

1128-92-275

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Modeling Tree Species Distribution as a Function of Climate.

Plant species distribution is a complicated and multidimensional problem. Knowing how the potential area of a given species changes when various climate variables are introduced could allow us to assess which variables have the largest effect on the potential area the species occupies. Plant distributions are at least somewhat based on climate and knowing more about which aspects of climate a particular species is may help further understand the biology and physiology of that plant species. While there are many different factors that impact plant distribution (i.e. human influence, competition with other organisms, geographic barriers) our original analysis looks at just how climate alone can explain the realized distribution of a species. We utilized datamining and multivariable statistics to combine data from WorldClim and FIA (Forest Inventory and Analysis) databases for information on the current distribution of tree species in the conterminous United States and the climate in those locations. We have employed several methods (Brute Force, Greedy Algorithm, Refined Greedy Algorithm, and Shapley Values) to analyses distribution of White Oak and Sitka Spruce in the conterminous United States. (Received February 28, 2017)