



# Funds invested in forest fire prevention in Mediterranean countries

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# Outline

- 1) Background
- 2) Aims of the task: analysis of costs of wildfires prevention
- 3) Funds invested in “**active**” fire prevention across countries: the EU Rural Development Program (RDP)
- 4) Funds invested in “**passive**” fire prevention: an example in Tuscany region (Italy)
- 5) Comparison: The cost of extinction of a large fire in Tuscany
- 6) Concluding remarks

# 1. Background

## Increased fire hazard

- warming and drying climate conditions
- landscape-scale accumulation of fuel



The **abandonment of farming** and extensive grazing in marginal areas and **depopulation** and social transformation in forest-related economy

The traditional mosaic of pastures, cultivated fields and forest is replaced by **flammable shrubland** and **young dense forest stands**





# 1. Background

## Fuel management

can contain the risk of fires developing into large and uncontrollable events, by controlling some of the factors that affect the dimensions of the forest fire (**fuel load** and type, **fuel spatial pattern** and continuity)





# 1. Background

Not only measures to reduce fuel loads or change the spatial arrangement of fuels in forest areas (**active prevention**), but actions capable to support a well-managed landscape mosaic, through the maintenance of forestry, farming and grazing activities therein (**passive prevention**)

Active prevention



Passive prevention



## 2. Review and analysis of costs of wildfires prevention measures

- To provide an overview about the **funds invested in fire prevention** in PREVAIL partner countries (Italy, Spain, Portugal and Greece)
- To provide an economic evaluation of current wildfire management efficacy, based on **costs of large fires suppression**



### 3. The Rural Development Program 2007/2013

The components of Structural Funds that can be used to fund prevention against wildfires are:

- the European Regional Development Fund (ERDF)
- the Cohesion Fund (CF)
- the European Agricultural Fund for Rural Development (EARDF)

