

Central Tree Services

Tree Health and Condition Report

Douglas Shire Council
Warner Street, Port Douglas
6th April 2021

Arborist: Jim Scott, B.Sc. (Hons) – Level 8 Arborist

T: 0459 567 298

E: centraltreeservices@hotmail.com

W: Centraltreeservices.com.au

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1.0 Aim

The aim of this assessment was to establish the current health and condition of specifically identified Rosewood trees as located along Warner Street (between Owen Street and Grant Street), Port Douglas.

Douglas Shire Council (DSC) had initially requested an assessment of the trees following a sudden and rapid dieback of approximately 32 trees, the majority of which (22) were located along the eastern side of Warner Street.

Initial symptoms were first noticed on 9th of March - an assessment was then requested on 16th March, with trees assessed between the 17th and 18th of March.

This assessment (6th April) was then requested as a follow up measure, in order to ascertain the extent of any further dieback and/or recovery.

All observations contained within this report are relevant to the assessment date only. Trees are dynamic organisms, subject to continuous change, and must therefore be re-assessed on a regular basis.

2.0 Site Overview

The assessed trees (Warner Street, between Owen Street and Grant Street) form an avenue of Rosewoods, planted in close proximity to the roadside and street-side parking.

As an avenue of trees they previously provided a high level of amenity to site users, providing shade and a formal structure to the landscape within the immediate locality.

Recent rapid dieback of almost half the trees within the avenue has significantly reduced the current level of amenity.

3.0 Species Overview

Rosewood (*Pterocarpus indicus*) is a fast growing, deciduous tree (up to 30m height) native to South East Asia and commonly planted throughout the tropics as an ornamental / amenity tree.

Depending on the location, level of formative pruning and cultivar, the tree will typically develop into a spreading habit, often multi-stemmed, with foliage in the upper crown taking on a weeping form.

The lower trunk is usually buttressed, and the tree is known to develop extensive prominent surface roots, often beyond the crown's drip line.

Maintenance requirements for this species in the urban environment would include (but not be restricted to):

- Formative pruning from establishment in order to ensure a structurally sound form and enable a long Safe Useful Life Expectancy (SULE).
- Maintenance of a sufficiently large garden bed surrounding the tree, to allow for accommodation of roots (particularly surface roots) without impact upon any adjacent infrastructure.
- Periodic crown lifting for general asset and amenity clearances.
- Periodic removal of significant deadwood (recommended 6 monthly).
- Periodic crown thinning depending on the tree's vigour and/or proximity of adjacent trees.

Rosewoods currently have few pest and disease problems in North Queensland.

4.0 Summary of current health and condition

As an avenue of mostly mature trees, the assessed trees form a significant part of the local landscape.

A previous assessment confirmed extensive dieback / rapid death of trees along the eastern side of Warner Street (22 trees on 18th March), with a further number of trees along the western side either in advanced decline or showing initial symptoms of decline (10 trees on 18th March).

This assessment has confirmed that 22 trees along the eastern side of Warner Street are in a similar or more advanced state of decline (when compared to observations on 18th March), with a total of 12 trees on the western side now affected.

With the exception of a number of trees located within garden beds (corners of Grant and Owen Streets), the entirety of trees along the eastern side displayed advanced symptoms of rapid decline/death. Symptoms were uniform and consistent in nature, indicating an event which has impacted upon all of the affected trees within a short timeframe (see Image 1, below)



Image 1 – Warner Street (6th April). Eastern side of street with 22 trees either dead / in advanced decline, western side of street with 12 trees either dead / showing initial indications of decline

5.0 Recommendations and Conclusions

A previous assessment had confirmed that a total of 32 trees were either dead/dying/in advanced decline and that this was most likely due to application of a woody weed herbicide (please refer to previous report dated 19th March).

This assessment has confirmed that 22 trees along the eastern side of Warner Street have failed to show signs of recovery, with the number of affected trees along the western side now increasing to 12 in total.

