



Figure 13.7 Showing bee a pollinator on orchid flower

for suitable egg-laying sites. In return for the favour of pollination the fig offers the wasp some of its developing seeds, as food for the developing wasp larvae.

Orchids show a bewildering diversity of floral patterns many of which have evolved to attract the right pollinator insect (bees and bumblebees) and ensure guaranteed pollination by it (Figure 13.7). Not all orchids offer rewards. The Mediterranean orchid *Ophrys* employs 'sexual deceit' to get pollination done by a species of bee. One petal of its flower bears an uncanny resemblance to the female of the bee in size, colour and markings. The male bee is attracted to what it perceives as a female, 'pseudocopulates' with the flower, and during that process is dusted with pollen from the flower. When this same bee 'pseudocopulates' with another flower, it transfers pollen to it and thus, pollinates the flower. Here you can see how co-evolution operates. If the female bee's colour patterns change even

slightly for any reason during evolution, pollination success will be reduced unless the orchid flower co-evolves to maintain the resemblance of its petal to the female bee.

SUMMARY

As a branch of biology, Ecology is the study of the relationships of living organisms with the abiotic (physico-chemical factors) and biotic components (other species) of their environment. It is concerned with four levels of biological organisation—organisms, populations, communities and biomes.

Temperature, light, water and soil are the most important physical factors of the environment to which the organisms are adapted in various ways. Maintenance of a constant internal environment (*homeostasis*) by the organisms contributes to optimal performance, but only some organisms (regulators) are capable of homeostasis in the face of changing external environment. Others either partially regulate their internal environment or simply conform. A few other species have evolved adaptations to avoid unfavourable conditions in space (migration) or in time (aestivation, hibernation, and diapause).

Evolutionary changes through natural selection take place at the population level and hence, population ecology is an important area of ecology. A population is a group of individuals of a given species sharing or competing for similar resources in a defined geographical area. Populations have attributes that individual organisms do not—birth rates and death rates, sex ratio and age