Biodiversity Mapping by Remote Sensing Based Method And Ecological stratification

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Abstract: Using spaceborne remote sensing data to measure biodiversity has been considerable to recent interest. This paper proposes a modeling approach for quantifying spatial distribution of plant species using decision tree algorithm and incorporation of climatic, topographic data and Moderate Resolution Imaging Spectroradiometer producing 16 dependent variables. The plant species richness derived from Korean National Forest Inventory (NFI) plots is used as the ground truth data as well as an independent variable in modeling process. Moreover, Genetic Algorithm was used to select optimal variables among 16 predictor variables; and in order to improve accuracy of the model, ecological stratification was conducted. As the result, the model applied for Kangwon province, South Korea shows that overall accuracies were consistently over 80% in all cases including the original, variables survived selection and ecological stratification. More interestingly, ecological stratifications with soil and bedrock type presented in the study were the most effective criterions than others.

Keyword: Biodiversity, MODIS, decision tree, Ecological Stratification.