

# CRASH COURSE IN BUMBLEBEE IDENTIFICATION



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All paintings of bumblebees are © Bryan Pinchen

# How many species are there in Ireland?

# 21



15 true  
bumblebees



6 cuckoo  
bumblebees

Some bumblebee species are cleptoparasites or cuckoo species. Like the cuckoo bird, cuckoo bees lay their eggs in the nest of another bee species (their true bumblebee host) rather than bringing up their own offspring

It is easiest to identify bumblebees when they are foraging on flowers. In this case, it can also be possible to take a photograph for later identification.

If you have a (butterfly) net it can be useful to catch bumblebees and have a closer look by briefly putting them in a clear plastic tube. This will not harm the bumblebee & is recommended for beginners.



Mountain Bumblebee  
photographed in a clear  
plastic tube

# TRUE BUMBLEBEE IDENTIFICATION IN IRELAND:



When identifying bumblebees  
the first step is to check the  
colour of the tail

# TRUE BUMBLEBEE IDENTIFICATION IN IRELAND:



**5\*** species have a white tail



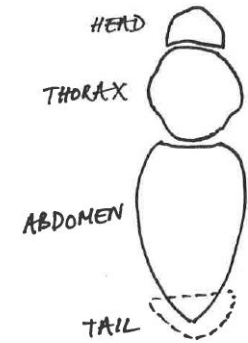
