

Fig. S1: Regression between total soil N stocks and Plant N uptake. The equation describing the regression and p-value is provided

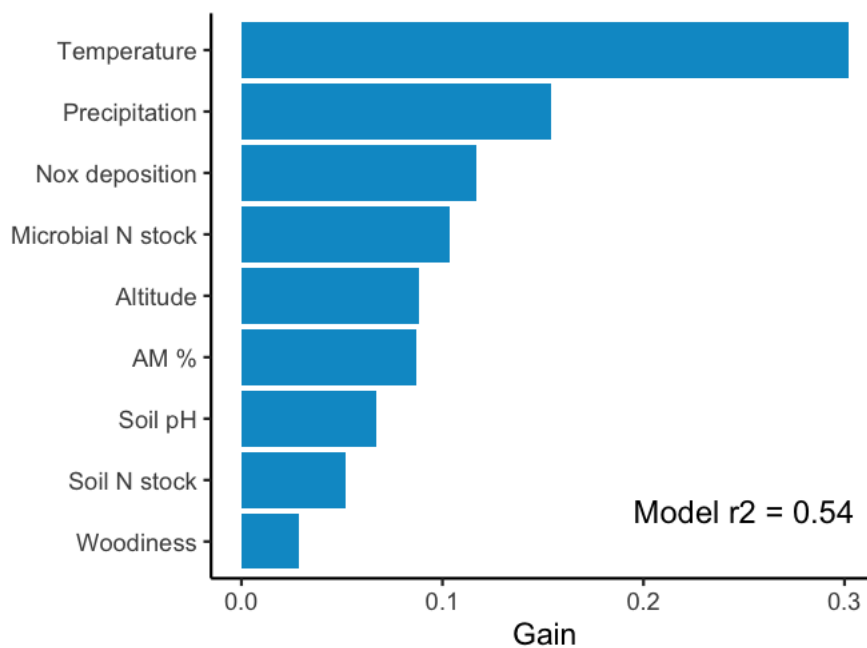


Fig. S2: Variable importance from XGBoost model describing plant nitrogen uptake. R^2 of the validation dataset is provided.

