

Pattersons Page

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Although our country is quite small, the climatic and forage conditions vary considerably, meaning that bees need to adapt to suit the conditions they live in. It is generally accepted that honey bees followed the retreating ice into Britain after the last ice age, until the closing of the channel land bridge, after which they evolved in isolation for around 8,000 years. They survived successfully under varying conditions that included changes in land use by assarting (woodland clearance) and farming. There were quite wide variations in the climate too, including the 'Medieval Warm Period' and the 'Little Ice Age', the latter lasting several hundred years, until the mid 19th century. These climatic events are subject to varied opinions among the experts; all agree there were warmer and colder periods, but there is disagreement on temperatures and dates.

Intensive farming in fairly modern times has affected managed bees, one example being the introduction of oil seed rape (OSR) to Britain as a major crop in the 1970s. Beekeepers have often had to deal with widely varying amounts of forage and their timing from one year to the next. Farmers will grow whatever gives them a profit and this may favour huge acreages of OSR one year, meaning colony build-up needs to be early, followed by little or none the next year when for optimal colony performance its build-up should be later. As well as different colony management we also need adaptable bees to deal with these rapid changes.

“ This fluctuating environment is created by man, but we are dealing with insects that have evolved to suit natural situations to which they would not normally need to respond so quickly or variably. ”

Worldwide there are around 20,000 known species of bees of which the Western honey bee, *Apis mellifera*, constitutes just one. The *Apis* ancestor of *A. mellifera* found its way to Africa from where its offspring spread in several directions before becoming isolated by distance and natural barriers such as desert, mountains, water and ice, and further evolved into more than twenty different recognised sub-species (or races).

Let us look at three common sub-

species of the Western honey bee and see how they may have evolved to suit the conditions in which they have found themselves.

Italians — *Apis mellifera ligustica* (*A.m.l*) evolved in the Mediterranean region where the climate is predictable with long, warm summers and short winters. This climate suits a very prolific bee that builds into huge colonies. As winters are short and still fairly warm, the queens probably lay throughout the year. It has been stated that Italians need 2½ times the amount of food to sustain a colony during the year than *A.m.m* does and from my own observations I would not disagree with that. Queens are short-lived, probably because of the large number of eggs they lay. It is said that Italians are unable to retain as much waste material in their bodies in winter as other races, probably because they would normally have more opportunities for cleansing flights. This may be the reason why they are particularly susceptible to nosema. They are light coloured, presumably to help reflect excessive heat from the Mediterranean sun.

Carniolans — *Apis mellifera carnica* (*A.m.c*) originated in a fairly small mountainous region in Eastern Europe where the winters are long and cold and the summers short and warm. This is very different from *A.m.l*, although I am told the two are closely related. Carniolans winter in small clusters, but build up rapidly in the spring to take advantage of the short foraging season. Even in countries where they are the bee of choice they have the reputation of being very swarmy, presumably as a counter to fairly heavy winter losses. Serious users of carniolans tell me they consume half the amount of stores during the winter compared to Italians.

Dark North European Honey Bee — *Apis mellifera mellifera* (*A.m.m*) cover a huge natural range north of the Alps, from the Atlantic seaboard to the Urals and as far north as bees will survive; as one account states, '... where the rivers are frozen for six months'. Winters throughout their home territories are typically cold or damp, summers can be unpredictable, varying from cool to warm. This produced a bee that is very adaptable, less prolific and frugal. *A.m.m* winters in tight clusters with

queens going off lay for several weeks. It is said their workers are longer-lived than those of other races, Italians in particular. Their bodies are dark, presumably to absorb warmth and insulated by the longest body hair of all the sub-species. *A.m.m* appear to be the only race capable of apiary vicinity mating, which happens when the weather is too cool for drone assemblies to form.

“ COLOSS study conducted at sixteen locations throughout Europe showed that at every location, survival of the local indigenous bee was superior to that of all others. This is confirmation of what bees have evolved and striven towards for so long. ”

Stock that is imported into an area that does not suit them often needs more care and attention than those that are better suited. They soon show their weaknesses and need 'mollycoddling'; that has unfortunately become part of modern beekeeping. Natural selection would probably quickly deal with them, but they are kept alive by what is effectively life support. There is no doubt in my mind that bees today are not as tough as the bees were when I started beekeeping, which I believe is partly because of continued imports and treating for disease without replacing queens that head diseased colonies.

Even though there may be few pure native bees left in some areas of Britain, it is possible to derive bees with most of the characteristics of natives, by culling and simple selective breeding of the mongrels that many beekeepers have. It is often said that mongrels cannot be improved, but they can and many people throughout the country are successfully doing so.

The recording of the qualities you want in your bees will help in selecting the colonies from which to choose queen cells or in selecting which queens to keep when uniting. Producing queens from locally adapted colonies is a very simple matter that is often seen as being complicated, but it can often be an extension of what is already being done.

Why do we need to import queens that have not naturally evolved to live here when with a little effort we can produce our own? 