**5** species have a red tail



**1** species has a ginger tail



**2** species have a blonde tail





# BUMBLEBEE GUIDE

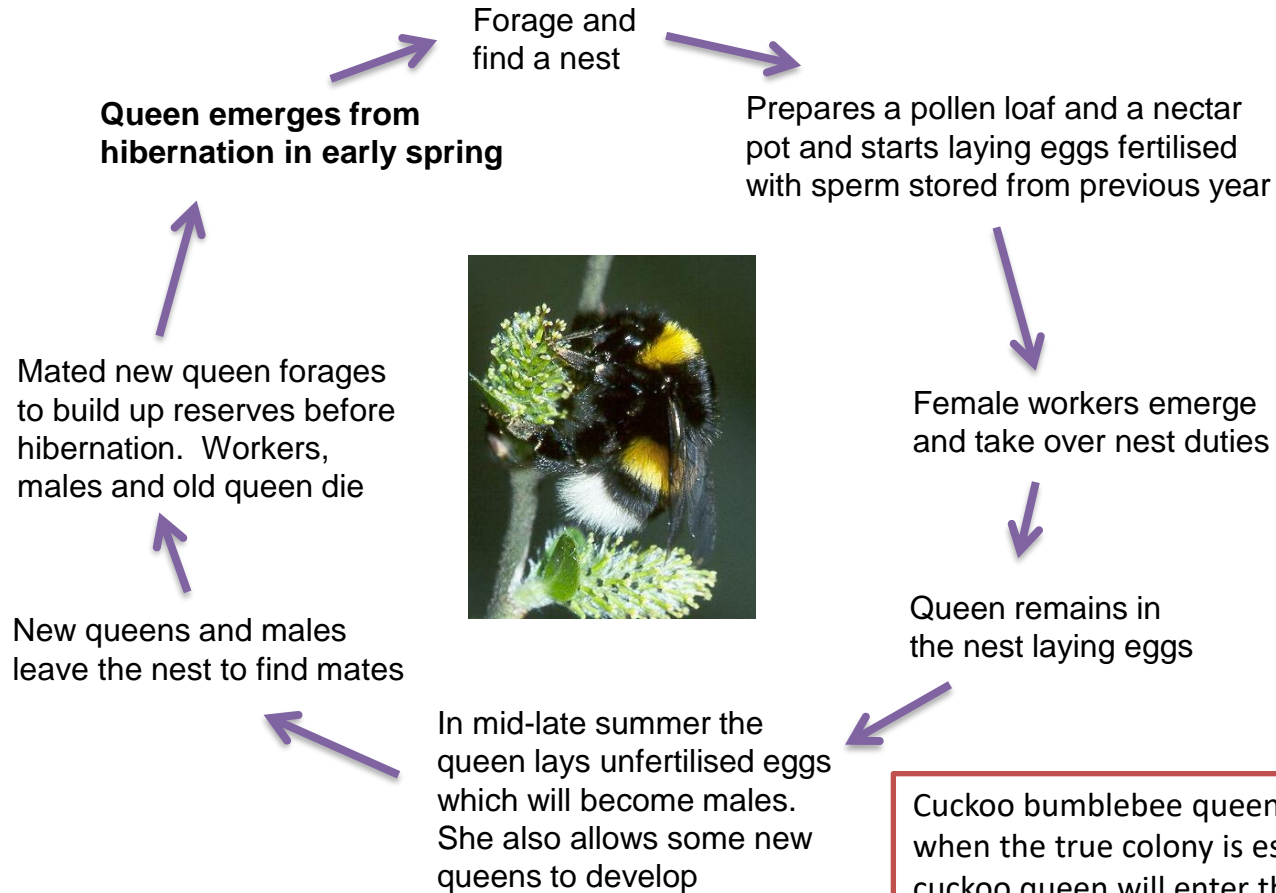
€5



In the Centre's Bumblebee guide, species are arranged by tail colour – if you see a bumblebee with a white tail you can fan out those 5 species in the swatch to assist with identification

<http://www.biodiversityireland.ie/shop/>

# TRUE BUMBLEBEE LIFECYCLE

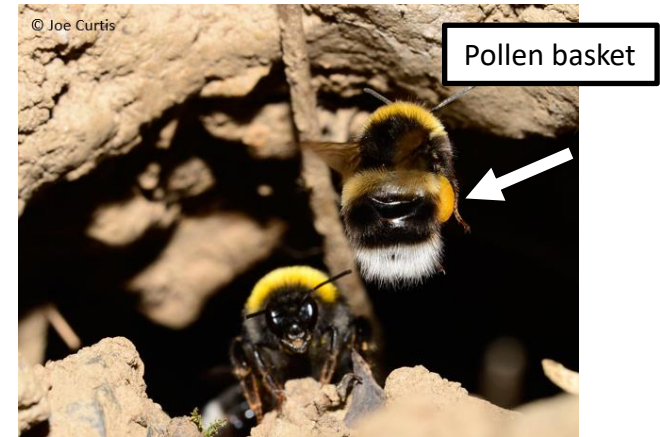


\* This lifecycle is approximate for the average bumblebee in Ireland. Some species emerge later than others, and some common early species go through two lifecycles in one year.

Cuckoo bumblebee queens will emerge when the true colony is established. The cuckoo queen will enter the nest, kill the true queen and replace her. The true queens workers then bring up the cuckoo queens eggs for her. Cuckoo bumblebees don't have a worker caste, just queens and males.

# How do you tell males from females?

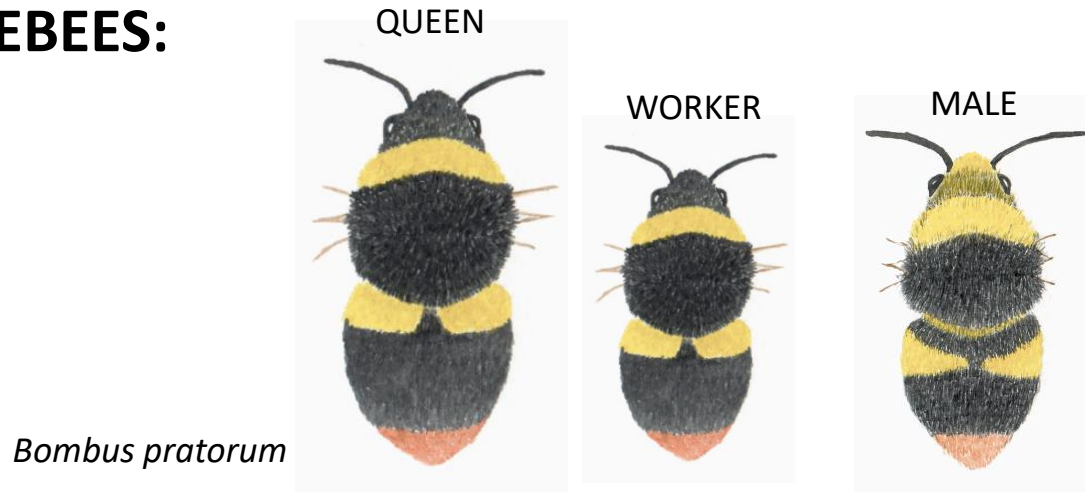
1. The colour pattern may differ
2. Only females will have a pollen basket on their hind leg. Males don't look after the young so don't need to carry pollen back to the nest.
3. Only females will have a sting!
4. Length of the antennae (males have 13 segments and females have 12)





