

A Situational Analysis of Critically Endangered (Possibly Extinct) Plant Species in Sri Lanka

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Abstract

Sri Lankan flora and fauna are significant on both global and regional scales due to its rich diversity, high endemism, and unique position in the Indian Ocean. The island flora has a greater risk of extinction than the mainland population. The Critically Endangered (Possibly Extinct) [CR (PE)] plant species are those that are likely to be extinct and yet those have little possibility for rediscovering. The National Red List (2020) reports 137 CR (PE) plant species including 55 endemics (48%) in 47 families. The aim of this study was to analyze the current status and future prospects of CR (PE) plant species using past records while assessing their distributional pattern. The National Red List-2020 was used as a base document. The Flora of Ceylon (Volumes: 1-15) was used to extract the information on the locality, date, collector, and herbarium of each species. The QGIS software was used to map out the geographical distribution pattern of candidate species. The probable areas for the occurrence of selected species were identified. Results revealed that out of 321 specimens deposited in 16 worldwide herbaria, the National Herbarium, Peradeniya (PDA), Kew Herbarium, London (K), and Natural History Museum, London (BM) are holding 221 (69%), 126 (39%) and 41 (12%) specimens of CR (PE) plant species, respectively. Out of the 47 families assessed, the highest number of CR (PE) species was recorded from the family Poaceae (15 spp.) including 7 endemics. Though species show scattered distribution pattern across the island, approximately 77 species including 31 endemic (58%) have been confined to the wet zone of Sri Lanka. It is further identified that the central highland and southwest of Sri Lanka as hotspots for CR (PE) plant species in Sri Lanka. The distribution map shows that species are scattered within 19 administrative districts of Sri Lanka. Of which, NuwaraEliya (20%) and Kandy (29%) districts are the priority and most sensitive areas for the occurrence of CR (PE) species. It is further revealed that 79 species including 28 endemics (59%) have been confined to a single locality. This analysis would lead to a clear understanding of the possible area for new localities of CR (PE) plant species in Sri Lanka, which could be useful for the rediscovery and conservation of these species.

Keywords: Biodiversity conservation, Geographically distribution, Climatic factors, Extinction, Endemism