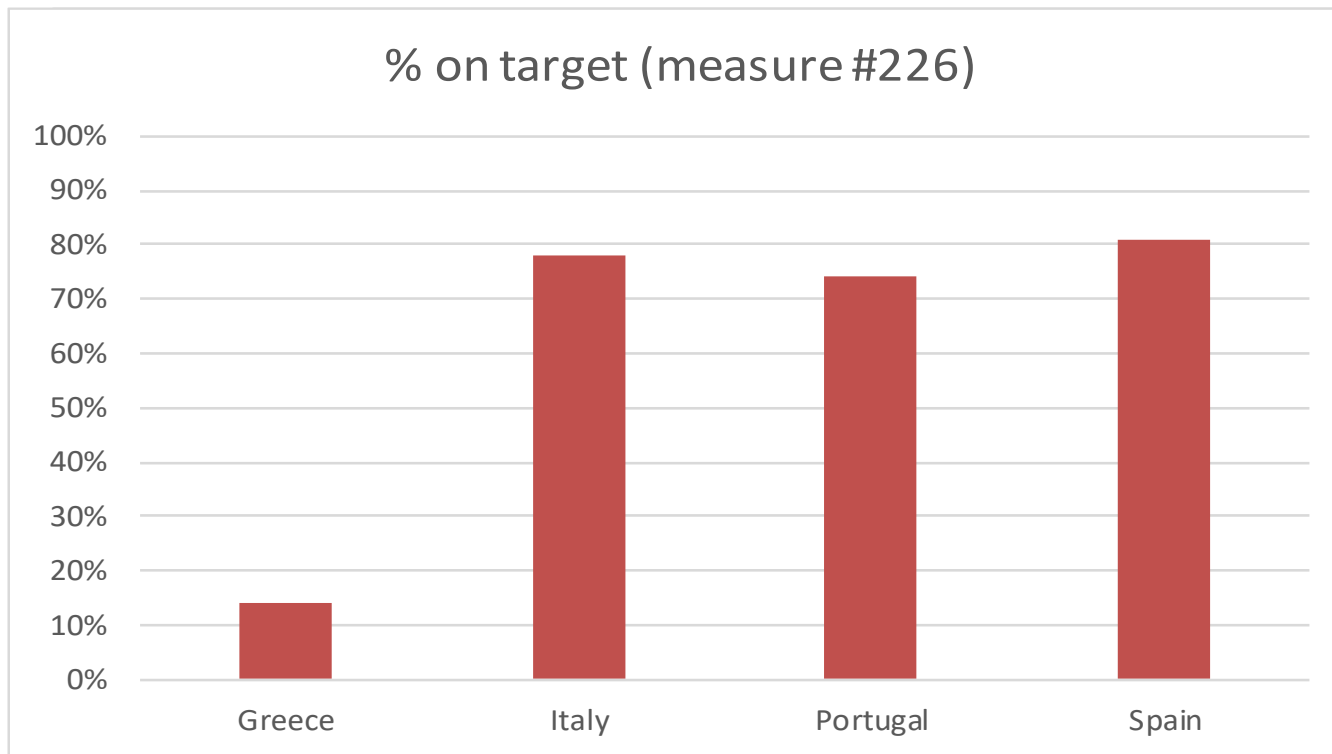


RDP 2007-2013:

**Measure 2.2.6** - Restoring forestry potential and introducing prevention actions

### 3. The Rural Development Program 2007/2013

Review of OFFICIAL EU DATA: amount of EU funds (e.g. Rural Development Program 2007-2013) invested ([https://ec.europa.eu/agriculture/rural-development-2007-2013\\_en](https://ec.europa.eu/agriculture/rural-development-2007-2013_en))



