Hymettus

Bombus ruderarius (Müller, 1776): Current knowledge of its autecology and reasons for decline

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2008

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Cover photograph:
Bombus ruderarius queen by Ted Benton

Summary

- There is some uncertainty in interpreting distribution maps, especially for earlier periods, due to the difficulties encountered by many observers in confidently identifying individuals of this species (especially the worker caste) in the field. However, there is little doubt that *Bombus ruderarius* is a rapidly declining species both in the UK and in large parts of central, western and northern Europe. Formerly it was widespread in the UK, but with a strong bias toward the south-east.

- In the UK and elsewhere in Europe, the bee is found in a wide range of habitats: open, flower-rich (especially calcareous) grasslands, coastal dunes, wetlands, grazing marshes and sea-defences, less intensively managed farmland, and urban/ suburban brown-field sites, ruderal habitats and gardens. Toward the southern edge of its range in Europe it may sometimes be common in a variety of grassland and forest-edge habitats in mountains.

- Nesting habitat is generally in tall, tussocky grassland, often close to scrub or woodland edge. The nest is usually on the surface or just below, made of grass-clippings and mosses, and often founded on an old mouse or vole nest.

- Nests are small in size, and it seems likely that at maturity the number of workers is small compared with many other UK species (possibly 20-50 individuals).

- Queens emerge from hibernation a little later than species such as *B. terrestris, B. pratorum*, and *B. pascuorum* (though some authors say it flies earlier than *pascuorum*), in early April (somewhat later in 'late' localities), but earlier than the other scarce 'carder' bumblebees (*B. sylvarum, B. muscorum, B. ruderarius*). The colony cycle is short, with males and young queens emerging from early July onwards.

- There is some evidence that *ruderarius* is especially generalist in its use of forage sources (Iserbyt, Durieux & Rasmont's (2008) study supports the conclusions of Goulson *et al.* (2005) in this respect). However, most data sets so far do not discriminate between nectar and pollen collection. Such evidence as is available suggests a strong reliance on a range of species in the families Scrophulariaceae, Fabaceae, and Lamiaceae for pollen. *B. ruderarius* is usually classified as a medium tongue-length species.

- With a small number of exceptions, *B. ruderarius* appears to be one of the scarcest species of bumblebees wherever it occurs in the UK. The known exceptions are sand-dune habitats at Shoreham in the early 1980s, and on the machair at Tiree. In southern Europe, it is one of the commonest species in the rich bumblebee community of the Pyrennean Eyne valley. However, in other bumblebee communities studied in mainland Europe, *B. ruderarius* is generally among the least abundant and more localised species.

- Little is known about the vulnerability of *B. ruderarius* to predators and parasites, though Sladen (1912) noted its vulnerability to wax-moth infestations.

- The species has a wide geographical distribution from north to south in Europe, and this may also reflect a wide climatic range, given its presence through an upper altitudinal range of more than 1200m in the Pyrenees (sites below 1480m were not studied).

Contents

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