

chloritization. The breccia body was produced by a Laramide igneous body intrusion, highly affected by argillic alteration. The massive and disseminated sulfide ore has the same genesis as the sulphide ore deposits of the Tulghes Group, Eastern Carpathians.

Late Holocene vegetation history and human impact in Beles (Belasitza) mountain

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The palynological information from three peat-bogs in Beles (Belasitza) mountain located on the Greek-Bulgarian border allowed the reconstruction of the vegetation history and human impact during the late Holocene. One of the two peat-bogs, situated on the northern slope, has started its development ca. 2200-2000 years ago. By that time above the *Fagus* belt were growing groups of *Pinus* (most probably *Pinus sylvestris*). At lower altitudes the vegetation cover was composed of *Quercus* forests with *Carpinus orientalis*, *Ostrya carpinifolia*, partly *Tilia* and *Ulmus*. The distribution of *Castanea sativa* (sweet-chestnut) was still limited. The herb vegetation occupied open areas and among the great variety of species the presence of *Rumex*, *Plantago lanceolata*, *Scleranthus*, Cichoriaceae, Brassicaceae indicates human activity deserved attention. The most substantial change in the forest cover took place before 1760 cal. yrs. BP (III cent. AD). The sharp decrease in the total quantity of tree pollen testified to a short-term profound interference of Man which resulted in the destruction of *Fagus* communities thus causing lowering of the upper tree-line. Conifers were replaced by shrub lands of *Juniperus* and diverse herbs, mostly grasses. The increase in the presence of *Castanea* pollen appeared synchronous with that of *Platanus* and *Juglans*. Most likely, since historical time the formation of the recent belt of *Castanea sativa* has started on the northern foothills of the mountain. The relatively young age of the peat-bogs does not provide a definite answer about the natural or anthropogenic origin of sweet-chestnut forests. The find of cereal pollen from *Triticum*-type and *Secale* confirmed the cultivation of wheat and rye. The palynological information for the last centuries indicated a reduction of the areas formerly occupied by *Fagus*, an enlargement in the presence of *Juniperus*, at lower altitudes of *Carpinus orientalis/Ostrya carpinifolia* and partly *Quercus*. The core Beles from the southern slope of the mountain covers a relatively short period starting roughly at ca. 1350 AD. *Pinus* forests dominated up to the mid-XVI cent. AD but then were gradually restricted to their present-day limited occurrence. On the contrary, *Fagus* forests began their expansion by the end of phase B-a. Two sharp peaks in the expansion of beech, a large one by the end of XVII cent. AD, followed by a smaller one around the mid-XIX cent. AD, can be observed in the pollen diagram. These events reflected the existence of favorable climatic conditions, prevailing during these periods, and were also recorded in other mountainous areas of central and northern Greece (Pertouli, Voras, Paiko, Lailias, Rhodopes). Throughout the diagram, the impact of Man on the vegetation is clearly manifested. It started as stock-breeding (low *Cerealia* pollen values compared to *Plantago lanceolata*-type) at mid-altitudes and expanded to agriculture around the beginning of the Turkish occupation as shown by the pollen curves of *Cerealia*, *Rumex*, Chenopodiaceae, *Artemisia*, *Juglans*, *Castanea* and *Vitis*. After a recession which lasted from the end of XVII cent. AD up to the mid-XIX cent. AD, human impact was manifested as deforestation that took place in all vegetation zones of the mountain and the free areas were colonized mainly by grasses.