The LIFE 4 POLLINATORS project (LIFE 18 GIE/IT/000755) has received funding from the LIFE Programme of the European Union

WHY BEES?

Bees are part of the pollinators guild altogether with butterflies, flies, beetles and other insects. All of them play a fundamental role in plant reproduction, but bees are a bit special amongst them. While other pollinators visit flowers only to feed themselves, female bees collect on flowers the nurture for their well-cared brood.

The long bee tongue (ligula) is used to collect nectar from flowers, whilst the long and plumose hairs are used to gather the pollen grains. However, bees make up a surprisingly diverse group in shape, color and size. Thus, we can find on flowers almost hairless bees with short ligule, which we cannot easily distinguish from the predatory wasps from which they evolved millions of years ago.

IDENTIFICATION TIPS

Assessing the diversity of wild bee is a good mean to evaluate the environmental complexity and resilience. Whenever we find many different bee species, we assume a great floristic diversity and an overall healthy ecosystem.

This is a simplified guide, which, based on visible morphological traits only, allows the bees to be recognised within 15 morpho-groups and not at the level of individual species.

Bee species are not easy to identify, but we regroup them in few big groups of species called morphogenera defined by few traits.

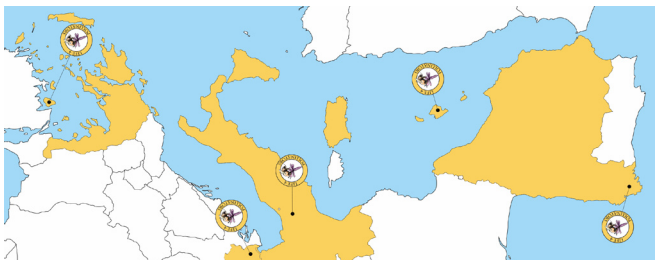
The traits you need to observe at first are size, hairs and tegument colour. For each of these categories, we propose several classes. In each morphogenus more than one class per category may be present.

MORE THAN ONE BEE

The word "bee" is often referred solely to the honey bee, the highly social insect well known to provide the hive products. However, the honeybee is just one of more than 2000 bee species in Europe. The so-called wild bees, counting solitary, social and parasitic species, visit flowers and provide some extent of pollination service.

