



# KNOW YOUR POLLINATORS



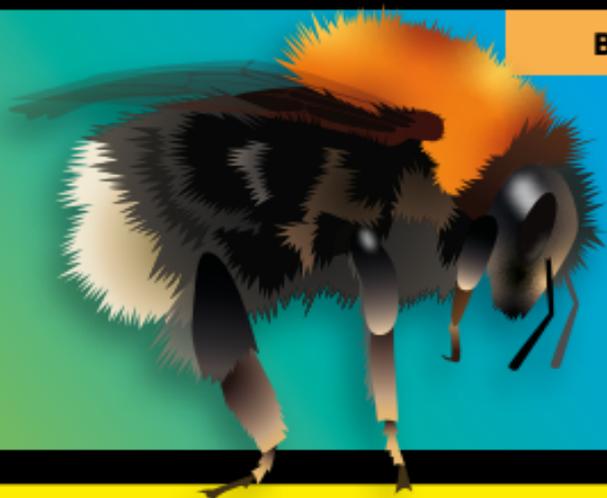
KH-01-20-107-EN-N

# Tree Bumblebee

*Bombus hypnorum*



BEE



**SIZE** 11 mm

**CONTRIBUTION TO FOOD** 66

**IMPORTANCE TO WILD FLOWERS** 38

**MOBILITY** 17

**STING** 32

A common bumblebee often found in parks and gardens. It nests in holes in trees and buildings and sometimes even in bird boxes. The nest is quite large, with a queen and 150 workers or more. The bee flies in the spring and loves visiting fruit trees, raspberries and a host of wild plants.

# Red-tailed Bumblebee

*Bombus lapidarius*



BEE



SIZE 12 mm

CONTRIBUTION TO FOOD 100

IMPORTANCE TO WILD FLOWERS 50

MOBILITY 14

STING 31

This is a large black bumblebee with a distinctive bright orange tail. It is common over much of Europe and is at home in towns and cities as well as in open countryside and farmland. The nests are often made in old mouse burrows. It is an important visitor to many crops and wild flowers, and flies throughout the spring and summer.

# Gypsy cuckoo bumblebee

*Bombus bohemicus*



BEE



SIZE 16 mm

CONTRIBUTION TO FOOD 10

IMPORTANCE TO WILD FLOWERS 16

MOBILITY 12

STING 30

While most bumblebees build their own colonies, the female gypsy cuckoo bumblebee has a sneaky way of reproducing. They make no nest of their own but instead take over the nests of white-tailed bumblebees. This bee never collects pollen but they do visit flowers for nectar. There are 10 different types of cuckoo bumblebees in Europe.

# Ashy furrow bee

*Lasioglossum sexnotatum*



BEE



SIZE 8.5 mm

CONTRIBUTION TO FOOD 57

IMPORTANCE TO WILD FLOWERS 25

MOBILITY 2

STING 18

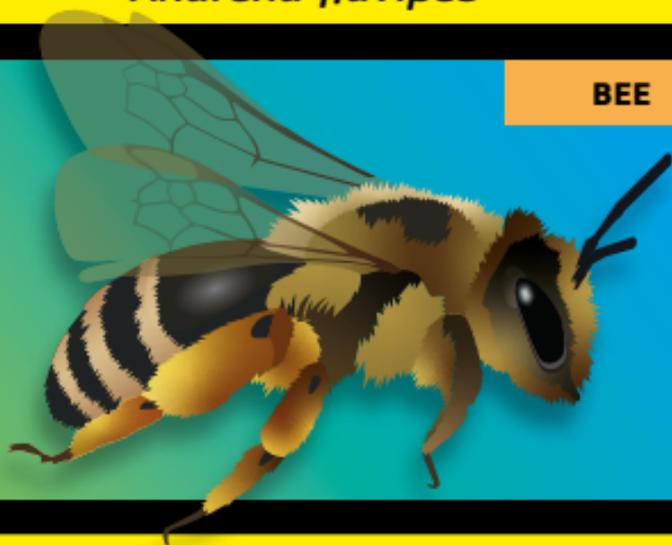
An uncommon species of mining bee, the ashy furrow bee lives in hedgerows and rural gardens, allotments, heathland, and even areas of waste ground. The bee digs holes in the ground in which to nest and flies throughout the spring and summer, visiting many different flowering shrubs and trees.

# Yellow-legged mining bee

*Andrena flavipes*



BEE



SIZE 9 mm

CONTRIBUTION TO FOOD 96

IMPORTANCE TO WILD FLOWERS 41

MOBILITY 3

STING 6

The yellow-legged mining bee is a key visitor to fruit trees in the spring and is a champion pollinator of apples.

These bees often nest in dense bee cities in bare ground. Unlike most bees it has two generations each year and appears in the spring and again in the summer and so is doubly useful for pollinating crops and wild flowers.

# Ivy bee

*Colletes hederæ*



BEE



**SIZE** 10 mm

**CONTRIBUTION TO FOOD** 0

**IMPORTANCE TO WILD FLOWERS** 30

**MOBILITY** 9

**STING** 28

Only discovered in 1994, the ivy bee is now one of the fastest spreading bees in the world. The bee flies in autumn and collects pollen from Ivy and is a key pollinator of this plant. The bees can nest in huge numbers in large bee cities, with many tens of thousands of nests packed closely together.

