

Supplementary material for Quantification of soil organic carbon stocks in Nepal's forests

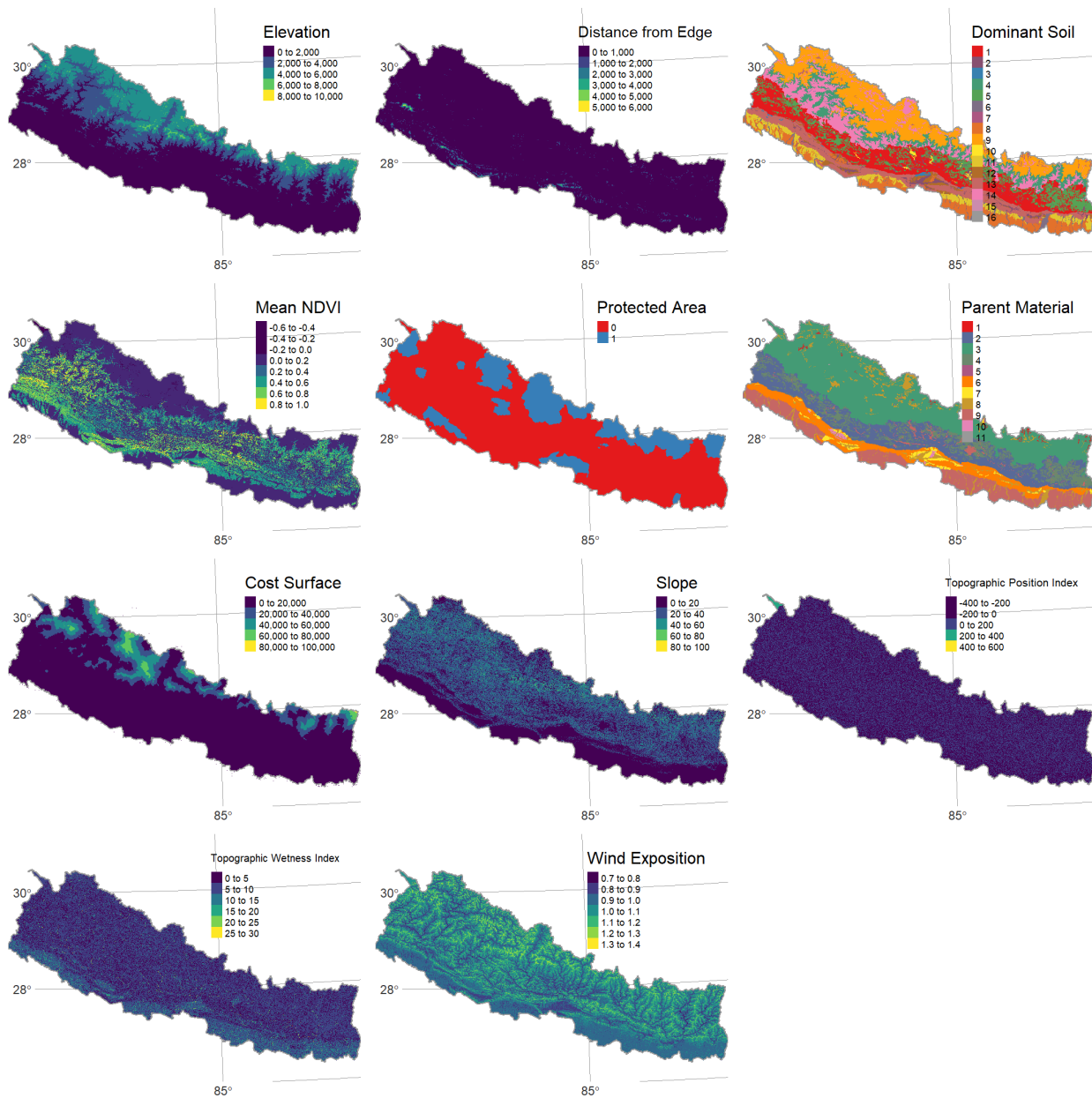


Figure S1: Predictors used for forest SOC modelling and prediction.

