PHENOLOGICAL RESPONSES OF FOUR *SHOREA* SPECIES IN SINHARAJA RAIN FOREST TO CLIMATIC FACTORS

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The genus *Shorea* of the family Dipterocarpaceae represents tall canopy trees that dominate the Sinharaja rain forest. All the species in the genus are endemic to Sri Lanka.

Information on the frequency, duration and intensity of flushing, flowering or fruiting can be obtained from phenological studies. Phenological data are also important to determine the migratory pattern of animals, seasonality in animal reproduction and causes of animal population fluctuations. They can also be used to select trees with desirable characters such as early flowering or heavy fruiting for propagation purposes.

The phenology of four *Shorea* species (*S. congestiflora and S. affinis* of the Thinia group; *S. cordifolia* and *S. megistophylla* of the Beraliya group) was studied to understand the differences in flowering and fruiting between the Thiniya and Beraliya group of species and to examine whether there is a variation in their phenological patterns in relation to El-Nino years and non El-Nino years.

The investigation, conducted in the Sinharaja MAB reserve, used marked individuals of the study species growing along the main logging roads. The crowns of the selected individuals were observed using a pair of binoculars at fort-nightly intervals. The daily rainfall and maximum and minimum temperatures recorded were used in this study.

Shorea affinis and *S. congestiflora* showed regular flowering, blooming every year. *Shorea cordifolia* and *S. megistophylla* did not flower annually and their flowering was associated with El-Nino years. *Shorea affinis, S. cordifolia and S. megistophylla* always bloomed between December - June, mostly in March, while that of *S. congestiflora* was between August to January, mostly in November. During an El-Nino year, dry season rain fall or wet season irradiance or both can occur. During 1987, 1991 and 1992, the climate data shows that wet season irradiance occurred. The mean annual rainfall of the non El-Nino and El-Nino years was 5240 mm and 4710 mm respectively. It may be suggested that the high production of flowering and fruiting of the Beraliya species was associated with the high light levels and drought during the El-Nino periods.

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