#### Programmed expenditure



Greece: 87 mil €



Italy: 539 mil €



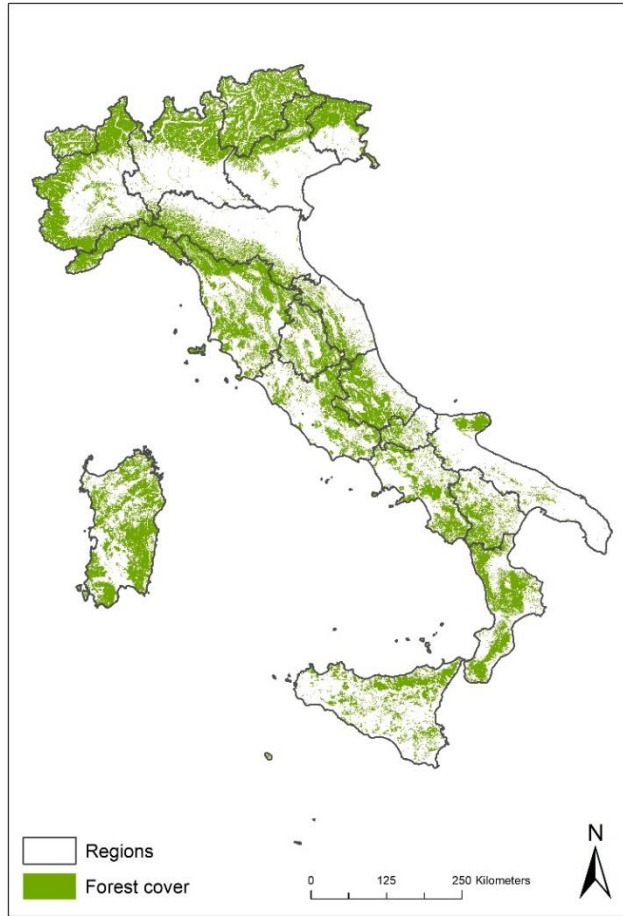
Portugal: 79 mil €



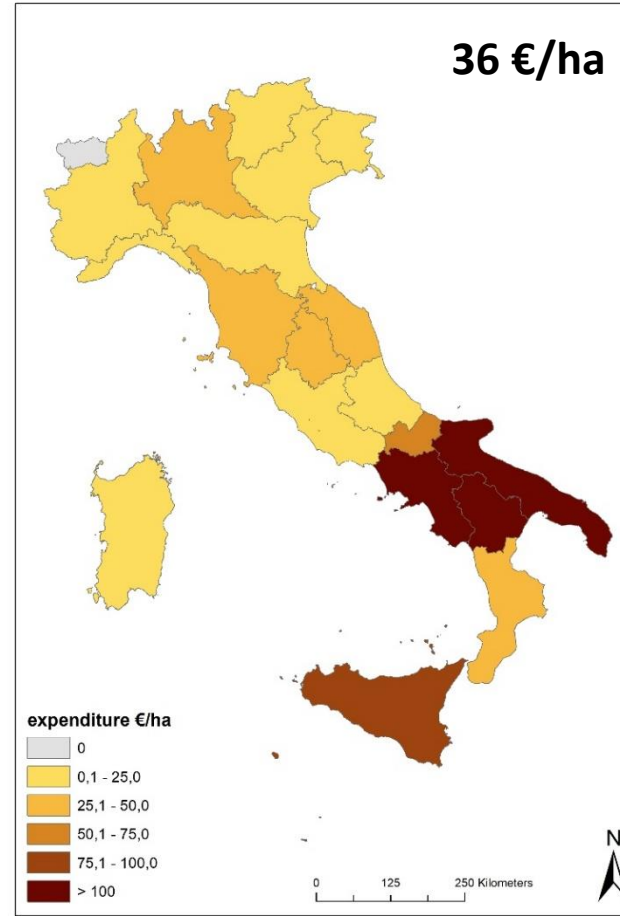
Spain: 938 mil €



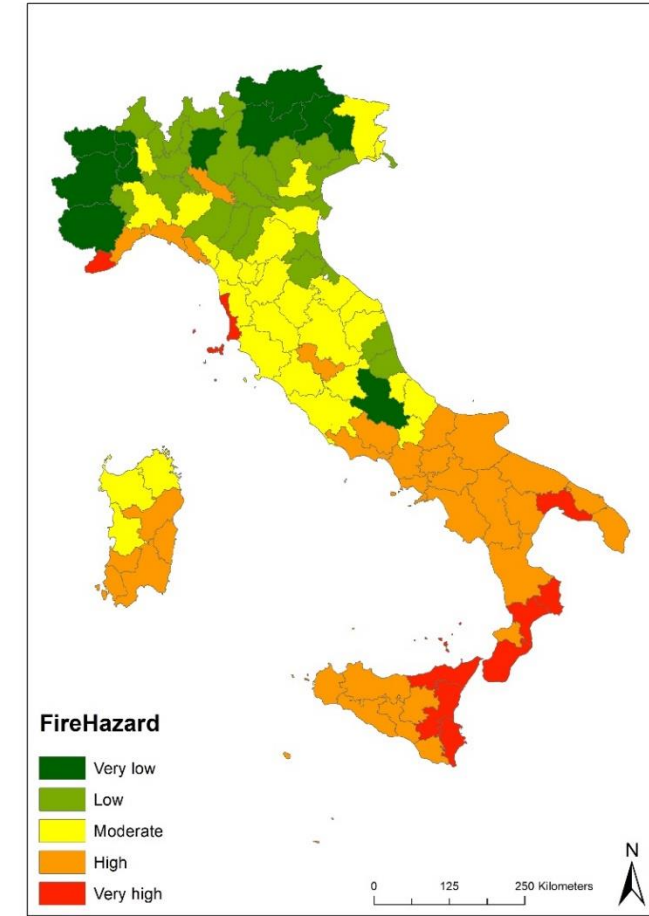
### 3. The Rural Development Program 2007/2013



Forest cover (CLC, 2006)