# How do you tell queens and female workers apart?

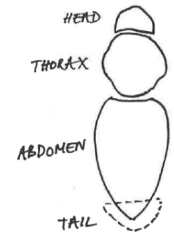
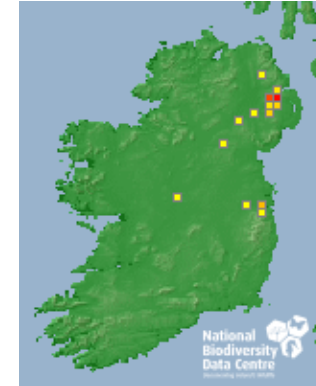
## TRUE BUMBLEBEES:



- Queens and workers will be identical except for size. Queens are much larger (15-20mm long). Distinguishing the two comes with experience, particularly of seeing the large queens in spring.
- Males are similar in size to workers or slightly larger, and may or may not have a different banding pattern depending on the species

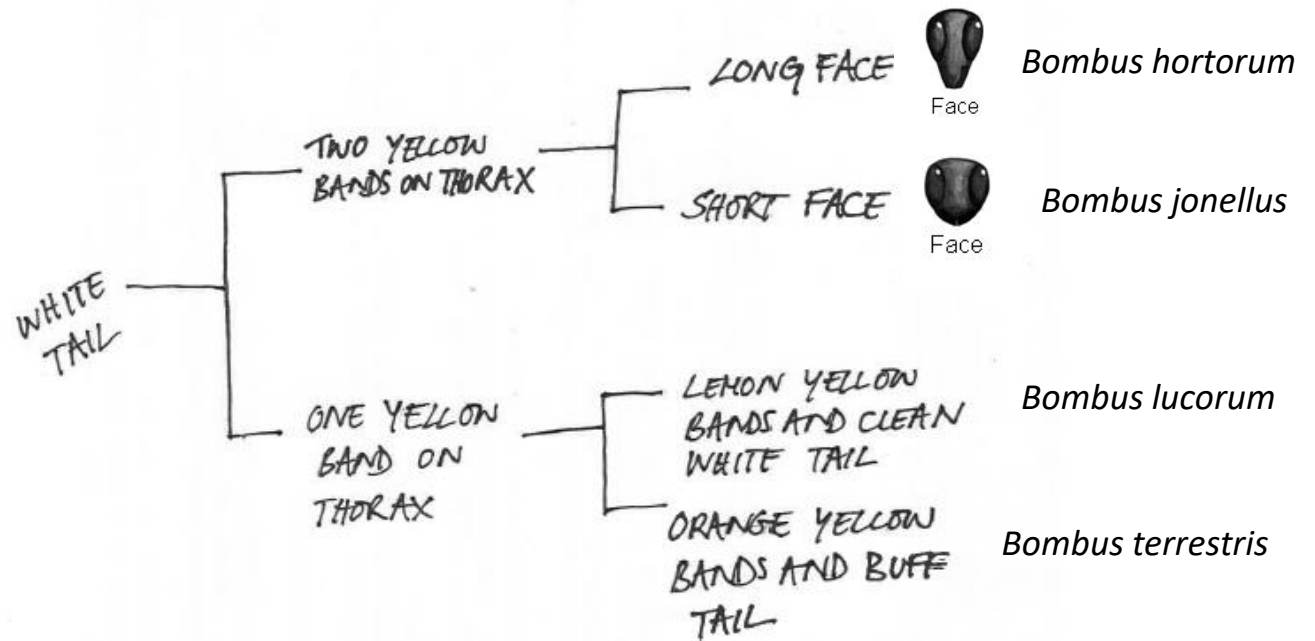
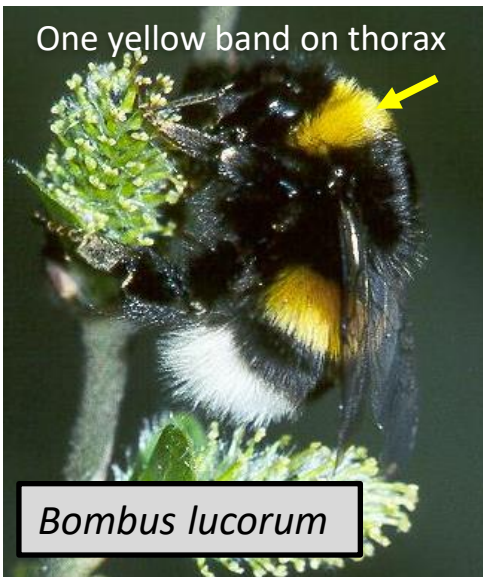
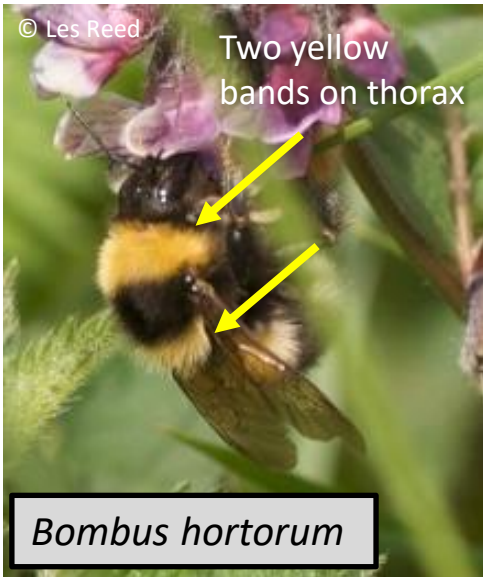
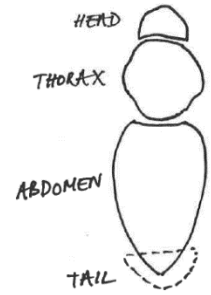
## White tailed – 5\* species (all common)