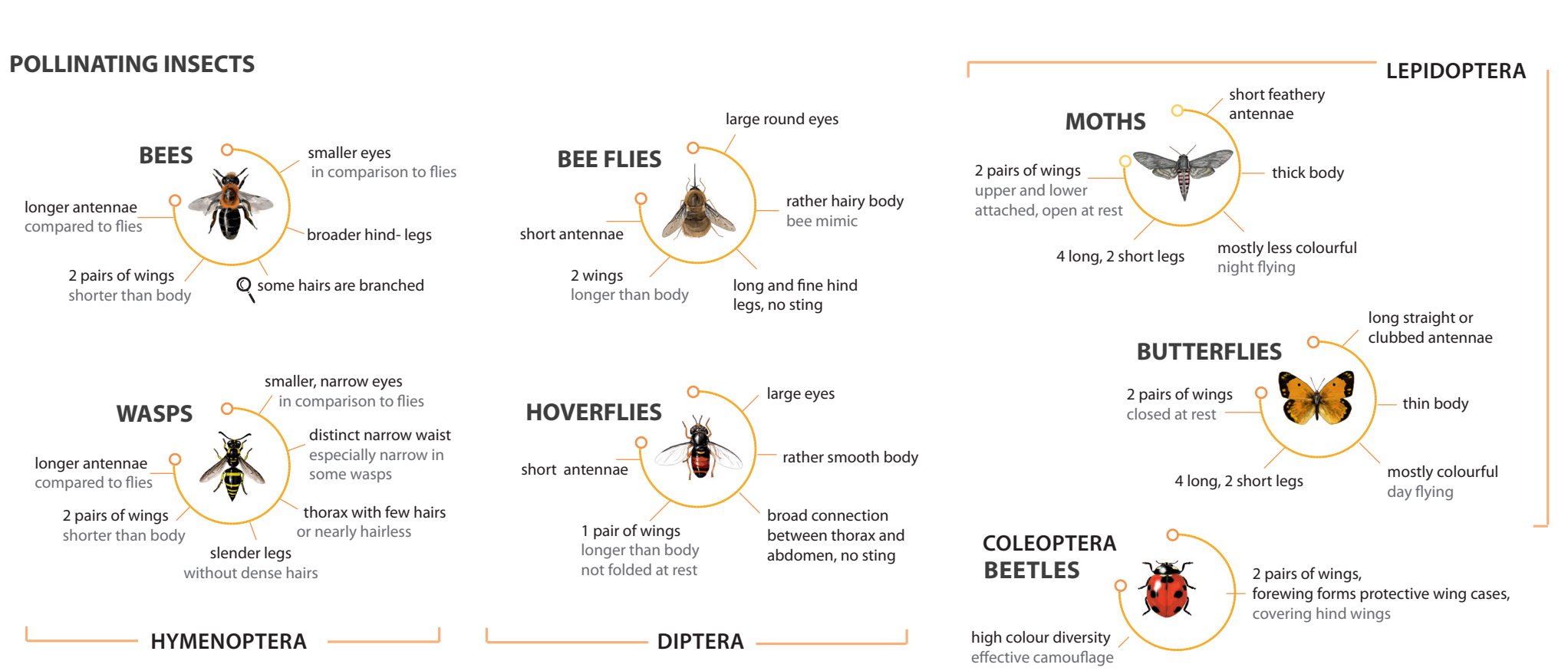
LIFE 4 POLLINATORS

The aim of the project is to improve pollinator conservation by creating a virtuous circle leading to a progressive change in practices across the Mediterranean region.



In the Mediterranean countries there is inadequate awareness about the role of wild pollinators and the importance of conserving their diversity. This knowledge gap is one of the main obstacles to proper planning of successful programmes to address the main drivers behind pollinator decline and ensure sustainable management and restoration of the remaining high-value pollinator habitats.

The project will contribute to a range of EU policy and legislation, including amongst others the biodiversity strategy, the pollinators initiative and biodiversity protection under the common agricultural policy.



BEES

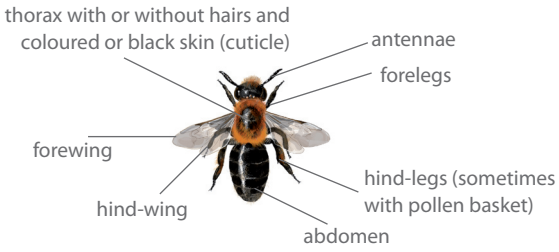
IDENTIFICATION OF BEES (VARIABILITY)

The traits you need to observe at first are size, hairs and tegument colour. For each of these categories, we propose several classes. In each morphogenus more than one class per category may be present.

Size:
Small: <10 mm / **Medium**: 10-20 mm / **Big:** >20 mm

Hair:
Hairless: only few hairs on the body surface
Short hairs: spots or bands of short dense hair
Long hairs: furry bees with long hair on most of the body

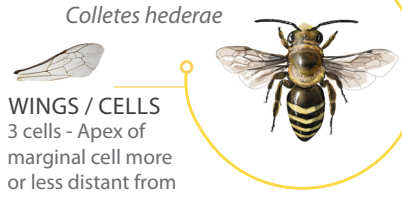
PHYSICAL & SOCIAL CHARACTERISTICS



solitary | P parasitic | social

Colletes (Colletidae)

Illustrated species: *Colletes hederae*



BODY
Ligula is short and bilobed, wide and flat. Pygidial plate is absent. Thorax with thick short hairs. Tergites with wide apical bands of pale coloured hairs.

WINGS / CELLS
3 cells - Apex of marginal cell more or less distant from forewing margin.

BODY LENGTH 13 - 30 mm

Hylaeus (Colletidae)

Illustrated species: *Hylaeus communis*

HEAD
Face with typical yellow or white marks.

BODY
Mostly small sized species, with few hairs. Cuticle generally black except yellow spotted anterior thorax tubercles.

LEGS
Yellow spotted leg joints.

WINGS / CELLS
2 cells - Apex of marginal cell almost terminating on the forewing margin, pointed or tightly rounded.

BODY LENGTH 4 - 8 mm

Halictus (Halictidae)

Illustrated species: *Halictus scabiosae*

HEAD
Head of sub-rounded shape.

BODY
Metallic hues, with body abundantly hairy. In medium and big species: abdomen cuticle is black, often with pale coloured bands on apical margins of tergites.

WINGS / CELLS
3 cells - Curved basal vein.

BODY LENGTH 4 - 16mm

Lasioglossum (Halictidae)

Illustrated species: *Lasioglossum malachurum*

HEAD
Head of sub-rounded shape.

BODY
Most species have black cuticle, but some species can show metallic hues. Generally little hair, abdomen without bands.

WINGS / CELLS
3 cells

BODY LENGTH 4 - 16mm

SIMILAR GENUS: Andrena

Andrena (Andrenidae)

Illustrated species: *Andrena thoracica*

HEAD
Shape of head is a subtriangle.

BODY
Pygidial plate is present and covered by fimbria. Setae for pollen collection are present on the sides of the propodeus and on the trochanter.

LEGS
Setae for pollen collection are present on the tibia of hind pair of legs (scopa).

