

The Late Oligocene-Early Miocene Petrified Forest in Evros and its paleoclimatic significance

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Closely related to the development of post alpine back-basin, in Evros a significant Cenozoic calc-alkaline, high-K calc-alkaline to shoshonitic magmatic activity has manifested as plutonic-subvolcanic (monzonites, monzodiorites, granodiorites, microgranite porphyries) and volcanic rocks (banakites, trachytes, andesites, dacites, rhyolites accompanied by volcano-sedimentary formations (composed of marls, sandstones, clays and intercalations of volcanic rocks as lavas, tuffs, pyroclastics) discordantly covering the basement rocks of the Rhodope massif and Circum Rhodope Belt. New K/Ar ages of volcanic rocks in this area range from 33.5 to 19.6 Ma, establishing an Oligocene and a Lower Miocene period of magmatic activity. The lower series starts with a basal-clastic formation, composed of conglomerates and sandstones which continues a Priabonian clay-marl formation including marls alternated with sandstones and conglomerates and intercalations of lignitic horizons at the upper levels, associated with some andesitic lavas and overlaid by pyroclastics and lavas of dacitic to rhyolitic composition with intercalated sediments of Lower-Upper Oligocene age. The volcanics include pyroclastic flows, air fall deposits, as well as lava flows and domes. The stack continues with Upper Oligocene shallow marine sediments dominated by sandstones, marls and conglomerates (Provatonas series) discordantly covering the volcanics. The area is also dominated by ignimbrites of several meters thickness. A lot of vegetal remains especially as petrified woods have been preserved by the volcano-sedimentary rocks and in Evros there are several occurrences known, east of Alexandroupolis, around Trifili, Fylakto and Lefkimi and north of Alexandroupolis, around Aetochori and Sappes. Hundreds of samples have been studied and tens of arboreal taxa defining the Oligocene Forests covering the region have been identified. Published papers showed the presence of two types of evergreen oaks – *Lithocarpoxyton helladae* PETRESCU, VELITZELOS & STAVROPODIS, 1980 and *Quercoxyton intermedius* PETRESCU & VELITZELOS, 1981 – with, probably, a similar type of leaf described as *Eotrigonobalanus furcinervis* (ROSSM.) WALTHER & KVACEK. Another associated fossil vegetative plant parts found in this region represents Pinaceae, Cupressaceae, Lauraceae, Betulaceae (*Alnus* sp.), and Palmae. A number of 20 samples of oak fossil wood from this region have been studied by Selmeier and have been attributed to *Quercoxyton* genus of evergreen type and with this occasion it seems that the authors no more agree *Lithocarpoxyton* as valid genus. As a preliminary results we found a number of 28 taxa of conifers and angiosperms in which the cupressaceae (*Cupressus*, *Tetraclinis*, Taxodiaceae) are prevalent and also Fagaceae (*Quercus*, *Lithocarpus*) and Juglandaceae (*Carya*). The list of new identified vegetal fossil taxa in Evros define a Mixed Mesophytic Forest of warm temperate climate of Mediterranean type, proved especially by the presence of Palms, even if only locally, for Late Paleogene-Earliest Miocene.