White tail and **all ginger hairs** on the thorax =  
*Bombus hypnorum* (Tree Bumblebee)



- Arrived in Britain in 2001 and has been spreading very rapidly.
- First spotted in Ireland in September 2017 – St. Stephen's Green, Dublin.
- The other Irish bumblebee species nest on the surface of the ground or just underneath. In contrast, this species nests above ground. In Britain, it is commonly associated with bird nest boxes in gardens.

# White tailed – 5\* species (all common)



## White tailed – 5\* species (all common)



White tail and **two** yellow bands on the thorax =  
*Bombus jonellus* (Heath Bumblebee) or  
*Bombus hortorum* (Garden Bumblebee)

***Bombus hortorum*** has a long (horse-shaped) face  
***Bombus jonellus*** has a short (heart-shaped) face



Face



Face

*Bombus hortorum*



© Ralph Sheppard

*Bombus hortorum*



© Tracy Anne Fennell

*Bombus jonellus*



© Michael Bell

Note that *B. jonellus* males have yellow hairs on their face



## White tailed – 5\* species (all common)



White tail and **one** yellow band on the thorax =  
*Bombus lucorum* (White-tailed Bumblebee) or  
*Bombus terrestris* (Buff-tailed Bumblebee)

***Bombus lucorum*** has lemon yellow bands **and** a clean white tail

***Bombus terrestris*** has orange-yellow bands and a buff or off-white tail

*Bombus lucorum*



*Bombus terrestris*



**NOTE – THIS ONLY APPLIES TO QUEENS!**



# *Bombus terrestris* & *Bombus lucorum* – the full picture.....

## QUEEN



*B. terrestris*



*B. lucorum*

If you see a queen you can reliably tell these two species apart

## WORKER



Research has shown that workers of *B. lucorum* and *B. terrestris* cannot be reliably distinguished by sight. They should all be recorded as ***Bombus lucorum* aggregate**

## MALE



*B. lucorum* males can be easily distinguished by the yellow hairs on their face

## White tailed – 5\* species (all common)

### Why 5\*?

*Bombus lucorum* has two closely related sister species that also occur in Ireland: *Bombus magnus* & *Bombus cryptarum*. These three species can only be reliably distinguished from each other using DNA analysis. When we receive records of *Bombus lucorum* we are aware that it is a species complex.