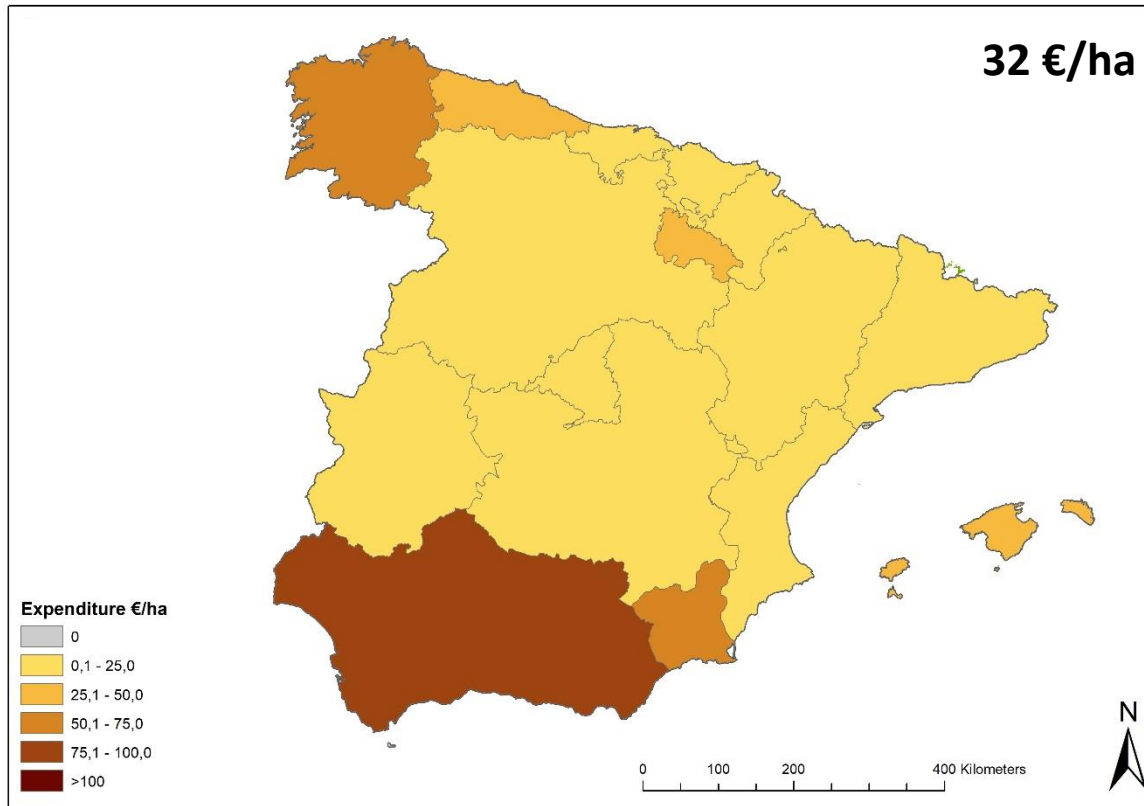


Expenditure on 226 (€/ha of forest)

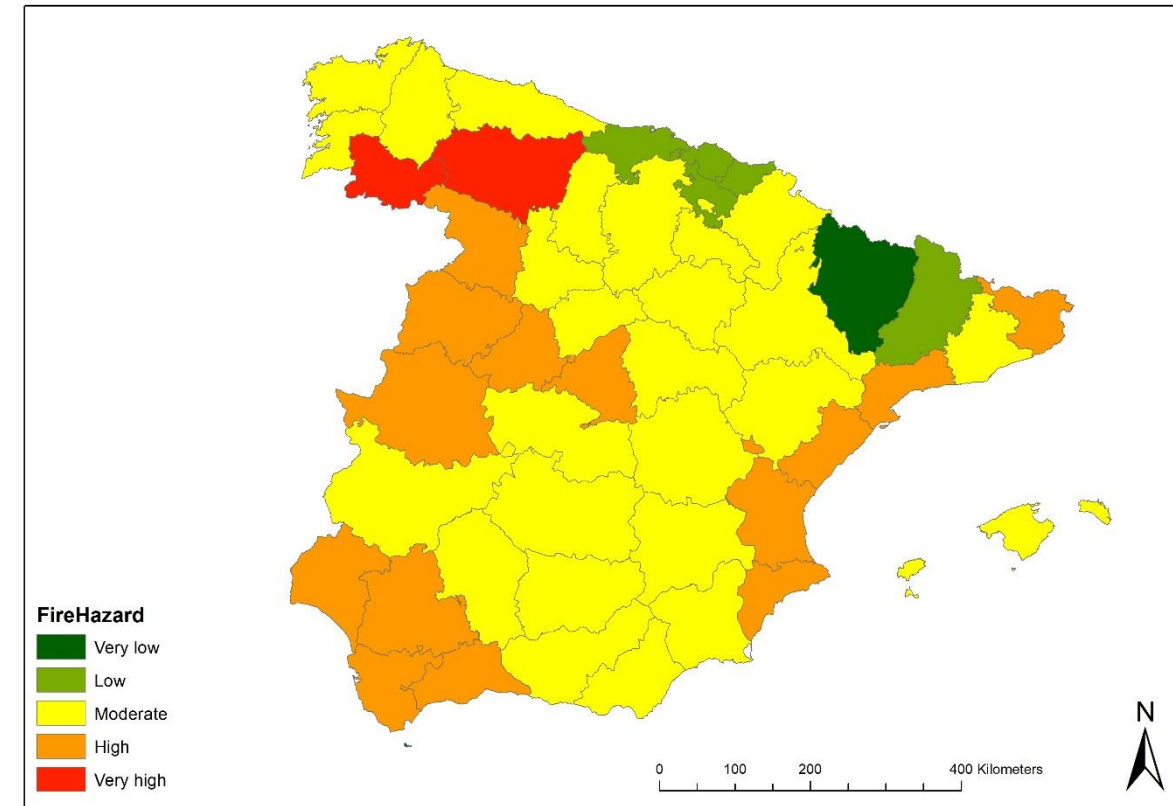


Fire hazard (ESPON, 2005)