WINGS / CELLS
3 cells - Basal vein is almost straight or slightly arch-shaped.

BODY LENGTH 6 - 16mm

Megachile (Megachilidae)

Illustrated species: *Megachile pilidens*

HEAD
Strong mandibles, mostly 4- or 3-toothed.

BODY
First tergites strongly concave that allows the insect to elevate the abdomen upwards. Arolia missing between the two leg nails.

WINGS / CELLS
2 cells - Apex of marginal cell more or less distant from forewing margin. Second recurrent vein terminates before the second submarginal vein.

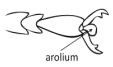
BODY LENGTH 8 - 30 mm

Osmia (Megachilidae)

Illustrated species: *Osmia bicornis*

BODY
Cuticle sometimes with metallic hues
♀ with abdominal scopa (pollen brush).

Presence of arolia between the two leg nails.



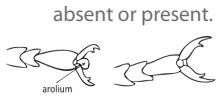
WINGS / CELLS
2 cells. Apex of marginal cell more or less distant from anterior wing margin. Second recurrent vein terminates before the second submarginal vein.

BODY LENGTH 4 - 16mm

Anthidium (Megachilidae)

Illustrated species: *Anthidium manicatum*

BODY
Cuticle is mostly black and yellow; only few hairs
♀ with abdominal scopa.
Arolia between the two leg nails absent or present.



WINGS / CELLS
2 cells. Apex of the marginal cell more or less distant from the front edge of the wing. Second recurrent vein ending after the second submarginal vein.

BODY LENGTH 4 - 30 mm

Melittidae

Illustrated species: *Dasypoda hirtipes*

BODY
Abdomen slightly flattened, always provided with thin, but clearly visible, sparse hair bands. Curved at the apex. Maxillary palps of 2 segments.

LEGS
"Pantalon bee"

WINGS / CELLS
Second submarginal cell smaller than the third.

BODY LENGTH 8 - 13mm

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For more information on each group, please visit:
www.life4pollinators.eu/bees

Apis mellifera (Apidae)

Illustrated species: *Apis mellifera*

BODY
Little hairy body, more hairs on thorax; cuticle with reddish areas.
Common name: HONEY BEE

LEGS
♀ Hind legs with corbicula.

WINGS / CELLS
3 cells. Marginal cell is an elongated ellipse, reaching the wing margin.

BODY LENGTH 13 - 16mm

Xylocopa (Apidae)

Illustrated species: *Xylocopa violacea*

BODY
Body cuticle black or with metallic hue.

WINGS / CELLS
3 cells. Pigmented wings, sometimes with purple hue.

BODY LENGTH 13 - 30 mm

Bombus (Apidae)

Illustrated species: *Bombus terrestris*

BODY
The whole body is very hairy with black cuticle Patterns: black/ yellow or white and black/red or orange.

LEGS
♀ Hind legs with corbicula (pollen basket).

WINGS / CELLS
3 cells. First submarginal cell split in two by a narrow line.

BODY LENGTH 13 - 30 mm

Anthophora (Apidae)

Illustrated species: *Anthophora plumipes*

BODY
♀ Noticeable scopa on hind pair of legs. Whole body very hairy, with or without bands, rarely black.

Quick flight.

LEGS
♂ Often have tufts of hairs of various shapes on the tarsal segments of the second pair of legs.

WINGS / CELLS
3 cells

BODY LENGTH 8 - 16mm

Nomada (Apidae)

Illustrated species: *Nomada sexfasciata*

ANTENNA
Antennae often at least partally red.

BODY
Body with few hairs. Wide parts of the body with bright red or bright yellow cuticle, or black with white or yellow spots.

Similar to wasps!

LEGS
Females without pollen brush on hind legs.

WINGS / CELLS
3 cells. Apex of the marginal cell narrow and pointed, close to the front edge of the wing.

BODY LENGTH 4 - 16mm

P

Ceratina (Apidae)

Illustrated species: *Ceratina cucurbitina*

HEAD
♀ Face with typical pale yellow mark with an I shape.

♂ Face with typical pale yellow mark with a reverse T shape.

WINGS / CELLS
3 cells. Apex of marginal cell rounded and distant from margin.

BODY
Most species are small, with few hairs and a black, green or metallic blue cuticle.

BODY LENGTH 4 - 13mm

Eucera (Apidae)

Illustrated species: *Eucera longicornis*

ANTENNA
♂ Antennae almost as long as the whole body.

BODY
Little hairy body, flattened, enlarged abdomen; black abdomen cuticle with light bands on the apical edges of the tergites.

WINGS / CELLS
2 cells. Apex of marginal cell more or less distant from forewing margin, pointed or tightly rounded.

BODY LENGTH 8 - 16mm