

# DISTINGUISHING BROWN CARDER BEES IN THE FIELD

Queens (large and robust, antennae relatively short)



*B. pascuorum* typical queen (left) and pale queen (right). Rather variable but relatively small and fluffy. The abdomen usually has obvious black hairs and an orange or creamy tail. The chestnut thorax can be darkened centrally. Very pale individuals can lack any obvious black hairs on the abdomen but lack any brown band across tergite 2 and the chestnut thorax pile extends fully to the head and usually the back of the scutellum, unlike *muscorum*. Even pale queens remain relatively small and fluffy.



Typical English queen *B. muscorum* (left) and *B. humilis* queen (right). *Muscorum* queens average larger than *pascuorum* and *humilis* queens, and the body pile is much neater (with a clipped look). The chestnut thorax pile fades into paler hairs behind the head and around the scutellum giving the impression of a pale halo from various angles. A faint yellow band can be present across tergite 2. Queens of *humilis* resembles *pascuorum* in size and fluffiness but have a brown band across tergite 2 (similar in tone to the top of the thorax) and the white sides of the thorax tend to contrast more conspicuously with the chestnut top. Scattered black hairs can be present above the wing bases but the thorax is never darkened centrally as in some *B. pascuorum*.

Workers (resemble small queens, antennae also relatively short, often with a pollen load on hind legs)

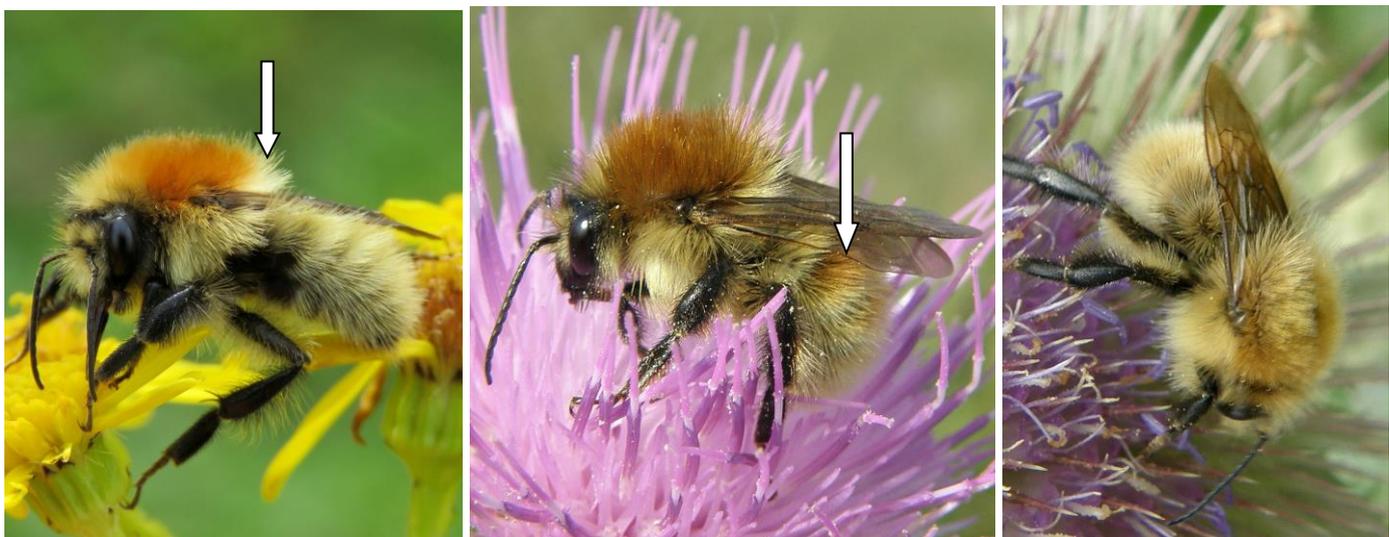


The abdomen of worker *B. pascuorum* (left) usually has some obvious black hairs but occasionally appears entirely pale-haired. Worker *B. muscorum* (centre) has a uniformly pale abdomen but the chestnut of the thorax grades to pale hairs behind and in front like the queen. This creates the impression of a uniformly pale yellow-buff bee with a chestnut patch on top of the thorax. Worker *B. humilis* (right) has a distinct brown band across tergite 2. The chestnut thorax pile extends fully to the head and scutellum fringe, and contrasts strongly with the white haired sides. Ageing and fading can make separation of *B. humilis*, *B. muscorum* and pale *B. pascuorum* more difficult and eventually impossible in some cases.

**Males (worker-sized or slightly larger, more elongate, antennae much longer, never carry a pollen load)**



Males of *B. pascuorum* (above) are incredibly variable, though the top left image is most typical. The abdomen usually has some obvious black hairs and often an orange tail. Very pale individuals (top right) can resemble *muscorum* and *humilis* males though tergite 2 never has a brown band and the chestnut thorax pile extends fully to the head and the scutellum fringe.



Fresh males of *B. muscorum* (left) tend to be uniformly pale cream or creamy-yellow coloured except for a round chestnut patch on top of the thorax, which fades into paler hairs behind the head and around the scutellum that give the impression of a pale halo from various angles. Fresh males of *humilis* have a distinct brown band across tergite 2. The chestnut thorax pile extends fully to the head and contrasts strongly with the white haired sides. Old faded individuals of *B. muscorum* (right), *B. humilis* and pale *B. pascuorum* can be almost impossible to distinguish in the field necessitating checking of the genitalia and antennal segments.