S0.1 Uncertainty of predicted forest SOC

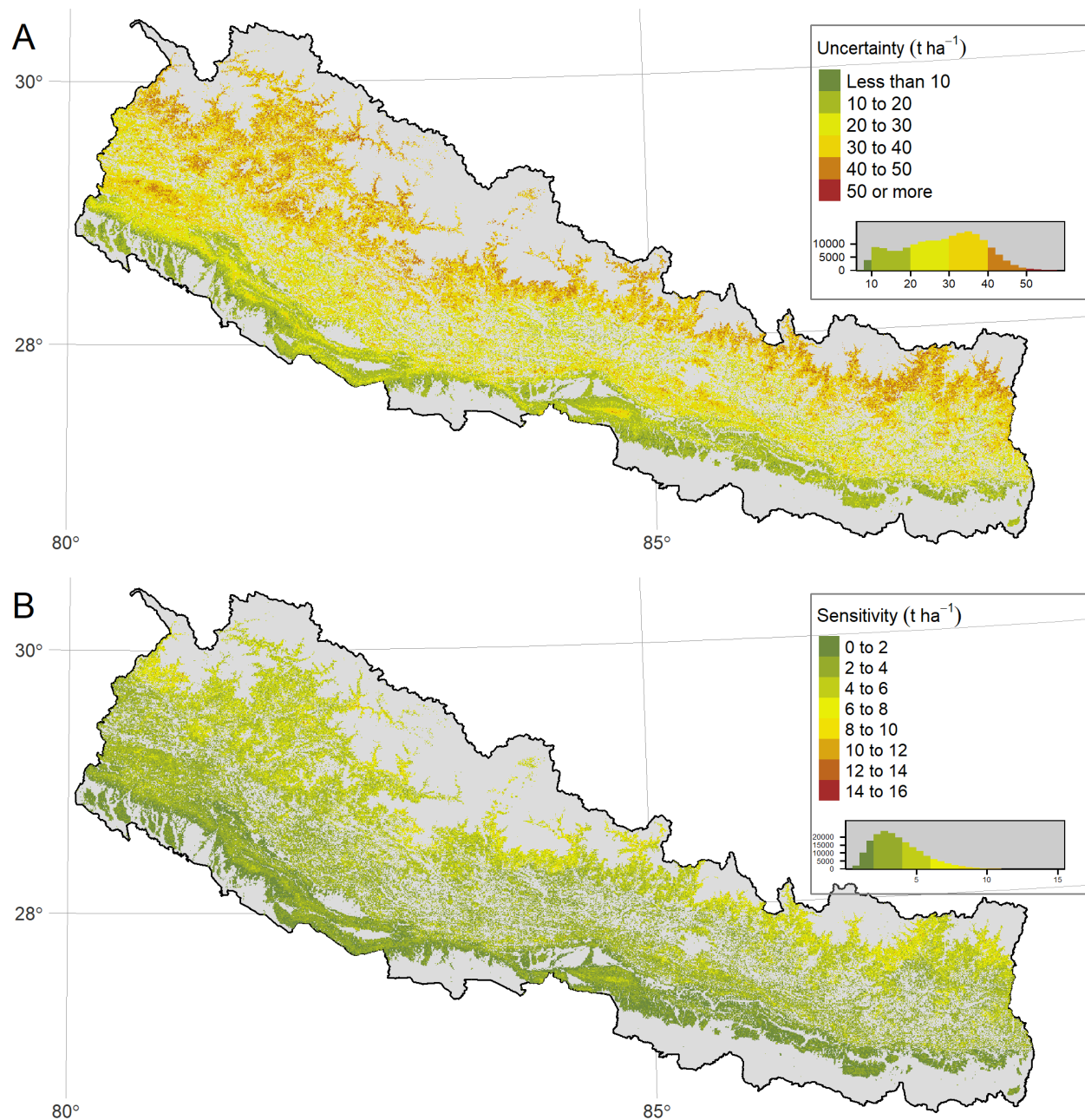


Figure S2: Standard deviation of 10-fold CV prediction of SOC. Panel A shows the model uncertainty, and Panel B shows the sensitivity due to the sample plot design.

