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Tree Management at Singapore Botanic Gardens: challenges and building resilience to climate change

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Trees form an essential component of biomass and ecosystem function across many habitats from old-growth forests to historical gardens and urban parks. Land use and forest cover changes, and climate change, among other factors, contribute to increased tree mortality which can be further detrimental to species of conservation importance. In *ex situ* collections such as botanic gardens, tree management strategies are necessary to mitigate tree loss and tree failure risk while balancing the goals of plant conservation, scientific documentation and maintaining tree safety amidst resource constraints and ongoing environmental change. Urban trees contend with other unique threats such as introduced pathogens, and disturbances from compaction and urban encroachment. These challenges have profound implications on tree management and conservation in botanic gardens. The Singapore Botanic Gardens is both a uniquely *in situ* and *ex situ* plant conservation site, serving as a refuge for more than 500 threatened species in the region with an intact rainforest fragment, and over 30,000 managed trees, many of which are historical tree specimens. A holistic tree management plan has been implemented in the Gardens to balance conservation and public safety. This encompasses a robust risk management framework entailing a regime of regular tree inspections and pruning, leveraging technology to document and monitor its trees (e.g. use of sonic tomography, LiDAR scans, GIS-based mapping tools etc), and a programme for training and building expertise. This presentation will give an overview of these efforts in tropical tree conservation and arboriculture.