# Scarce long-horned Bee

*Eucera nigrescens*



BEE

SIZE 10.5 mm

CONTRIBUTION TO FOOD 43

IMPORTANCE TO WILD FLOWERS 34

MOBILITY 9

STING 24

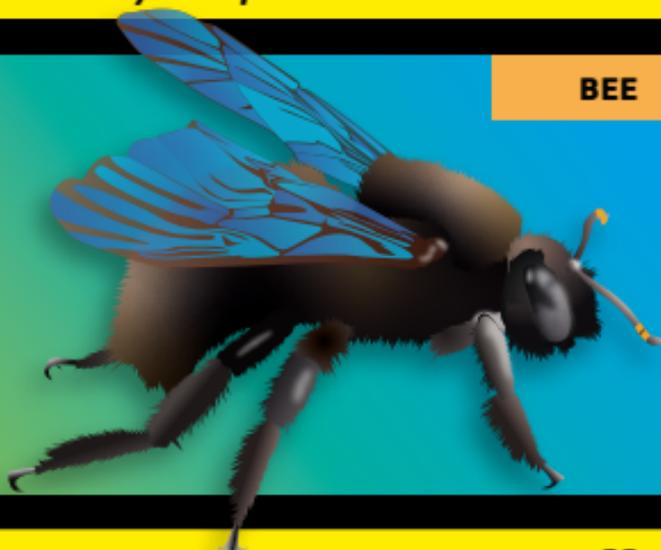
This bee is found in much of Europe. The extraordinarily long antennae of the male give this bee its name. The female prefers to collect pollen from the flowers of vetches and other members of the pea family and can be found in flower-rich grasslands and meadows in May. There are a number of very closely related species, especially in the Mediterranean area.

# Violet carpenter bee

*Xylocopa violacea*



BEE



SIZE 22 mm

CONTRIBUTION TO FOOD 75

IMPORTANCE TO WILD FLOWERS 42

MOBILITY 15

STING 27

A flying gem – this very large black bee with electric-blue reflections on its wings is common in many parts of Southern Europe. The females tunnel into dead wood in order to build their nests. The bees are long lived as adults and can survive for over a year. They are known to pollinate fruit trees in the spring.

# European orchard-bee

*Osmia cornuta*



BEE



**SIZE** 10.6 mm

**CONTRIBUTION TO FOOD** 71

**IMPORTANCE TO WILD FLOWERS** 44

**MOBILITY** 7

**STING** 25

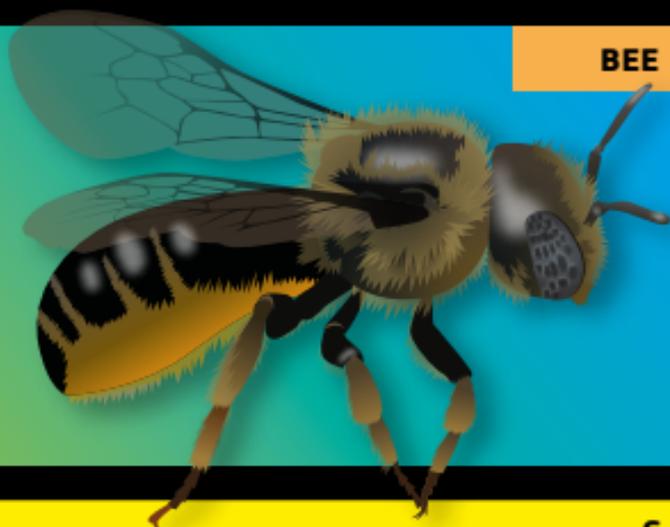
One of the earliest flying bees each year is the beautiful European orchard bee, often active from early March. The bee nests in holes in wood and walls, and will also use dried stems in gardens and orchards, and is a common resident of bee hotels. They are important pollinators of many types of fruit tree.

# Spined mason bee

*Osmia spinulosa*



BEE



SIZE

6 mm

CONTRIBUTION TO FOOD

0

IMPORTANCE TO WILD FLOWERS

23

MOBILITY

2

STING

22

The spined mason is a small bee with an extraordinary home – always nesting in empty snail shells. It favours warm places rich in snail shells and flowers of the daisy family, from which it collects pollen and nectar.

# Alfalfa leafcutter bee

*Megachile rotundata*



BEE



SIZE 10.3 mm

CONTRIBUTION TO FOOD 45

IMPORTANCE TO WILD FLOWERS 36

MOBILITY 2

STING 19

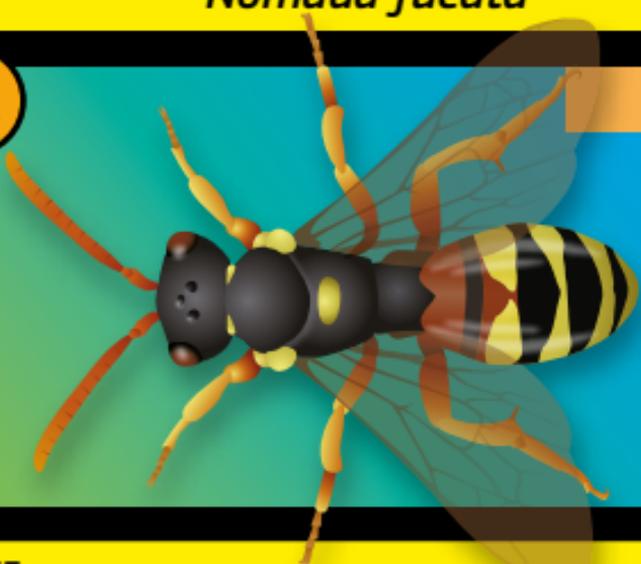
The European alfalfa leafcutter bee is a superstar pollinator of alfalfa, carrots, other vegetables, and some fruits. It has been introduced as a managed pollinator to many parts of the world to help farmers. Each female builds her own nest in old trees or other holes with the nest cells made of cut leaves.

