Pollinator Academy

Genus: *Panurgus*

Female

Male

Genus: *Panurgus* Panzer, 1806

Clade: Anthophila

Family: Andrenidae

SubFamily: Panurginae

Tribe: Panurgini

Number of species of this genus found in Europe: 13

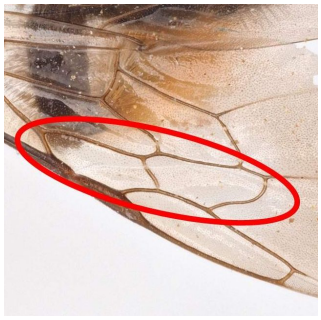
Morphology & diagnosis

They are small to medium sized bees (5-14mm). The head is as broad as the thorax, and their hair and cuticle are totally black except for the pollen brush in the hind tibia and the first segment of the posterior tarsus which is yellow. In the female sex, the pollen brush is characteristic in this genus because it is formed of spiraled hairs that bear a small apical spine. The wings present two submarginal cells, the first of the same size as the second. The tip of the marginal cell is characteristically truncate. The first submarginal crossvein vein is far from the first recurrent vein. The metasoma is flat dorso-ventrally and devoid of light-coloured hair.

Summary of distinctive traits

- Small bee (a)
- 2 submarginal cells of equivalent size (b)
- Truncate marginal cell (c)
- Females tibial scopa composed of spiraled hairs bearing an apical spine (d)

(a) *Panurgus banksianus* Female



(b) *Panurgus banksianus* Female

(c) *Panurgus banksianus* Female

(d) *Panurgus banksianus* Female

General comments on identification to species level

In the males, the genitalia should be extracted. It is not necessary to open mandibles and labrum. A clear view of the hind coxae and trochanter should be possible. In females, the basal area of the propodeum and the anal fringe are important traits, and so it is key to ensure the wings do not hide them.

Morphologically similar genera, and how to distinguish them

- ***Panurgus - Camptopoeum, Flavipanurgus & Simpanurgus***
  Panurgus has a brown/black cuticle on the head and / or metasoma. The female scopa is composed of spiraled hairs bearing an apical spine. *Camptopoeum, Flavipanurgus & Simpanurgus* species have a cuticle with yellow markings on the head and / or metasoma, and when this is absent (*Flavipanurgus flavus*), the scopal hairs are simple.

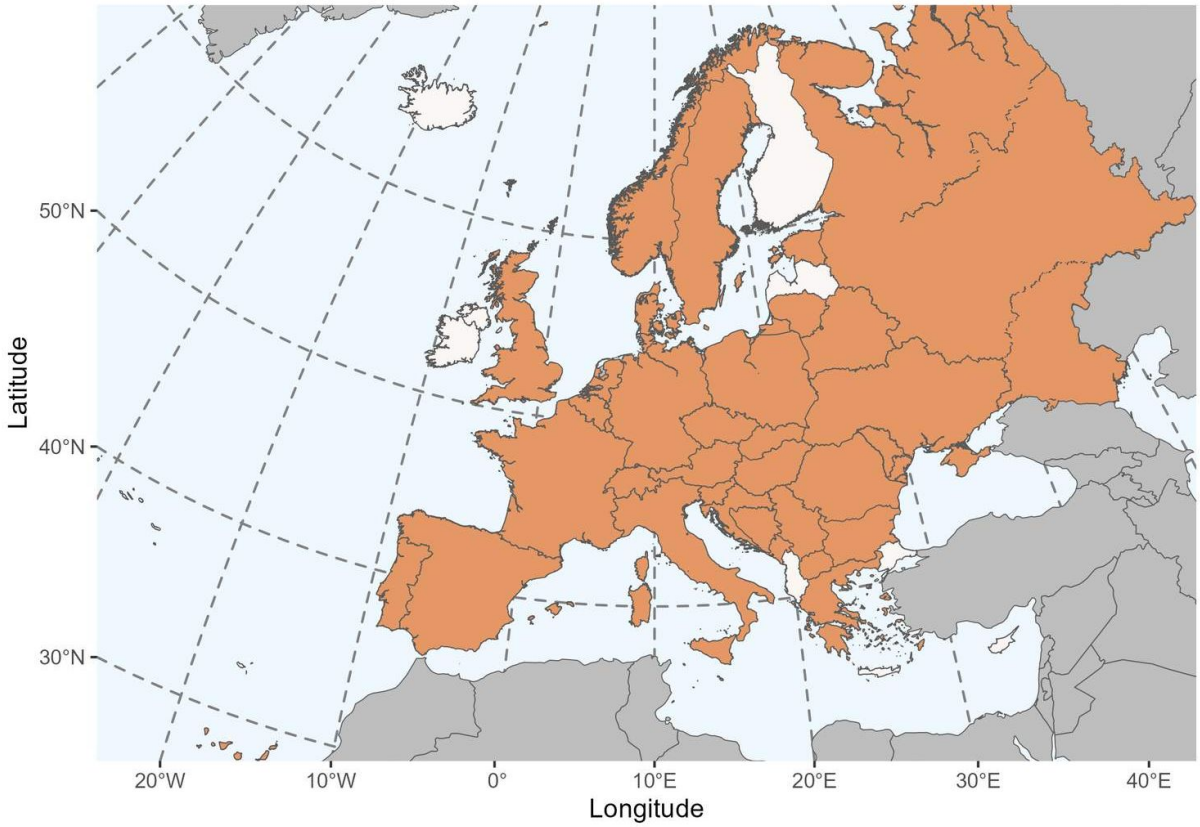
- ***Panurgus - Halopanurgus***
  Panurgus species never present yellow markings on the body. Their scopa is composed of of spiraled hairs bearing an apical spine. *Halopanurgus* species have yellow markings on the body. Their scopa is composed of simple hairs.

