

Petrified Forest of Lesvos Island

Engineering geological conditions and problem:

The area enclosed by the villages of Eressos, Antissa and Sigri, exposes large accumulations of fossilised tree trunks comprising the Petrified forest of Lesvos. Isolated plant-fossils have been found in many other places of the island, including the villages Molyvos, Polichnitos, Plomari and Akraasi. The formation of the petrified forest is directly related to the intense volcanic activity in Lesvos island during late Oligocene - middle Miocene. The volcanic eruptions during this time, produced lavas, pyroclastic materials and volcanic ash, which covered the vegetation of the area. The rapid covering of tree trunks, branches, and leaves led to isolation from atmospheric conditions. Along with the volcanic activity, hot solutions of silicon dioxide penetrated and impregnated the volcanic materials that covered the tree trunks. Thus the major fossilisation process started with a molecule by molecule replacement of organic plant by inorganic materials. In the case of the Petrified forest of Lesvos, the fossilisation was perfect due to favourable fossilisation conditions. Therefore morphological characteristics of the tree trunks such as the annual rings, bark, as well as the internal structure of the wood, are all preserved in excellent condition.

All of the genera and species determined, belong to higher plant groups: *Angiospermae* and *Gymnospermae*.

Protection measures already have been taken or have to be taken:

In order to protect the Petrified forest and ensure its proper management, five terrestrial and marine areas with fossil accumulations, as well as all the isolated fossils were declared as Protected Natural Monument with a special Presidential Decree (443 /1985).

The need for further research and protection of the fossils led to the establishment of the Natural History Museum of Lesvos' Petrified Forest in 1994.

Other information:

The recently established Natural History Museum of Lesvos' Petrified Forest, therefore, has the potential to be a centre for palaeontological and other scientific research. Further research in the Petrified Forest will provide new data concerning the stratigraphy, palaeoecology, palaeoclimatology, and palaeogeography of the Southeast Mediterranean area, at the Cross-roads of Europe and Asia

In addition the Museum will organize special environmental education programs in order to cultivate a widespread sense of respect to the Earth's Heritage and the Natural monuments, among young students.

References on studies already performed:

- VELITZELOS, E.(1988). The petrified forest of Lesvos. *Mosion, Magasin Olympic Airways*, February 88, pp. 60-73.
- VELITZELOS, E. (1993). Neue palaofloristische Daten zu kanophytischen Floren Griechenlands. *Doc. nat.*, 78, pp. 1-17.
- ZOUROS, N., VELITZELOS, E. & SERAIDIS, P. (2001). Petrified forest of Lesvos. New findings of the palaeoflora strengthen the uniqueness and worldwide character of the monument. *3rd Int. Symp. «Natural Monuments and Protected Areas Management (1998)», UNESCO, Lesvos Isl.* pp. 34-48.



Taxodioxylon gypasaceum