

## Honeybees and pollination of European orchids

Bertrand Schatz

European orchids are all terrestrial, and most of them are entomogamous and nectarless. They display various strategies to attract different kinds of insects. Honeybee (*Apis mellifera*) is one of the most frequent pollinators of orchids. Countless detailed observations performed by several orchidologists throughout the different regions of France have contributed to define a “honeybee-pollination syndrome” for orchids based on the following features: rewarding nectar species, nectar present in the labellum or within short spur, relatively large flowers, and purple or white color flowered. Honeybees have been reported as regular pollinators for 15 orchid species and as occasional pollinators for 18 other orchid species among the 170 French orchid species.

In the orchid family, pollen is all merged in pollinia, which glue onto the insect body during its visits. Hybridization may then occur if pollinia that were incidentally taken away by the insect from one orchid species, is deposited on another one. A major specificity of orchids is that hybridization is not only possible between species within the same genus; it sometimes occurs between distinct genera. In the Mediterranean region, when transhumant hives are placed in ‘blooming’ sites, hybridization is attested among the neighboring orchids immediately after the very first explorations by the newly settled bee foragers. Higher recorded rates of hybridization among orchids were recorded within a 30 m distance to transhumant hives than in more remote distances (100 m and 200 m respectively). Accordingly, maintaining a fairly long distance between transhumant hive settlements and spots of high density of orchids would greatly contribute to the conservation of these remarkable plants.