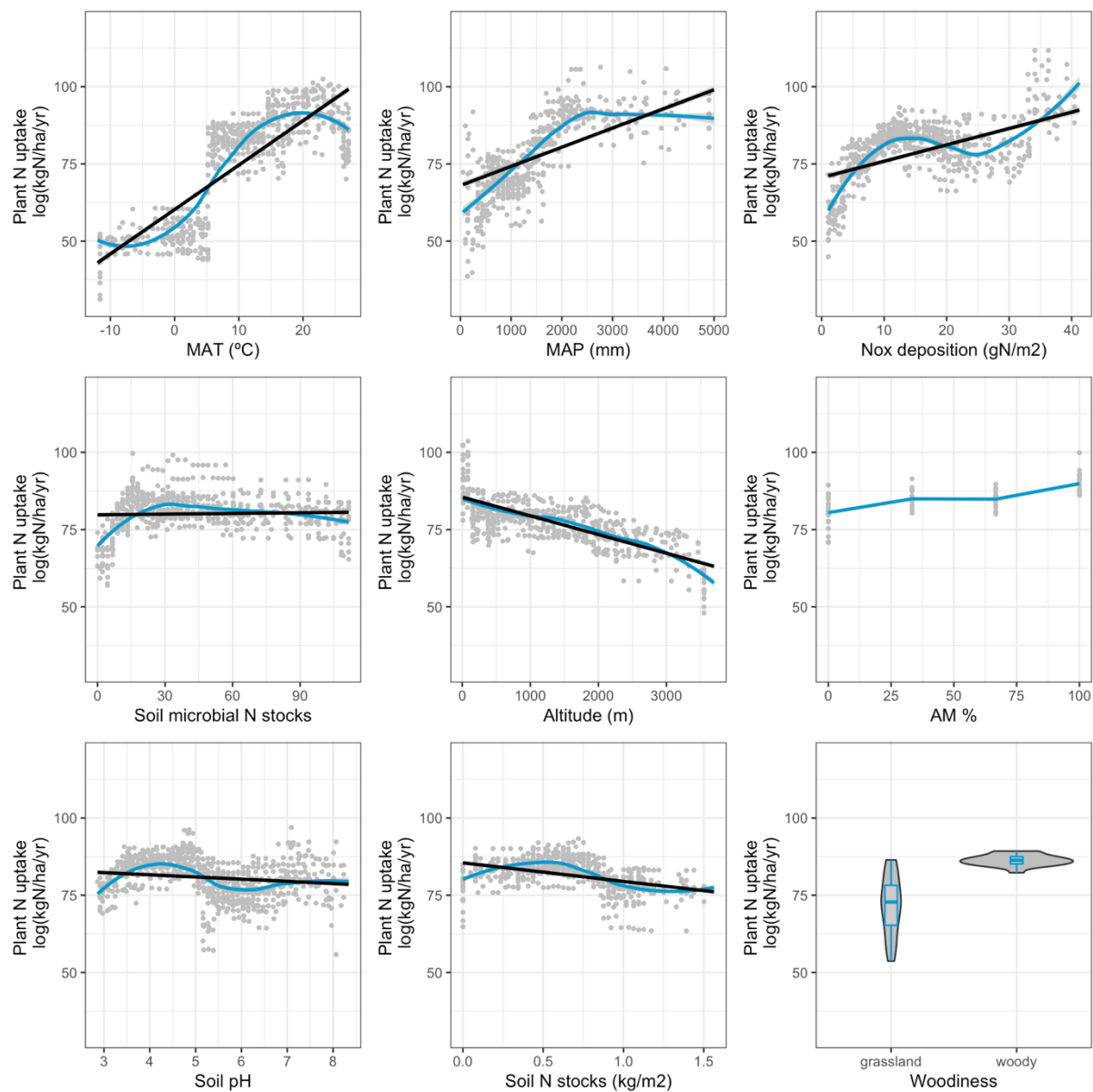


Fig. S3: Partial dependence plots describing the response in the predictions between each individual variable and plant nitrogen uptake. They are displayed in order of importance. Linear fit in black and curve fit in blue.