*Bombus magnus* queen



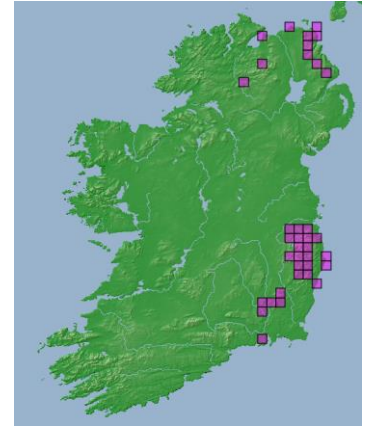
*Bombus lucorum* queen



*Bombus cryptarum* queen

## Red tailed – 5 species

Not only a red tail, but more than half of the abdomen red = *Bombus monticola* (Mountain Bumblebee)



More than half the abdomen with red hairs



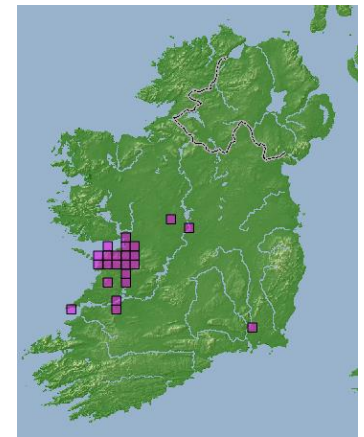
Note that *B. monticola* males have yellow hairs on their face

- **Restricted range**
- Arrived from Wales into the Dublin/Wicklow Mountains in the 1970s and slowly expanding its range south. Arrived from Scotland into N. Ireland.
- Associated with Blaeberry/Bilberry (*Vaccinium myrtillus*) & found in upland bogs/heaths

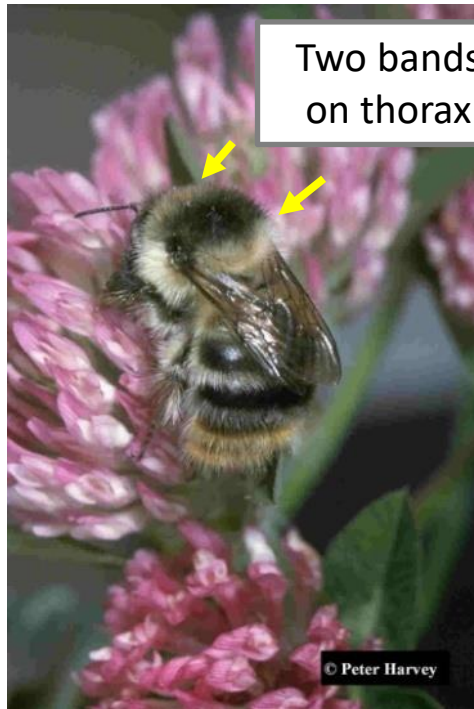


## Red tailed – 5 species

Red tail, two clear bands on the thorax & grey-greenish in colour = *Bombus sylvarum*  
(Shrill Carder Bee)



Records since 2000



- **Rare**
- Late emerging species, associated with flower-rich grasslands
- Queens, workers and males have same banding pattern

## Red tailed – 5 species

Tail red, one yellow band on the thorax and another on the abdomen = *Bombus pratorum* (Early Bumblebee)



© Holly Grogan



© Aideen Kane



© Joanna Hodgton

- Very common
- Often smallest bumblebee you will see

Note that the yellow band on the abdomen can sometimes be missing. In this species, the red tail can sometimes occur only at the very tip making it difficult to see



*Bombus pratorum* mating

Queen



Note that *B. pratorum* males have yellow hairs on their face

## Red tailed – 5 species

Jet black bumblebee with a red tail = *Bombus lapidarius* (Red-tailed Bumblebee) or *Bombus ruderarius* (Red-shanked Carder Bee)

***Bombus lapidarius*** has black hairs on the hind leg

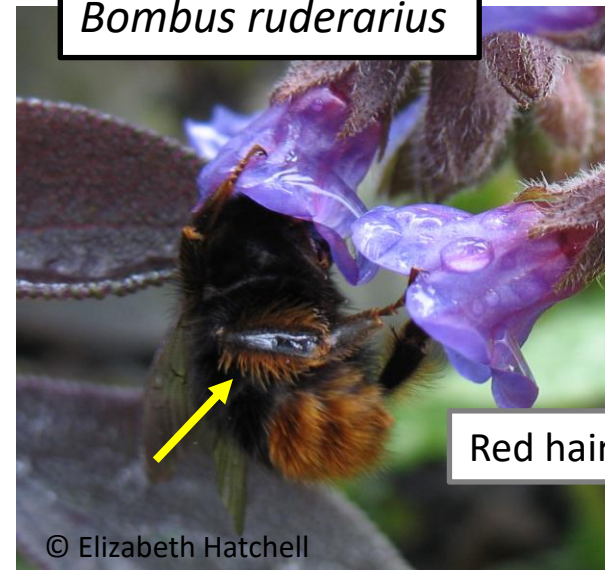
***Bombus ruderarius*** has red hairs on the hind leg

