

**Fluctuations in the altitudinal belts of Western Georgia and black sea level changing -
Quaternary history of the vegetation cover of Western Georgia**

(Abstract)

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The variability of the physiographic conditions, as well as the location of the phyto-landscapes of different genesis, has a great influence on the richness and diversity of the vegetation cover of Georgia. Due to the terrain and complex configuration of the ridges in Georgia, the geographical and ecological isolation of ecosystems was determined. This will explain the high level of local endemism.

Together with species and taxonomic riches, the history of Georgia's flora is very complex. This is very scant data on the vegetation of the islands of Japetithe and Tethys water bodies, which existed on the territory of modern Georgia. The Eocene flora of these islands is very different from the modern one. Currently, it is most similar to the Indian-Australian tropical flora with its evergreen trees, tree-like ferns, palm trees, and so on.

Changing topography and vegetation over the past ten million years has been a rather complicated process. Gradually wave-like cooling processes led to the destruction of species of tropical (in the modern sense) flora. The foothills and the lower part of the Pliocene mountains were occupied by subtropical forests with the first tier of mainly deciduous species. Much higher we had temperate forests, where many modern plant species grew.

At the very beginning of the Pliocene, in the terrestrial part of which Western Georgia and some neighboring territories are now located, much more ancient mesophilous species of the Colchian refugium forest flora arose; the origin of which contributed to the location of the ridges being that it ensured a relatively warm and humid climate in the Colchis region. Colchis refugium has a great importance for the

preservation of relict species for the Pliocene and especially for the Quaternary period (including in the glaciation era). The sanctuary was found here by species that were destroyed hundreds and thousands of millions of years ago in the rest of Eurasia. Currently in Colchis there are species such as *Betula medwedewii*, *Quercus pontica*, *Rhamnus imeretina*, *Hedera colchica*, *Pterocarya*, *Vaccinium*, *Rhododendron ponticum* and many others. Systematically and ecologically relative plants of them currently grow mainly in East and South Asia, in Appalachia and partly in the Atlantic, in the Azores. For example, the genus *Epigaea*, of which only three species are currently known: one grows in Japan, the second in North America, and the third one in Western Georgia and neighboring northeastern Turkey.

Despite the fact that in Georgia (especially in Colchis) we have many relics of the old, pre-glacial species, the flora has changed significantly over the Quaternary. Most of the heat-loving ones have been eliminated, and the role of relatively boreal elements has increased drastically. In the mountains, altitudinal belts were forced to descend. The invasion of boreal vegetation elements has intensified in Georgia and its neighboring countries. In addition to the influence of neighboring floristic centers (mainly the eastern Mediterranean and western Asia), indigenous (in the ecological sense) processes played an important role in shaping the flora of Georgia, which led to the emergence of many endemic, (including narrow endemic) species.

Human origin brought new significant changes to the vegetation cover of Georgia. The area of forests and semi-arid foothills has decreased significantly. Now we have meadows there, where once we have had forests. The flora is enriched with both introduction and invasive species (in the latter case, mainly weeds).

Against the background of the above, the present seminar is an attempt to restore the vegetation cover of Western Georgia from the Late Pliocene to today with its two most important aspects: Quaternary changing of the Black Sea level and generalizing the overview of fluctuations in the altitudinal belts of Western Georgia.