

## **Rare and endangered woody plants of the Sary-Chelek State Biosphere Reserve**

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Receipt: 07.10.2024

Revised: 22.10.2024

Acceptance: 27.10.24

DOI: 10.53552/ijmfmap.10.2.2024.67-73

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### **ABSTRACT**

*The research conducted in Sary-Chelek State Biosphere Reserve focuses on assessing the status of rare and endangered woody plants. Through field studies and literature analysis, the species composition, population size, and spatial distribution of these species were investigated. This article presents the results of an in-depth study of rare and endangered woody plants such as Semenov Fir (*Abies semenovii* B. Fedtsch.), Usunakhmat grape (*Vitis usunachmatica* Vass.), Crabapple (*Malus sieversii* (Ledeb.) M. Roem.), Nedzvetsky's Apple (*Malus niedzwetzkyana* Dieck.), and Persian Rowan (*Sorbus persica* Hedl.), found within the Sary-Chelek State Reserve. Extensive long-term field studies conducted by the authors have yielded substantial data on the status of rare species populations. The analysis of the obtained data, combined with a review of the literature, allowed for a detailed characterization of the ecological features of these rare woody plants. Based on the results, recommendations were developed for biodiversity conservation and effective strategies for protecting these species. Proposed measures include the establishment of special protected zones, monitoring population status restoring degraded ecosystems, and conducting educational outreach among the local community. These findings are significant for developing long-term management plans for the reserve and can be utilized in creating regional biodiversity conservation programs.*

**Keywords:** Biodiversity, endangered tree species, environment protection, rare woody plants, Sary-Chelek State Reserve.