S0.2 Comparison of observed forest SOC and existing global SOC data

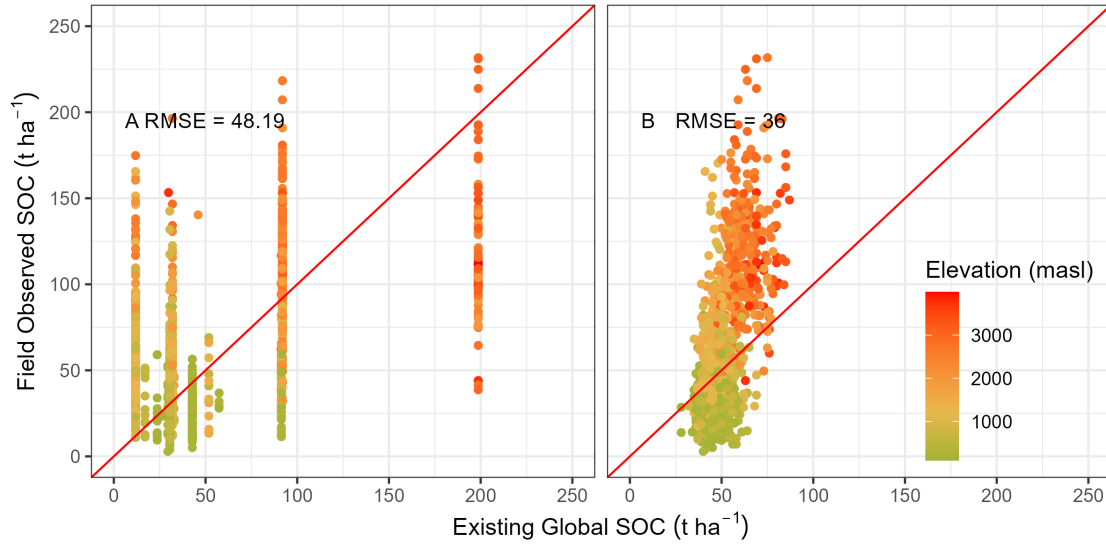


Figure S3: Comparison of field observations of forest soil organic carbon (SOC) against existing global-scale products. The color gradient represents the elevation of the input plot location. Panel A compares plot-level SOC estimates against the GSOCCmap¹, while Panel B compares them against SoilGrids250m². The red line in both panels represents the 1:1 line, and the root mean square error (RMSE) is expressed in t ha^{-1} .