# Painted nomad bee

*Nomada fucata*



BEE



SIZE 8.5 mm

CONTRIBUTION TO FOOD 0

IMPORTANCE TO WILD FLOWERS 17

MOBILITY 1

STING 10

While it looks like a wasp, this species is, a bee in disguise. It sneaks into the nests of its yellow-legged mining bee host and lays its eggs on the pollen they have collected. It too has two flight periods each year. Despite not collecting pollen, these bees do still visit flowers for nectar, and so can act as pollinators.

# Common mourning bee

*Melecta albifrons*



BEE



SIZE 11.5 mm

CONTRIBUTION TO FOOD 0

IMPORTANCE TO WILD FLOWERS 20

MOBILITY 6

STING 12

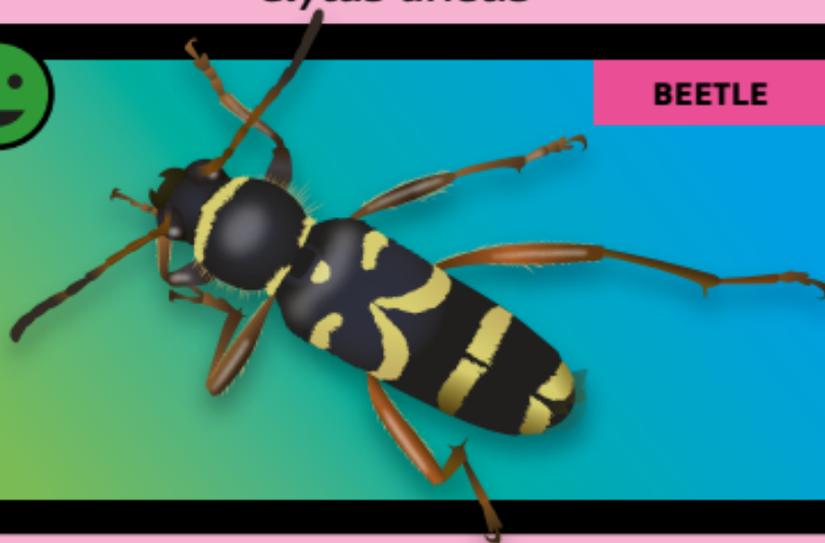
This large distinctive bee is a cuckoo in the nests of the common hairy-footed flower bee, and, like its host, can be found in towns as well as the wider countryside. The males and females are very similar to one another and can be found in the spring visiting various flowers, purely for nectar.

# Wasp beetle

*Clytus arietis*



**BEEBLE**



**SIZE** 10 mm

**CONTRIBUTION TO FOOD** 24

**IMPORTANCE TO WILD FLOWERS** 19

**MOBILITY** 5

**STING** 0

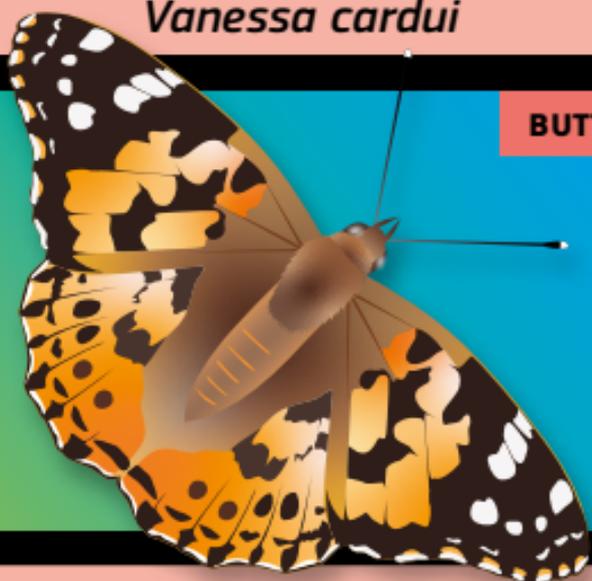
The black and yellow colour of this beetle protects it from predators because it makes the beetle look like a stinging wasp. The grubs live in in dead wood and the adults are often seen on the edges of woodlands visiting flowers and looking for pollen and nectar.

# Painted lady

*Vanessa cardui*



BUTTERFLY



**SIZE** 29 mm

**CONTRIBUTION TO FOOD** 0

**IMPORTANCE TO WILD FLOWERS** 14

**MOBILITY** 20

**STING** 0

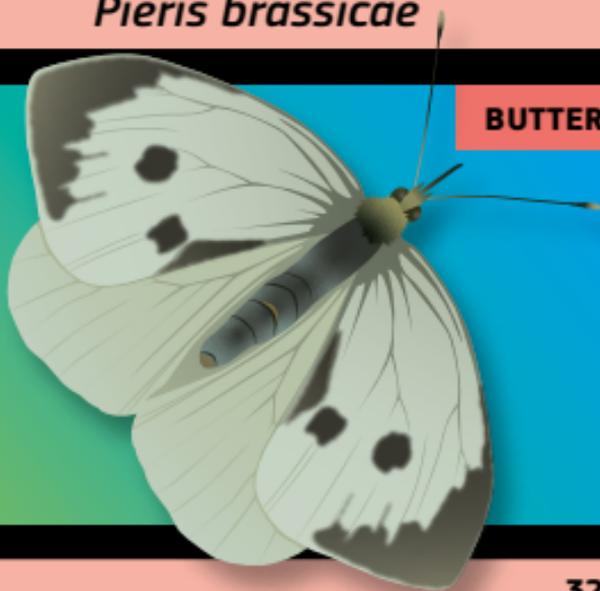
A well-travelled beauty, the painted lady is a brightly marked long range migrant butterfly which moves northwards from its wintering grounds in North Africa each spring. The caterpillars feed on thistles and occasionally on artichokes. It is found all over the world.

