Species distribution modeling of *Taxus wallichiana* (Himalayan Yew) in Nepal Himalaya

Jyoti Prasad Gajurel[1,2]* Silke Werth[2,3,4] Krishna Kumar Shrestha[1] and Christoph Scheidegger[2]

[1]*Central Department of Botany, Tribhuvan University, Kirtipur, Kathmandu, Nepal.*
[2]*WSL Swiss Federal Research Institute, Zürcherstrasse 111, CH-8903 Birmensdorf, Switzerland.*
[3]*Institute for Plant Sciences, University of Graz, Holteigasse 6, 8010 Graz, Austria.*
[4]*Faculty of Life and Environmental Sciences, University of Iceland , Reykjavik, Iceland.*
*Corresponding Author's E-mail: gajurelomjyoti@yahoo.com

ABSTRACT

Predictions on potential sites of endangered species like *Taxus wallichiana* (Himalayan Yew) could help the conservation of this species. Based on collection information of 124 study sites and 18 herbarium records from the Southern slopes of Nepal Himalaya, we used species distribution modeling as implemented in Maxent. The information from collection sites of the herbarium specimens and some of our own collections were used to validate model predictions. Our study revealed two species distribution models with slightly higher AUC. The model with eco-physiologically important bioclimatic variables seems to perform best, covering most potential sites of *Taxus wallichiana*. Our results also showed that predicted potential distribution based on current conditions and future projections showed effects of climate change on distribution of *T. wallichiana*. We found that there will be more areas of less impact while fewer areas will have severe effects. This study also revealed that the most suitable altitudinal range was from 2600-3000 m a.s.l. while temperature and precipitation played important role in the species. The altitudinal boundaries observed in each research site suggest the precise distribution in Nepal Himalaya. Results from our models can be utilized for developing conservation strategies for the species in the Nepal Himalaya.