Selectivity patterns of wildland fires during the period 1984-2015 in selected places in Greece

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The aim of this study is to assess wildland fire selectivity patterns in selected places in South Greece including eleven NUTS-3 counties of which two are islands, from 1984 to 2015. Fire scar perimeters within the time window 1984-2015 were delineated from freely available Landsat images from USGS and ESA archives and maps of fire frequency and fire return interval were finally created. Derived from eight different Landsat scenes (path/row), almost six thousands satellite images processed and more than five thousand and eight hundred fire perimeters were extracted, in order to reconstruct the fire history of South Greece, in a thirty two years' period. Fire perimeters within each year of fire occurrence were compared against the available to burn under complete random processes to identify selectivity patterns over (i) CORINE land use/land cover, (ii) fire frequency and (iii) time since last fire maps.

Non- irrigated arable lands, complex cultivation patterns and discontinuous urban fabrics were negative related with fires, while coniferous forests, sclerophyllous vegetation and transitional woodlands were preferred by the fires. Additionally, it seems that fires prefer their old burnings (two and three times burned) and also places with different patterns of time since last fire depending on the time needed by the type of vegetation to recover and thus to re-burn. Interesting also findings were observed as far as fire selectivity patterns are concerned for the eleven NUTS-3 counties.