### 3. The Rural Development Program 2007/2013

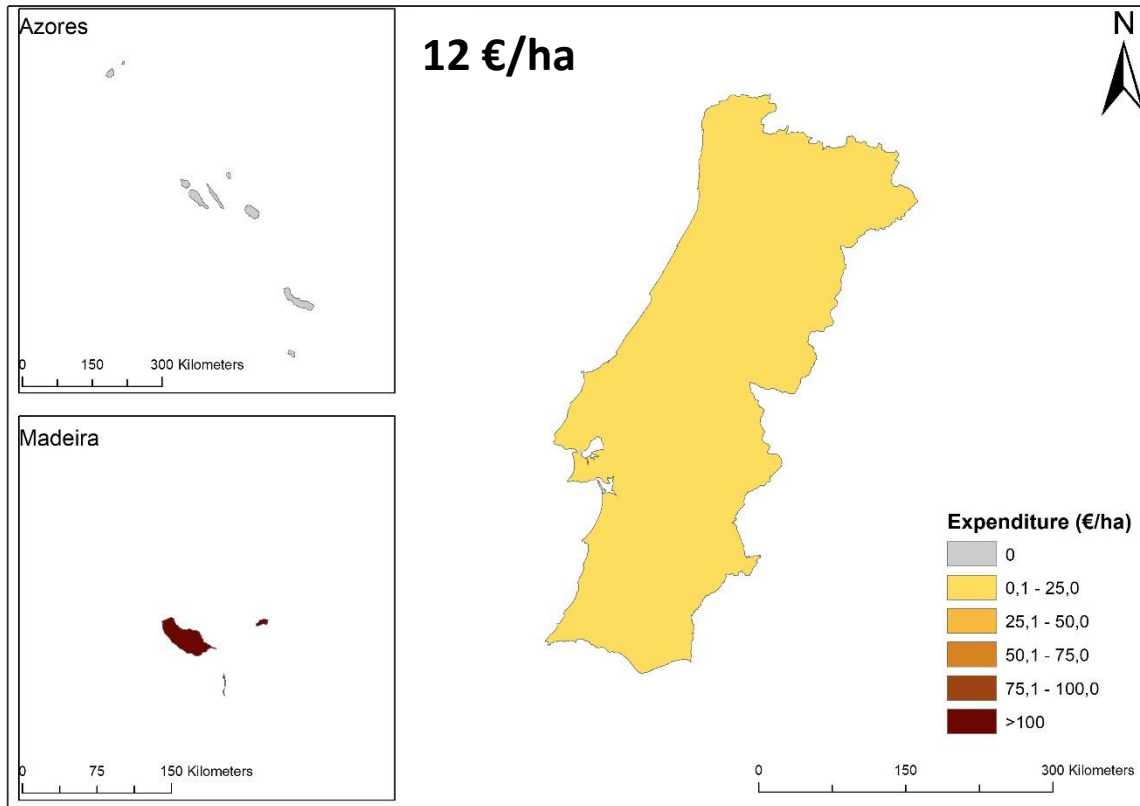


Expenditure on 226 (€/ha of forest)

