

Position of Institute for Bee Research Hohen Neuendorf e.V. to *Apis mellifera carpatica*

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For BeeBreed, *Apis mellifera carpatica* denotes the bee populations which are in Romania and Moldavia protected by law under this name. By this we do not imply any statement whether *A.m.carpatica* is a valid subspecies name by means of the International Code on Zoological Nomenclature.

In general, BeeBreed follows the subspecies definitions by Engel [3] which considers *A.m. carpatica* as a junior synonym of *A.m.carnica*. Engel follows Rüttner which does not mention *A.m. carpatica*, and describes the bees of the Carpathian area as either *A.m. carnica* and *A. m. macedonica* [13]. However, for the status as a subspecies there is no consensus among scientists, as *A. m. carpatica* is used as subspecies name in scientific studies to this day [12]. With the focus on preserving locally adapted bees, they are treated as a separate breeding population in BeeBreed and called *A. m. carpatica*.

Since 1965, bees of the Carpathian area have been described and called *A.m.carpatica* [1,2]. Current studies of the population of honeybees in Romania and Moldova show morphometric [4] and genomic diversity [5,6] with distinctive ecotypes [7] and a unique pattern of adaptation to temperature between *A. m. carnica* and *A. m. macedonica* [8]. As the breeding population in Romania, Moldova, and Ukraine is relatively separated from other countries with *A.m. carnica* and *A. m. macedonica* bees due to protection laws, it may be considered as a subspecies, although, to our knowledge, there is no publication which constitutes *A. m. carpatica* as a subspecies distinct from *A. m. carnica* and *A. m. macedonica*. In any case, all mentioned honeybee populations above are morphologically very similar [13]. They are clearly distinguished morphologically to bees from other groups as *A. m. caucasica*, *A. m. mellifera*, or *A.m. ligustica* [13].

A. m. carpathica is the brand name of the breeding line of Mukachevo Purebred Bee Nursery, Ukraine [11], synonymously also called *A. m. carpatica* [12]. This line can be distinguished by genomic markers from *A. m. carnica* found in Russia [12]. The relation of this breeding line to the populations in Romania and Moldavia have, to our knowledge, not been analyzed so far.

The name *A.m.carpatica* has also been used as brand name for breeding lines of *A.m.carnica* bees in Ukraine, also widely used in Russia, which are not meant here. In this context, *Apis mellifera carpatica* is mentioned as a derivative of *A. m. carnica* [9], or as an abbreviation for *Apis mellifera carnica var. ukrainica carpatica* [10].

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