

# WALGA Forum: Tree Health and Resilience



**Date:** Wednesday, 2 May 2018  
**Time:** 9:00am – 3:00pm (Registration from 8:30am)  
**Venue:** The Boulevard Centre, 99 The Boulevard, Floreat  
(located on the ground floor below the Town of Cambridge Library)  
**Cost:** \$88.00 (Incl GST)

## ABOUT THE FORUM

Please join us for this fantastic opportunity to learn about the latest research and management practices to ensure that urban forests are resilient to current and emerging threats, including a changing climate, pests and disease. Improving tree health and resilience is an essential component of retaining and increasing green space to provide for liveable communities, public health and local biodiversity.

Expert speakers include representatives from the Department of Biodiversity, Conservation and Attractions, the Department of Planning, Lands and Heritage, Main Roads WA, the Town of Claremont, WALGA Preferred Suppliers and WA's leading research institutions. The event will include a morning tea and lunch break where attendees can network with others in their field, and question sessions with all presenters.

## PROGRAM

- 9:00am**      **Welcome and introduction**  
*Melanie Davies, Biodiversity and Sustainability Project Officer, WALGA*
- 9:05am**      **A holistic view of factors affecting the decline of Western Australia's eucalypt species**  
*Professor Giles Hardy, Murdoch University*
- 9:35am**      **Creating healthy soil microbial communities for tree health and ecosystem function**  
*Associate Professor Trish Fleming, Wildlife Biologist, Murdoch University*
- 10:00am**     **An integrated approach to understanding Banksia decline in urban bushlands**  
*Dr Paul Drake, Research Fellow, UWA*
- 10:35am**     **Morning tea**
- 11:00am**     **A new disease of native trees with an ancient cause**  
*Professor Kingsley Dixon, John Curtin Distinguished Professor, Curtin University*
- 11:30pm**     **Myrtle rust – dodging the bullet!**  
*Emer O'Gara, Coordinator Plant Diseases Program, Department of Biodiversity, Conservation and Attractions*
- 12:00pm**     **Use of metham sodium to produce dieback-free gravel**  
*Professor Elaine Davison, Plant Pathologist, Curtin University*
- 12:30pm**     **Lunch**



- 1:30pm**      **Implementation of a Street Tree Master Plan in Perth's western suburbs**  
*Andrew Head, Manager of Parks and Environment, Town of Claremont*
- 2:00pm**      **Wildflower Capital Initiative – an example of cross agency collaboration to enhance use of local iconic native species**  
*Martine Scheltema, Manager Environment, Main Roads WA*  
*Sharni Howe, Director, Sharni Howe Architects*
- 2:30pm**      **Developing tree selection tools for local government to increase urban forest benefits**  
*Tom Atkinson, Senior Environmental Consultant, Emerge Associates*
- 3:00pm**      **Close of Event**

## PRESENTATION OVERVIEW

**Giles Hardy, Professor Forest Pathology, School of Veterinary and Life Sciences, Murdoch University**, will discuss tree decline complexities for prominent eucalypt species, including tuart, marri and river gum. Tree declines are now a common phenomenon across a range of eucalypt species throughout Western Australia, with considerable concern about the rate of spread and intensity of decline. Giles will provide a holistic overview of the complex interactions of biotic and abiotic factors resulting in poor health of some of Western Australia's most iconic native tree species, and discuss options for effective mitigation and management of these declines.

**Trish Fleming, Wildlife Biologist, Murdoch University**, will discuss the importance of mycorrhizal associations between fungi and tree roots in creating healthy soils and supporting tree health. Trish is a lead researcher in the Backyard Bandicoots program, a collaboration between the City of Mandurah, Murdoch University and local residents. The study is investigating how bandicoots make use of urban bushland, green linkages and residential gardens, and how their transmission of mycorrhizal spores across the landscape through soil fungi distributed in their scats influences the health of the ecosystem and plant diversity. Trish will also discuss the use of scats to inoculate seedlings, and trials assessing growth and survival. There are complex interactions in ecosystems, and Trish will discuss how a multi-faceted approach to tree health is beneficial.

**Paul Drake, Research Fellow, School of Biological Sciences, University of Western Australia (UWA)**, will discuss how recent large scale *Banksia* mortality in urban woodlands has occurred in conjunction with prolonged droughts and heat waves. It has been observed that banksias are declining more than other species in the same ecological community, while the mortality rate of banksias varies across different habitats. Paul will discuss the use of integrated disciplines such as plant ecophysiology, remote sensing of canopy thermal data, and geophysics to study patterns of stress and mortality in Kings Park. Results show that *Banksia menziesii* reduces water loss before co-occurring species, which limits evaporative cooling of leaves and root water uptake, and results in leaf overheating during summer. However, it appears soil composition influences survival, with



*B.menziesii* showing increased survival when on silty soil profiles. Paul will discuss how the results are informative for restoration efforts aiming to introduce banksias into woodlands undergoing drying.

