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Pteridophyte flora of Udawattakele forest: the past, present and futureR H G Ranil¹, S R W A B M R J Kandapola², D K N G Pushpakumara² and D S A Wijesundara³¹Postgraduate Institute of Agriculture, University of Peradeniya, Sri Lanka²Department of Crop Science, University of Peradeniya, Sri Lanka,³Royal Botanical Gardens, Peradeniya, Sri Lanka.

Pteridophytes represent an important group in the plant kingdom. Approximately 11,300 Pteridophyte species have been described worldwide, of which about 360 species have been recorded in Sri Lanka. Most of Sri Lankan Pteridophyte species is concentrated in the understory of the rainforests of Central Highlands. Udawattakele forest with 132 ha was one of such highlands (510 m above sea level) which received special attention by European Pteridologists, even during the colonial era. It has been reported that 13 species are already extinct from Sri Lanka mainly because of various threats faced by Pteridophytes. Thus, the objective of this study was to compare the diversity of Pteridophyte flora at present with the previous records and identify possible conservation issues.

Species diversity of Pteridophytes at Udawattakele forest in the past was obtained from reviewing of literature (Karunarathne, 1986; Sledge, 1950-1981) and observations of preserved specimens at the National Herbarium. Two line transects (10m x 4000 m) on both side of Lady Horton's Walk were assessed to identify the present level of Pteridophyte diversity. Almost all Pteridophyte species were identified at species level through morphological observations and subsequently with the help of keys. The Lady Horton's Walk was selected for the study, because the majority of Pteridophytes at Udawattakele was concentrated in this area and previous assessments of Pteridophytic diversity have been conducted in the area. At the selected locations species were counted to identify dominant species.

According to literature, 25 Pteridophytic species and 4 hybrids (29 taxa) have been collected from Lady Horton's Walk in Udawattakele forest. Chronologically 7, 17, 2 and 3 taxa have been recorded from 1888-1900, 1950-1954, 1973 and 1993, respectively. Out of 29 taxa collected by foreign Pteridologists, only preserved specimens of 27 taxa have been deposited in the British Museum and the Kew Herbarium. Karunarathne (1986) recorded 23 Pteridophyte species from the forest. The present study was able to identify 36 Pteridophyte species belong to 9 families and 20 genera from the forest, of which 29 species are common and usually grow on harsh environment in the disturbed areas and roadside banks. Seven species occur in relatively high moist and shaded areas of the forest. The present study was able to record 13 additional species compared to Karunarathne (1986). However, out of 29 taxa recorded in the literature, 9 species were recorded during the present study. Further, 7 species (*Arthropteris palisotti*, *Christella hispidula* × *C. parasitica*, *Diplazium sylvaticum*, *Microlepia speluncae*, *Pronephrum articulatum*, *Tectaria subtriphylloides* and *T. trimenii*) had not been recorded even in the other parts of the country during the last 50 years. The present study was also unable to record such species from Udawattakele forest. Out of the above 7 species, two rare species namely, *Pronephrum articulatum* and *Christella hispidula* × *C. parasitica* had been recorded only once over the last century. Such records were also found from Lady Horton's Walk in Udawattakele forest before 50 years.

However, at present the Lady Horton's walk has severely been invaded by *Myroxylon balsamum* suppressing its native biodiversity. Further, roadside banks of the Lady Horton's walk have very dry conditions. Few wet and shaded areas are also invaded by a naturalized fern species such as *Adiantum pulverulentum* and it has become dominant species in the area. Such causes may have contributed for loss of some Pteridophyte species from Udawattakele forest. It is well known that Pteridophytes are very sensitive to changes of environmental conditions and human activities. This raises the issue of necessity of continuous monitoring of Pteridophytic biodiversity for their conservation even within their natural habitats.