*Bombus lapidarius*



- Very common

*Bombus ruderarius*



- **Rare. Late emerging species, associated with flower-rich grasslands**

*Bombus lapidarius* - common

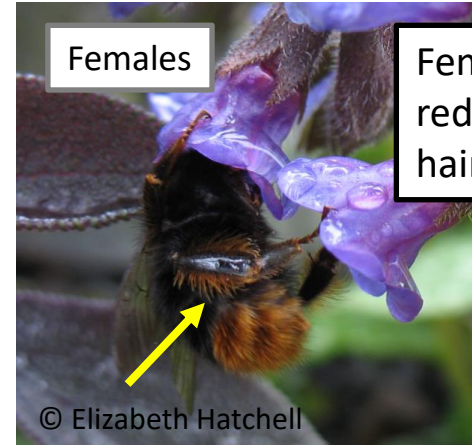


Females

Females - jet black, red tail and **black** hairs on hind leg

© Jamie O'Neill

*Bombus ruderarius* - rare



Females

Females - jet black, red tail and **red** hairs on hind leg

© Elizabeth Hatchell



Males

Males - yellow band on thorax, yellow hairs on face and **red** hairs on hind leg

© Les Reed



Males

Males - two greyish bands on thorax and **red** hairs on hind leg

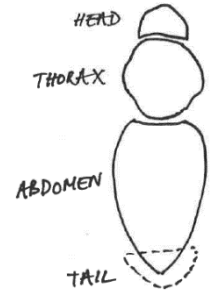
© John Breen

*B. lapidarius* males are occasionally confused with *B. monticola* males, but these have black hairs on the hind leg



# Ginger tailed – 1 species (very common)

Ginger tail, all ginger thorax, and some black hairs on the abdomen = *Bombus pascuorum* (Common Carder Bee)



All ginger thorax



Note that *B. pascuorum* is prone to fading and can look unusual

- Probably the most common bumblebee you will see
- Queens, workers and males have the same banding pattern

## Blond tailed – 2 species

All hairs on the abdomen blonde = *Bombus distinguendus* (Great Yellow Bumblebee) or *Bombus muscorum* (Large Carder Bee)

*Bombus distinguendus*

Two yellow  
bands on thorax



*Bombus muscorum*

All ginger thorax



- Very rare
- Late emerging species, associated with flower-rich grasslands
- Queens, workers and males have the same banding pattern

- Widespread but not common
- Good indicator of general pollinator diversity
- Queens, workers and males have the same banding pattern



Take care not to confuse *Bombus muscorum* & *B. pascuorum*, both of which have an entirely ginger thorax

**Blond tailed: *B. muscorum***



All hairs on abdomen  
blonde (abdomen  
itself black)

**Ginger tailed: *B. pascuorum***



Some black hairs  
on abdomen

## Summary

### Very common: 6 species

*Bombus lucorum* (aggregate)

*Bombus terrestris*

*Bombus hortorum*

*Bombus pratorum*

*Bombus lapidarius*

*Bombus pascuorum*

### Widespread but less common: 2 species

*Bombus jonellus*

*Bombus muscorum*

### New arrival in 2017: 1 species

*Bombus hypnorum*

### Restricted geographic range: 1 species

*Bombus monticola*

### Rare: 3 species

*Bombus distinguendus* **ENDANGERED**

*Bombus sylvarum* **ENDANGERED**

*Bombus ruderarius* **VULNERABLE**



<https://biodiversityireland.ie/surveys/bumblebee-monitoring-scheme/>

# How do you tell true bumblebees from cuckoo species?

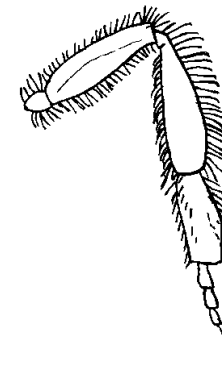
15 true bumblebee species



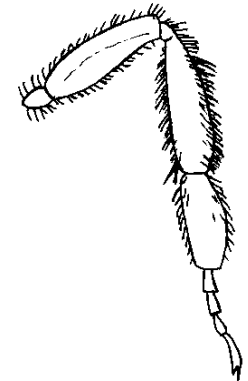
6 cuckoo bumblebee species



You need to look at the hind tibia (leg):



