

# Safeguarding and enhancing the delivery of ecosystem services through forests

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Keeping healthy forests is essential for the delivery  
of ecosystem services



Ecosystem  
services



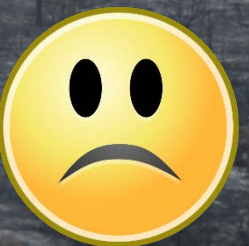


Ecosystem  
services





Ecosystem  
services





Ecosystem  
services

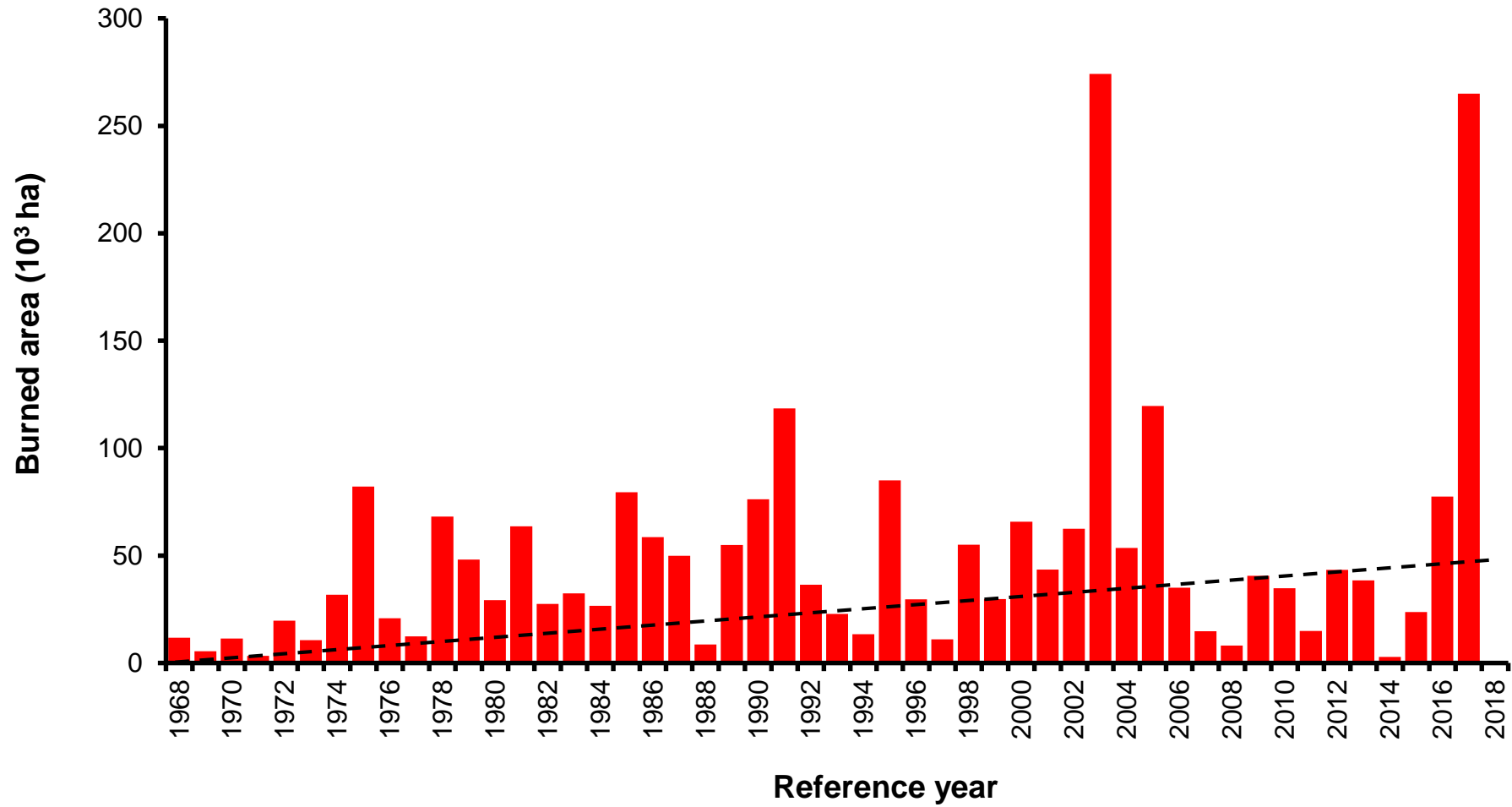


We have a problem ahead...  
Frequency and intensity of hazards are increasing



# Forest fires in Portugal

# Forest fires in Portugal (1968-2017)



## ■ The problem of forest fires in Portugal

- ✓ The mega-fires problem is very complex, with the influence of many factors, some of them not controllable by humans
- ✓ Urban people think that all the problems derive from “poor management” and “bad species” and that the “bad guys” are the landowners and the foresters! Others focus on the inefficiency of fire fighting
- ✓ But the issue is much more complex than this...
- ✓ The problem is mainly not a technical one (we know how to manage our forests...), it is the consequence of multiple factors