# Large white

*Pieris brassicae*



BUTTERFLY



SIZE 32 mm

CONTRIBUTION TO FOOD 0

IMPORTANCE TO WILD FLOWERS 13

MOBILITY 20

STING 0

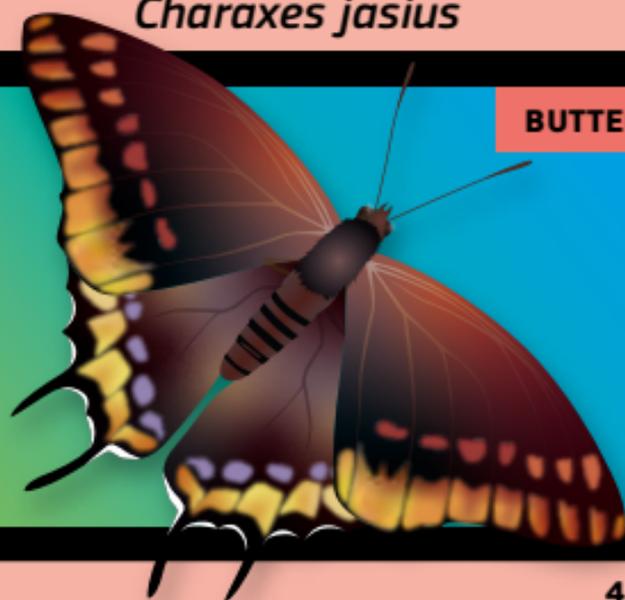
A familiar insect, it is very common in gardens and anywhere cabbages are grown for food. Populations are boosted by long-range migration each summer. While the caterpillars munch on cabbages and cauliflowers, the adult butterflies love feeding on plants such as butterfly bush and lavender.

## 2-tailed pasha

*Charaxes jasius*



BUTTERFLY



SIZE 41 mm

CONTRIBUTION TO FOOD 0

IMPORTANCE TO WILD FLOWERS 0

MOBILITY 12

STING 0

A stunning insect with a rotten diet, it is one of the largest and most beautiful butterflies in Europe. The two-tailed pasha is restricted to the coastal shrublands of the west Mediterranean. The caterpillars feed on the leaves of the strawberry tree. The adults are poor pollinators, preferring the juices of ripe fruits to flowers.

# Dusky large blue

*Phengaris nausithous*



**BUTTERFLY**



**SIZE** 18 mm

**CONTRIBUTION TO FOOD** 0

**IMPORTANCE TO WILD FLOWERS** 33

**MOBILITY** 4

**STING** 0

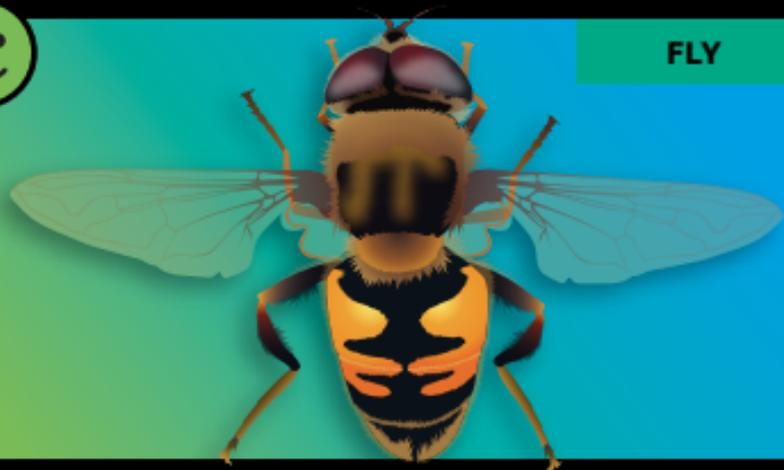
The dusky large blue is a rare butterfly that is most usually found in unmown wet meadows where the great burnet grows. The caterpillars produce a sugary liquid that attracts ants, which then carry them into their nests. The caterpillar lives in the ant nest until the butterfly hatches in the high summer months.

# Common dronefly

*Eristalis tenax*



FLY



SIZE	13 mm
CONTRIBUTION TO FOOD	39
IMPORTANCE TO WILD FLOWERS	20
MOBILITY	18
STING	0

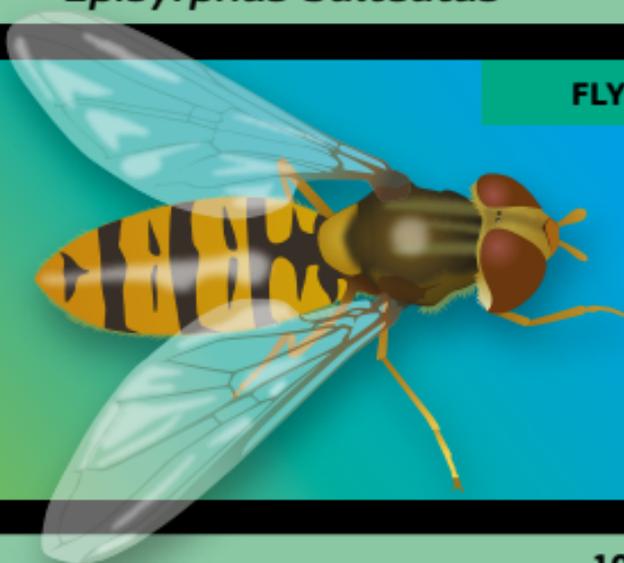
Perhaps the commonest hoverfly in Europe, it is often confused with honeybees as it looks very similar. Numbers in northern Europe may be boosted by mass immigration. The larvae are known as rat-tailed maggots and develop in pools and ditches.

