

Cork Oak Forests, Sustainable Forestry

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Abstract

This article gives a succinct description of cork oak and cork: it discusses their biodiversity, origin and gives some data on surface areas and cork production in the world. The key issues for maintaining these ecosystems are detailed. It concludes with the benefits of using cork and continuing to manage cork oak forests sustainably.

Keywords: Quercus Suber; Cork Oak; Cork; Forest Management; Sustainably; Responsible Consumption

Cork Oak Forests, Biodiversity, Cork Production and Cork Industry

The cork oak (*Quercus suber*) is a species exclusive to southwest Europe and northwest Africa and forms very special forests, the cork oak forests. These mixed forests are highly biodiverse, with several species in the tree canopy, numerous species in the shrub and sub-shrub strata, many herbaceous species and numerous lianas intertwining all these strata. In addition, we can find a very rich fauna, with emblematic species for the conservation of nature: Iberian lynx, Iberian imperial eagle, Barbary deer, black vulture, black stork and many other species of mammals, birds, reptiles, and invertebrates, some of which are exclusive to these ecosystems. It is no coincidence: cork oak forests originated in the Neogene, more than 11.6 million years ago, when southern Europe and North Africa had a much warmer and more humid climate than today, and the tertiary flora that accompanied them was very rich in subtropical and tropical elements [1]. The cork oak forests survived climatic vicissitudes (droughts that reduced the Mediterranean Sea to a series of unconnected salt lakes, quaternary glaciations) and even spread to become dominant in large parts of their present area. In its area, it occupies more than 2.6 million hectares of natural masses, according to data from official bodies and experts from the 7 countries where it is naturally present. These 2.6 million hectares of cork oak forests are of enormous economic and social interest, in addition to the environmental interest outlined in the previous paragraph: on average around 175,000 tonnes of cork are produced worldwide each year. To obtain each tonne of cork, about 9 days of labour are needed in the field (debarking and other works). The preparation industry (1st transformation) uses 3.6 days of labour to prepare a tonne of cork; the cork-tapping industry (2nd transformation) uses between 17.21 and 20.65 days of labour to manufacture cork stoppers. Each tonne of cork therefore needs between 29.81 and 33.25 direct labour days to travel from the field to the final product (source: ICMC- CYCYTEX). The cork sector needs 5,276,000-day labourers. Around 100,000 people depend directly or indirectly on the cork and cork sector in the world (source: CELIEGE, 2008). The management of cork oak forests is environmentally friendly, as evidenced by the high level of biodiversity they harbour. In Spain, for example, around 80% of the cork oak forest area is covered by some form of European or Spanish protection. Cork harvesting is a respectful use of the trees, which keeps them alive in the forest [2]. It is done every 9 years (in many cases, 10 or more.), which allows these ecosystems long periods without any human intervention. The cork industry is an industry that is kind to nature; on the one hand, its raw material is natural, renewable, and recyclable; on the other hand, it does not generate harmful waste, only water and the natural substances of cork [3]. In addition,

this industry is often located near cork oak forests, which reduces its carbon footprint and provides an economic boost for rural areas in southern Europe and the Maghreb (Figure 1). The alternatives to

cork stoppers are aluminium screwcaps and plastic stoppers; the industries that produce them consume a great deal of energy, use perishable resources and are quite polluting.



Figure 1: Cork oak forest in the Oued Zen National Park (near Aïn Draham, Jendouba province) in Tunisia, a barrier to desertification.

Challenges

At present, to ensure the sustainability of cork oak forests, it is necessary and very important to address some challenges:

- a) Establish formal training for specialised workers in all the tasks carried out in cork oak groves: cork debarking, pruning, grazing, mycological use.
- b) Plan and ensure the regeneration of cork oak groves [4]. It is important that the whole of society contributes to this work, as it is very expensive, and we all benefit from the resources it generates.
- c) Give a boost to R+D, in key issues such as plant and animal health, modernisation of exploitation, especially cork harvesting, fertirrigation in afforestation's, genetics applied to Subericulture, etc.

The sustainable use of cork oak forests is a guarantee for their survival and for ours; it maintains a lightly intervened ecosystem, with a tree cover that protects the soil, withstands forest fires, sequesters carbon, modifies the local microclimate, provides many

goods and services in addition to cork, a unique product that is increasingly finding more interesting properties and new uses. For all these reasons we must continue to use cork, making sustainable use of cork oak forests, restoring degraded cork oak forests and repopulating suitable land with cork oaks, knowing that it is good for the planet, for people and for the very rich fauna and flora of these ecosystems [5].

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