Habitat Distribution Modelling of Seabuckthorn (*Hippophae salicifolia* D. Don.) in Sikkim, Eastern Himalaya, India

Arun Chettri, Aditya Pradhan, Ghanashyam Sharma[1], Bharat K. Pradhan[2] and Dhani Raj Chhetri[*]

Department of Botany, Sikkim University, Sikkim-737 102, India
[1]The Mountain Institute India, Tadong, Gangtok-737 101, India
[2]Sikkim Biodiversity Board, Forest, Environment & Wildlife Management Department, Deorali, Gangtok-737 102, India
[*]E-mail: drchhetri@cus.ac.in

Abstract: Seabuckthorn (*Hippophae salicifolia*) is one of the underutilized plant species having enormous potential for socio-economic upliftment and sustainable livelihood of rural communities. In Sikkim it grows naturally in Lachen and Lachung valleys of North district and it has not been explored for economic benefits. Due to its restricted distribution in Sikkim, ecological niche modelling (ENM) was performed to identify suitable habitat for *in-situ* conservation through identification of suitable areas and for further reintroduction in its natural habitat. The model was developed using Maximum Entropy (MaxEnt) distribution modelling algorithm and predicted that the suitable habitats of Seabuckthornare restricted to an area of *ca.* 286 km^2 in Sikkim. The distribution of the potential habitat was strongly influenced by NDVI layer for October and January, which corresponds to the period of fruiting phenology of the species, thus indicating the importance of fruiting phenology in determining the distribution of the species. Population status was positively correlated with very high model thresholds at three locations, confirming the usefulness of the habitat model in population monitoring. Therefore the approach presented here emerge to be quite promising in predicting the suitable habitat for species with restricted distribution and moreover it can be an effective tool for conservation planning, monitoring and management of the species.

Keywords: Seabuckthorn, ENM, Conservation, Macro propagation, Protected area