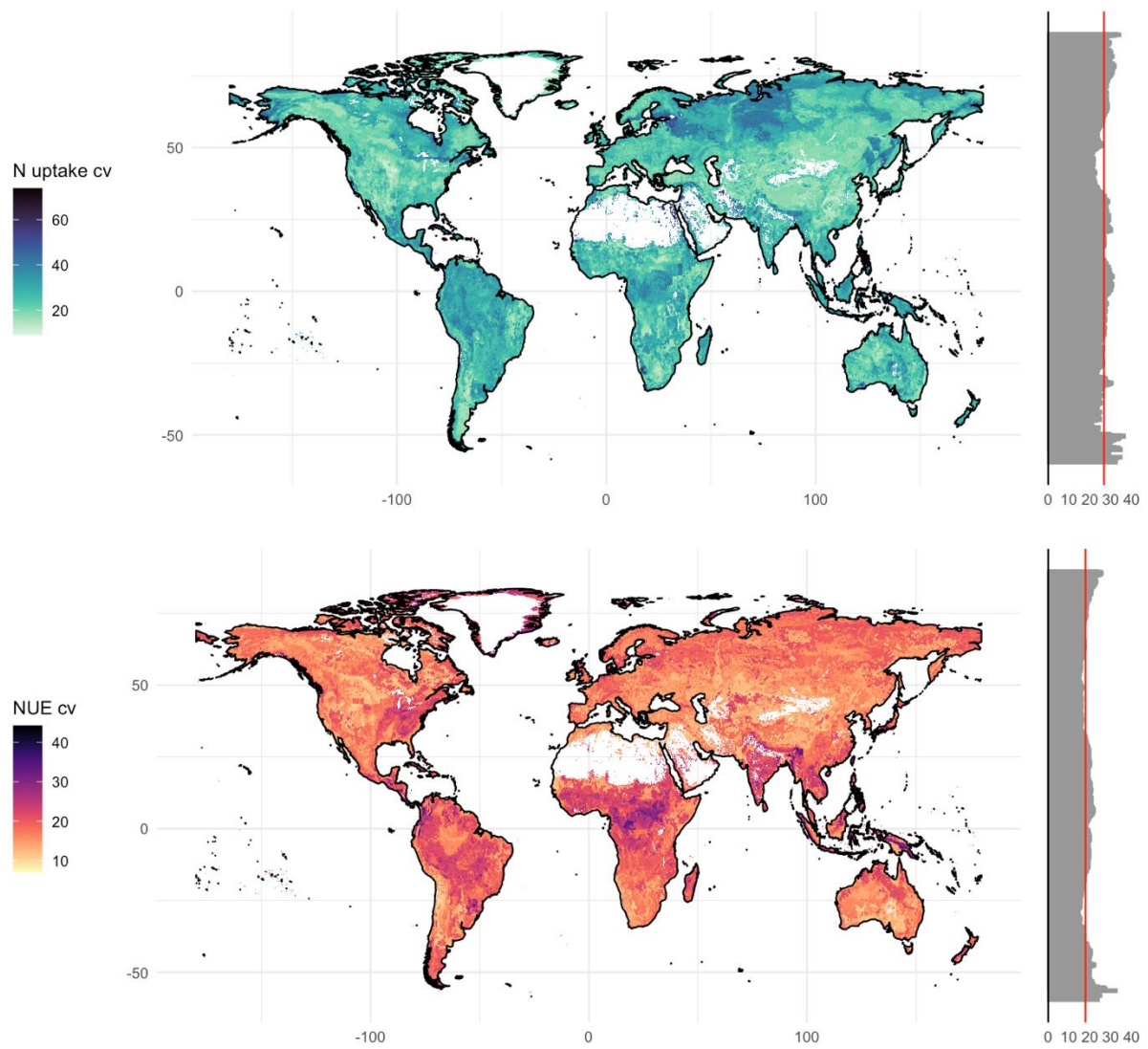


Fig. S4: Coefficient of variation maps of plant nitrogen uptake predictions and nitrogen use efficiency predictions. Latitudinal aggregation is displayed on the right with a red vertical line describing each variable's mean.

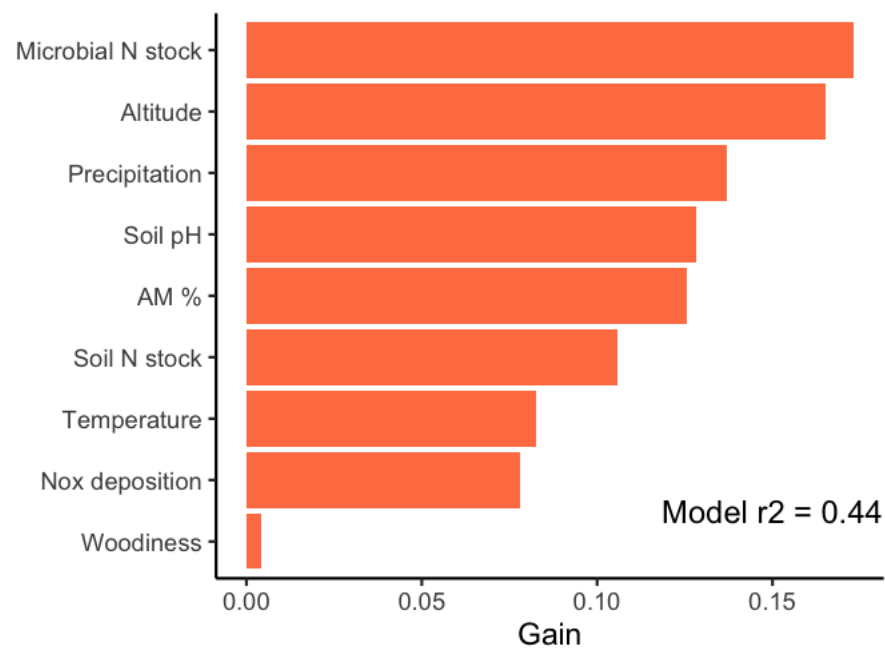


Fig. S5: Variable importance from XGBoost model describing plant nitrogen use efficiency. R^2 of the validation dataset is provided.

