



IDEAS AND OPINION
PAT TURLEY

The Value of Urban Trees

Urban trees offer a sense of place and a connection with the past. Environmentally crucial and a cultural touchstone, they have a massive role to play in urban New Zealand.

In terms of their environmental benefits, trees provide habitat, sequester carbon, mitigate stormwater runoff, cool the air and surfaces, and reduce solar radiation by up to 90%.

Manchester researchers in *Research Gate 2014* reported: “The physical benefits of urban trees are well known ... they intercept airborne particles, thereby reducing pollution levels, they provide shade and cooling, and they intercept rainfall, reducing runoff and surface flooding.”

They found that trees “reduced runoff by 60%”, their shade cooled urban populations by up to 4-7°C, and cooled surfaces by 15-20°C. The study reported that trees’ evapotranspiration (whereby trees release water into the air) “removed up to 50% of the energy from incoming radiation.” Shading by trees is the other cooling effect.

Trees that are well-placed reduce building air-conditioning costs by 20-50%. In climates characterised by cold winters and hot summers, deciduous trees near homes and other buildings offer cooling in the summertime, and solar gain in winter.

Well-being

In terms of human benefits, increasing evidence indicates that trees considerably improve our mood, sociability, well-being and health. Trees are shown to help reduce stress, improve our attention capacity and assist illness recovery.

An article on human health effects in the *American Journal of Preventive Medicine* (2013) said there was a “convincingly strong” connection between

100 million Michigan trees decimated by an invasive beetle, and the coinciding increase of heart disease and pneumonia for populations nearby. It is surmised that people’s health deteriorated due to tree losses and the connected adverse well-being effects.

University of Washington research indicates larger trees on residential properties, as well as street trees, can add 3-15% to market values. Homes adjacent to “naturalistic parks and open spaces” transact at 8-20% greater market value than homes not near trees.

The research review *Metro Nature, Environmental Health, and Economic Value* by Kathleen Wolf and Alicia Robbins suggests urban green or “metro nature” places have significant linkages to a community’s economic outcomes via well-being and prosperity effects. Wolf and Robbins suggest improved valuation tools are necessary for making better decisions about metro nature investment. This theme includes creating and preserving urban parks and woodlands, and in general growing and nurturing urban trees.

The effects of trees are significant, and our knowledge of trees and their benefits is ever-developing. What we do know so far makes a compelling case for increased urban trees and greening.

Yet urban tree losses in NZ are widespread. For example, the Waitematā

Local Boards conducted a recent study for the following suburbs: Arch Hill, Freemans Bay, Grey Lynn, Parnell, Ponsonby, Western Springs and Westmere. The report shows a canopy loss of 61 hectares in 2006-16, which is represented by 12,879 identified individual tree removals. The actual total is likely considerably greater.

Economic value

University of Washington research indicates larger trees on residential properties, as well as street trees, can add 3-15% to market values. Homes adjacent to “naturalistic parks and open spaces” transact at 8-20% greater market value than homes not near trees.

Softening tree protection rules might have gains for an individual property owner or developer, but a corresponding greater economic loss to the neighbourhood - before any accounting for environmental damages.

In cases of insurance claims, the monetary value of trees lost must be established. The Standard Tree Evaluation Method uses an assessment score and considers costs to buy and plant trees, as well as maintenance costs and tree age. The STEM valuation, in one example, assesses \$9,000 for a Hastings single amenity tree 25 years of age.

The STEM valuation finding may not coincide with a real estate market valuation before and after trees, given property sales evidence.

The City of Melbourne tree valuation method is an alternative to STEM. The Melbourne method is based on trunk diameter and considers a tree’s amenity setting. In one example an inner-suburb pin oak (*Quercus palustris*) age 30-years with a trunk diameter of 0.53 metres, is valued at \$32,200. Urban tree values climb considerably



CLOCKWISE FROM TOP: 144 years Frimley Park necklace poplar (*Populus deltoides* subsp. *Monilifera* 'Frimley'), the largest of its type in the world and largest deciduous tree in New Zealand. Photo: Pat Turley. 159 years Tasmanian blue gum (*Eucalyptus globulus* subsp. *globulus*) at St Columba Church in Havelock North; 145 years pin oak (*Quercus palustris*) at St Luke's Church in Havelock North saved 40 years ago assisted by Joe Leete; 90 years Canary Island date palms (*Phoenix canariensis*) on Kennedy Road, Napier. Photos: Tom Allan.



Keirunga Havelock North woodland oaks in autumn – mainly English oak (*Quercus robur*) and red oak (*Q. rubra*). Photo: Tim Whittaker. tim.co.nz

for larger and older amenity trees.

The added market value of orchard trees to land is considered alongside other development including power and water installations, fencing, roadways, buildings, and housing. Similar to the STEM and the Melbourne method, the basis for assessing the value of an orchard tree involves evaluating its qualities and the stage of its development.

The cost of reinstating trees and other land improvements has an influence on market values. But cost and market value rarely coincide, indicating either a development profit or loss. Such as for apple varieties now fashionable versus trees no longer in vogue.

Heritage values that communities ascribe to heritage buildings, artworks and unique trees usually exceed cost-based or market economic factors by a considerable margin. Hastings has a Ginkgo tree, about 140 years of age, that has a unique whakapapa. The irreplaceable female Ginkgo and its history are highly-treasured, notwithstanding the seasonal stinky tendencies of the tree. It can be fairly said that all trees are unique.

Keirunga oaks

Arthur's Pass Gulley oaks at Keirunga in Havelock North are a community treasure. Keirunga is a gifted woodland holding more than 100 legacy trees

including 80-year-old oaks. There is no other public land, oaks-dominant woodland quite like this in Hawke's Bay. Keirunga is a unique and nationally significant heritage place. Hastings Council is the custodian of this inter-generational community asset.

The STEM and Melbourne valuation methods would determine the collective value of the Keirunga woodland trees of at least \$2,000,000 if not \$5,000,000, or possibly greater.

The Keirunga oaks are by any measure a significant public asset and they are non-replaceable. Their planter and benefactor George Nelson is deceased, and his generosity and legacy was a one-time gift.

The value of trees to our planet and people is multifaceted. The well-known plea "Save the trees" is increasingly appreciated - over 4,000 people signed the save the Keirunga oaks petition.

In the past 24-years in New Zealand there have been 10 tree-related fatalities not involving tree-cutting. This included one on a council reserve and one on DoC land. The others were road-related accidents such as trees striking cars. The chance of being killed by a falling tree in NZ is 1:10 million - that is the same chance of being killed by lightning.

Council thinking needs to shift away from seeing trees as a problem and

cost, and instead seeing them as an asset that is worthy of investment. The costs of properly managing well-grown trees are usually justified by the benefits these trees deliver. There is also the massive costs and lead-time necessary to establish significant trees.

Councillors need sound information and they need to ensure staff are properly accountable for our public and urban places trees.

Hawke's Bay's heritage trees that represent our local communities, their stories and whakapapa are very valuable, and these trees are irreplaceable. Like artworks and treasured buildings, they tell a story - our very old trees are part of us.

Urban trees offer incalculable benefits and value to everybody. The injudicious cutting of public trees should always be firmly opposed, and the felling of amenity and heritage trees should be the absolute last resort - surely this is something we can all agree on. ●

Pat Turley is current volunteer chair of the Maraetōtara Tree Trust's riparian plantings and principal of Hawke's Bay valuation and property strategy company Turley & Co. His farming background includes pipfruit growing and forest harvesting in NZ and the UK, and he grows exotic and native trees.