Pollinator Academy

Genus: *Sphecodes*

Female

Male

Genus: *Sphecodes* Latreille, 1802

Clade: Anthophila

Family: Halictidae

SubFamily: Halictinae

Tribe: Halictini

Number of species of this genus found in Europe: 48

Morphology & diagnosis

Sphecodes are small to large bees (4-15mm). They have short tongues. Most of the body is black, but the metasoma shows generalized red areas on three or more tergites. Their pattern is quite characteristic and easy to recognize. They are almost glabrous, even in the legs, as they are brood parasitic species. The head is usually broader than long. In males, there is no yellow marking in the clypeus and antennal segments are commonly bulging on the ventral side. The forewings bear three submarginal cells, the first being the largest and the second the smallest, and a curved basal vein.

Summary of distinctive traits

- Black with a red metasoma (at least in part) with coarse puncturing (a)
- Almost hairless (a)
- No scopa in females (brood parasitic bees) (b)
- A single subantennal suture (c)
- 3 submarginal cells (d)
- Curved basal vein (d)

(a) *Sphecodes alternatus* Female

(b) *Sphecodes crassanus* Female

(c) *Sphecodes albilabris* Female

(d) *Sphecodes ferruginatus* Female

General comments on identification to species level

Identification criteria include genitalia, mandible and posterior wings, which should be made visible as much as possible.

Morphologically similar genera, and how to distinguish them

- ***Sphecodes - Lasioglossum***

  Sphecodes species have submarginal vein 3 and recurrent vein 2 of similar strength than submarginal vein 1.

  Lasioglossum species have submarginal vein 3 and recurrent vein 2 much less visible than submarginal vein 1.

- ***Sphecodes - Halictus***

  Sphecodes males have a clypeus entirely black. *Sphecodes* females don't have a scopa on their legs.

  Halictus males always have a band of yellow at the apex of the clypeus. *Halictus* females have a scopa on their legs.

- ***Sphecodes - Nomada***

  Sphecodes species have short mouthparts (short-tongue morphology).

  Nomada species have long mouthparts (long-tongue morphology).

