



WWF

REPORT

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WWF- CEABN / ISA Report Wildfires in Portugal: a forest on fire



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Background / The problem

Portugal is periodically assaulted by large wildfires, with thousands of hectares of burning area. Being a country of Atlantic influence, in the north of the Tagus river, the climate causes high vegetal productivity and accumulation of combustible biomass, which is ready to burn in case the climatic conditions allow. In the south of the Tagus, of Mediterranean influence, the typical warm and dry summer facilitates the ignition and the propagation of the fires. The largest areas were burned in 1991 and 1998 (close to 200 thousand ha), 2003 and 2005 (almost 450 thousand ha and 250 thousand ha, respectively) and this year with more than 500 thousand ha (**Figure 1**).

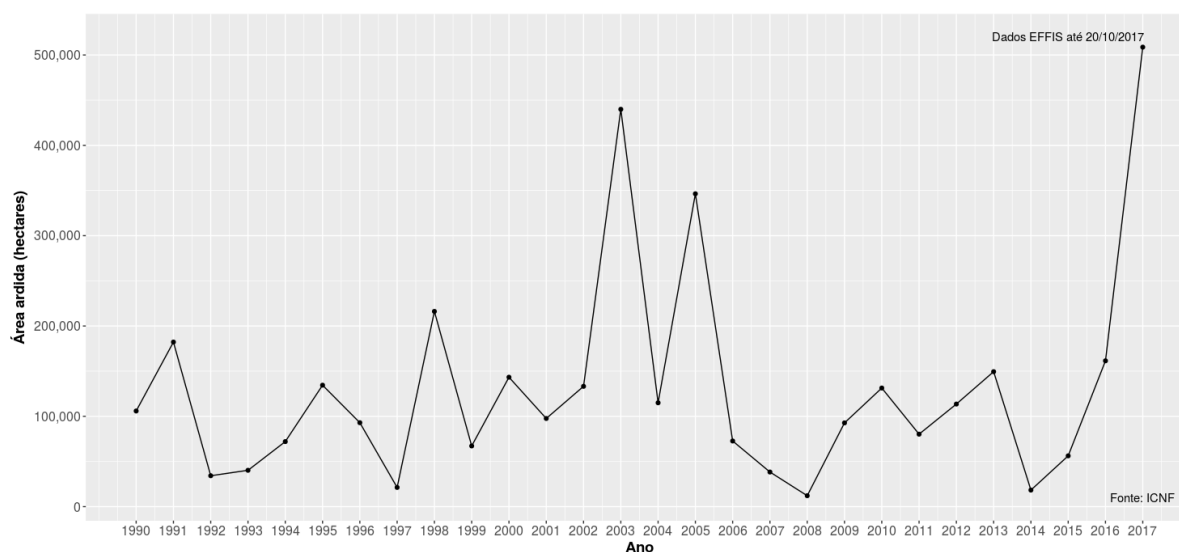


Figure 1. The area burned in Portugal varies cyclically. After 2017 the years 2003 and 2005 were those that registered a more extensive burned area (source: ICNF and data EFFIS)

The burning area varies depending on soil land cover. Consistently, land cover that mostly affected by the fires has been shrublands and grasslands, followed by maritime pine (*Pinus pinaster*) and then eucalyptus (*Eucalyptus globulus*). The cork (*Quercus suber*) and holm oak (*Q. rotundifolia*) were mainly affected in 2003 and 2005, respectively (Figure 2).