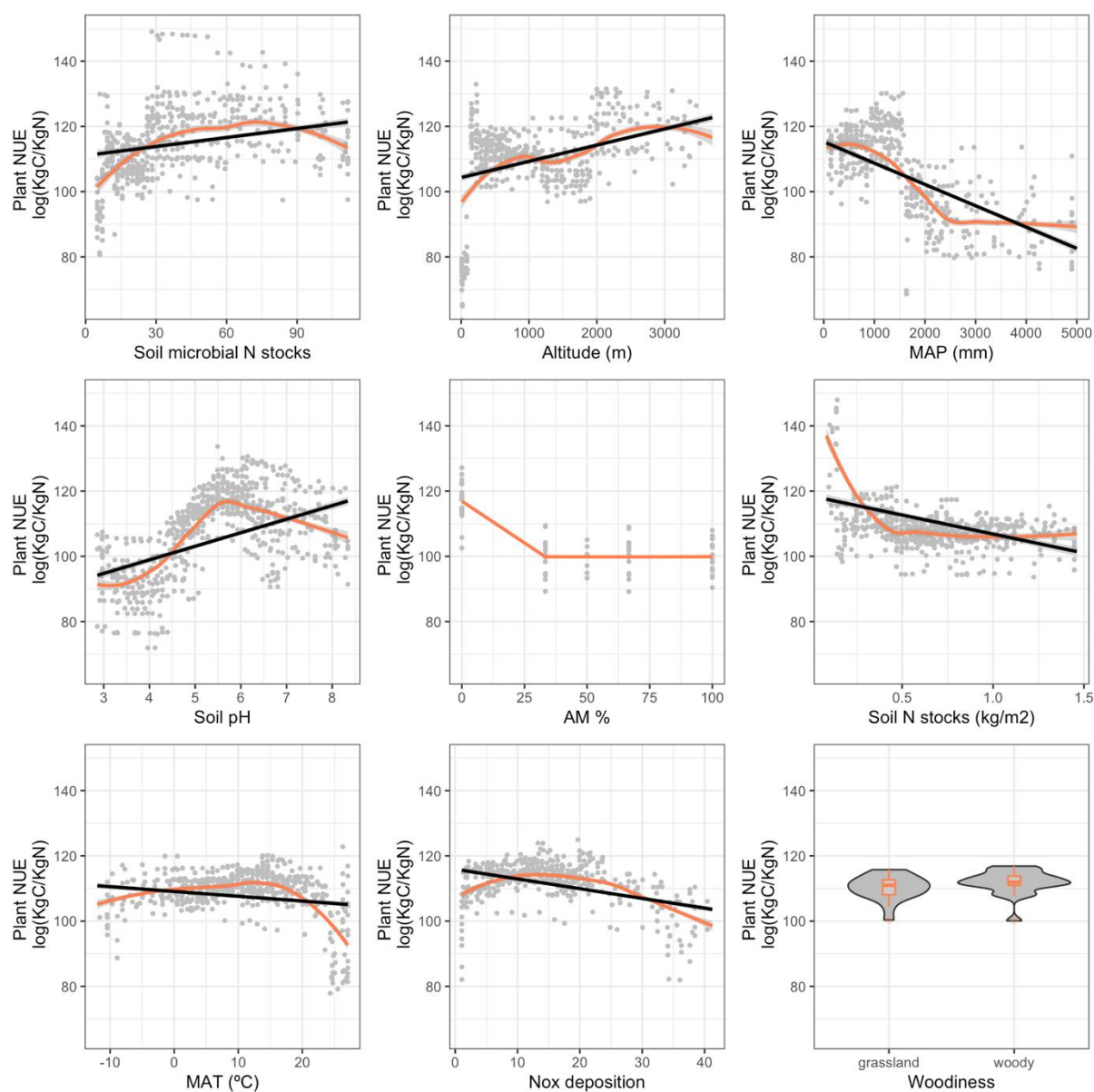


Fig. S6: Partial dependence plots describing the response in the predictions between each individual variable and plant nitrogen use efficiency. They are displayed in order of importance. Linear fit in black and curve fit in orange.

