



## Bees – the wild relatives

### The community of pollinators: More than honeybees

**It is not unusual that species which indeed belong to the family of flies or even butterflies actually are considered bees. Only experts can distinguish a hoverfly or a clearwing moth for example from a bee without fail. Some identifying features of the bee help against the likelihood of confusion. At any case, these interesting insects deserve a closer look.**

#### Not all bees are alike

Bees have six legs. With two pairs of transparent wings which are nerved by a few blood vessels, they belong to the family of Hymenoptera. As wasps and ants, they belong to the taxon aculeates. Females have a stinger which has emanated from the egg depositor. Other than wasps and ants, only bees depend on pollen and nectar as source of food, and this is true for larvae as well as adult bees. With their honey stomach and collection apparatus (brush-, comb- and basket-like hairs), the body composition of bees is adapted to this food source. Some parasitic wild bees, which use the stored food of other bees as own source of food, do not need a collecting apparatus which therefore is degenerated. In Germany, there are almost 600 different bee species, only one of them being the honeybee *Apis mellifera*.

The “other bees” – the scientific taxonomy shall remain with the experts – are divided in bumblebees and solitary bees in the German language use. The somewhat bulkier bumblebees, which are covered by dense hair, live in colonies which only last one year. After copulation, females overwinter and set up a new colony the next spring.

As honeybees, also bumblebees belong to the species which produce honey. They install small circular cells, the “honey-cells”, as storage – which do not contain more than a thimble, though – hence hardly being of interest for beekeepers.



Bumblebees live in colonies which only last a year

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Solitary bees are usually more slender and forbear from living in a community, but some species prefer colonies of up to 100 individuals or more and live together tightly. Some species have such a co-operation that several females at least take care of the brood together. There are, however, no perennial colonies with a distinct division of labour! This is solely a feature of the honeybee. “Taking care of the brood” with solitary bees usually means: A female sets up several brood cells in a tube-like structure and supplies them with a pollen reserve and one egg each. The hatching larva then feeds on the pollen and pupates in the cell. The next generation will emerge from the cocoons as adults the following year.

## Where wild bees live

Varroa and other diseases of the honeybee are no problem for wild bee species. Equally, wild bees are not affected by the lack of a new generation of beekeepers. And yet, many wild bee species have become rare in the cultural landscapes of Germany. Essential reasons are:

- Lack of suitable habitats
- Lack of suitable melliferous plants
- Low rates of reproduction

Their styles of housing are as diverse as are the bee species themselves. Abandoned mouse holes, crevices between stones or gaps in stacks of wood are popular places for the nests of bumblebees. Solitary bees rather prefer areas without vegetation such as slopes along waysides, defiles, or piles of field stones in between fields. Many species move into holes drilled in dead wood by other insects. Hollow stalks of plants equally offer important habitats. Whether deadwood, overwintering coppice, slopes and waysides without vegetation or piles of field stones – such habitats usually do not appear attractive for humans; they are even considered “messy” at times. For wild bees, however, these habitats are essential places for their survival.

## Food á la carte

Whereas honeybees almost take advantage of the flowering period all year long, flying activities of solitary bees tend to be markedly shorter, and at times even are restricted to a few weeks per year. During that period of time, the right melliferous plants must be in the right places. Many wild bee species only collect pollen and nectar from a very limited spectre of plants. This selectivity can be far reaching: Some species of solitary bees just visit a few plant species, whereas others are food specialists such as the sand bee *Andrena florum*, which exclusively collects pollen and nectar from the blossoms of bryonia.

## Combined habitats are important

As the flight radius of wild bee species usually averages some hundred metres only – and hence is considerably smaller than the flight radius of the honeybee – wild bees need “combined habitats”, i.e. breeding and feeding areas in close proximity and continuity over time.



„Hotel“ for wild bee species over winter

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Small scale agricultural landscapes with flower rich pastures, areas without vegetation, areas with a low soil nutrient status and diverse structural elements were features of traditional and historical land use patterns and beneficial for wild bees. The question is how wild bee species can also be promoted and enhanced nowadays and under the different conditions of modern agricultural practices. Areas with set-aside, unused waysides and field margins, some green municipal areas or “wild bee hotels”, set up deliberately, all these measures can have positive effects on wild bees if managed according to their needs.

The community of pollinators, which ensures the pollination of wild plants as well as agricultural and horticultural crops, is surely more than “just the honeybee”. The wild relatives play an important role which may not be underestimated.