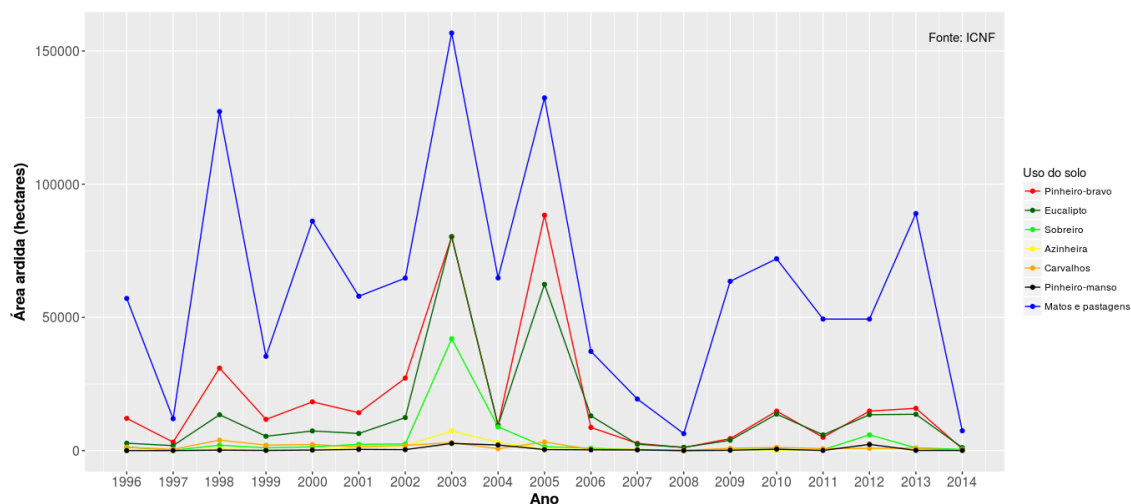


Figure 2. Burned area by land cover: shrublands and grasslands, followed by the maritime pine and the Eucalyptus are land cover types with largest burnt areas. Cork and holm oak burnt areas occurred mostly in 2003 and 2005, respectively (source: ICNF)

These effects will tend to get worse in the framework of Climate Change scenarios, which forecast more frequent extremes of climate events. The large wildfires of June and October 2017, which caused more than 500,000 ha of burning area, occurred outside the official summer season, during the spring and autumn. Nevertheless, despite Climate Changes, wildfires have always been a challenge in Portugal and other countries with Mediterranean climate demanding appropriate forest management practices and policies.

Indeed, in Portugal and other countries with a Mediterranean climate, there are structural challenges, related to rural abandonment and agricultural activity, which demand careful attention if wildfires are to be tackled successfully. In areas where forest resources are no longer used, large amounts of plant biomass accumulate on the ground and are ready to burn.

Causes for rural abandonment are mainly of socio-economic nature and related to the lack of economic profitability and the aging of rural populations. The very small size of rural property, especially in the north of the Tagus, with areas often less than 0.5 ha aggravates this problem.

Upstream of the wildfires issue, such structural challenges must be solved: how to return profitability to rural areas and halt rural abandonment? How to promote the association of small size properties allowing for gaining size and critical mass advantages? How, will it be possible to create sustainable and functional landscapes, incentivize sustainable forest management (e.g. shrub clearing, forest thinning), reducing the plant fuel load on the ground, compartmentalizing the landscape in different land uses, promoting habitat heterogeneity with benefits for the nature conservation?

Why does the country burn?

Several reasons were pointed out and diagnosed by specialists, both national and international. In some cases solutions were pointed out but lacked effective implementation. There are *downstream* challenges, at the level of the fire-fighting phase, with experts view unanimous on the need to articulate wildfire prevention and combat. Only then, whoever fights a fire will know, by knowing where and how preventive actions were taken (e.g. clearing of the vegetation fuel), where should priority be given to combat. It is on those locations that wildfire intensity will allow effective combat.

There are also *upstream* challenges. At this level experts defend the need of larger financial investment in wildfire prevention than firefighting. For example, incentives for adequate forest management, vegetation fuel control and maintenance of properties clear of large fuel loads are needed. At this level, it is essential to encourage the forest producers associations and the existence of common and landscape-scale forest management plans. The Forest Intervention Areas (in Portuguese called ZIF) intend to aggregate forest producers associations under common fire management and prevention plans. Operationalization of ZIFs has been far from ideal and needs to be reviewed and improved. Forest property register need to be completed at the country level. There are over 500,000 forest owners in Portugal. It is crucial to know property location and ownership so that adequate and scalable forest management policies are implemented.

Sustainable forest management and forest certification, i.e. the commitment of producers and forest managers to sustainable management practices, both at the environmental and socio-economic levels, may play an important role on the organization and sustainability of agro-forestry spaces and therefore prevention and mitigation of large wildfires.

At the structural level, however, the great challenge is to create conditions of profitability and fixation of rural populations. The creation of self-sustained local economies that contribute to wealth, sustainable land management halting rural abandonment. For example, the recent search for resin by the global market has contributed to re-activate the resin activity in the pinewood, thus contributing to a greater presence, and therefore vigilance and management of pine forests where it is practiced.

Wildfires and nature conservation

Many Mediterranean ecosystems with conservation value depend on human use. Maintenance of a compartmentalized and heterogeneous landscape, and therefore more diverse and with greater conservation value, depends on the diversity and coexistence of different land uses. The promotion of sustainable forest management, outside or within protected areas, can contribute to the promotion of nature conservation and biodiversity. Networks of protected areas have also been subject to periodic and severe wildfires. Work is also needed in

protected areas to ensure that conservation objectives can be met together with wildfire prevention and mitigation. Approximately 30 thousand ha of protected areas burnt in 2003 and reached almost 40 thousand ha in 2017 (Figure 3).