- ***Panurgus - Clavipanurgus & Panurginus***
  Panurgus species have submarginal cell 1 of similar size than cell 2, recurrent vein 1 distant from submarginal crossvein 1. Females have dense and long pilosity on posterior tibia and basitarsus. *Clavipanurgus & Panurginus* species have submarginal cell 2 smaller than cell 1, recurrent vein 1 almost touching cubital transverse vein 1. Females have sparse and short hairs on posterior tibia and basitarsus.

- ***Panurgus - Andrena***
  Panurgus species have a truncate marginal cell and two submarginal cells. *Andrena* species have a pointed or rounded marginal cell, and almost always have three submarginal cells.

Geographical distribution and global diversity

Panurgus species occur from the Canary Islands in the west to Central Asia in the East, thus showing a Holarctic distribution (Michener 2007). They prefer arid regions (Patiny 2001). This genus comprises 34 species in the Old World.



Presence in Europe

Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece (except Crete), Hungary, Italy, Kosovo, Liechtenstein, Lithuania, Luxembourg, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK, Ukraine.

Biology

Seasonal life cycle

They are univoltine and fly mainly in summer.

Reproduction

The copula usually takes place on flowers. During mating, several males try to copulate with the same female at the same time. The copula lasts between a few seconds and a few minutes. Normally two males succeed to copulate with the female. Females still copulate with males later during her life period.

Nesting

They are mostly solitary, but some species are communal. They are ground-dwelling species, with a preference for sandy soils. They prefer open areas with no or sparse vegetation. The nest entrances are only a few centimetres apart and usually surrounded of excavated soil material. Sometimes the nests have two entrances.

Parasites

Their known cleptoparasites include species of the genus *Nomada.*

Floral preferences

They are oligolectic on Asteraceae, the subgenus *Panurgus* on the tribe Cichorieae and the subgenus *Pachycephalopanurgus* probably on the tribe Asteroideae (Wood et al. 2022). This has to be confirmed by further studies.

Type species: *Andrena lobata* Panzer, 1799 = *Andrena calcarata Scopoli, 1*763, by designation of Latreille, 1810.

Subgenera found in Europe: *Pachycephalopanurgus* Patiny, 1999; *Panurgus* s. str. Panzer, 1806.

Synonyms: *Eriops* Klug, 1807*; Eryops* Latreille, 1811;

Etymology: the origin of the name of this genus is a derivation from the name of the genus *Panurgus*, which could either come from the Greek root '*panurgos'*, meaning '*intelligent*', or from the Latin word '*Panurgus*' meaning '*slave*'.

Common names:
FR: les panurges
GER: der Zottelbienen
NL: de roetbijen (= sooty black bees)
EN: the shaggy bee

List of species found in Europe:

1. *Panurgus (Panurgus) banksianus* (Kirby, 1802)
2. *Panurgus (Pachycephalopanurgus) canescens* Latreille, 1811
3. *Panurgus (Panurgus) calcaratus* (Scopoli, 1763)
4. *Panurgus (Panurgus) canarius* Warncke, 1972
5. *Panurgus (Panurgus) cephalotes* Latreille, 1811
6. *Panurgus (Panurgus) corsicus* Warncke, 1972
7. *Panurgus (Panurgus) dargius* Warncke, 1972
8. *Panurgus (Panurgus) dentipes* Latreille, 1811
9. *Panurgus (Pachycephalopanurgus) meridionalis* Patiny, Ortiz-Sánchez & Michez 2005
10. *Panurgus (Panurgus) oblitus* Warncke, 1972
11. *Panurgus (Panurgus) perezi* Saunders, 1882
12. *Panurgus (Panurgus) pici* Pérez, 1895

13. *Panurgus (Panurgus) siculus* Morawitz, 1872

References

Patiny S. 1999. Etude phylogenetic des Panurginae de l'ancien monde (Hymenoptera, Andrenidae). *Linzer biologische Beiträge*, 31, 249-275.

Patiny S. 2001. Monographie des Panurginae de l'ancien monde (Hymenoptera: Apoidea, Andrenidae). In: Service de zoologie générale et appliquée, p. 266. Faculté universitaire des Sciences agronomiques de Gembloux, Gembloux.

Patiny S., Ortiz-Sanchez F.J. & Michez D. 2005. A review of Panurgus (*Pachycephalopanurgus*), with description of a new species from Spain. *Zootaxa*, 1037: 37-48.

Warncke K. (1972) Westpaläarktische Bienen der Unterfamilie Panurginae (Hym., Apidae). *Polskie Pismo Entomologiczne*, 42, 53-108.

Wood TJ, Patiny S, Bossert S (2022) An unexpected new genus of panurgine bees (Hymenoptera, Andrenidae) from Europe discovered after phylogenomic analysis. Journal of Hymenoptera Research 89: 183–210.

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: Thomas J. Wood (ORBIT consortium)

Funded by the European Commission