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Diversity and distributional ecology of lycophytes and ferns of Piduruthalagala Mountain in Sri Lanka

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Despite its small land area, Sri Lanka is well known for its exceptionally high level of biological diversity and endemism. Apart from flowering plants, the island provides habitat for over 3,000 species of non-flowering plants including at least 350 species of ferns. Montane fern flora of Sri Lanka are extraordinary in terms of species richness, distributional ecology, high degrees of endemism and their biogeographic history. Piduruthalagala Mountain is considered as an ultra-prominent peak and it is the highest mountain (2,524 m amsl) in Sri Lanka. This spectacular mountain belongs to the Piduruthalagala Forest Reserve which is considered as one of the floristically richest part of the central highland of the country. Owing to its unique landscape with high biological importance, currently it has become a popular tourist destination in the central highland. Though Central highland of Sri Lanka has been extensively botanized during the colonial era, the Piduruthalagala Mountain has not been botanized for ferns. Therefore, the present study was aimed to inventory the lycophytes and ferns of Piduruthalagala Mountain. The diversity assessment was conducted along the stream network in the forest. Furthermore, forest understory and tree canopies were sampled for terrestrial as well as epiphytic ferns, respectively. During the investigation 101 lycophytes and ferns species belong to 22 families were recorded from the Piduruthalagala Mountain. It represents nearly one third of Sri Lankan pteridophyte species. The family Pteridaceae is the most dominant family of the recorded species. *Blechnum melanocaulon* subsp. *pallens* and *Oreogrammitis zeylanica* were identified as most common species during the investigation. Ferns flora of Piduruthalagala Mountain characterized by terrestrial, epiphytic and epilithic species. Out of the total recorded species, 64 species were confined to terrestrial habitats. Moreover, nearly 90% of recorded species were associated with stream network. The results highlighted that mid elevation of the mountain has greater diversity compared to low and high altitude. *Elapoglossum spathulatum* (Bory) T. Moore identified as only critically endangered species whereas 55 species were identified as threatened species. It represents more than half of the total species presented in the Piduruthalagala Mountain. The mountain ecosystems have been identified as a unique and most endangered landscape in the world. Piduruthalagala Mountain is also threatened by the rapid expansion of vegetable cultivation and extraction of firewood and timber. The study provides baseline information for formulation of conservation and management guidelines for fern flora in the Piduruthalagala Mountain while highlighting biological sensitivity of montane zones for this particular plant group.

Keywords: ferns and lycophytes, diversity, endemism, Piduruthalagala Mountain, Sri Lanka