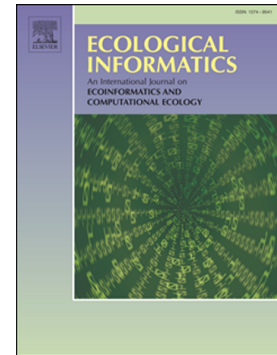


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Wildfire spatial pattern analysis in the Zagros Mountains, Iran: A comparative study of decision tree based classifiers

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Abstract

Knowledge of wildfire behavior is of key importance for planning and allocating resources to fire suppression efforts. In this study, we analyzed the spatial pattern of wildfires with five decision tree based classifiers, including alternating decision tree (ADT), classification and regression tree (CART), functional tree (FT), logistic model tree (LMT), and Naïve Bayes tree (NBT). The classifiers were trained using historical fire locations in the Zagros Mountains (Iran) from the years 2007–2014 and a set of fifteen explanatory variables (i.e., slope degree, aspect, altitude, plan curvature, topographic position index (TPI), topographic roughness index (TRI), topographic wetness index (TWI), mean annual temperature and rainfall, wind effect, soil type, land use, and proximity to settlements, roads, and rivers) that were first optimized with a twostep process using multicollinearity analysis and the Gain Ratio variable selection method. The

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