**Kingsley Dixon, John Curtin Distinguished Professor, Curtin University**, will discuss chlorotic decline syndrome (CDS) in trees, which has a significant impact on remnant and planted trees when they are impacted by alkaline water. This occurs when irrigation water is used that draws from non-acidic aquifers, which are located mostly in the western part of the Swan Coastal Plain and are most prevalent in the Quindalup and Spearwood dune systems. The lack of treatment of affected jarrah, marri, river gums and a range of non-native species has resulted in the removal of trees within Kings Park and Botanic Garden and elsewhere on the Swan Coastal Plain. Commencing as a conspicuous yellowing of the leaves, the tree then proceeds through various stages of defoliation, stag-heading and finally death, generally over a period of three to six years. Kingsley will discuss the research that has increased the available knowledge on the physiology and biochemistry of eucalypts with CDS, and outline established treatment regimes in urban parkland to restore health to trees.

**Emer O’Gara, Coordinator Plant Diseases Program, Department of Biodiversity, Conservation and Attractions (DBCA)**, will provide an update on the occurrence and extent of Myrtle rust in eastern Australia and New Zealand, and what we can learn from their experience. A serious fungal disease that kills many plants belonging to the Myrtaceae family, myrtle rust has the potential to devastate our native ecosystems and urban forests, as well as impact commercial industries. Given that Western Australia is still apparently free of Myrtle rust, Emer will discuss how we can keep dodging the bullet and what land managers and the community can do to help.

**Elaine Davison, Plant Pathologist, Curtin University**, will discuss how dieback (*Phytophthora* sp.) has been widely spread through areas of native vegetation by using infested gravel for road building. Although some contracts for the supply of gravel specify that it should be dieback-free, there are no clear guidelines as to how this can be demonstrated. Metham sodium is a chemical that is used in horticulture in Australia to control soil-borne pests, pathogens and weeds. Small scale experimental work has shown that it is effective at controlling the dieback ‘fungus’ in gravel. As metham sodium was not registered to treat gravel, an application was made to the Australian Pesticides and Veterinary Medicines Authority for a label change to allow this, which has now been approved. Trials can now proceed to investigate how to scale-up the application process to the extent required for commercial use. Once complete, it is anticipated there will be a reliable supply of dieback-free gravel for Local Government, government agencies, mining companies and other businesses. Elaine will discuss what has been achieved to date.

**Andrew Head, Manager of Parks and Environment, Town of Claremont**, will discuss the development and implementation of the Town’s Street Tree Master Plan, endorsed by Council in 2014. The Master Plan aims to ensure that the Town’s street trees provide a variety of benefits, including shade, habitat and food for native fauna, urban heat reduction, improve air quality and enhance street aesthetics. To this end, a number of native and exotic tree species have been selected and designated for use, with a view of limiting monocultures and using large trees wherever possible. Native trees, including tuart and jarrah, are prioritised for use in identified ‘flora and fauna’ corridors.



Andrew will discuss tree management practices that have resulted from an analysis of premature tree deaths in the municipality, and garnering community buy-in to support greening of streetscapes.

**Martine Scheltema, Manager Environment, Main Roads and Sharni Howe, Director, Sharni Howe Architects**, will discuss the Wildflower Capital Initiative, a collaboration between multiple departments and agencies to enhance use of our rich and diverse native flora and create a sense of place for Perth. The initiative aims to increase the presence of nature in an urbanised environment, and celebrate Aboriginal culture through recognition of the six Whadjuk seasons in landscape design. Main Roads has committed to the creation of ten nodes along major arterial routes and key gateways to Perth City by 2020. Appropriate species selection and ongoing maintenance considerations have been key elements for success. The project team will discuss the Initiative's strategic framework, the interdisciplinary approach using the expertise of urban planners, flora experts and landscape architects, projects underway and how the concept can be applied by other land managers.

**Tom Atkinson, Senior Environmental Consultant, Emerge Associates**, will discuss how incorporating trees into urban environments has the potential to provide a wide range of benefits. These benefits, along with the associated costs of tree maintenance, can be strongly influenced by the types of trees selected. Tree selection is therefore an important consideration for local governments, who maintain many urban trees and who are able to influence the composition of an urban forest to increase beneficial services. Tom will discuss the development of 'tree selection tools' for local government using Perth metropolitan and Australian examples, with a focus on applying a systematic approach to increasing the biodiversity value and the health and resilience of urban trees.