

Fitting a logistic regression model to forest biometric and soil data

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The logistic regression framework is designed for analysing the determinants of a categorical dependent variable. Typically, the dependent variable is binary and coded as 0 or 1; however, it may be multinomial and coded as an integer ranging from 1 to k. Studies usually conducted with logistic regression include epidemiology of disease (cohort or case-control), clinical trials, market research, transportation research (mode of travel), psychometric, econometric, demographic, sociological studies and voter-choice analysis. In this paper, a multinomial logistic regression model is fitted to the following forest data: site quality (dependent variable with five levels), exposure, petrification and soil (factors), altitude, incline, age, crown diameter, tree height, section size and timber yield (covariates). Data were extracted from the management study of the university forest of Taxiarchis (Northern Greece). Logistic regression proved to be quite useful for site quality prediction in the above-mentioned forest.