## ■ The problem of forest fires in Portugal

- ✓ The first step to solve a problem is to recognize that it exists and the oversimplification of the problem leads to the current situation
- ✓ Without recognizing the inherent difficulties, the problem will never be solved

## ■ Forest fires in Portugal - main factors

- ✓ The most important factor is unhappily not depending, on the short term, on human decisions: climate change
  - Climate events as the ones we had in 2017 in Portugal will always have very drastic consequences
- ✓ Other factors are all socio-economic (not technical):
  - **Structure of the property**, very **small** and privately owned
  - Profitability (or else, **lack of profitability**) of forests - in a “normal” situation new plantations may be profitable, depending on the tree species (eucalyptus is profitable in the good sites; oaks, except for cork oak, are not profitable)

## ■ But in most cases we are far from a “normal” situation...

- ✓ Imagine that your land is very sloppy, has been burned, is invaded by acacia



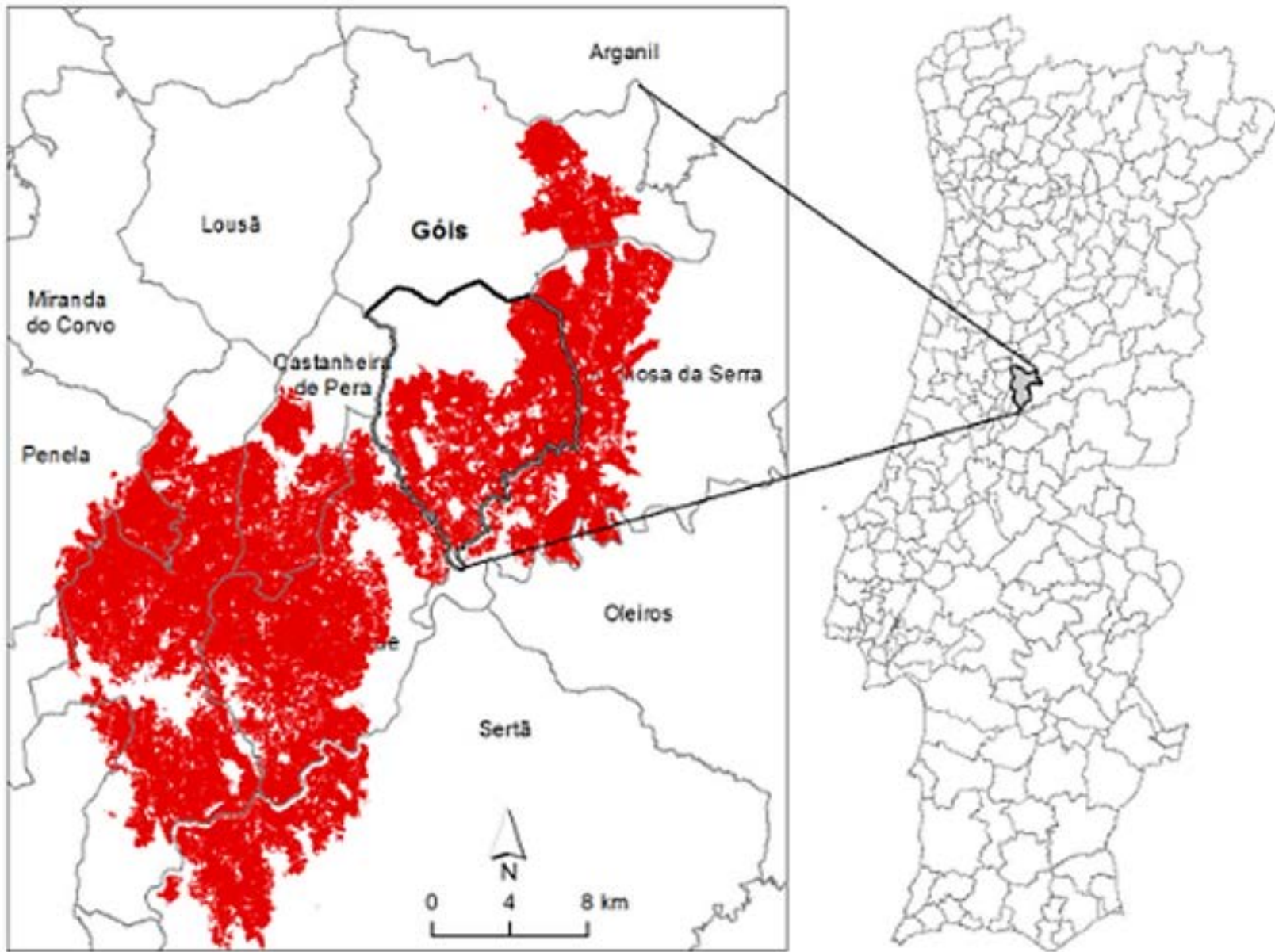
## ■ Forest fires in Portugal - main factors

