Abstract
Recent advances in fire management led landscape officers to move away from a traditional fire-fighting approach in which the main effort is concentrated on fire suppression, toward an integrated fire-fighting strategy in which fire suppression is supported by prevention actions and by knowledge of local fire history and ecology. (Sweatnam et al. 1999; Silva et al. 2010, Conedera et al. 2011)
To this end, we propose a spatially explicit method for identifying fire ignition risk in the National Park of Cilento, Vallo di Diano and Alburni (southern Italy). The method combines the selectivity ratios of different landscape features that are thought to drive fire ignition in the study area, such as land cover or topography, into one single fire risk map by means of image segmentation and clustering procedures.

Introduction
Fire represents a basic ecological factor in driving vegetation and landscape dynamics. Several studies demonstrated that wildfires do not occur randomly across the landscape (Moreira et al. 2001; Nunes et al. 2005; Bajocco and Ricotta 2008). Rather their frequency, intensity, and distribution are controlled and determined by the coinciding of basic conditions, such as fire-prone land use and vegetation types (fuel), favorable climatic conditions (meteorology) and ignition energy provided by lightning or humans (Krawchuk et al. 2009; Bajocco et al. 2010).
In this view, understanding and predicting the patterns of fire risk play an essential role for improving the effectiveness of fire prevention, detection, and fire-fighting resource allocation. Given the importance of fire risk maps for landscape management and policy controls, in this work we propose a multivariate method for identifying and spatially portraying areas most prone to fire ignition in the National Park of Cilento, Vallo di Diano, and Alburni (southern Italy).

Base Data and landscape features
Fire database cover a period of 14 years (2000–2013). The dataset contains 2274 wildfire records. The total area burned is approximately 13751 ha. Fire sizes ranges from 0.01 to 700 ha, with 2044 fires that are less than 10 ha in size and only 16 fires that are larger than 100 ha. While these large fires represent less than 1 % of total records, they account for roughly 27 % of the total area burned in Cilento Region

Selectivity Analysis
In order to perform the selectivity analysis, each landscape feature was treated as a different GIS layer.
Other assumptions.
• Fire spreads across the landscape as a function of the abundance and spatial arrangement of susceptible habitats.
• Wildfires are not randomly distributed through the territory: certain land cover types are more fire-prone than others.
• Fire selectivity analysis is based on methods originally designed to study habitat selection by animals (Manly et al., 1993). Fire can be considered as an ‘herbivore’ (Moreira et al., 2001), that exhibits variable preferences for different resources.
• Fire is considered ‘selective’ when resources are used disproportionately to their availability

The contribution of each landscape feature to fire risk was assessed by testing its selectivity with respect to fire features, topographic features were divided into a variable number of equal-interval categories.

Discussion
Based on the results of the analysis the study area can be divided into three classes of increasing fire risk.

Class 1 = σ < 1 (mountain areas at low impact climate not favourable to ignition.

Class 2 = σ = 1,46 class with the highest fire risk. Located in the interior hills on marly flysch and along the coast were human pressure is highest especially during the fire season; for the summer tourism in the region.

Class 3 σ = 1,46 class with the highest fire risk. Located in the interior hills on marly flysch and along the coast human pressure is highest especially during the fire season; for the summer tourism in the region.

The selectivity index σ correlates the relative use of the resource with its relative availability in the study site.

ignition points VS landscape features

number of fires within each category

Bibliography