PARCO NAZIONALE DI PARNASSOS GRECIA

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Parnassos National Park Management Body

Was established in 2002, It is a private legal entity supervised by the Ministry of Environment and Energy, governed by an 11-member board, (composed of representatives from ministries, agencies, local authorities, NGOs and by experts).

The Management Body is responsible for the preservation, protection and management of Protected Areas which are included in “Natura 2000” ecological network at Parnassos Mt, Giona Mt, Vardousia Mt. (Law 4519/2018).
On Mt. Parnassos there has been institutionalized 2 areas in European Ecological Network “NATURA 2000”:

- The SPA (Special Protected Area), according EU Birds Directive the largest part (2009/147), “Oros Parnassos” GR 2410002, area 34.400,51 ha
- The SAC (Special Area of Conservation), according the EU Habitats Directive (92/43/EEC), “Notioanatolikos Parnassos-Ethnikos Drymos Parnassou-Dasos Tithoreas-Spilaiovarathro” GR 2450005 area 18.626,65 ha
Eastern side of Parnassos Mt.
On Mt. Gkiona there are the according Protected Areas

- The SPA (Special Protected Area), according EU Birds Directive (2009/147), “Koryfes Orous Gkiona, Charadra Reka, Lazorema & Vathia Lakka” GR 2450007, area 10.561,50, ha

- The SAC (Special Area of Conservation), according the EU Habitats Directive (92/43/EEC), “Oros Gkiona” GR 2450002 area 18.626,65 ha
Gkiona Mt.
On Mt. Vardousia there are the according Protected Areas

- The SPA (Special Protected Area), according EU Birds Directive (2009/147), “Oros Vardousia” GR 2450008, area 25.010,89 ha
- The SAC (Special Area of Conservation), according the EU Habitats Directive (92/43/EEC), “Ori Vardousia” GR 2450001 area 19.318,29 ha
Vardousia Mt.
The vegetation of three mountains characterized by the dominance of *Abies cephalonica* extending from 800 - 1800 m altitude. In the lower areas there are formations of evergreen broadleaved species, with main representatives being *Quercus cocciifera*, *Juniperus oxycedrus*.

Endemism is quite common phenomenon for the three mountain range.

**Mt. Parnassos:** *Centaurea musarum*, *Euphorbia orphanidis*, *Silene guicciardii*, *Paeonia parnassica*, *Erysimum parnassii*

**Mt. Giona:** *Arenaria gionae*, *Potentilla kionea*

**Mt. Vardousia:** *Achillea barbeyana*, *Alyssum nebrodense* spp *tenuicaule*, *Campanula columnaris*, *Cephalaria glaberrima*, *Verbascum reiseri*
Greece, as part of the Mediterranean Basin, is projected to be among the most vulnerable countries due to the combined effect of high temperature increases and reduced precipitation, in areas already coping with water scarcity. It is therefore quite urgent to adapt forest management in the changing climate in order to enable the conservation of healthy, productive forests, which provide humans with goods and services. (Life+AdaptFor)

Integrating climate change into forests requires an understanding of ecological response and vulnerability of key forest ecosystems. Although a clear view of the future climate and forests is not yet available, it is critical to begin developing and implementing adaptation strategies now, well in advance of climate change impacts on the forests.
Dieback of Abies cephalonica
Parnassos National Park

The study was implemented by a research team from School of Agriculture, Forestry & Natural Environment Aristotle University of Thessaloniki.

During the study, was estimated the current status of forest, in terms of a) soil condition, b) phyto-sociology, c) eco-physiology (tree growth, age structure etc.) and d) forest health (occurrence of pathogens such as fungi and insects).
Dieback of Abies cephalonica at the study area of Parnassos Mt.
Dieback of Abies cephalonica forests in Parnassos National Park, central Greece

Materials and Methods

Thirty plots were taken, where all the individuals were measured for their dimensions and health status. All trees were classified according to IUFRO classification for their social status and their vitality. Tree health was estimated in five defoliation classes according to UNECE and EU classification system (UNEP, 2004), as follows:

<table>
<thead>
<tr>
<th>Class</th>
<th>Tree health</th>
<th>Defoliation (Relative leaf loss) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Healthy</td>
<td>up to 30%</td>
</tr>
<tr>
<td>1</td>
<td>Slight (marginal) damaged</td>
<td>11-25%</td>
</tr>
<tr>
<td>2</td>
<td>Moderately damaged</td>
<td>26-50%</td>
</tr>
<tr>
<td>3</td>
<td>Severely damaged</td>
<td>61-95%</td>
</tr>
<tr>
<td>4</td>
<td>Dead</td>
<td>100%</td>
</tr>
</tbody>
</table>

Conclusions

- The fir stands of the area are consisted of pure over-century aged stands, uneven-aged, of mean density 560 trees per hectare, of low vitality, except for the young trees that present vital growth.
- The great percent of trees (70.3%) were characterized as healthy, while 15% are heavy damaged (classes 2, 3, and 4), and 14.7% are slight damaged.
- The decline of fir trees was mainly observed in the lower altitudes, and in the degraded and of low productivity sites, supporting the explanation that site and climatic factors stress the trees, and reduce their resistance, which in turn may lead to secondary attacks by biotic factors.
Grazie!!!

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Autumn on Gkiona Mt.