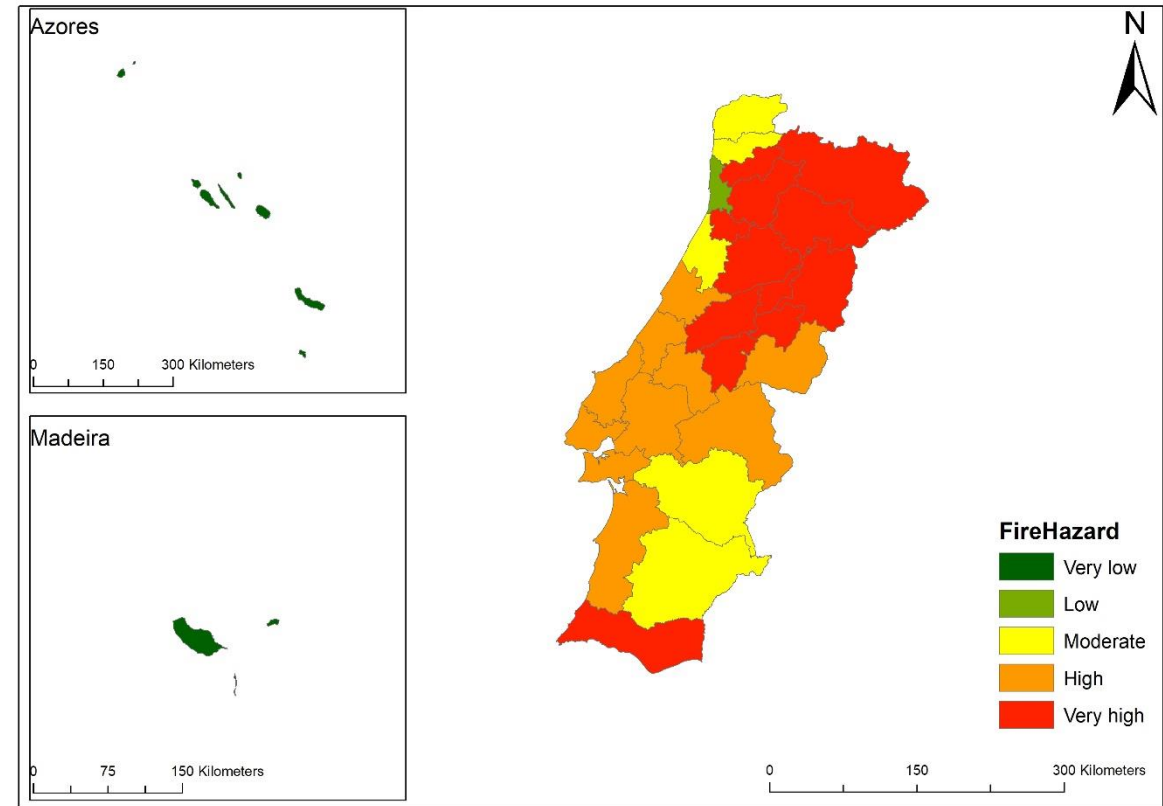


Fire hazard (ESPON, 2005)

### 3. The Rural Development Program 2007/2013



Expenditure on 226 (€/ha of forest)

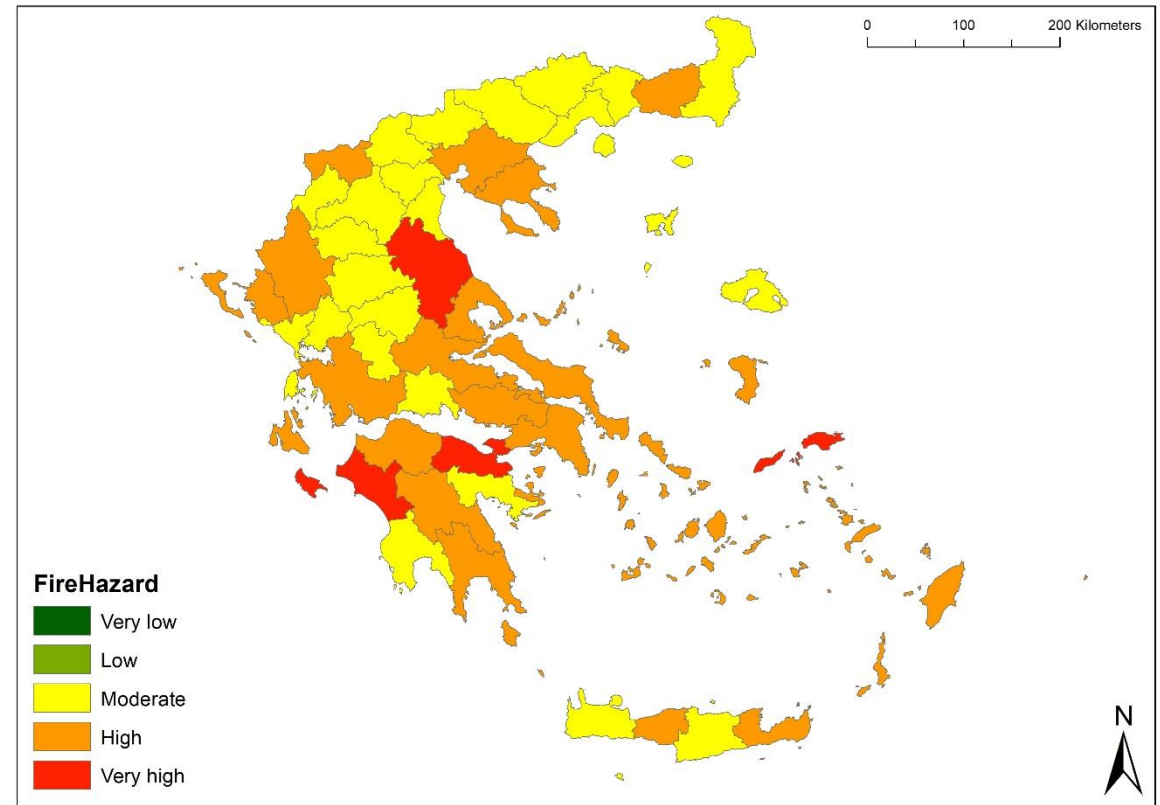


Fire hazard (ESPON, 2005)