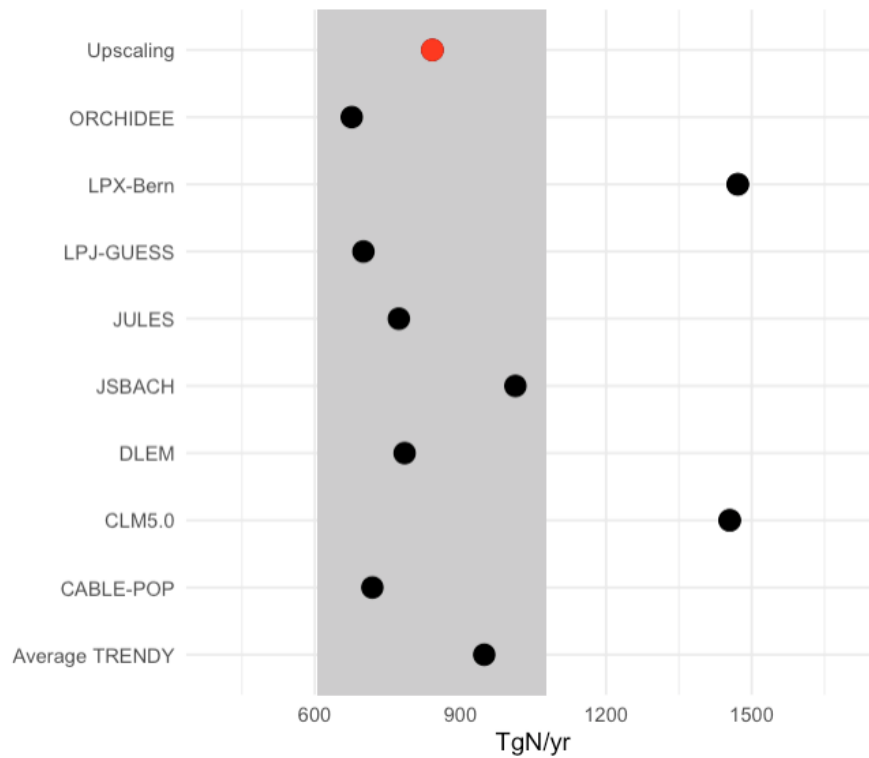


Fig. S7: Plot describing the total plant nitrogen uptake projected in each model. In red, there is the upscaling approach calculated in this study with its corresponding standard deviation value.

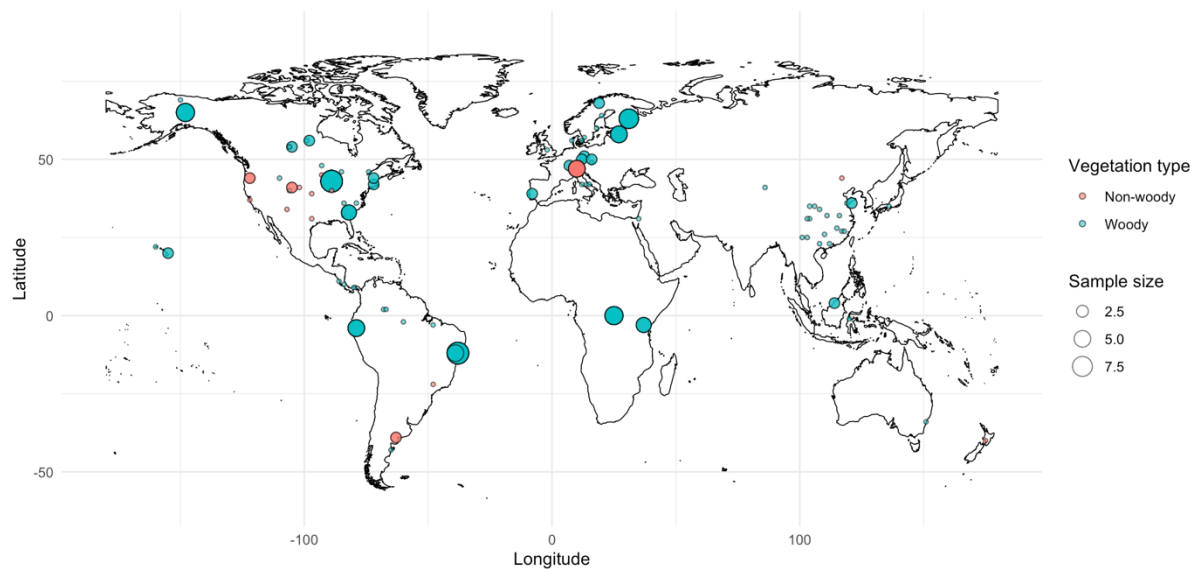


Fig. S8: Description of the study sampling points aggregated at 1 degree latitude and longitude. In blue woody vegetation is displayed and in orange grasslands are displayed. Circle size determines data agglomerations.