# Marmalade fly

*Episyrphus balteatus*



FLY



SIZE 10 mm

CONTRIBUTION TO FOOD 41

IMPORTANCE TO WILD FLOWERS 16

MOBILITY 20

STING 0

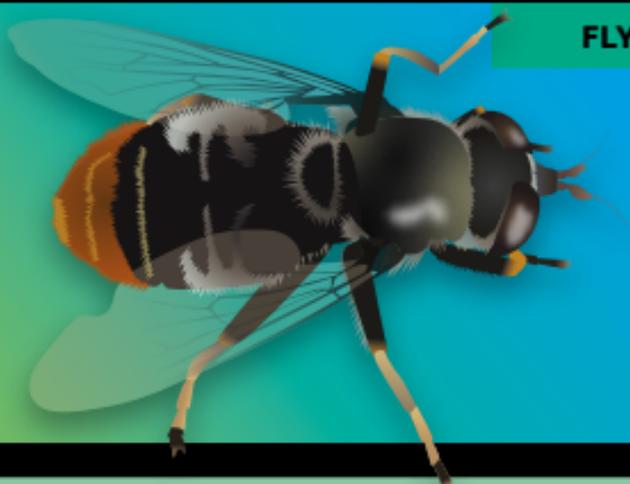
A smallish hoverfly which is common across Europe, the marmalade fly visits flowers throughout the year for pollen and nectar, but the larvae feed on aphids. The adults can migrate in huge numbers, which may alarm people as they resemble wasps.

# Pine hoverfly

*Blera fallax*



FLY



SIZE 7.4 mm

CONTRIBUTION TO FOOD 0

IMPORTANCE TO WILD FLOWERS 30

MOBILITY 2

STING 0

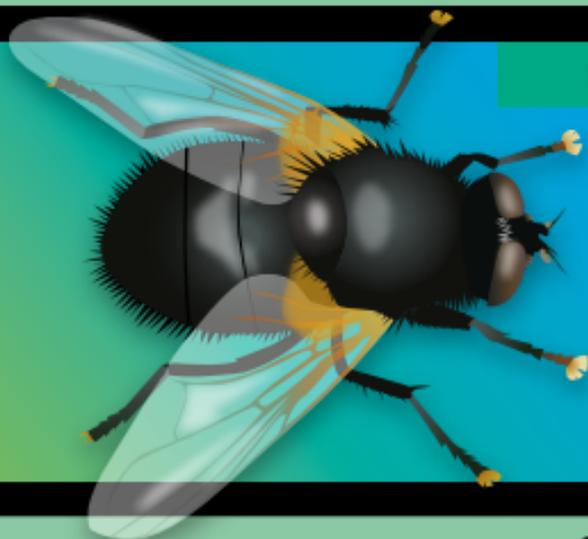
A beautiful, rare and distinctive hoverfly, it is associated with conifer woodlands, often in mountainous regions. Adults visit flowering trees along with brambles and wild rose and are most usually seen sunbathing on pine trunks. The larvae develop in wet rot holes on mature pine trees.

# Noon fly

*Mesembrina meridiana*



FLY



SIZE 10.2 mm

CONTRIBUTION TO FOOD 22

IMPORTANCE TO WILD FLOWERS 22

MOBILITY 2

STING 0

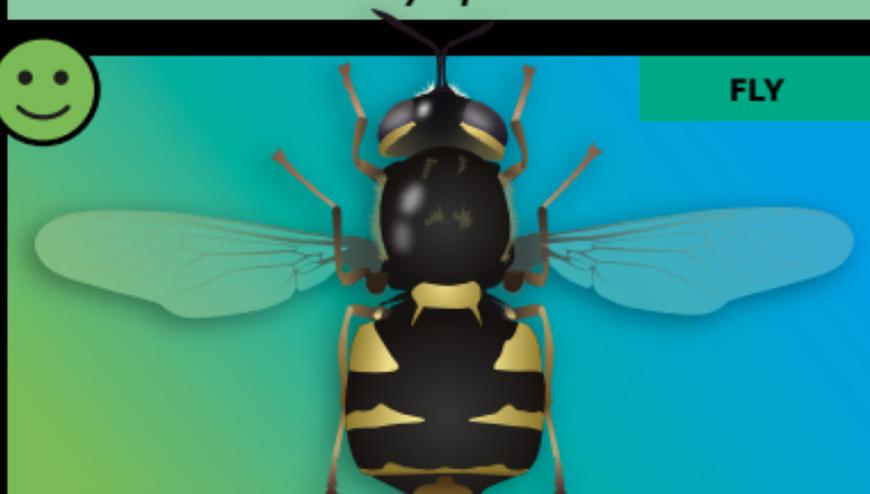
This large and distinctive black fly has orange wing bases, face and feet. It is common in the late summer and autumn. Adults are often found on cow dung. The larvae are predators and feed on other fly larvae within dung. The adult flies feed on nectar and pollen on flowers, especially those of the carrot family.

# Banded general

*Stratiomys potamida*



FLY



SIZE 10 mm

CONTRIBUTION TO FOOD 18

IMPORTANCE TO WILD FLOWERS 17

MOBILITY 11

STING 0

This large and boldly marked soldier fly loves damp places with plenty of flowers, such as fens, riverbanks and meadows.

