

Defects and Disorders of Common Roadside Trees in Hong Kong

Miss CHOY Man Wing, BSc (Hons) in Horticulture, Arboriculture and Landscape Management,
Faculty of Design and Environment

Supervisor: Dr ZHANG Hao Allen, Associate Professor

Abstract

The project is about the common defects and disorders of common roadside trees in Hong Kong. The key concepts discussed in the project are urban roadside trees, tree risk assessments, pest management, and plant pathology. They have been used to understand the relationship between Tree Physical and Structural Health and physiological and environmental causes.

Four roads at four regions are selected as an observation area, including Castle Peak Road in Tsuen Wan Section (Tsuen Wan), Nam Wan Road (Tai Po), Tin Shing Road (Tin Shui Wai), Queen's Road East (Wan Chai), and Nathan Road (Tsim Sha Tsui). They are selected due to the Urban Development Plans and Prosperous Areas in Hong Kong.

Site visiting will be carried out once in each area. Information about the site environment and tree conditions will be collected to see the tree structure and health level.

After data collection, the data will be input into Excel for further combination. Discussions about how the physiological and environmental factors affect tree health and structure, and which has a greater impact on tree health and structure will be provided. The overall tree condition will be carried out at the same time to show the quality of urban roadside trees in Hong Kong.

Research questions

1. What are the top five overall tree species, and how are their performance?
2. What are the defects of the tree species on the four roads?
3. How and why are pests found during the site visits? How can they be prevented or treated with the lowest damage to the tree?

Methodology

Information about Hong Kong's environment and roadside tree species will be collected from the government websites and academic articles. Practical effects that the environment causes to trees and the performance of roadside trees will be collected from a site visit.

Trees planted in the first row closest to the roadside will undergo a tree evaluation. If there is no tree close to the roadside, the closest tree within 5m beside the roadside will be selected. Trees that are over 5m will not be within the scope of assessment.

The project is based on research and analysis, therefore questionnaires will not be used.

Results

660 trees had been observed in the four regions. 155 are Palm Branch. 36 Old and valuable trees (OVTs) are included in the evaluation. 39 types of tree species were found. Overall, *Aleurites moluccanus*, *Roystonea regia*, *Ficus macrocarpa*, *Cinnamomum camphora*, and *Lagerstroemia speciosa* are the top 5 mainstream species. They occupied 16.1%, 10.9%, 8.48%, 8.03%, and 6.81%, respectively.

Codominant branches are the most common defect identified. In 660 trees, it occupied 43.5% of trees, meaning nearly half of the trees had this defect. The second most common defect (25.6%) included bark, which occupied 17.9% of trees. Bending branches is the third most common defect found at the site visit, which was found in 12.1% of trees. Wounds was the fourth most common defect at 8.94%. Lastly, Epiphytes was the fifth most common defect, accounting for 8.03%.

3 types of pests were found. *Phaouda flammans*' larva were discovered on Tin Shing Road. In Nan Wan Road, termites and *Icerya aegyptiaca* were discovered.

