

D-14 A preliminary study on the flowering and fruiting phenology of four Shorea species in the Sinharaja rain forest

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Timing of phenophases could be a key adaptation of closely related species in regulating interspecific competition and thereby maintaining high species diversity in tropical rain forest communities. With a few exceptions, the environmental cues that trigger flowering in these forest species have not been identified.

In the Sinharaja rain forest, flowering and fruiting phenology of 4 *Shorea* species (*S. cordifolia*, *S. worthingtonii*, *S. megistophylla* and *S. disticha*) were monitored for a period of 10 years, starting from 1986. The proportion of crown in flower or fruit, in relation to the total visible crown area of each individual tree was recorded at intervals and daily rainfall, maximum and minimum temperatures were also recorded.

The 4 study species flowered between January and May, but irregularly, during the period of study. Most years had only one flowering episode, but in 1989, the best flowering year up to 1997, there were 2. Sequential flowering in the order, *S. cordifolia*, *S. worthingtonii*, *S. megistophylla* and *S. disticha* was observed in most years and in the 3 months immediately preceding flowering episodes, there was a drop in mean daily minimum temperature with a concurrent reduction in mean daily rainfall. Sequential flowering, decreases competition for services of shared pollinators (*Apis dorsata* and *A. indica*) among the 4 species.

Mature fruit fall was synchronous, occurring usually in August/September. This may be an adaptation for the survival of these study species, through predator satiation. Flowering and fruiting phenological information of indigenous forest species are useful in forest management.