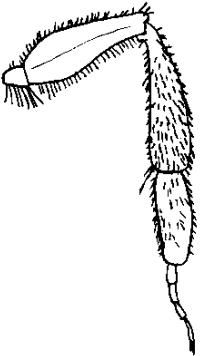
True bumblebee female



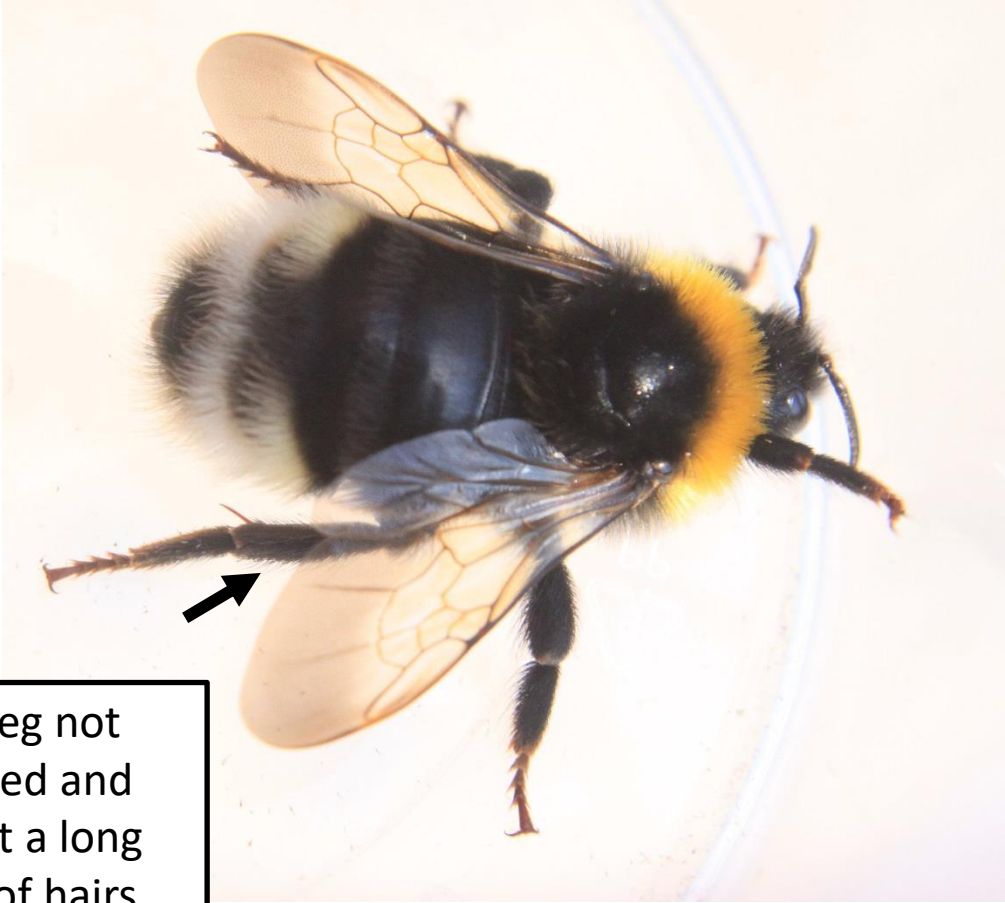
True bumblebee male

True bumblebee females (queen & workers) have a pollen basket on their hind leg where they store collected pollen to bring back to feed the larvae – their hind legs are flattened, shiny, and have a fringe of long hairs.

Cuckoo bumblebees rely on the true host workers to feed their larvae. Their hind leg is not adapted to store pollen. Cuckoo bumblebees have a hind leg that is not flattened or shiny, and is covered in short hairs.



