TREE VITALITY ASSESSMENT IN LAWN A AND B SINGAPORE BOTANIC GARDENS

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Bogor, March 2025

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ABSTRACT

IMAN HAMDI ALIWIKAN UTOMO. Tree Vitality Assesment in Lawn A and B Singapore Botanic Gardens. Supervised by ISTOMO and ERIANTO INDRA PUTRA.

The Singapore Botanic Gardens (SBG) functions as an ex-situ conservation center for numerous plant species in Singapore. As an urban forest situated near human activities, its trees face significant risks, necessitating proactive measures to prevent tree falls. This study utilized the Forest Health Monitoring (FHM) method to evaluate tree health based on three key ecological indicators as follows:biodiversity, tree damage, and crown vitality. The assessment focused on Lawns A and B of SBG and aimed to identify management strategies to enhance forest health. The Results indicated high species diversity, with a Margalef species richness index of 20.96, a Shannon-Wiener diversity index of 3.54, and a Pielou evenness index of 0.96. The biodiversity indicator was rated as very good, scoring 9. The tree damage indicator scored very good, with a CLI value of 2.03 and a final score of 9. crown vitality was also rated very good, with a VCR value of 3.71 and a final score of 9. To improve tree vitality, recommended management actions include thinning, mulching, planting mixed species, weeding, fertilizing, and pruning.

Keywords: biodiversity, forest health monitoring, tree health, tree quality

ABSTRAK

IMAN HAMDI ALIWIKAN UTOMO. Penilaian Vitalitas Pohon di *Lawn* A dan B Kebun Raya Singapura. Dibimbing oleh ISTOMO dan ERIANTO INDRA PUTRA.

Kebun Raya Singapura (SBG) berfungsi sebagai pusat konservasi ex-situ untuk berbagai jenis tumbuhan di Singapura. Sebagai hutan kota yang dekat dengan aktivitas manusia, pohon-pohon di SBG memiliki risiko bahaya tinggi sehingga diperlukan mitigasi untuk mencegah pohon tumbang. Penggunaan metode Forest Health Monitoring (FHM) membantu menilai kondisi kesehatan pohon melalui indikator kesehatan hutan. Penelitian ini bertujuan menilai kesehatan pohon di Lawn A dan B SBG berdasarkan tiga indikator ekologis (biodiversitas, kerusakan pohon, vitalitas tajuk), serta menentukan langkah pengelolaan untuk meningkatkan kesehatan hutan. Hasil penelitian menunjukkan keanekaragaman jenis yang tinggi dengan indeks kekayaan jenis margalef 9,10, indeks keragaman Shannon-Wiener 3,54, dan indeks kemerataan Pielou 0,96. Skor akhir indikator biodiversitas berkategori sangat baik dengan nilai 9. Indikator kerusakan pohon tergolong sangat baik dengan nilai Cluster Level Index 2,26 dan memiliki nilai akhir 9. Kondisi tajuk di SBG tergolong sangat baik dengan nilai VCR pada cluster plot sebesar 3,71 dan skor VCR 9. Rekomendasi untuk peningkatan vitalitas pohon mencakup pemeliharaan pohon melalui penjarangan, pemberian mulsa, penanaman jenis campuran, penyiangan, pemupukan, dan pemangkasan.

Kata kunci: *biodiversitas, kesehatan pohon, kualitas pohon, pemantauan kesehatan hutan*

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Bogor, March 2025

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