S0.3 Comparison of observed SOC and global SOC data by elevation class

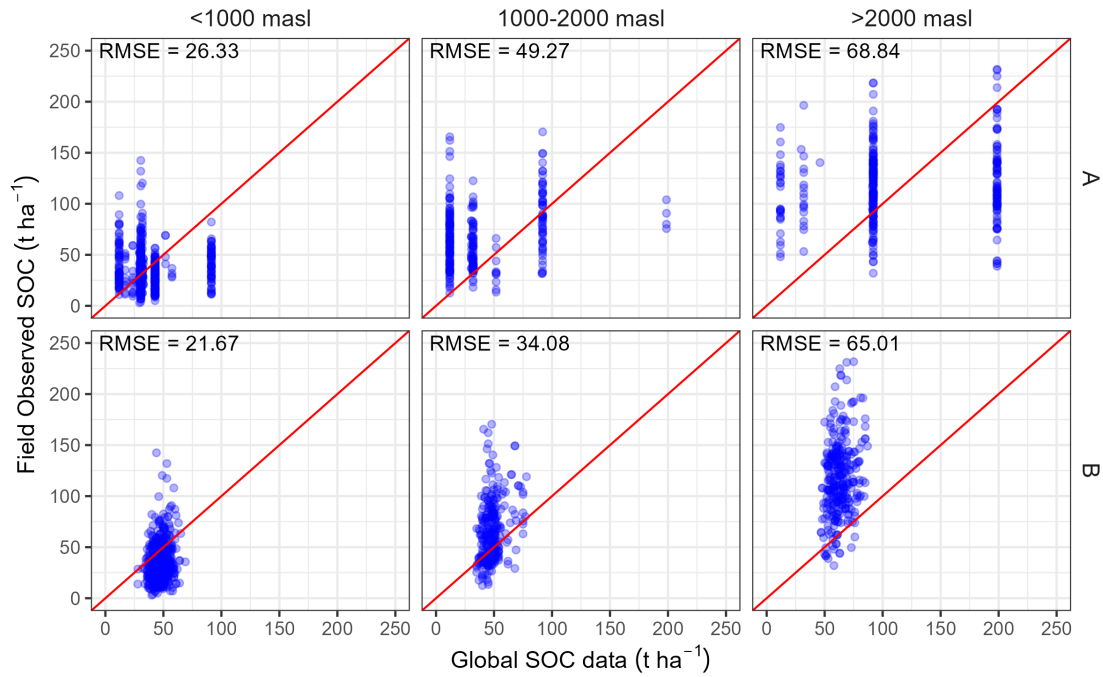


Figure S4: Comparison of field observations of forest soil organic carbon (SOC) from forest inventory plots and existing global-scale estimates. Panels in row A compare plot-level SOC estimates against GSOCSmap¹ and B against SoilGrids250m² for three elevation ranges. The red line in all panels represents the 1:1 line, and the root mean square error (RMSE) is expressed in t ha^{-1} .

S0.4 Comparison of predicted forest SOC and existing global SOC data by elevation class

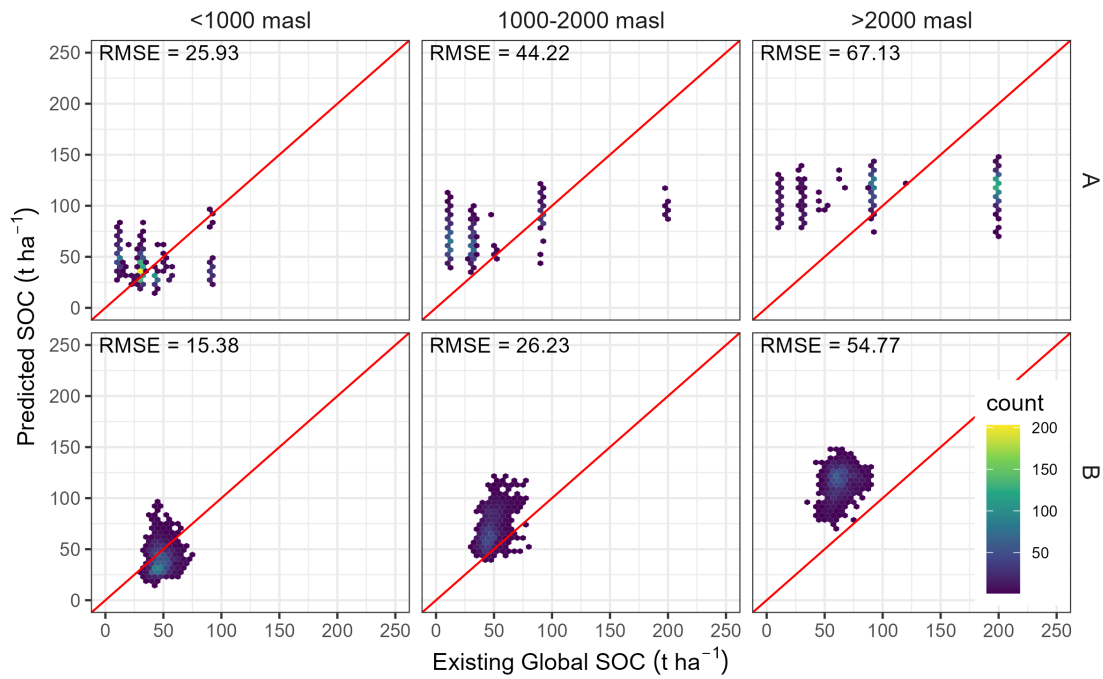


Figure S5: Comparison of predicted forest SOC in Nepal and estimates from existing global data products. Panels in row A compare predicted SOC against GSOcmap¹ and B against SoilGrids250m² for three elevation ranges. Random 800 points were generated for this comparison. The red line in all panels represents the 1:1 line, and the root mean square error (RMSE) is expressed in t ha^{-1} .

1. FAO & ITPS. *Global soil organic carbon map (GSOcmap), version 1.5.0*. <http://54.229.242.119/GSOcmap/#> (2018).
2. Hengl, T. *et al.* SoilGrids250m: Global gridded soil information based on machine learning. *PLOS ONE* **12**, e0169748 (2017).