Cuckoo bumblebee



© John Fogarty

Hind leg not flattened and without a long fringe of hairs



# In reality?

Concentrate on learning how to identify the true bumblebees.

With time you'll then start to occasionally notice bumblebees that look "odd".

When that happens, catch them and have look at their hind leg to check if they are a cuckoo species. If they are they can be identified using the swatch identification guide (the 6 cuckoo species are colour coded blue at the back).





# OTHER RESOURCES

Free online course

<https://biodiversityireland.ie/identifying-irish-bumblebees/lesson.html>


## How To Identify and Record Common Irish Bumblebees

# What's That Buzz?

### How to Identify and Record Common Irish Bumblebees



Common carder bee    Buff-tailed bumblebee    Red-tailed bumblebee    White-tailed bumblebee    Early bumblebee    Garden bumblebee



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Search... 

# Bumblebee poster

[https://pollinators.ie/wp-content/uploads/2019/06/SE-29-NBDC-Bee-Poster-2019\\_EMAIL.pdf](https://pollinators.ie/wp-content/uploads/2019/06/SE-29-NBDC-Bee-Poster-2019_EMAIL.pdf)



**Bumblebees of Ireland**

**National Biodiversity Data Centre**  
Documenting Ireland's Wildlife  
[www.biodiversityireland.ie](http://www.biodiversityireland.ie)

Bumblebees are vital pollinators and a key component of Ireland's biodiversity. There are 21 different species.

The National Biodiversity Data Centre is mapping their distribution and tracking how populations are changing. Help by recording your sightings at: [records.biodiversityireland.ie](http://records.biodiversityireland.ie)

[www.pollinators.ie](http://www.pollinators.ie)

 <i>Bombus cryptarum</i> (Cryptic white-tailed bee)	 <i>Bombus distinguendus</i> (Great yellow bumblebee)	 <i>Bombus hortorum</i> (Garden bumblebee)	 <i>Bombus hypnorum</i> (Tree bumblebee)	 <i>Bombus jonellus</i> (Heath bumblebee)	 <i>Bombus lapidarius</i> (Red-tailed bumblebee)
 <i>Bombus lucorum</i> (White-tailed bumblebee)	 <i>Bombus magnus</i> (Mountain white-tailed bee)	 <i>Bombus monticola</i> (Mountain bumblebee)	 <i>Bombus muscorum</i> (Large carder bee)	 <i>Bombus pascuorum</i> (Common carder bee)	 <i>Bombus ruderarius</i> (Red shanked carder bee)
 <i>Bombus rupestris</i> (Red-tailed cuckoo bee)	 <i>Bombus sylvarum</i> (Shrill carder bee)	 <i>Bombus sylvestris</i> (Forest cuckoo bee)	 <i>Bombus terrestris</i> (Buff-tailed bumblebee)	 <i>Bombus vestalis</i> (Southern cuckoo bee)	 <i>Bombus pratorum</i> (Early bumblebee)

All images © Steven Falk

<https://pollinators.ie/record-pollinators/>

The screenshot shows the website's navigation menu with options: Home, Partners, Record Pollinators, Ideas Hub, Newsletters, Latest News, Media, Videos, Resources, and World Bee Day. The 'Record Pollinators' section is expanded, listing various resources such as 'Bees', 'Hoverflies', 'Bumblebee Monitoring Scheme', and 'ID guides'. The 'ID guides' section is further detailed, featuring 'Bumblebee Identification Guides' and 'Solitary bee Identification Guides'. The bumblebee guides include links to free online courses, crash courses, and PDF guides for Irish bumblebees (2015 and 2012), as well as guides for *B. lucorum* and *B. terrestris*, and common bumblebee males. The solitary bee guides include simple guides for Ireland (2016) and Nomada (2013), and a guide for Andrena females (2015). Images of a bumblebee on a flower and a solitary bee on a leaf are also visible.

More resources are available at <http://bumblebeeconservation.org/>

[www.pollinators.ie](http://www.pollinators.ie)

[ufitzpatrick@biodiversityireland.ie](mailto:ufitzpatrick@biodiversityireland.ie)

Please submit your bumblebee sightings online, regardless of how common the species:

<http://records.biodiversityireland.ie/>

Photographs can be emailed for validation before submitting records if you're not sure



Thanks to all those who have submitted  
photographs and agreed for them to be  
used in educational guides