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- ✓ Other factors are all socio-economic (not technical):
  - **Structure of the property**, very small and privately owned
  - Profitability (or else, **lack of profitability**) of forests - in a “normal” situation new plantations may be profitable
  - **Abandonment of rural areas** in the inland
  - **Landscape mosaic** is not always the best (large continuous forest areas, sometimes of the same species)

# The Alvares parish as a “case study”

Alvares project (coord. José Miguel Cardoso Pereira)





**In 2017, 86% of the area was burned**



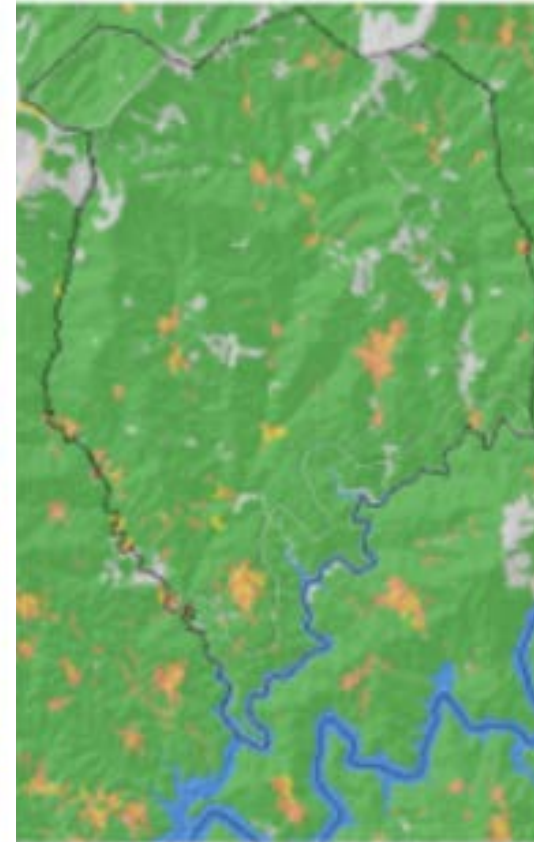
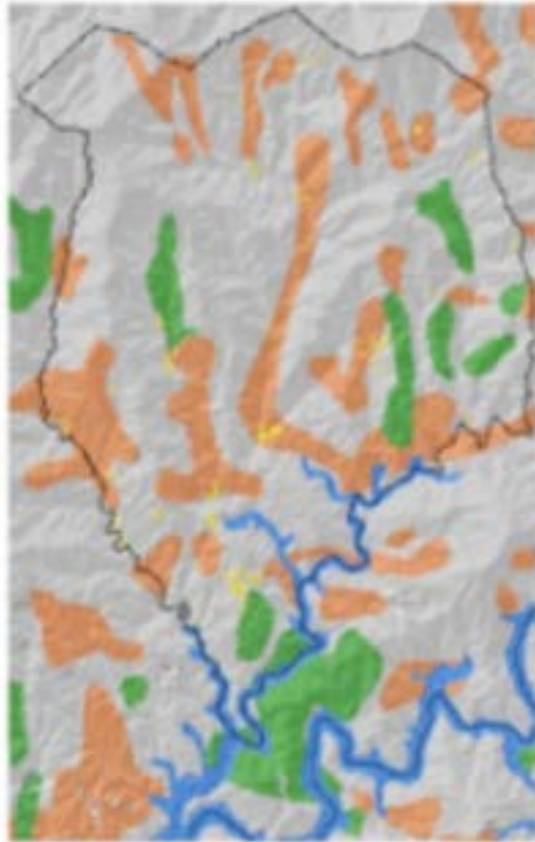
- ✓ **Area** is 10000 ha
  - 9024 ha are forest (90%)
  - 53% is eucalyptus and 29% maritime pine
- ✓ **Population**
  - >60% over 65 years
  - 36% has completed primary school
  - 17% of illiterate inhabitants
  - 4500 inhabitants in 1940, ~800 in 2011
  - depopulation => land abandonment
- ✓ Present **forest ownership**
  - >3000 forest owners (pulp companies own 10% of the area and manage 16%)
  - Just 33% leave in Alvares
  - Average property size: 0.54 ha