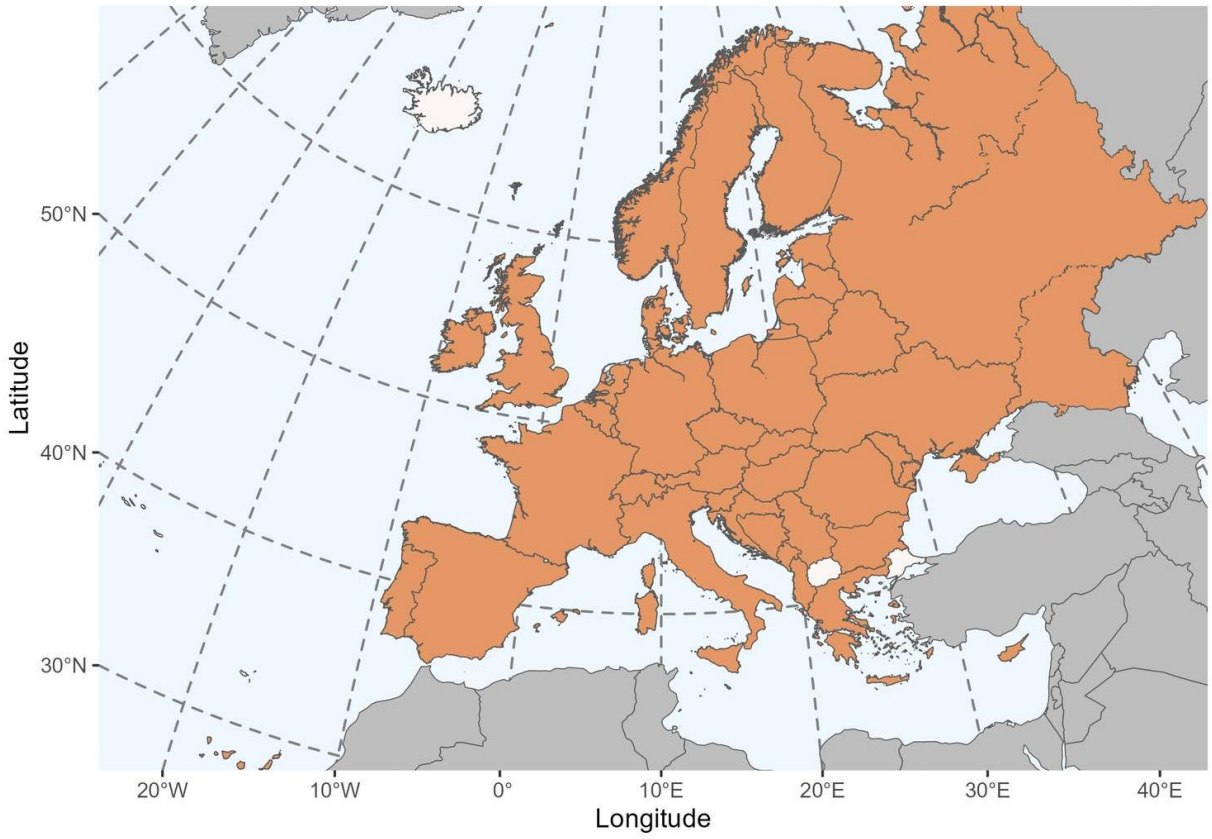
- ***Sphecodes - Andrena***

  Sphecodes species have a strongly curved basal vein.

  Andrena species have a basal vein straight or at most slightly curved.

Geographical distribution and global diversity

This genus is the only common brood parasitic genus of the Halictinae subfamily. Their distribution is almost cosmopolitan, excluding Australia. They show a global diversity of 285 species (Michener 2007). They are present throughout the entire Palaearctic region. The taxonomy of *Sphecodes* is tricky as there is a lot of intraspecific variation in size and morphology depending on the diet of the host. There are 47 species of the genus in Europe, a key to species level can be found in Bogusch & Straka (2012).



Presence in Europe

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

Biology

Seasonal life cycle

They are linked to the seasonality of their host. They new generation emerges at the end of the season, copulates and the fertilized females overwinter.

Reproduction

There is no information available on their reproduction.

Nesting

They never build their own nest: they exclusively depend on ground-nesting bees and their nests for reproduction. Then, the females are constantly patrolling the area searching nests of their host species. Once the hosts leave their nest to forage, or after killing the guardian on social Halictidae, they infiltrate into the host nests where they destroy the egg of the host and put their own on its place.

Host species

This genus attacks a wide range of species, from other *Halictidae, Andrena* and *Melitturga* to *Colletes*.

Floral preferences

As they only forage for nectar, they forage on a diversity of plants with accessible floral resources such as Apiaceae, Euphorbiaceae or Asteraceae (Bogusch & Straka 2012).

Type species: *Nomada gibba* Fabricius, 1804 = *Sphex gibba* Linnaeus, 1758, monobasic.

Synonyms: *Dichroa* Illiger, 1806; *Sabulicola* Verhoeff, 1890; *Thrausmus* Buysson, 1900; *Drepanium* Robertson, 1903; *Proteraner* Robertson, 1903; *Dialonia* Robertson, 1903; *Machaeris* Robertson, 1903; *Sphecodium* Robertson, 1903; *Stelidium* Robertson, 1903; *Sphegodes* Mavromoustakis, 1949.

Etymology: The origin of the name is the Greek root '*Sphecos*', meaning '*wasp*'.

Common names:
FR: les sphécodes
GER: der Blutbienen
NL: de bloedbijen (=blood bees)
EN: blood bee

List of species found in Europe:

1. *Sphecodes (Sphecodes) aetnensis* Nobile, 1996
2. *Sphecodes (Sphecodes) albilabris* (Fabricius, 1793)
3. *Sphecodes (Sphecodes) algeriensis* Alfken, 1914
4. *Sphecodes (Sphecodes) alternatus* Smith, 1853
5. *Sphecodes (Sphecodes) anatolicus* Warncke, 1992
6. *Sphecodes (Sphecodes) atlanticus* Warncke, 1992
7. *Sphecodes (Sphecodes) barbatus* Blüthgen, 1923

8. *Sphecodes (Sphecodes) combai* Nobile & Turrisi, 2004
9. *Sphecodes (Sphecodes) crassanus* Warncke, 1992
10. *Sphecodes (Sphecodes) crassus* Thomson, 1870
11. *Sphecodes (Sphecodes) creticus* Warncke, 1992
12. *Sphecodes (Sphecodes) cristatus* Hagens, 1882
13. *Sphecodes (Sphecodes) croaticus* Meyer, 1922
14. *Sphecodes (Sphecodes) cypricus* Blüthgen, 1938
15. *Sphecodes (Sphecodes) dusmeti* Blüthgen, 1924
16. *Sphecodes (Sphecodes) ephippius* (L., 1767)
17. *Sphecodes (Sphecodes) ferruginatus* Hagens, 1882
18. *Sphecodes (Sphecodes) geoffrellus* (Kirby, 1802)
19. *Sphecodes (Sphecodes) gibbus* (L., 1758)
20. *Sphecodes (Sphecodes) gomerensis* Warncke, 1992
21. *Sphecodes (Sphecodes) hirtellus* Blüthgen, 1923
22. *Sphecodes (Sphecodes) hyalinatus* Hagens, 1882
23. *Sphecodes (Sphecodes) intermedius* Blüthgen, 1923
24. *Sphecodes (Sphecodes) larochei* Warncke, 1992
25. *Sphecodes (Sphecodes) longuloides* Blüthgen, 1923
26. *Sphecodes (Sphecodes) longulus* Hagens, 1882
27. *Sphecodes (Sphecodes) majalis* Pérez, 1903
28. *Sphecodes (Sphecodes) marginatus* Hagens, 1882
29. *Sphecodes (Sphecodes) miniatus* Hagens, 1882
30. *Sphecodes (Sphecodes) monilicornis* (Kirby, 1802)