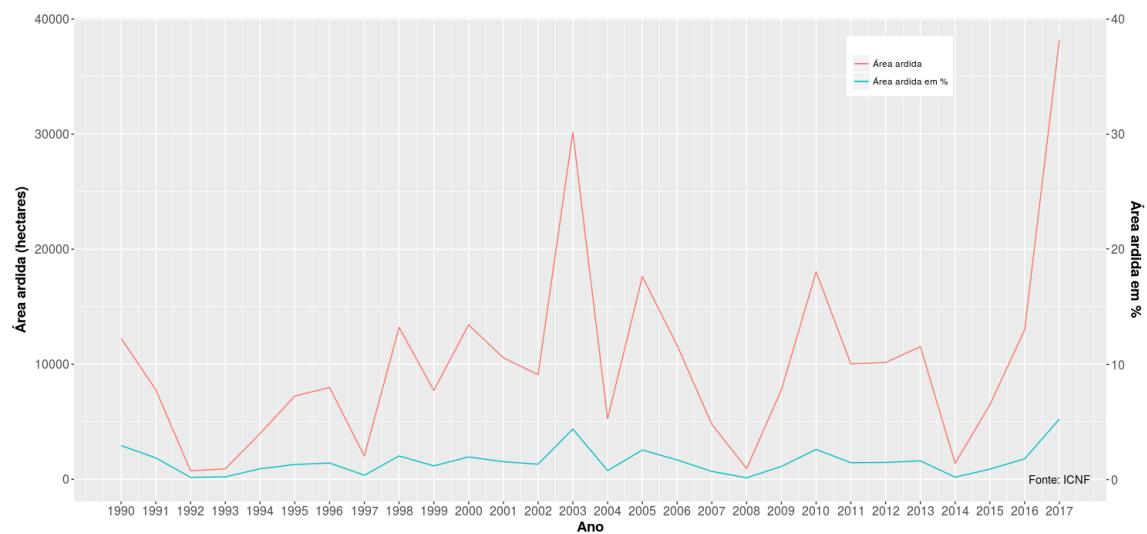


Figure 3. Protected areas are also affected by severe wildfires with the largest areas burned in 2003 and 2017.

The challenge of wildfires

Forestry activities, particularly those related to the production of pulp, wood, resin and cork, account for approximately 10% of national exports and about 3% of the gross value added, generating more than 110 thousand direct jobs. These direct products add to activities dependent on agroforestry activities such as wildlife hunting, nut production (pine nut, chestnut) or recreational and cultural activities.

Forest areas, as long they are properly managed, also produce other essential services such as carbon sequestration and storage, soil erosion control, or water cycle regulation. Many of these ecosystem services, which are presently rewarded through ecosystem services payment schemes in several parts of the world including Portugal (e.g. WWF Green Heart of Cork project). Forest and rural areas often concentrate biodiversity values ranging from endemic and endangered species to habitat types of conservation value.

Solving the wildfire issue is essential to maintain a sector that is essential to Portugal socio-economy and environment. This challenge crosses the whole society that was in shock with the tragic fires of June and October 2017, mainly because of the large loss of human lives. Academia, Industry, Associations of Agro-Forestry Producers, Public Administration, Environmental Non-Governmental Organizations, Local Entities, the Media, need to create platforms and partnerships from which innovative projects for rural and forest areas may born, generating income, halting rural abandonment and promoting sustainable forest management.

Rural fires and WWF's vision

WWF's global mission is to prevent the degradation of the planet's resources, promote harmony between people and nature, and encourage the sustainable use of resources. WWF advocates integrating production and conservation functions into forest ecosystems. The services generated by forest ecosystems, whether they are direct products or services such as carbon sequestration and storage, regulation of the water cycle or cultural services, are only possible in sustainably managed systems. WWF therefore supports forest certification, a process whereby forest owners and managers commit to use management practices that respect socio-economic and environmental criteria as a way to improve the management and conservation of forest ecosystems.

WWF also advocates adequate remuneration for ecosystem services to those who commit to a responsible forest management practices. WWF developed the Green Heart of Cork (GHoC) project, which aims to encourage certification and good forest management practices through voluntary payment mechanisms for ecosystem services.

Diverse landscapes, characterized by the coexistence of diverse and mosaic land uses, are more resistant and resilient to large fires and better meet nature conservation objectives.

Only scaled management will efficiently meet biodiversity conservation objectives and ecosystem service provision, including direct products. Thereby encouraging land owners and forest producer associations, under joint forest management plans, and establishing platforms and partnership among stakeholders, including public administration, forest producers' associations, industry, municipalities and local communities will contribute to more sustainable and resilient landscapes.

Adaptation and mitigation strategies are also needed to mitigate effects of Climatic Changes.

WWF's Recommendations for forest and rural areas:

- Encourage responsible forest management through forest certification
- Promote forest partnerships and the adoption of joint and landscape-scale forest management plans
- Complete forest property identification and registration
- Create and encourage mechanisms for the effective remuneration of ecosystem services both in voluntary and regulated market
- Create platforms of stakeholders, encouraging synergies in forest and territorial management