# Land use change over time (increase in forest area)

**1905: 7%**

**1955: 35%**

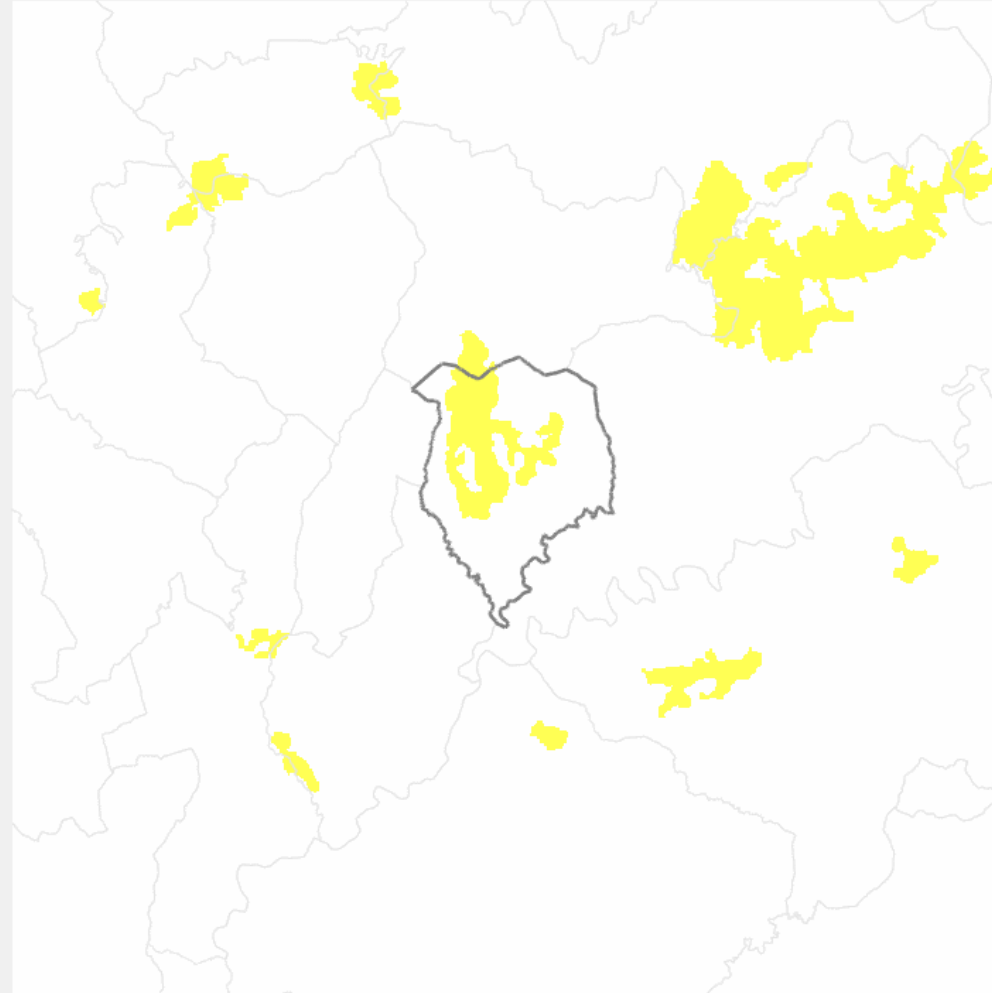
**2010: 90%**



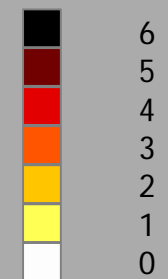
- Forest
- Agriculture
- Grasslands and shrublands

# 2017 was not an isolated event

1975



Since 1975  
some areas  
were burnt up  
to 6 times

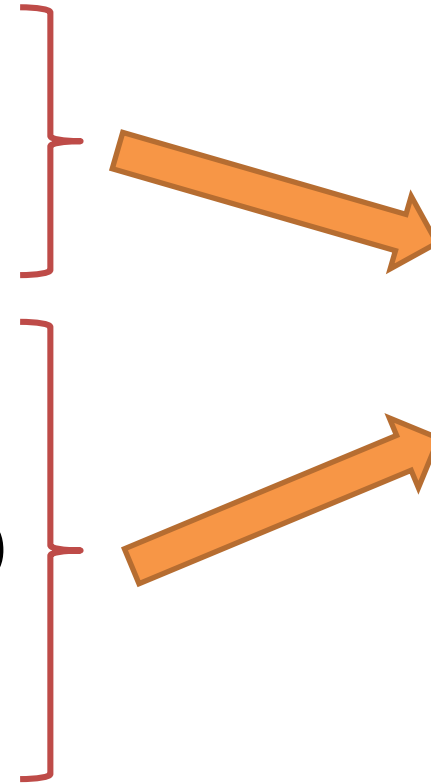


Final remarks

## ■ Final remarks

✓ The Alvares case study illustrates the real problem that makes the mega-fires problem so complex in Portugal

- Depopulation of inland
- Increase of forest area
- Non-favourable landscape mosaics
- Small properties, privately owned
- + High costs of forest operations
- + low income (low prices of **products**)
- Non-profitable forest
- Poor management



## ■ Solutions are difficult

- ✓ Require **landscape management**
  - group management systems accepted by small private owners
- ✓ **Multidisciplinary teams** including all stakeholders
- ✓ Measures to improve the **profitability** of forests
- ✓ **Investment** is needed at least to start degraded forests recuperation
  - Incentives?

# Thanks to the “Alvares project”

**Coordinator:** José Miguel Cardoso Pereira

**Multidisciplinary team:** Susana Barreiro, João Rua, Akli Benali, Margarida Tomé, Ana Sá, Yannik Le Page, José Miguel Cardoso Pereira, João Pinho, Paulo Fernandes, Maria João Canadas, Ana Novais, Ana Martins, José Lima Santos, Sandra Oliveira, Ana Gonçalves, José Luis Zêzere, Carlos da Camara, Ricardo Trigo, Sílvia Nunes, Miguel Pinto, Jornal O Observador, Núcleo Fundador da ZIF da Ribeira de Sinhel, Associação Florestal de Góis, The Navigator Company, ALTRI Florestal, Henrique Pereira dos Santos, Francisco Cordovil, CM Góis





A photograph of a cork oak grove with a white starburst graphic in the center containing the text "Thank you!". The trees have thick, light-brown bark and dense green foliage. The ground is covered in grass and low-lying vegetation.

**Thank  
you!**