As stated in the previous report, decline of the trees has been rapid and if it is the case that this is due to herbicide application, the observed affects are likely to be terminal. The precise details of herbicide used can only be accurately confirmed via laboratory analysis.

Given the above, there are no feasible options for remedial works at this stage.

Woody weed herbicides generally act on both foliage and roots to produce a rapid brown out of leaves, dry down of stems and destruction of root mass in order to prevent regrowth. Consequently, where such herbicide has been effective, the tree's structural integrity will rapidly degenerate, with associated potential for deadwood failure and ultimately total tree failure if left un-managed.

With no precise detail of the events which have led to death/decline of the assessed trees, it is difficult to put a timeframe on any future management objectives. As of the date of this follow up assessment, the following would therefore be recommended as a minimum:

- Implement plans to remove trees which have been confirmed as being completely physiologically dead. As an example, trees located between 32-38 Warner Street would meet requirements for this category, having advanced (unstable) deadwood present.
- Closely monitor all trees for any further signs of decline.
- As before, once individual trees have been confirmed as being dead, prioritise removal. This is particularly important given species characteristics - Rosewood trees typically have highly unstable deadwood.

If it is decided that trees are to be removed, then planning should be put in place to allow for replacement. Factors to consider in this process would include:

- Species suitability for the location, considering growth characteristics and final crown dimensions at this location.
- Appropriate preparation of the area to be planted.
- Replacement of current soil / surface surrounds with fresh material which is appropriate for species and location.
- Allowance for a sufficient area within which roots can develop up to maturity and without any impact upon adjacent infrastructure.
- Installation of root barriers and root anchors where appropriate.
- Implementation of long-term management plans (such as pruning, nutrition and routine inspection) to ensure that the above outcomes are achieved.

If contractors are to be engaged for remedial/removal work, they should be fully qualified and experienced, being able to demonstrate a comprehensive OHS policy specific to tree work, with relevant insurances in place.

Appendix 1: Index of Arboricultural terms used

The following terms are widely used in tree assessment (*as adapted from "Principles of tree hazard assessment and management" - Lonsdale, D. 1999*):

Arboriculture – the culture and management of trees as groups and individuals, primarily for amenity and other non-forestry purposes.

Assessment – in relation to tree hazards, the process of estimating the risk that a tree or group of trees poses to persons or property.

Bifurcated – having two co-dominant stems (forked).

Branch collar – a swelling at the base of a branch.

Crown – the main foliage-bearing portion of a tree.

Crown reduction - the overall reduction of both the height and spread of a crown. The extent of reduction is dependant on tree species, tree health and site requirements.

Crown thinning – the reduction of the volume of a crown without changing the overall height and spread. Often referred to as reducing the “sail area”. The extent of thinning is dependant on tree species, tree health and site requirements.

Decline – a deterioration of a tree’s general condition and vigour.

Defect – in relation to tree hazards, any feature of a tree which detracts from the uniform distribution of stress.

Dieback – the death of part of a tree, often progressive.

Epicormic growth – growth arising on mature stems, often following previous pruning or injury.

Failure – in relation to tree hazards, a partial or total fracture of wood or loss of cohesion between tree and soil

Included union – branch union where there is bark to bark contact which results in a structural weakness.

Leader – the dominant stem

Lopping – removal of branches, now generally applied to heavy or excessive trimming.

Phototropic lean – lean due to a tree’s growth towards available light.

SRZ - The Structural Root Zone (SRZ) is the area required for tree stability, and should not be subjected to any disturbance during construction / any excavation activity.

SULE – Safe Useful Life Expectancy. A term (expressed in years) which summarises a tree's suitability for retention once factors such as current health, species characteristics and site specifics have been considered.

Topping – the removal of all or a large portion of a tree's canopy.

Trifurcated – having three co-dominant stems

VTA – Visual Tree Assessment. A term used to encompass the range of techniques which an Arborist uses during ground based tree assessment.

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