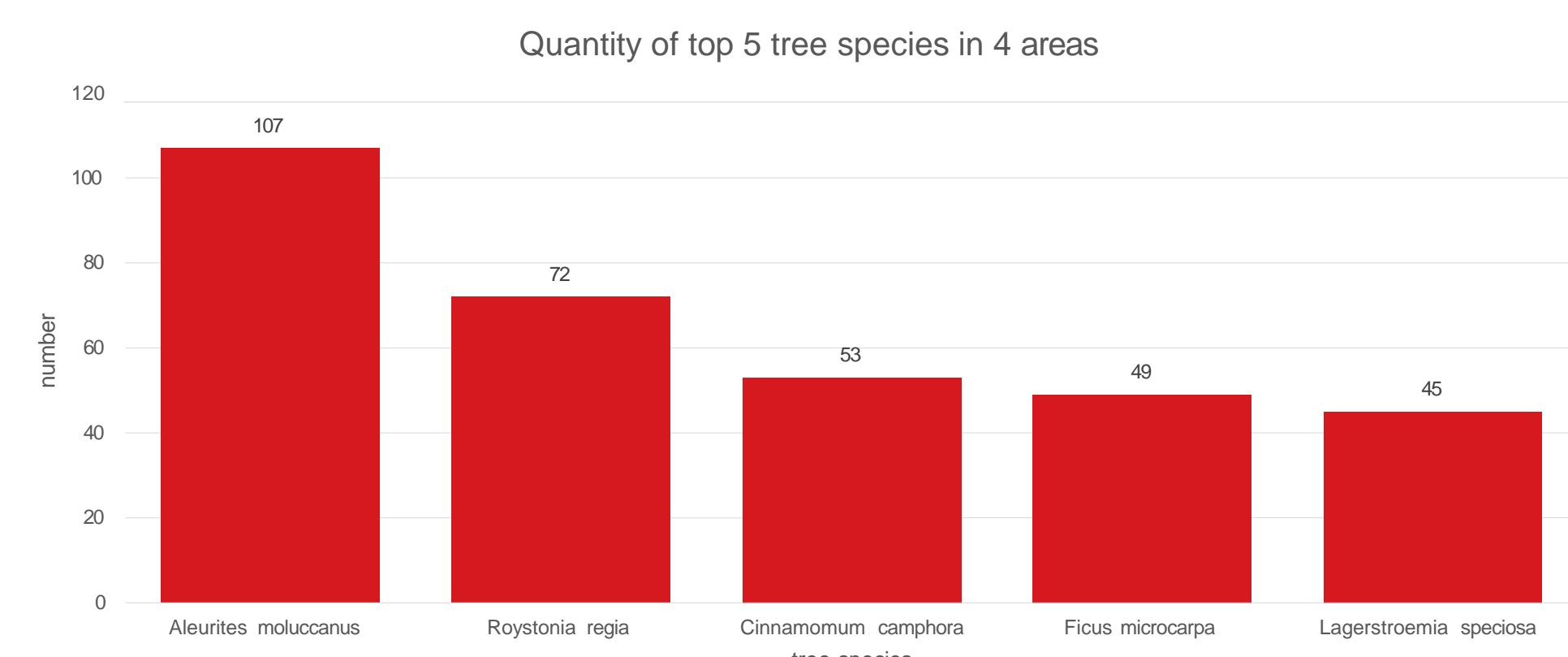


Table 22: Quantity of top 5 tree species in 4 areas

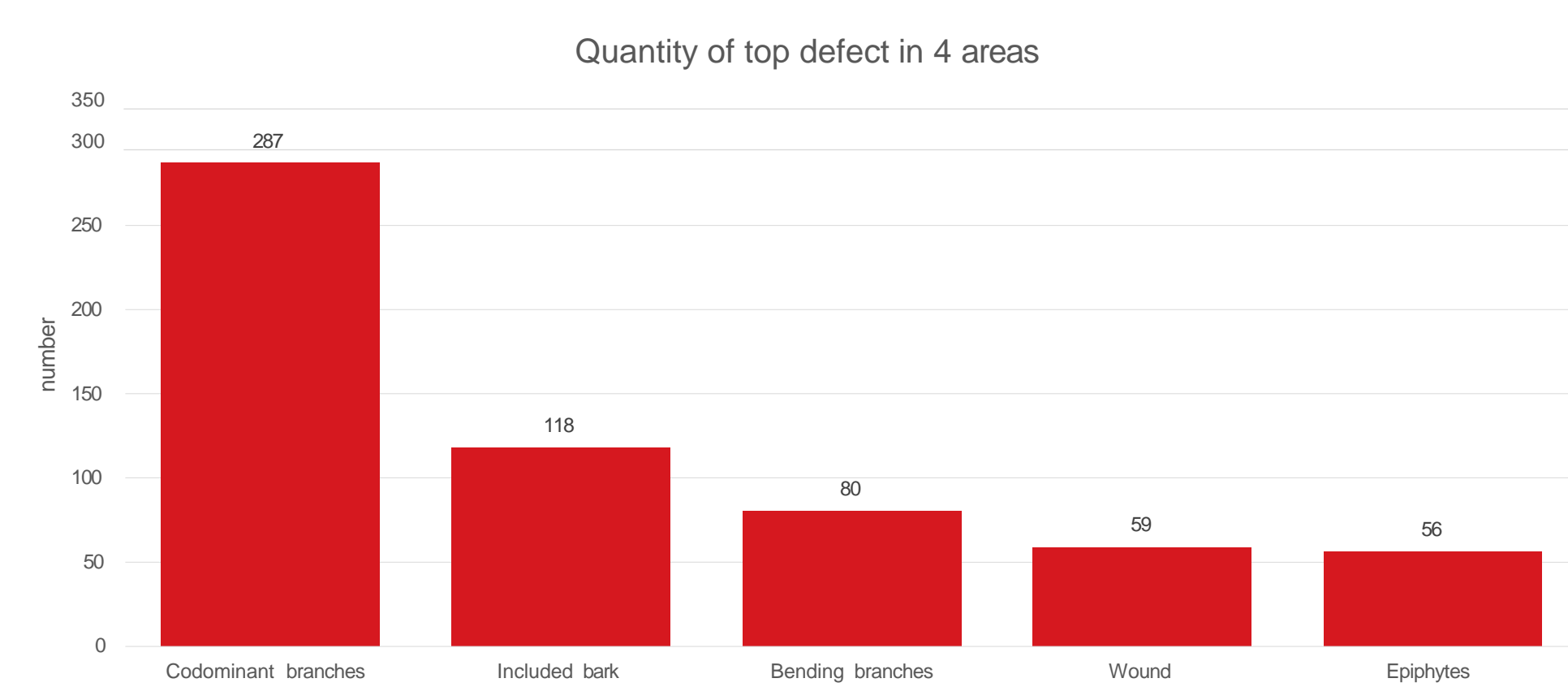


Table 23: Quantity of top 5 tree species in 4 areas

Discussion

Tree risk assessment for *Aleurites moluccanus* pays attention to bending branches and the trees' fruits. The bending of branches is a tree growth characteristic that needs to be monitored for developing into cross branches and wounds. Its fruits have a certain size, plus the average tree height of 7m may cause injury to road users when the fruits fall from the tree.

Roystonea regia needs to be monitored as fallen palm leaves may cause damage to road users and frighten drivers if the palm leaves suddenly fall off. Therefore, regular removal of dead leaves hanging from palm trees is suggested.

Although *Ficus macrocarpa* fits most of the criteria in being a roadside tree, its required growing environment needs to be big, and most of the roadside area cannot provide enough space for aerial root growth. A well-developed root system of an *Ficus macrocarpa* can cause road bumps and root exposure, which leads to damage or injury to both humans and trees. As a replacement of the same family, *Ficus benjamina* is a more suitable option. This species has similar functions and a narrow crown compared to the *Ficus macrocarpa*. Its aerial root growth is smaller, so less exposed roots and road bumps can be found.

Conclusion

From the site visits and follow-up analysis, it could be seen that most of the roadside trees performance is fair in their growing environment. There are only small defects that won't affect the tree health and structure. Overall, from the visit, only one dead tree was found at Tai Po Nam Wan Road and five trees with poor tree vigor at Tai Po Nam Wan Road and Tsim Sha Tsui Nathan Road.

It is expected that the *Ficus macrocarpa*, and other top five common roadside trees, is suitable to be planted as a roadside tree species.

Codominant branches are the most common defect that could be seen. The reason the defect is easily found is because the planning and management of planting did consider the long-term plans at the time of planting.

Acknowledgements

I am deeply indebted to my supervisor Dr ZHANG Hao, Allen, of the Technological and Higher Education Institute of Hong Kong (THEi), for his invaluable patience and feedback. I also could not have finished this project without him. He generously provided valuable knowledge, expertise, and project direction guidance.