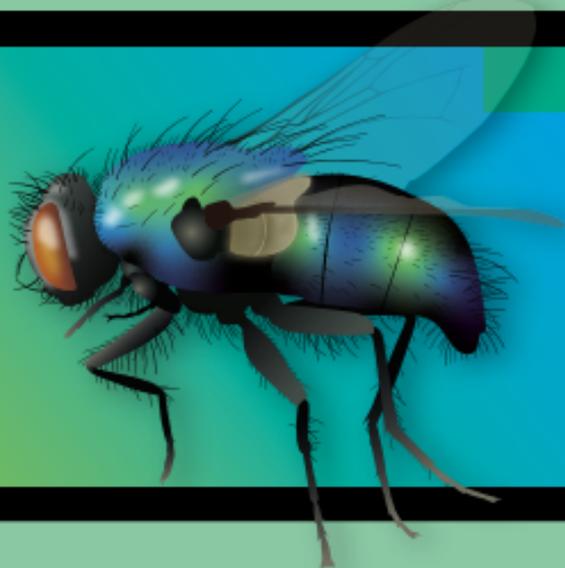
The adult flies are active in the summer and can be found at the flowers of carrot family plants. The larvae develop in clean shallow water and wet mud, and can cope with summer drought.

# Common toad greenbottle

*Lucilia silvarum*



FLY



SIZE 5.8 mm

CONTRIBUTION TO FOOD 20

IMPORTANCE TO WILD FLOWERS 16

MOBILITY 2

STING 0

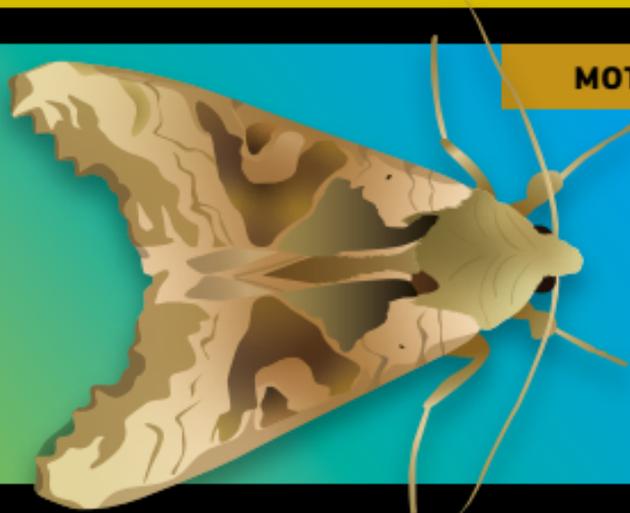
A green jewel with a horrible secret life, this striking metallic-green fly is found in wetlands. The larvae typically develop in frogs and toads, which they eventually kill. The larvae can also develop in living human bodies. The adult flies visit many different flowers for nectar, especially those of the carrot family.

# Angle shades

*Phlogophora meticulosa*



**MOTH**



**SIZE** 23 mm

**CONTRIBUTION TO FOOD** 24

**IMPORTANCE TO WILD FLOWERS** 22

**MOBILITY** 4

**STING** 0

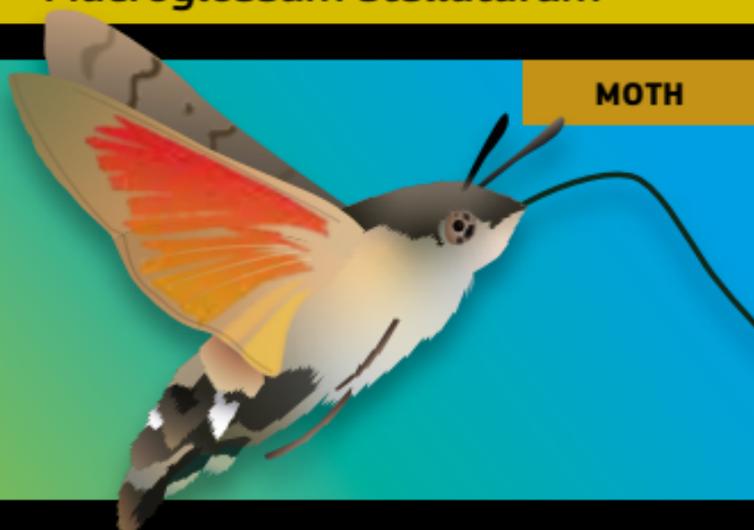
A night flying species that is very common, it is difficult to see as it is well camouflaged. It is found in woodlands, scrubby grassland, meadows and in parks and gardens. The caterpillars feed on a range of small plants. The adult moths visit flowers such as bramble. The moth is active from spring to autumn.

# Hummingbird hawkmoth

*Macroglossum stellatarum*



MOTH



SIZE 22 mm

CONTRIBUTION TO FOOD 0

IMPORTANCE TO WILD FLOWERS 42

MOBILITY 20

STING 0

Resident in southern Europe, it is a long distance migrant to the north of the continent. It has a darting flight and hovers in front of tubular flowers from which it drinks nectar with its very long (26 mm) tongue. Once settled on the ground or on trees, the camouflaged adults become almost invisible.

# Nettle-tap

*Anthophila fabriciana*



MOTH



SIZE 6.5 mm

CONTRIBUTION TO FOOD 18

IMPORTANCE TO WILD FLOWERS 38

MOBILITY 4

STING 0

This is a small, common, well-camouflaged day flying moth which is active from May until the end of summer. It is most commonly seen visiting flowers of carrot family plants in a range of habitats such as waste-ground, riverbanks and hedgerows. The caterpillars feed on the leaves of stinging nettles.

