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Modelling effect of climate change on the potential invasion range of an invasive plant, mailing bamboo in Darjeeling Himalaya

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Climate change and biotic invasion can synergistically alter tropical biodiversity. In this study effect of global climate change on potential invasion range of a noxious invasive species; mailing bamboo (*Yushania mailing*) was modelled for the projected HADCM3 A2a and B2a climate change scenarios. The current and future potential distribution ranges of mailing bamboo were modelled with occurrence data, and eco-physiologically significant bioclimatic predictors using a novel approach based on maximum entropy gain. High prediction accuracies (AUCs>0.95) were achieved for the current as well as the future predictions. Principal components analysis (PCA) was performed on the native and invaded range records of mailing bamboo to examine the conservation/differentiation of niches. The results showed that latitudinal expanse of suitable habitat potential distribution of mailing bamboo will occur in A2a scenario with respect to current potential distribution and B2a 2050 future scenario. Protected areas i.e., Singalila National Park, Barsey Wildlife Sanctuary, Neora valley National Park and Senchal Wildlife Sanctuary were modelled as highly suitable areas under both climate change scenarios. The effect of climate change can led to enlargement, retreat, shift as well as formation of new niches of mailing bamboo. Overall the current potential invasion range of mailing bamboo would enlarge in future climate scenario, with more expanse in A2a scenario than B2a. The occurrence of several temperate global biodiversity hotspots within the modelled potential invasion range of mailing bamboo, signify greater threats to temperate biodiversity.

Biography

Vivek Srivastava completed his Graduation in Forestry from Garhwal University and Masters in Remote Sensing and GIS from Indian Institute of Remote Sensing, ISRO. Presently, he is working as an Assistant Professor at Lovely Professional University, Jalandhar, India.

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