Honey bee populations show differences in morphological, behavioural and population biology characters as a result of historical patterns of population isolation and adaptation to the extensive habitat variation found in its natural distribution range (Ruttner 1988, 1992).

Ruttner (1988) developed and introduced the concept of “branches”, or evolutionary lineages, within *Apis mellifera*, based on statistical analyses of morphometric data samples from different subspecies grouped together according to their geographic origins. Based on morphometric analysis results, *A. mellifera* subspecies can therefore be grouped into four well-differentiated lineages: a west Mediterranean and northwest European lineage M (*mellifera* and *iberiensis*, but originally also including *intermissa, sahariensis, siciliana, ruttenri*) that were considered as links between the tropical African and the west Mediterranean subspecies), lineage C from southeastern Europe and the eastern Mediterranean (*ligustica, carnica, macedonica, cecropia, cypria, adami*), lineage O in the Near East and western Asia (*caucasica, anatoliaca, syriaca, meda, armeniaca, jemenitica, (pomonella)*) and lineage A (*lamarckii, andersonii, scutellata, monticola, litorea, capensis, unicolor, simensis*) from the African continent (De la Rúa et al., 2009, Fig. 1).

Figure 1. Approximate natural distribution of the *Apis mellifera* evolutionary lineages and subspecies in Europe (from De la Rúa et al., 2009).
The subspecies with the largest natural area of distribution is *A. m. mellifera* (Fig. 2), the common European "black bee", which extends from France to Scandinavia and from the British Isles, where it has been present for at least the last 4000 years (Carreck, 2008), to Poland and Ukraine, and where it readily hybridises with subspecies of the C and O morphological branches (Meixner et al., 2007). Nowadays, this subspecies also hybridises with neighbouring subspecies, such as *A. m. ligustica* from Italy and *A. m. carnica* from Balkan countries, in their natural contact zones, but also through human mediated introductions by professional and amateur beekeepers.

The Iberian honey bee *A. m. iberiensis* (Fig. 3) is distributed in Spain, Portugal and the Balearic Islands (Radloff et al., 2001). This subspecies differs from the black bee in certain characteristics (Ruttner, 1988), probably because of the geographic barrier of the Pyrenees (Miguel et al., 2007).

The natural distribution of the Italian honey bee *A. m. ligustica* (Fig. 4) or "yellow bee" is the Italian Peninsula, as it is confined by the Alps to the North and the Mediterranean Sea southwards. The Italian yellow bee is the favourite species of many beekeepers worldwide because of its adaptability to a wide range of climatic conditions, its ability to store large quantities of honey without swarming, and its docility. *A. m. siciliana* is the local bee on Sicily (Fig. 5).
The “Carniolan bee” *A. m. carnica* is distributed across central-eastern European countries such as Austria, Slovenia, Croatia, Bosnia-Herzegovina, Albania, Serbia, Hungary and Romania. Local morphometric varieties within this subspecies, resembling ecotypes, have been described according to zoogeographic zones: Alpine, Pannonic and Pontic, from west to east (Ruttner, 1988). It is favoured among beekeepers for several reasons, not the least important of them being its ability to successfully defend itself against insect pests, while at the same time being extremely gentle in its behaviour toward beekeepers. *A. m. carnica* is often described as the grey honey bee. Its hairs are brownish-grey and short, giving it an overall grey perception.

*A. m. macedonica* extends across the southeastern part of the Balkan Peninsula, from Albania, Greece, to some regions of the former Yugoslavia and to Bulgaria, but reaching as far as Ukraine and southern Poland in the northeast (Ruttner, 1988). This subspecies is characterised by its calmness and resistance to *Acarapis woodi* (Hatjina et al., 2004). *A. m. cecropia* is distributed mainly to Central Greece (Ruttner, 1988).

Mediterranean islands are basically characterised by mild, rainy winters and hot, dry summers. But isolation has led to at least four of them harbouring their own honey bee subspecies: *A. m. siciliana* on Sicily, *A. m. ruttneri* on Malta (Sheppard et al., 1997), *A. m. cypria* on Cyprus, and *A. m. adami* on Crete (Ruttner, 1988). In 1988, Ruttner also concluded that *A. m. caucasica* occurs on the eastern Black Sea coast.

Natural populations of honey bees have been severely affected by the activities of humans. Non-native subspecies have been widely introduced to many areas of Europe, and managed colonies have often interbred with native bees, causing a loss of unique genetic diversity in local populations.

References are available on the following website: https://beebooks.si/en/.

Figure 6. *A. m. carnica* (photo: Peter Kozmus, Slovenia)