1. Integrating remote sensing and ground metrics to assess post-coppicing soil displacement and canopy recovery in a Mediterranean forest

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Coppicing has recently become a topic of discussion in scientific literature, primarily due to its potential link with soil erosion. Implementing a long-term monitoring program could help to resolve these issues. This study therefore aims to evaluate the effectiveness of combining remote sensing and field data to monitor changes in coppiced forest stands related to soil erosion in southwestern Sardinia. To this end, an erosion monitoring network was set up and satellite data covering the period 2018–2020 was used. Using this dataset, we calculated a set of vegetation indices and compared them with the morphological and topographic parameters of the study area. Furthermore, we compared the indices with soil data collected during fieldwork. Multivariate statistical methods (Random Forest and Piecewise Structural Equation Modelling) were employed to investigate the relationships between the matrix of vegetation indices, topographic and vegetation parameters, and the collected soil data. This analysis described the evolution of forest stands in the study area in relation to soil loss. The results emphasise the site-specific nature of the soil displacement process and demonstrate the effectiveness of integrating multi-source data to describe the dynamics of vegetation in post-coppicing areas.