



UNIVERSITI PUTRA MALAYSIA

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

NORAINIRATNA BINTI BADRULHISHAM

FH 2013 7



**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 angels who lift me to my feet when my
wings have trouble remembering how to fly*

To a special person Ahmad Zaidi 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

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NORAINIRATNA BINTI BADRULHISHAM

July 2013

Chair: Manohar Mariapan, PhD

Faculty: Forestry

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

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

NORAINIRATNA BINTI BADRULHISHAM

Julai 2013

Pengerusi: Manohar Mariapan, PhD

Fakulti: Fakulti Perhutanan

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-

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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I certify that a Thesis Examination Committee has met on 22 July 2013 to conduct the final examination of Norainiratna binti Badrullisham on her thesis entitled "Tree Health Assessment and Maintenance Practices in Taman Tasik Titiwangsa, Kuala Lumpur" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Master of Science.

Members of the Thesis Examination Committee were as follows:

Azlizam bin Aziz, PhD

Associate Professor
Faculty of Forestry
Universiti Putra Malaysia
(Chairman)

Ahmad Ainuddin bin Nuruddin, PhD

Associate Professor
Faculty of Forestry
Universiti Putra Malaysia
(Internal Examiner)

Mohd Nazre bin Saleh @ Japri, PhD

Associate Professor
Faculty of Forestry
Universiti Putra Malaysia
(Internal Examiner)

Siti Rubiah Zainudin, PhD

Senior Lecturer
Universiti Malaysia Sarawak
Malaysia
(External Examiner)



NORITAH OMAR, PhD

Associate Professor and Deputy Dean
School of Graduate Studies
Universiti Putra Malaysia

Date: 19 December 2013

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:

Manohar Mariapan, PhD

(Associate Professor)

Faculty of forestry

Universiti Putra Malaysia

(Chairman)

Mohd Roslan bin Kassim, PhD

Lecturer

Faculty of forestry

Universiti Putra Malaysia

(Member)

BUJANG BIN KIM HUAT, PhD

Professor and Dean

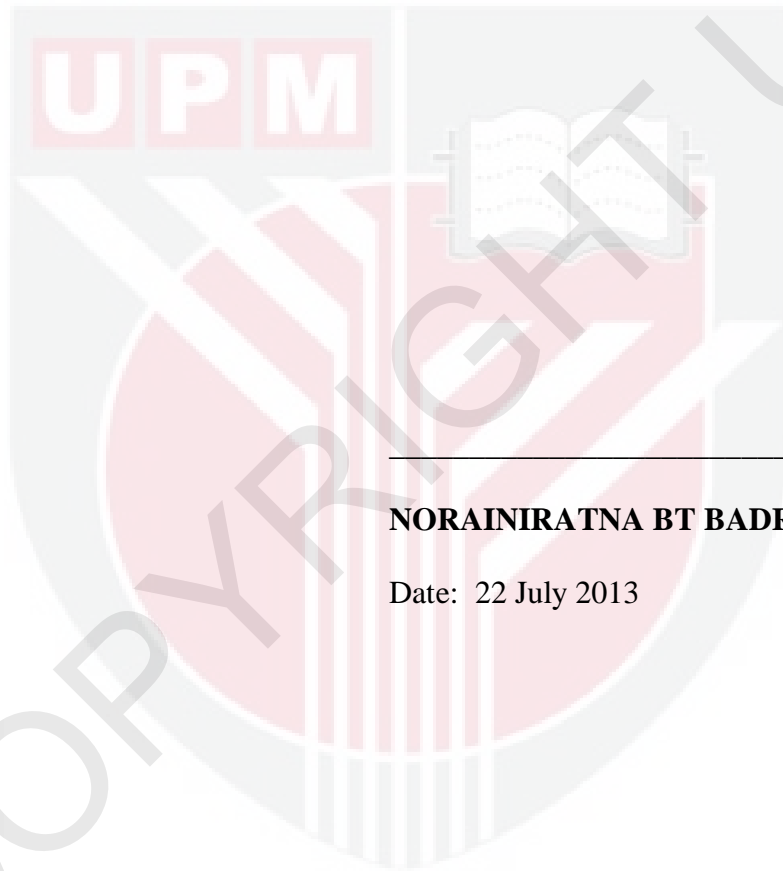
School of Graduate Studies

Universiti Putra Malaysia

Date:

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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