J.D. 1913. Die Bienenfauna von Bremen. *Abhandlungen Naturwissenschaftlichen Verein Bremen* 22(1): 1-220.

Amiet, F., M. Herrmann, A. Müller & R. Neumeyer, 2001. *Fauna Helvetica 6. Apidae 3. Halictus, Lasioglossum.* - Centre suisse de cartographie de la faune und Schweizerische Entomologische Gesellschaft 2001, Neuchâtel, 208 p.

Blüthgen P. 1923. Beitrage zur Systematik der Bienengattung *Halictus* Latr. (Hym.). I. Die Binden-Halictus (Gruppe des sexcinctus F.). *Konowia*, 2 (1-2): 65-81; (3-4): 123-142.

Chambers, V.H. 1949. The Hymenoptera Aculeata of Bedfordshire. *Transactions of the Society for British Entomology* 9: 197-252.

Ebmer A.W. 1988. Die europäischen Arten der Gattungen *Halictus* Latreille, 1804 und *Lasioglossum* Curtis, 1833 mit illustrierten Bestimmungstabellen. 2. Die Untergattung *Seladonia* Robertson, 1918. *Senckenbergiana* biol. 68: 323-375.

Ebmer, A.W. 1996. Asiatische Halictidae, 5. Daten zur Aculeaten-Fauna der Ussuri-Region unter Berücksichtigung der angrenzenden Gebiete (Insecta: Hymenoptera: Apoidea: Halictidae: Halictinae). *Linzer biologische Beitrage* 28(1): 261-304.

Ghisbain, G., Rosa, P., Bogusch, P., Flaminio, S., Le Divelec, R., Dorchin, A., Kasparek, M., Kuhlmann, M., Litman, J., Mignot, M., Müller, A., Praz, C., Radchenko, V.G., Rasmont, P., Risch, S., Roberts, S.P.M., Smit, J., Wood, T.J., Michez, D., Reverté, S. The new annotated checklist of the wild bees of Europe (Hymenoptera: Anthophila). *Zootaxa*, 5327(1), 1-147.

Knerer, P.G. and Plateaux-Quénu, C., 1967. Usurpation de nids étrangers et parasitisme facultatif chez Halictus scabiosae (Rossi)(Insecte Hyménoptère). *Insectes sociaux*, 14, pp.47-50.

Knerer, G. 1968 . Zur Bienenfauna Niederösterreichs: Die Unterfamilie Halictinae. *Zool. Anz.* 181: 82-117.

Knerer, G. 1969. Sozialstruktur und ihre Rolle in der Populations dynamik von Furchenbienen. 6th Congress of the International Union for the Study of Social Insects: 101–107. Bern.

Knerer G. 1987. Photoperiod as cue for voltinism and caste regulation in halictine bees. *Chemistry and biology of social insects*: 305.

Ortiz-Sánchez, F. J. and Pauly, A, 2017. Contribution à la connaissance des Halictinae d'Espagne, avec un atlas des espèces de la Péninsule Ibérique (Hymenoptera: Apoidea: Halictidae). Belgian Journal of Entomology, 54: 1-92

Pauly, A., 2016. Genus *Vestitohalictus* Blüthgen, 1961. Atlas Hymenoptera. http://www.atlashymenoptera.net/page.asp?id=97.

Perkins, R.C.L. 1945 . The aculeate Hymenoptera of a small area of Dartmoor near Lydford. *Entomologist's Monthly Magazine* 81: 145-153.

Pesenko, Y.A. 2004. The phylogeny and classification of the tribe Halictini, with special reference to the *Halictus* genus-group (Hymenoptera: Halictidae). *Zoosystematica Rossica*, 13: 83-113.

Pesenko Y.A., Banaszak J., Radchenko V.G. & Cierzniak T., 2000. *Bees of the family Halictidae (excluding Sphecodes) of Poland.* ix + 348 pp. Bydgoszczy. ISBN 83-7096-339-0.

Sakagami, S. F., and Michener. C. D. 1962. The Nest Architecture of the Sweat Bees (Halictinae), a Comparative Study. 135 pp. Lawrence: University of Kansas Press.

Smit, J., 2004. de wespbijen (NOMADA) van nederland (hymenoptera: apidae). *Nederlandse Faunistische Mededelingen*, 20, pp.33-125.

Warncke K. 1975. Beitrage zur Systematik und Verbreitung der Furchenbienen in der Turkei (Hymenoptera, Apoidea, Halictus). *Pol. Pismo entomol.*, 45 (1): 81-128.

Westrich, P. 1989. *Die Wildbienen Baden-Württembergs.* Eugen Ulmer Gmbh, Stuttgart.

Attributions

This factsheet was created by ORBIT and is one of the outputs from a network of European Initiatives dedicated to pollinators, such as the EU Pollinator Monitoring Scheme (EUPoMS), the Preparatory Action for EU Pollinator Monitoring Scheme and Indicators (SPRING project), the Horizon 2020 Europe research projects (POSHBEE, SAFEGUARD), and European National action plans for pollinators.

Authors

Photographs: Paolo Rosa (ORBIT consortium)

Text: ORBIT consortium

Reviewers: Simone Flaminio and Adrien Perrard (ORBIT consortium)

License

The content of this factsheet is licensed under a Creative Commons Attribution-ShareAlike (CC BY-SA).

Image rights

Most images created under the ORBIT project have an open Creative Commons license

(CC BY 4.0). However, some images are licensed to the European Union and shared under the Creative Commons license Attribution-NonCommercial 4.0 International (CC-BY-NC 4.0). This is indicated in the image caption.

Funded by the European Commission