### 3. The Rural Development Program 2007/2013



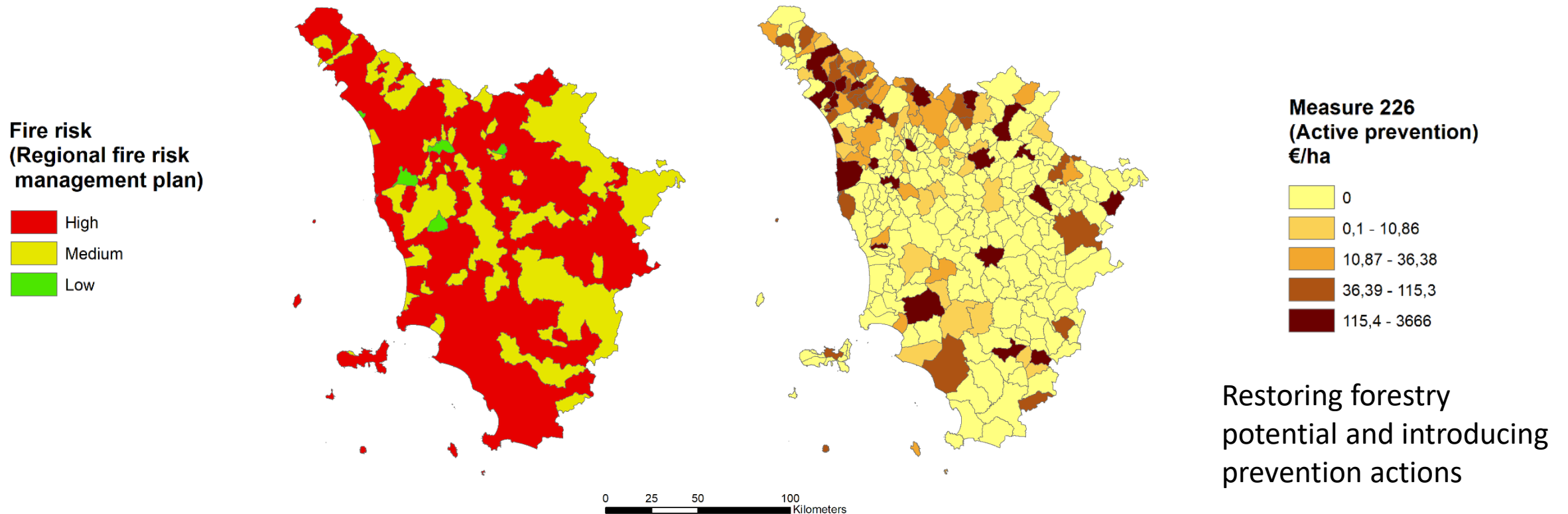
Expenditure on 226 (€/ha of forest)



