

A strategy for managing wild orchid diversity: A case study from Sri Lanka

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Abstract

A total of 193 wild orchid species are recorded in Sri Lanka of which 55 are endemic. Although the list is substantial, not all species are common: some may be widespread while others are uncommon or threatened. The objective of the project was to identify, locate, and secure such threatened species, cultivate them ex-situ and reintroduce them to the appropriate habitats. Three different ecosystems (forest, riverine and montane) from Wet and Dry climatic zones in two provinces (Wayamba and Sabaragamuwa) were selected for the study. Early Detection and Distribution Mapping System (EDDMapS) and inquiry of locals in the area were used for data collection. Both primary and secondary information sources, such as National Orchid Inquiries List and Red Data Book etc were also used. Samples for tissue culture were carefully removed without damaging for the mother plant. The following species were successfully propagated and reintroduced to their respective habitats: *Arundina graminifolia*, *Cottonia peduncularis*, *Dendrobium aphyllum*, *Dendrobium maccarthiae*, *Eria lindleyi*, *Ipsea speciosa*, *Luisia zeylanica*, *Nervilia* sp. and *Vanda tessellata*. According to analysis of field observation and peoples' perception data it was found that following ground orchids became near extinct: *Calanthe sylvatica*, *Hebenaria rhynchocarpa*, *Ipsea speciosa*, *Malaxis densiflora*, *Nervilia plicata*, *Peristylus brevilobus*, *Peristylus trimenii*, *Zeuxine regia*, due to extensive use of weedicide in home gardens, tea and rubber plantations while a few species *Malaxis densiflora*, *Habenaria plantaginea* are facing extinction risk due to extraction for horticulture. Rapid degradation of forests has caused the loss of microhabitats which in turn has resulted in the non-availability of host plants for mycotrophic orchid species. Extensive usage of pesticide in agriculture practices has significantly decreased the population of potential faunal pollinators, leading to insufficient pollination hence causing considerable reduction in the new enlistment of individual. Destruction of ground orchid species by burning of ground vegetation was also observed. The study stresses crucial need for breeding of rare species through tissue culture techniques, declaration of wild orchid reserves, strict enforcement against the burning of grasslands in mountain areas for orchid conservation and updated legislations against orchid-related illegal activities.

Keywords: Conservation, Orchid, Microhabitat, Propagation, Tissue culture

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