# Jersey tiger

*Euplagia quadripunctaria*



MOTH



SIZE

30 mm

CONTRIBUTION TO FOOD

0

IMPORTANCE TO WILD FLOWERS

39

MOBILITY

15

STING

0

This is a large and colourful day-flying moth. The caterpillars feed on a wide range of low-growing plants. The moth can be found in gardens, rough and disturbed ground and hedgerows. On the island of Rhodes, large numbers of adults gather to shelter from the summer heat in the misnamed 'Valley of the Butterflies'.

# Shiny-headed wasp-sawfly

*Tenthredo amoena*



SAWFLY

SIZE 7.3 mm

CONTRIBUTION TO FOOD 22

IMPORTANCE TO WILD FLOWERS 14

MOBILITY 2

STING 0

This sawfly looks like the regular stinging wasps that are common in towns and villages. It is found in grassland, open woodland and grassy roadsides. The adults fly in summer and feed on nectar and the pollen of flowers of the carrot family. The larvae eat the leaves of St. John's Wort and are yellow and green with black spots and a yellow head.

# Heather thrips

*Ceratothrips ericae*



THRIPS



**SIZE** 0.9 mm

**CONTRIBUTION TO FOOD** 27

**IMPORTANCE TO WILD FLOWERS** 20

**MOBILITY** 16

**STING** 0

An absolutely tiny insect measuring about 1 mm, with feathery wings in the female, the heather thrips is an important flower visitor and a known pollinator of heather, cranberry and bearberry. They are so small that they can be dispersed a long way by the wind.

# German wasp

*Vespula germanica*



WASP



**SIZE** 11 mm

**CONTRIBUTION TO FOOD** 22

**IMPORTANCE TO WILD FLOWERS** 17

**MOBILITY** 13

**STING** 40

One of the classic black and yellow wasps, it is often feared as an uninvited picnic guest. The queen wasps hibernate and in the spring they start building their nests in houses, holes in buildings or in the ground. By the autumn, the grey paper nests may be large and house up to 7 500 workers, before the frosts kill all but the new queens.

# Bee wolf

*Philanthus triangulum*



WASP



SIZE	12 mm
CONTRIBUTION TO FOOD	0
IMPORTANCE TO WILD FLOWERS	16
MOBILITY	15
STING	31

This magnificent wasp stocks its nest burrows in the ground with honeybees, which is why it is known as the 'bee-wolf'. The species is common in Europe, and is known to spread rapidly after hot summers. It likes sandy places on the coast and on heathland. The wasp can be found at a range of flowers and females aggressively defend these.



Honeybees are the top managed pollinators in Europe and are found over most of the continent. Nearly all of them need to be looked after by beekeepers to survive.

Honeybees not only produce honey but pollinate many European food crops. However, they lack some special skills needed to pollinate crops like tomatoes and blueberries, which instead rely on wild bees such as bumblebees.

Even so, honeybees have superpowers. They can fly between 24 and 35 km/hour. Each hive contains 30 000 to 50 000 worker bees, who die after they sting and have just one queen.

## **Crops and wild flowers need a rich variety of wild pollinators**

Managed honeybees are just one species and are greatly outnumbered by more than 2 000 species of wild bees in Europe.

Relying on one species alone, such as honeybees, to pollinate plants is a big risk.

Changing climate and diseases could knock out a lone species, so having a variety of pollinators will guarantee there are many reserves ready to step up to do the job.

To ensure good pollination of our food crops and wild flowers we need to support a high diversity of different pollinators throughout Europe.

Find out more about EU action:

**EU Pollinators** – [europa.eu/!hB87vy](http://europa.eu/!hB87vy)

**EU learning corner** –  
[europa.eu/learning-corner/home\\_en](http://europa.eu/learning-corner/home_en)

**DG Environnement** – [ec.europa.eu/environment](http://ec.europa.eu/environment)

## Rules

Two or more people can play the game. To start, shuffle and deal all the cards face down. Each player holds their cards so that they can see the top card only.

The player to the dealer's left starts by reading out a category from their top card (e.g. Size). The other players then read out the value of the same category from their cards. The one with the highest value wins.

The winner reads out the name of the pollinator and description on their card (optional), then collects all the top cards, including their own, and places them at the bottom of their pile. It is then their turn to choose a category from the next card.

If two or more cards share the top value, all the cards are placed in the middle and the same player chooses a category from the next card. The winner of this next round takes the cards in the middle as well as the cards from the round.

The person with all the cards at the end is the winner.

Discover five fun facts about a pollinator on each card:

**SIZE (1-41)** – the wing length in millimetres

**CONTRIBUTION TO FOOD (1-100)** – how important this insect is for crops that produce foods such as fruits, seeds and nuts

**IMPORTANCE TO WILD FLOWERS (1-50)** – how much wild plants rely on this insect to produce seeds and fruit

**MOBILITY (0-20)** – how much the pollinator moves and how far it travels for food

**STING (0-40)** – does the pollinator have a sting and if it does, how much does it hurt!

How much is your pollinator at risk of extinction?

-  **No danger** – this one is doing well
-  **Not a worry** – but not OK everywhere
-  **Be careful** – this is endangered in some places
-  **At risk** – take special care of this one

## What are pollinators?

Pollinators help plants to reproduce. When they visit flowers, they transfer pollen between the male and female parts of plants so that seeds and fruit can grow.

