W-12 The long-term phenology study in the Singapore Botanic Gardens: An invitation to join the Southeast Asia Plant Phenology (SEAPP) network

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Duration: 90 minutes

Target audience: Southeast Asian Institutions with an ex-situ botanical collection.

Objectives: Participants will learn about the challenges and practical considerations that factor into planning and maintaining a phenology monitoring regimen, borrowing from lessons learnt through the Singapore Botanic Gardens' experience of designing its long-term phenology monitoring work and analysing its collected data.

Abstract: Plant phenology is the study of the timing of key biological events in a plant's life history in response to environmental changes. These events, especially leafing, flowering, and fruiting, are primary factors in maintaining essential processes and biodiversity of an ecosystem. Tropical plants are more diverse in their environmental responses for reproduction and therefore also show larger variation in phenological patterns compared with species at higher latitudes. Climate change may affect plant phenology, which then has cascade effects (e.g. food availability) on maintaining tropical plant communities. Long-term large-scale data are necessary for the understanding of shifts in plant phenology induced by climate change and consequently their impacts on the ecosystem. In Southeast Asia, plant phenology studies are rather scattered and not coordinated. Taking a cue from its past director Eric Holttum's phenology work in the 1930s and 40s, Singapore Botanic Gardens started to collect long-term phenology data in 2016. To better understand the phenological patterns of plants in the tropical forests of Southeast Asia as a whole, and their responses to today's rapid climate change, we propose a working group to coordinate and standardise data-collection protocol, especially of shared species, across botanical gardens and arboretums in the region. In this workshop, we would like to share our experience from the long-term plant phenology initiative in the Singapore Botanic Gardens and our efforts to assemble a plant phenology network among botanical institutions in the region. We envision that the more robust data when standardised from a coordinated group will effectively link phenology studies and management of tropical forest species in Southeast Asia as well as their ecosystem services.