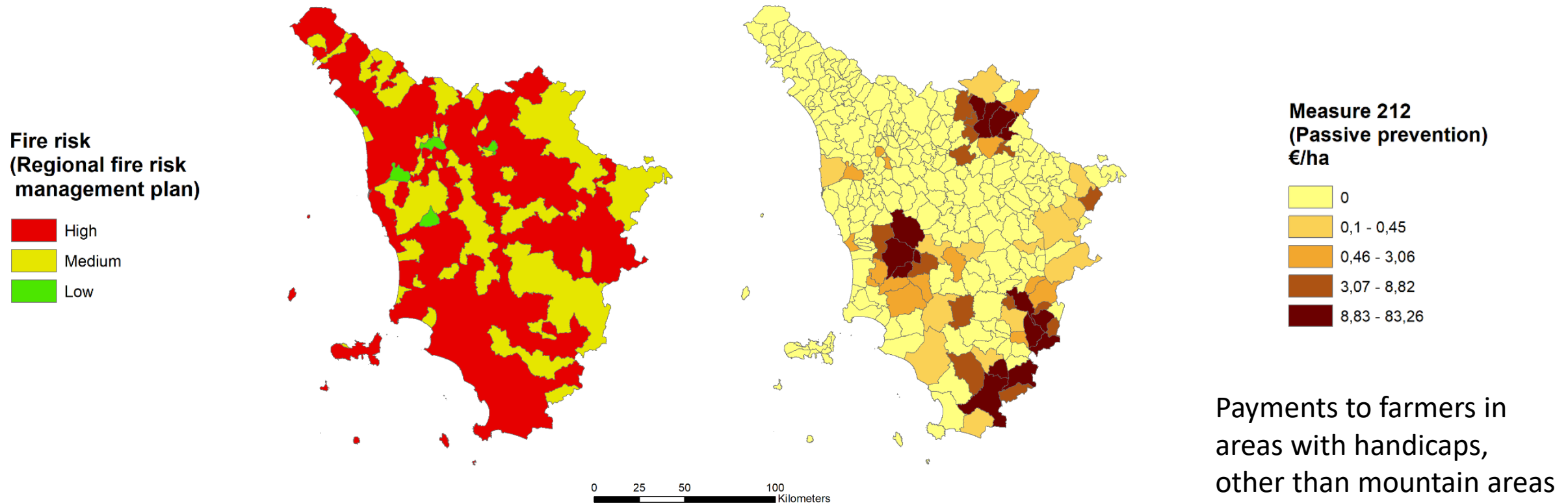
Fire hazard (according to ESPON, 2005)



## 4. Active VS Passive prevention: an example from Tuscany at municipality level









## 4. Active VS Passive prevention: an example from Tuscany at municipality level



## 5. The cost of extinction of a large fire in Tuscany



- A large fire (**1,069 hectares**) developed on Monte Serra (Calci, Pisa) on the evening of Monday 24<sup>th</sup> September 2018
- The operations specifically concerned **1,628** interventions by ground crews and **146** interventions by air units (6 helicopters from the Tuscany region; 11 aircrafts from the national civil protection)

Act. Code▼	Title	Event Date	Type	Country/Terr.	Feed
EMSR331	Forest Fire in Sithonia, Greece	2018-10-25	Wildfire	Greece	 
EMSR316	Forest Fire in Tuscany, Italy	2018-09-24	Wildfire	Italy	 
EMSR315	Fire in Brandenburg, Germany	2018-09-21	Wildfire	Germany	 

## 5. The cost of extinction of a large fire in Tuscany



Fire perimeter (in yellow) of the Calci wildfire (Pisa, Tuscany)

Based on costs of different means, the cost of extinguishing the Calci fire was estimated as:

Personnel: **324,652** euros

Coordination: **1,868** euros

Air vehicles: **1,166,957** euros

Total cost quantified in **1,493,477** euros,  
equivalent to **1,397** euros per hectare

= around **20%** of the amount spent **yearly** (on average) in the period 2007-2014 for fire prevention in Tuscany



## 6. Take-home messages

- In the case of RDP 2007-2013, the **226 measure** was financed in an extremely fragmented way across the examined territories
- Investments on active prevention has been lower than expected also in areas with very high risk of wildfire
- Rate of implementation is rather high in the case of Italy, Portugal and Spain (around 80% of the programmed expenditure), while Greece has spent just 15% of the programmed budget
- In the **RDP 2014-2020**, prevention against risks is included in measure **8.3** (prevention) and **8.4** (restoration from forest fires, natural disasters), with a **reduced programmed expenditure**
- Investments on fire prevention is very variable depending on the local application at regional level. The unitary volume of expenditure ranged from **36 €/ha** and and **1.7 €/ha**
- The cost of extinction of a large fire has been estimated of around **1400 €/ha**

## 6. Take-home messages

- To improve efficiency in resource allocation some possibilities may be:
  - specific **plans of fire prevention**, including private and public lands, are mandatory, in order to spatially optimize the amount of resources that need to be invested
  - **multi-measures calls** for integrated territorial projects finalized to fire prevention. These integrated projects can consider both active prevention (e.g. fuel management, firebreaks) and indirect measures with positive effect on fire prevention (e.g. active forest management, grazing)
- In that perspective, greater capacity of political dialogue and **coordination** between public Administrations will be needed, in order to establish synergies between public Institutions, in charge of the wildfire prevention planning, and RDP Management Authorities



# Thank you for your kind attention!

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For more information, the full text of the deliverables are freely downloadable at:

<https://www.prevailforestfires.eu/project/dissemination/>