AGAINST THE INHERENT PARADOX ,

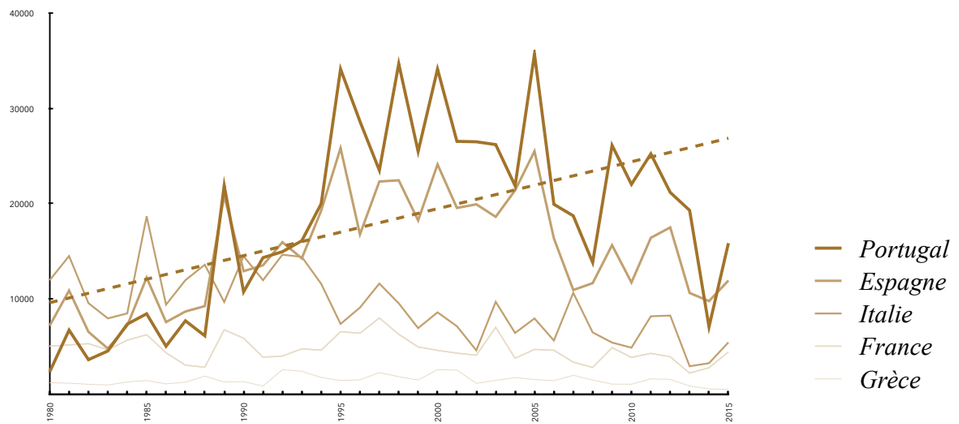
STEWARDSHIP AND EDUCATIONAL FOREST CENTER

Forest fires are a recurrent and substantial threat to Portugal's forests. While frequent fires are a natural part of the maritime pine disturbance regime, the number and extent of fires has increased in recent years, resulting in greater loss of standing forest from fire over the past four decades than gains from extensive planting of deforested and/or non-forested areas. In the north of the country, forest management is hampered by the private ownership fragmented in 1ha average parcels. Moreover, the population is aged and live mainly far from their properties. This abandonment of the forests leads to a higher risk of fire ignition because of the accumulation of combustible residues.

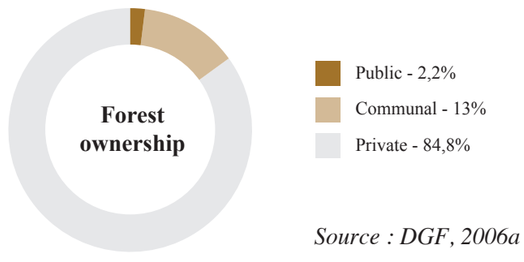
The aim of this project is to improve the detection of fire ignition by setting up infrastructures that will allow forest guards to stay permanently close to risk areas, inverting the actual paradox where dedicated infrastructures are localized too far from the concerned areas. Considering that the purpose of ignition control is to prevent a fire from starting and that most of the fires are caused by human activities, it is about changing human behaviors related to the use of fire, which must be acted upon. In this sense, accountability and awareness is an important step in raising awareness of the need to conserve, protect and enhance forest areas. In this sens, the project includes educative facilities promoting global population sensitization, focusing on primary and high school students trough immersive experiences leading to deeper territorial connection, leaving students with a new environmental consciousness. The strategic position of education center, near the city of Coimbra, located halfway between Porto and Lisbon, allows to consider the involvement of the majority of schools in the country. The education center is located within the Serra da Estrela mountain range, at the meeting point between the end of the valley - penetrating the mountains from the city of Gois - and the mountain ridges. The permanent presence of rangers near the villages aims to raise awareness and help the local population on a daily basis promoting collaboration between the inhabitants and the forest guards, while improving the preventive mobile monitoring of the territory by exploiting the network of roads established during the installation of wind turbines on the ridges. Indeed, the forest road network plays a central role in the forest fire defense system, by ensuring access to preventive forestry and infrastructural works, surveillance and deterrence measures or the first intervention and extended combat. The project is hosting five forest guards permanently throughout the year, while an additional ten men provide reinforcement during the risk period, from June to September. Before the fire risk period, forest guards would execute preventive forestry actions as cleaning bushes & settlements, maintaining and improving the forest road network and fire breaks, trees pruning, and species management. During the fire risk period they would be surveilling the region, being highly mobile units with limited combat resources but which, because of the speed with which they can be placed in areas at risk or start of deflagration are often critical to prevent the spread of fires. Full time staff promote greater stability as well as regular training action. The mobile surveillance is also highly effective in dissuading possible criminal actions. The considered region would benefit from internal means to intervene, instead of external means, increasing the efficiency of intervention.

Access to the building is made via an existing dirt path crossing the forest. Rangers use it by car, while visitors are invited to walk from the car park placed at the beginning of the path, amplifying their experience of discovering the site. The project aims to highlight the slight slopes of the land, while addressing the two sides of the hill, offering unobstructed views of the mountains and surrounding villages. Thus, the northern part of the project, which hosts the infrastructure dedicated to the forest guards, tends to open towards the west while the southern part, which hosts the educational center, opens to the east. All the spaces are distributed by a continuous corridor offering several experiences of the surroundings, including subtle variation of ceiling height according to the topography, and being an interior space or an exterior one when leading to the forest guards bedrooms.

All the dwellings are located at the tips of the building, while the central part hosts common functions. Simultaneously, the rhythm of the structural gantries vary, increasing this feeling of porosity and openness in the middle part of the building, where the hill is the narrowest and where is located an exterior space, sheltered by a continuous zinc covered roof, slightly sloping towards the end points of the building where two water tanks collect the rainwater in order to fulfill the building's needs. Tilting windows placed in height on each side of the building allow a natural ventilation of the education center, combined with fabric blinds requiring the involvement of residents promoting the use of sustainable passive energy strategies.

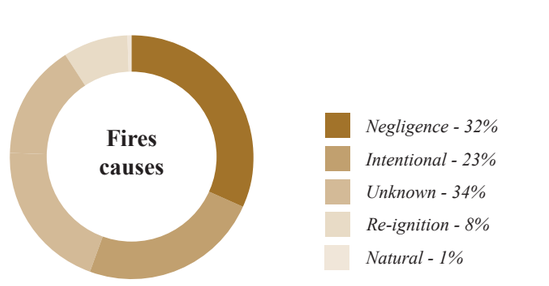


Evolution of forest fires from 1980 to 2015 in Europe



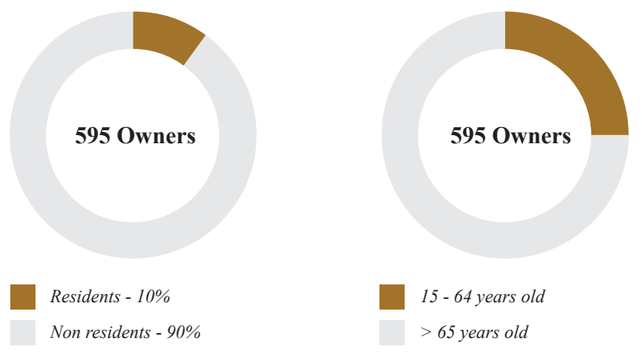
Source : DGF, 2006a

Forest ownership distribution in Portugal



Forest fires causes in Portugal

1047 hectares
1542 plots



Forest ownership distribution - Example of ZIF Aldeia de Eiras