

Portugal – Chamusca case study

Case study forest area: 51,339 ha

Ownership: 98.7% private, 1.3% public

Forest goods and services:

Non wood products: cork, pine nuts, mushrooms
 Wood products: pulpwood, wood biomass
 Services: grazing, hunting , fishing
 Non market services: carbon stock, forest protection, habitat conservation

Special local conditions:

40 landowners hold 72% of the area in large scale properties (>500 ha)
 Most owners have properties <1ha
 Most stands leased by pulp/paper industry

Stakeholders

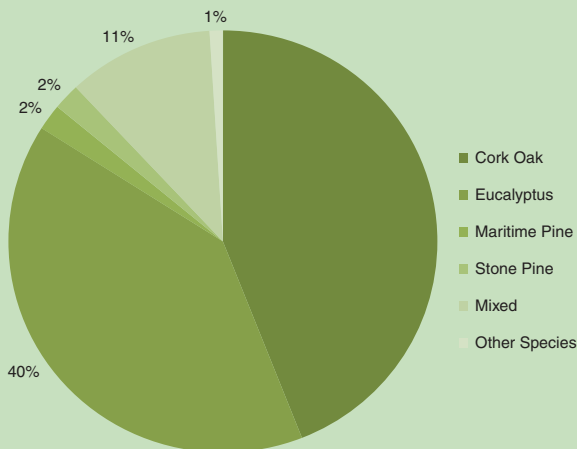
ACHAR is the main forest owners' association. It has direct access to all local, regional and national stakeholders (both public and private) and is directly involved in preparation of management plans.

Management and governance issues

The Chamusca case study management area is under the Regional Forest Plan for Ribatejo (PROF), a regional planning tool that aims to promote sustainable forestry according to national forest policy guidelines.

Main decisions are undertaken by forest owners. ACHAR is also responsible for the development of collaborative forest management planning for five areas that group several individual properties (Forest Intervention Zones – ZIF).

Proportion of Species – Chamusca

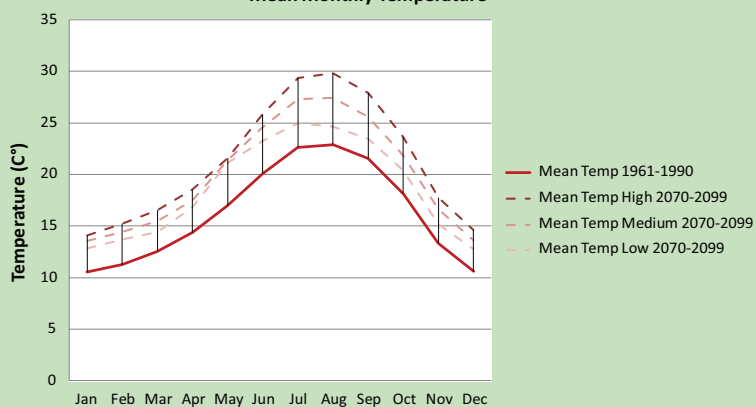




Climate change challenge

Forest fires are already the main threat in the Chamusca region and they are expected to increase as future climate will be characterized by dryer summers and longer fire seasons.

Mean Monthly Temperature



Mean Monthly Precipitation

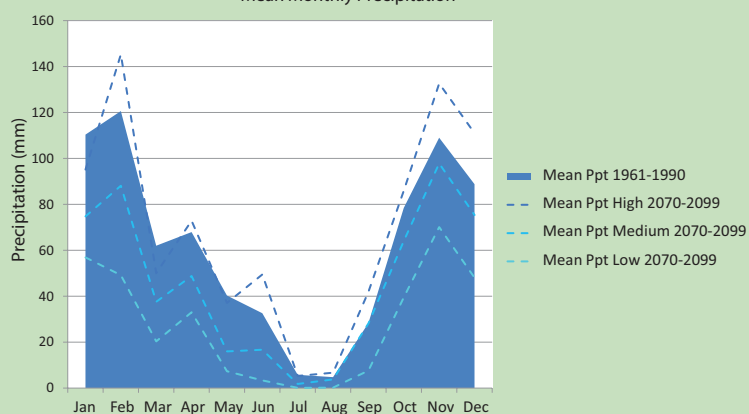




Photo: Susana Barreiro.

Under changing climate, the growth of forests will decrease, especially in the driest parts of the country. For example, the growth of eucalyptus plantations will be reduced.

Even the cork oak which is quite well adapted to dry conditions will suffer from more frequent and severe droughts in this region. In sites with lower water-holding capacity it may be expected that there will be a reduction in tree and cork growth, and an increase in tree mortality.



Photo: Brigitte Botequim.



Photo: Juan Guerra.

Forest fires are already the main threat in the Mediterranean basin and they are expected to increase as the future climate will be characterized by drier summers and therefore longer fire seasons.

In order to minimize the impact of climate change on cork oak production, the stand density (traditionally low in the area due to silvopastoral management) may be increased to offset the reduction in growth. Due to silvopastoral management and/or by doing understory cleanings, fire risk will not increase significantly.



Photo: Joana Amaral Paulo.



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Proper management (e.g. thinning, pruning, understory management) will be particularly important to increase resistance of forest landscapes to forest fires. For example, thinned stands with large trees are more resistant than very dense stands. Another important measure is to reduce understory biomass.

In addition, forest managers may extend the debarking rotation period to more than 9 years in order to allow the increase of cork thickness as cork will grow more slowly due to the dryer climate.

Photo: Joana Amaral Paulo.



Conclusion

With climate change an increase in aridity will cause a reduction in productivity of cork oak, however this can be mitigated by increasing stand density, extending the debarking rotation and adapting forest management to minimise fire risk.