

## Tree diversity in a tropical dry mixed evergreen forest plot in Sri Lanka

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### Abstract

Although tropical dry mixed evergreen forests covers more than 78% of the total dense forest area they have not received a sufficient attention in scientific studies. They are distinguished by the peculiar physiognomy, climate and soil characteristics in contrast to the forests in wet regions. Periodic assessment of their biodiversity is useful for species conservation and their management across Sri Lanka and the tropics. The objective of this study was to assess the tree diversity and composition in a permanent sampling plot in the Hurulu Forest Reserve (8°13' N, 80°49' E) in the dry zone of Sri Lanka. A two hectare plot was established in a relatively undisturbed area of the forest and subdivided to 50 plots each of size 20x20 m. All the trees (5 cm dbh threshold) were tagged, enumerated and their dbh measured. All trees were identified to the species level and 18 families, 31 genera and 38 species were recorded. The cumulative species vs area curve was derived. The Shannon-Weaver Index (SWI) and importance value index were also estimated. The SWI was comparable to similar forest types in the tropical region. The stand density was 1,371 trees ha<sup>-1</sup>. The total basal area was 24.81 m<sup>2</sup>ha<sup>-1</sup>, which is well within the range of tropical dry forests (17 – 40). Density of multiple stemmed trees was 362 per hectare which is less than that in South India. The cumulative species area curve initially increased up to 0.72 ha with a gradual accumulation of species; but from 1.24 – 2 ha, only two species were added due to the site heterogeneity. The most important five species were *Diplodiscus verrucosus* (Thw.) Kosterm., *Drypetes sepiaria* (Wight & Arn.) Pax & Hoffm., *Diospyros nummulariifolia* Kosterm., *Diospyros ovalifolia* Wight and *Pterospermum suberifolium* (L.) Willd. Although these species are of lesser commercial value their conservation is important in the context of biodiversity and meet the requirements of REDD+. *P. suberifolium* is commercially important and *D. verrucosus* and *D. sepiaria* are utilized for firewood and round poles in peripheral areas of dry forests.

**Key words:** Tree diversity, cumulative species area curve, importance value index