

Conservation Planning of Paris Polyphylla Smith, an Important Medicinal Herb of the Indian Himalayan Region Using Predictive Distribution Modelling

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Abstract : Paris polyphylla Smith (Family- Liliaceae; English name-Love apple: Local name- Satuwa) is an important folk medicinal herb of the Indian subcontinent, being a source of number of bioactive compounds for drug formulation. The rhizomes are widely used as antihelmintic, antispasmodic, digestive stomachic, expectorant and vermifuge, antimicrobial, anti-inflammatory, heart and vascular malady, anti-fertility and sedative. Keeping in view of this, the species is being constantly removed from nature for trade and various pharmaceuticals purpose, as a result, the availability of the species in its natural habitat is decreasing. In this context, it would be pertinent to conserve this species and reintroduce them in its natural habitat. Predictive distribution modelling of this species was performed in Western Himalayan Region. One such recent method is Ecological Niche Modelling, also popularly known as Species distribution modelling, which uses computer algorithms to generate predictive maps of species distributions in a geographic space by correlating the point distributional data with a set of environmental raster data. In case of P. polyphylla, and to understand its potential distribution zones and setting up of artificial introductions, or selecting conservation sites, and conservation and management of their native habitat. Among the different districts of Uttarakhand (28°05'-31°25' N and 77°45'-81°45' E) Uttarkashi, Rudraprayag, Chamoli, Pauri Garhwal and some parts of Bageshwar, 'Maximum Entropy' (Maxent) has predicted wider potential distribution of P. polyphylla Smith. Distribution of P. polyphylla is mainly governed by Precipitation of Driest Quarter and Mean Diurnal Range i.e., 27.08% and 18.99% respectively which indicates that humidity (27%) and average temperature (19°C) might be suitable for better growth of Paris polyphylla.

Keywords : biodiversity conservation, Indian Himalayan region, Paris polyphylla, predictive distribution modelling

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