31. *Sphecodes (Sphecodes) niger* Hagens, 1874
32. *Sphecodes (Sphecodes) nomioidis* Pesenko, 1979
33. *Sphecodes (Sphecodes) olivieri* Lepeletier, 1825
34. *Sphecodes (Sphecodes) pellucidus* Smith, 1845
35. *Sphecodes (Sphecodes) piceohirtus* Blüthgen, 1858
36. *Sphecodes (Sphecodes) pinguiculus* Pérez, 1903
37. *Sphecodes (Sphecodes) pseudocrassus* Blüthgen, 1924
38. *Sphecodes (Sphecodes) pseudofasciatus* Blüthgen, 1925
39. *Sphecodes (Sphecodes) puncticeps* Thomson, 1870
40. *Sphecodes (Sphecodes) reticulatus* Thomson, 1870
41. *Sphecodes (Sphecodes) rubicundus* Hagens, 1875
42. *Sphecodes (Sphecodes) rubripes* Spinola, 1838
43. *Sphecodes (Sphecodes) ruficrus* (Erichson, 1835)
44. *Sphecodes (Sphecodes) rufiventris* (Panzer, 1798)
45. *Sphecodes (Sphecodes) scabricollis* Wesmael, 1835
46. *Sphecodes (Sphecodes) schenckii* Hagens, 1882
47. *Sphecodes (Sphecodes) spinulosus* Hagens, 1875
48. *Sphecodes (Sphecodes) zangherii* Noskiewicz, 1931

References

Blüthgen, P. 1924. Contribucion al conocimiento de las especies espanolas de *Halictus* (Hymenoptera Apidae). *Memorias de la Real Sociedad Espanola de Historia Natural* 11(9): 332-544.

Bogusch, P. 2003. *Biology vybraných druhů kleptoparazitických včel (Hymenoptera: Apocrita, Apoidea)*. [Biology of selected cuckoo bee species (Hymenoptera: *Apocrita, Apoidea*)]. Charles University in Prague, Faculty of Sciences, MSc. thesis, unpublished, 111 pp.

Bogusch, P. and Straka, J. 2012. Review and identification of the cuckoo bees of central Europe (Hymenoptera: Halictidae: Sphecodes). *Zootaxa* 3311: 1-41.

Nobile, V., and G. Campadelli. 1998. Il genere Sphecodes Latreille 1804 in Italia (Hymenoptera, Apoidea, Halictidae). *Bolletino dell'Instituto de Entomologia della Università di Bologna* 52:85-103.

Michener, C. D. 1978. The parasitic groups of Halictidae (Hymenoptera, Apoidea). *The university of Kansas Science Bulletin* 51: 291-339.

Pauly A. 2011. Atlas of the European Bees: genus *Halictus*, subgenus *Halictus*. STEP Project, Atlas Hymenoptera, Mons, Gembloux. http://www.zoologie.umh.ac.be/hymenoptera/page.asp?ID=199

Rozen, J.G. 1965. The Biology and Immature Stages of *Melitturga clavicornis* (Latreille) and of *Sphecodes albilabris* (Kirby) and the Recognition of the Oxaeidae at the Family Level (Hymenoptera, Apoidea). *American Museum Novitates* 2244: 1-18.

Vachal, J. 1911. Étude sur les Halictus d'America. *Miscellanea Entomologica* [Narbonne] 19: 9-24, 41-56, 107-116.

Warncke, K., 1992. Die westpaläarktischen Arten der Bienengattung *Sphecodes* Latr. (Hymenoptera, Apidae, Halictinae). Bericht der Naturf. Gesellsch. Augsburg, 52: 9-64.

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

Reviewer: Petr Bogusch (ORBIT consortium)

Funded by the European Commission