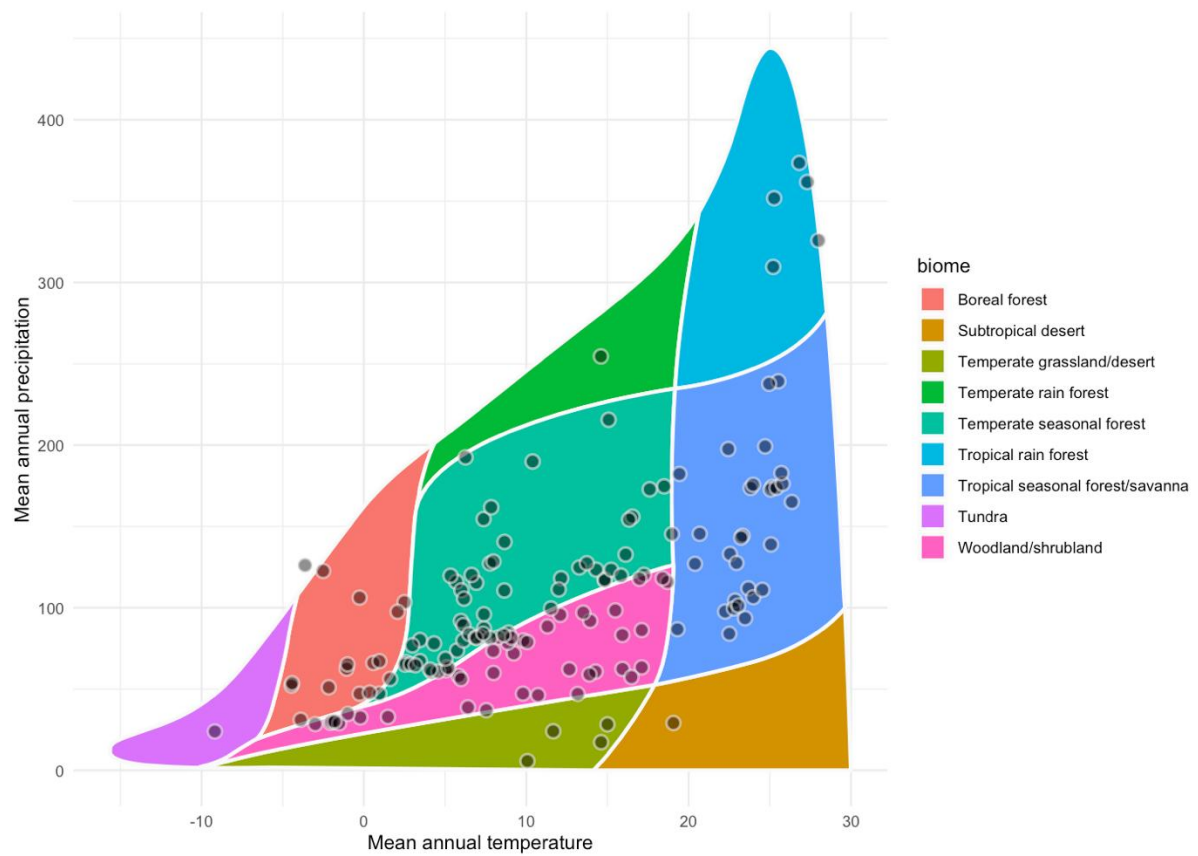


Fig. S9: Whittaker distribution of the data among biomes.

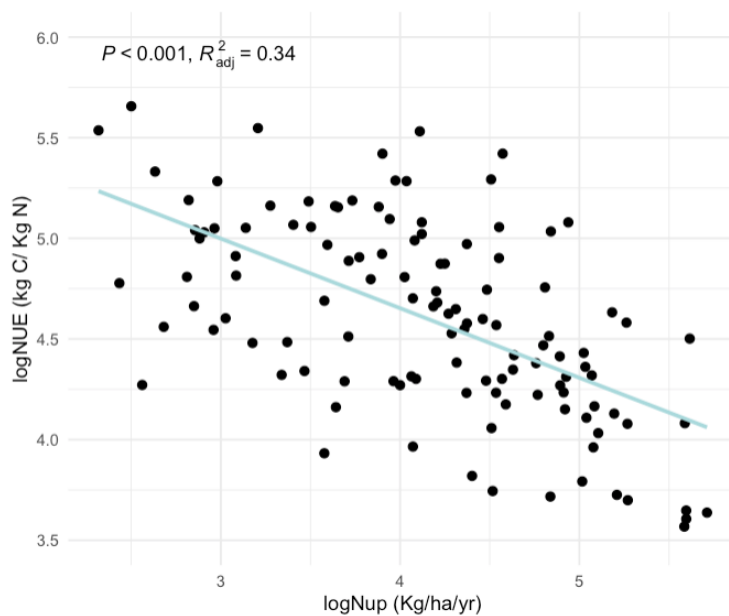


Fig. S10: Correlation between plant N uptake and plant N use efficiency. Both log transformed to fulfill normality requirements.