Urban Forest
Perth & Peel
CSIRO *Urban Monitor* 2009 & 2014
A compilation of maps illustrating the location and proportion of tree canopy cover above 3 metres across Perth and Peel in 2009.
The Department of Planning in close collaboration with the CSIRO have produced a report on the Urban Forest of Perth and Peel.
Data Source: CSIRO’s *Urban Monitor 2009* demonstrates the capabilities of high resolution digital photography.

Figure 1. The primary monitoring data consists of radiometrically calibrated true orthophotos. Digital surface models are generated for each time period. Here are examples of the DSM for 2007 and 2009 (left and middle), and a local example of the orthophoto and corresponding DSM (bottom and top right respectively). The ‘hotter’ the colour in the DSMs, the higher the elevation relative to mean sea level.

Stream Leader
Research Scientist
Dr Peter Caccetta
(BEng (Hons) PhD)
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2014 Urban Forest data has arrived.

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Terrestrial Mapping And Monitoring
CSIRO Computational Informatics

Stream Leader Research Scientist
Dr Peter Caccetta (BEng (Hons) PhD)

High resolution digital
URBAN MONITOR APPLICATIONS IN ENVIRONMENTAL MONITORING FOR THE STRATEGIC ASSESSMENT OF THE PERTH AND PEEL REGIONS
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Rule set steps:
• Identify all veg above 8 m
• Grow out from this a number of loops
• To a maximum height
• Optimised to 6 loops to 2 m
• Mean accuracy of 1.47 m (std dev = 1.3 m)
Applications
• at revegetation and rehabilitation works to measure success
• an indicator of ecological function for TEC, PEC, DRF, riparian veg etc…
Connectivity and fragmentation

Applicable at a range of scales:
Sub – regional scale application
Environmental objectives and commitments for State values

48. Better understand and manage urban heat island vulnerabilities by undertaking studies and monitoring. This would include investigation of barriers to minimising heat island effect through design and where they exist how they might be remedied.

49. Support human health and amenity values in existing and proposed urban areas by developing a framework for maintaining or enhancing a network of green space and tree canopy cover which will include:
   - Guidance and support for local government strategies in setting and achieving minimum standards for canopy cover and on ground actions for achieving a net increase in tree canopy cover;
   - Communication and knowledge sharing concerning the benefits of urban tree canopy retention and expansion; and
   - Response to the outputs of the preceding commitment.

50. Conduct monitoring of urban tree canopy and publishing of data to support local governments track trends in canopy coverage, and evaluate the effectiveness of their heat island effect reduction strategies.
Suburb structure
The urban forest of Perth and Peel

Trees canopy by land use

In order to track the tree canopy data more accessible and relevant for planning and environmental purposes, we have converted tree canopy cover results for individual street blocks, road reserves and parks. The overlaid tree canopy cover results have been displayed in the local government area in the outer suburbs and by quadrants in the central suburb.

The tree canopy results for street blocks and parks are displayed together on one map with road reserves and parks displayed together on an additional map for improved legibility.

The following tree description has been assigned to each tree species to reflect different planning policy environment, likely development and infrastructure impacts and highlight roles and responsibilities of State agencies, local governments and land owners.

Low risk – parks and streets

Trees in these park and street settings are considered to be low risk because these areas are designed as spaces for biodiversity, recreation, and relaxation with lower development pressures. Education services do not provide the same level of protection for trees as street trees and parks and reserves and other non-urban buildings.

Medium risk – road reserves

The road reserve creates the opportunity for greater planning and maintenance by local authorities to provide consistent and converging tree surveillance for whole council boundaries. Road reserves are shared spaces with multiple features, road reserve is Crown land vested with the local government authority for general management. State authorities have authority to use the road reserve. Road reserve is commonly contained within roads and adjacent ground infrastructure.

Tree canopy is rated in reserves in considered medium risk due to infrastructure and maintenance activities which can damage or remove trees. Road widening can also have a significant impact on established trees and often result in the complete removal of existing trees.

The benefit of road reserve management that identifies the medium risk status in that infrastructure and maintenance activities are well-managed and subject to policy. The road reserve boundaries have been defined by Landgate using 205 polygons with a usage type that includes the term ‘Road’.

High risk – commercial, residential and industrial street blocks

Trees on private lots are at the greatest risk of development pressures because there is very limited protection for established trees and relative pressures. Within residential areas and developments are a common source of canopy loss. Trees can be removed on private land at any time, in a way that planning policies, regulations and management plans that increase densities and allow for further subdivision will trigger increased development activity and contributes to tree canopy loss.

The following tree canopystraction are intended to help State and local governments understand the multifaceted risk of the tree canopy and to provide information for the maintenance and management of the urban tree canopy.
City of Armadale Urban Forest Strategy

Urban Forest of Perth and Peel: Statistics for City of Armadale

- Armadale
- Bedfordale
- Kelmscott
- Seville Grove
City of Vincent Greening Plan

11% Tree canopy cover (baseline year 2009)

2050 Target 20-25% Tree canopy cover
Urban typologies
Most people intuitively know that it is hot in summer, but seeing how hot it becomes on the road outside your house or on top of your own roof is more compelling.

Presenting thermal imaging in a way that overlays the heat affects over time, and onto streets that people are familiar with is much more convincing than talking about increases in degrees Celsius.
Thank you