In Europe, pollinators are mostly insects, but we need the wind for cereal crops. Bees and hoverflies are top of the list, but butterflies, moths, some beetles and other flying insects are also important.

There are thousands of different types of wild pollinators in Europe, all with an important job to do.

## Why are they in danger?

Numbers of wild pollinators are declining around Europe. New ways of using land like non pollinator-friendly farming, the expansion of cities, pollution, pesticides, non-native species and climate change all harm these animals.

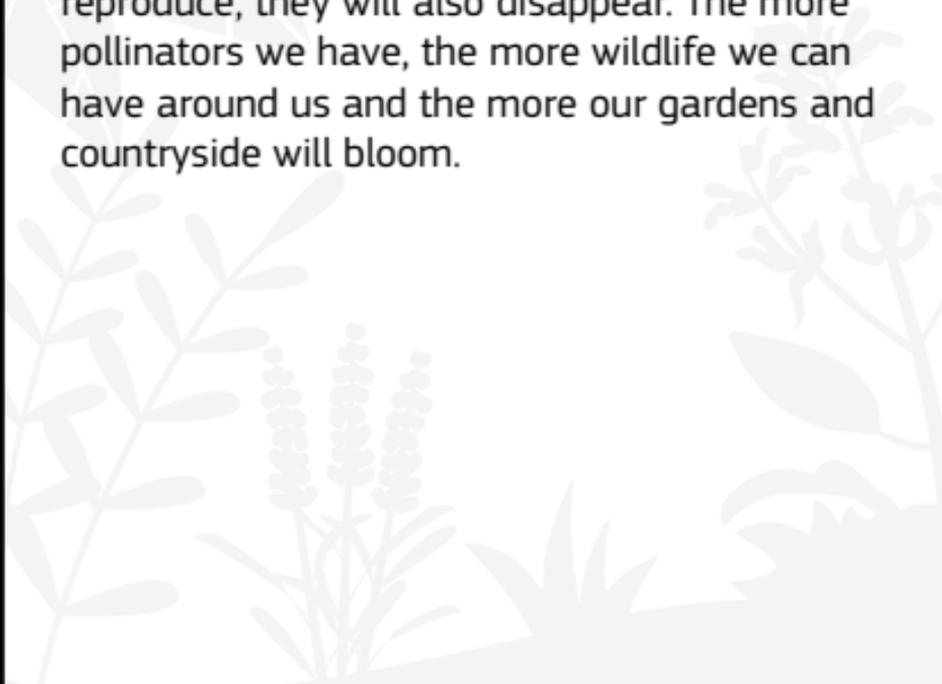
Some species could go extinct. We need to look after all pollinators for an environment that is healthy for us and the rest of nature.

## Why do we need pollinators?

Above all, pollinators make it possible for us to eat many of our favourite fruit, vegetables and nuts. Around four in five crop and wild-flower plant species use animal pollination. Farmers rely on insects to produce many different types of crops that we need for a balanced diet.

The environment also depends on pollinators. Thanks to them, wild plants can reproduce and provide fruits and seeds as food for other animals like birds.

Some wild plants have even evolved to work with just one or a few types of pollinator species. Without the right insects to help them reproduce, they will also disappear. The more pollinators we have, the more wildlife we can have around us and the more our gardens and countryside will bloom.



There are eight types of pollinating heroes in this pack:



## BEES

These are the most common pollinators. Nearly all bees in Europe are wild, with more than 2 000 types. In contrast, most honeybees in Europe are managed by beekeepers.



## BUTTERFLIES

The large wings of these busy pollinators of wild flowers help some species to move pollen between far-apart plants as they search for a nectar meal.



## MOTHS

Most moths transport pollen at night as they sip nectar, but some are out in the evening and day.



## FLIES

There are one million species of flies, and they are the second most important pollinators after bees. Many types help crop plants, making them the farmer's friend.



## **BETLES**

Some of the world's 400 000 species of beetles collect pollen when they eat flowers, continuing a role that beetles started in prehistoric times.



## **SAWFLIES**

The pollen and nectar diet of these stingless cousins of bees and wasps helps them to pollinate crops and wild plants.



## **THRIPS**

Although often seen as a pest, the tiny size of thrips makes them ideal for pollinating some small wild flowers.



## **WASPS**

Wasps sometimes transport pollen for specific kinds of plants. For example, many figs are only pollinated by wasps.

Teachers, help children to find out more.

## Quiz

Find the answers to know more about pollinators:

- \* What is pollination?
- \* What is extinction?
- \* What are a habitat and an ecosystem?

## Discussions

What foods and habitats do different pollinators need? Think about what they look like, their lifecycles, and how they interact with plants and with other animals.

What happens when you change part of the habitat? Use a couple of cards as examples. What could change where the pollinator lives and what it would mean for the animal?

What can you do to help pollinators? See how many ideas you can come up with. For example, grow plants that local pollinators need, help people who look after pollinators or share information about pollinators.

## Ideas for activities

### In class or at home

- \* Make a list of foods which rely on pollinators and a list of foods that do not. Which list would you want to eat from?
- \* Write down how to make your school, home or garden more pollinator-friendly or build an insect hotel.

### Outdoors

- \* Plant native plants that feed pollinators – a window box can be enough!
- \* Grow vegetables and fruit and watch how pollinators help them to produce crops.
- \* Keep a diary of pollinators near you.

### Trips out

- \* Learn about pollinators at a museum or library.
- \* Help a local group look after pollinator habitats or visit a Natura 2000 protected site.
- \* Join a citizen-science project to count pollinators.