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Vegetative and reproductive phenology of *Polyalthia coffeoides* in Sri Lanka

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Abstract

Knowledge of phenology is essential for effective management and conservation of plants. *Polyalthia coffeoides* is a small to medium-sized tree, typically growing in wet valleys of the forests of intermediate zone and isolated hills of the dry zone. The present study describes the vegetative and reproductive phenology of *P. coffeoides* at individual and population levels. The study was carried out in the Menikdena Forest Reserve in Dambulla, Sri Lanka. Phenological censuses of 50 individuals were recorded every week for three years. Phenological events such as production of flower buds, open flowers, immature fruits, mature fruits, flushing and shedding of leaves were taken into account. Correlation analyses were undertaken to reveal the relationships among phenological parameters and correlation with meteorological data using Minitab R. 14.

Duration of leaf flushing was more regular than that of flowering, fruiting. Flushing of leaves and flowering showed two maxima per year. Although leaf shedding was generally continuous throughout *P. coffeoides* is an evergreen species. Peak flowering generally occurred in March–May and Nov–Dec. Annual variations in reproductive phenology were more pronounced than vegetative phenology. Reproductive phenological events were low in *P. coffeoides* in terms of phenological intensities. Peaks of mature fruiting period coincided with lulls of flowering and flushing, and were bimodal.

Temporal vacillation of some phenophases appeared to be related with meterological conditions as indicated by following significant correlations: leaf flushing, shedding, flowering and fruiting phenophases of *P. coffeoides* are correlated with rainfall and temperature variations over the year. Reproductive phenophases varied temporally, spatially and according to individual trees. In general, flowering events were synchronized between individual trees at relevant seasons and this promotes xenogamy. Vegetative phenological changes may assist in fruit dispersal, since the availability of mature fruits during periods of low leaf flushing and high leaf shedding may help to attract frugivores.