UNIVERSITI PUTRA MALAYSIA

TREE HEALTH ASSESSMENT AND MAINTENANCE PRACTICES IN TAMAN TASIK TITIWANGSA, KUALA LUMPUR

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TREE HEALTH ASSESSMENT AND MAINTENANCE PRACTICES IN TAMAN TASIK TITIWANGSA, KUALA LUMPUR

By

NORAINIRATNA BINTI BADRULHISHAM

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfillment of the Requirements for the Degree of Master of Science

July 2013

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DEDICATION

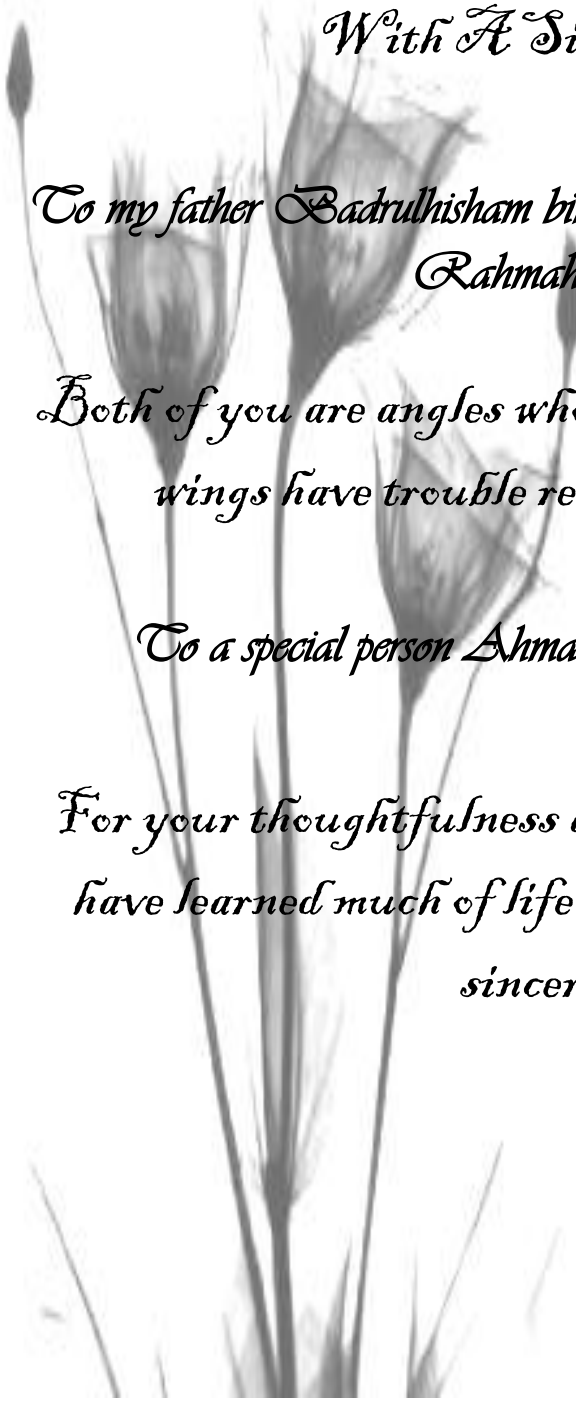
A Journey Of A Thousand Miles Must Begin With A Single Step. . .

To my father Badrulhisham bin Mohd Saleh and my mother Rahmah bt Asuan

Both of you are angles who lift me to my feet when my wings have trouble remembering how to fly

To a special person Ahmad Zaiddi bin Mahmood

For your thoughtfulness and generosity, from you I have learned much of life's philosophy. Thank you sincerely. . .



Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Master of Science

TREE HEALTH ASSESSMENT AND MAINTENANCE PRACTICES IN TAMAN TASIK TITIWANGSA, KUALA LUMPUR

By

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July 2013

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Trees are very important element in the construction of garden and landscape area. The health status of trees in urban park has not been fully studied and less maintenance attention given compared to roadside trees. Trees that are not properly maintained are susceptible to stress and various factors that may cause poor health. This research conducted in Titiwangsa recreational park among 654 sampled trees to determine and evaluate health of trees by visual assessing the trunk, crown, leaves and branches condition by using modified 'Tree health form' by Sajan (2000). Health status of each trees was then evaluate based on tree health adapted from the rating systems established by the 'Council of Tree and Landscape Appraisers' by International Society of Arboriculture (ISA), (2000). Besides that, interviews were conducted among tree maintenance officer and workers to determine their actual maintenance practices including technique, frequency, personnel, equipment and material used in tree maintenance. Feedbacks from respondents helps in determine the possible factors that implicate the poor health of the trees. Results found that the health status of trees in Titiwangsa recreational park were in fair (63.1%) to good (30.4%) health status. Only less than 6.6% with poor (6.3%) and dead tree (0.2%) indicates that most of the trees in the study area suffered from many structural and mechanical damages, poor crown health and have poor vigor. Majority of trees with big and medium size were fair health status with 74% and 61% while majority of small size trees with good health status (54%) from the frequency distribution. Tree health problems that showed high incidence and severity are cankers or galls on trunk, dead and broken of branches, other plants growing on trunk and unbalanced crown density. From the research, it was also found that maintenance practices done are still inadequate and is less than satisfactory. Most of the problems of tree health were caused by improper pruning

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techniques and lack of disease and pest control. Action should be taken to prevent the occurrence of poor health of trees in the future that could pose a danger to park visitors.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

PENILAIAN KESIHATAN POKOK DAN AMALAN PENYELENGGARAAN DI TAMAN TASIK TITIWANGSA, KUALA LUMPUR

Oleh

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Pokok merupakan elemen yang sangat penting dalam pembinaan sebuah taman atau landskap di sesuatu kawasan. Status kesihatan pokok di taman Bandar kurang dikaji dan kurang diberi perhatian dari segi penyelenggaraan berbanding pokok di tepi jalan. Pokok yang tidak diselenggara dengan baik akan mudah terdedah kepada stress dan pelbagai faktor yang boleh menyebabkan kesihatannya terjejas. Kajian ini dijalankan di Taman Tasik Titiwangsa terhadap 654 sampel pokok untuk menentukan dan menilai kesihatan pokok secara penilaian pemerhatian terhadap batang, silara, dedaun, struktur dan dahan menggunakan 'Tree health form' oleh Sajan (2000) yang telah diubahsuai. Seterusnya, status kesihatan setiap pokok dinilai berdasarkan kepada sistem rating 'Council of Tree and Landscape Appraisers' oleh International Society of Arboriculture (ISA), (2000). Selain dari itu, temubual dilakukan terhadap pegawai dan pekerja penyelenggaraan pokok untuk mengetahui amalan penyelenggaraan sebenar yang merangkumi teknik, kekerapan, bilangan tenaga kerja dan peralatan dan bahan yang digunakan dalam penyelenggaraan pokok. Maklumat yang diperolehi daripada interview akan membantu dalam menentukan faktor-faktor kemungkinan yang turut menyumbang kepada kesihatan pokok yang teruk. Hasil kajian mendapati bahawa status kesihatan pokok di taman tasik Titiwangsa adalah pada tahap sederhana (63.1%) ke baik (30.4%). Hanya kurang dari 6.6% pokok yang mempunyai tahap kesihatan yang teruk (6.3%) dan pokok mati (0.2%) menunjukkan kebanyakan pokok mengalami kerosakan struktur dan mekanikal, kesihatan silara dan kesuburan yang teruk. Majoriti pokok bersaiz besar dan bersaiz sederhana menunjukkan tahap kesihatan yang sederhana dengan 74% dan 61% manakala majoriti pokok bersaiz kecil dengan kesihatan yang baik (54%) daripada taburan frekuensi masing-masing. Masalah-

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masalah kesihatan pada pokok yang menunjukkan kewujudan dan keterukan yang tinggi adalah tanda kanker atau pembengkakan pada batang pokok, dedahan yang mati atau patah, tumbuhan lain yang tumbuh pada batang pokok dan kepadatan silara yang tidak seimbang. Hasil daripada kajian juga mendapati amalan penyelenggaraan pokok yang dilakukan masih kurang dan kurang memuaskan. Kebanyakan masalah kesihatan pokok yang berlaku adalah disebabkan oleh pemangkasan yang tidak betul dan kurang kawalan penyakit dan perosak. Tindakan yang sepatutnya diambil untuk mengelakkan berlakunya masalah kesihatan pokok pada masa hadapan yang boleh menimbulkan bahaya kepada pengunjung taman.

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

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DECLARATION

I declare that the thesis is my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously, and is not concurrently, submitted for any other degree at Universiti Putra Malaysia or any other institution.

_____

NORAINIRATNA BT BADRULHISHAM

Date: 22 July 2013

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