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The Role of Land Mines, Ethnicity, and Geography in Explaining Land Cover Change in Bosnia and Herzegovina

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This study aimed to quantify agricultural land abandonment in Bosnia and Herzegovina (BiH) from 1990 to 2023, as well as exploring drivers of agricultural abandonment and its linkages to the armed conflict. For this purpose, land use and land cover maps in 1990 and 2023 were produced using Landsat and Sentinel data and random forest classifier. Then, a post-classification change detection approach was applied to map agricultural land abandonment. Finally, a spatially explicit model was constructed to assess the influence of 16 variables on the abandonment of agricultural land, using boosted regression trees. The proposed approaches yielded a meaningful quantification of agricultural land abandonment in BiH, with an approximate 336 ± 30 thousand hectares, or approximately 36% of the estimated agricultural cover in 1990, assessed as abandoned by 2023. The modelling of agricultural abandonment drivers suggested that the most powerful determinants of abandonment in BiH were those related to the biophysical characteristics of the land, although the polarization index in 1991 and the distance to minefields variables were also assessed as influential.



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