

i-TREE ECO: MODELLING THE LUNGS OF OUR CITIES

Trees are often referred to as the lungs of our cities but it has been hard to quantify just how much good they do. Kenton Rogers explains how the value of trees can be modelled using the i-Tree Eco software package

Most of us are already aware that trees offer many significant benefits. These include providing shade, evaporative cooling, the capture of aerosols and particulates, interception and filtration of rainfall, carbon sequestration and storage not to mention noise reduction, soil conservation, biodiversity and the indirect benefits to human health and wellbeing.

These benefits are even more pronounced in urban areas, helping make our towns and cities better places to live. Moreover these benefits are provided at the same time and at very little cost. Arguably this makes trees the single most important component of green infrastructure.

With rising urban populations and climatic events increasing in frequency and intensity,

the trees that make up our urban forest are likely to become an increasingly important resource for future communities.

The number of people in the UK living in urban areas is currently estimated at around 44 million or 80% of the population. Globally, over 50% of the world's population now lives in cities and this is expected to rise to 60% by 2030.

Yet trees in urban areas are often under great pressure from factors such as increased summer temperatures, pollution, compacted soil, salt contamination, development and vandalism to name a few. Consequently, urban tree numbers in the UK have been steadily declining. How can we reverse this trend?



The benefits of trees need to be made tangible or they will continue to be overlooked and undervalued. In 2011 a project was commissioned by Torbay Council to pilot a tree benefits model called i-Tree Eco. The subsequent report expressed the benefits of the urban forest in economic terms as well as providing a comprehensive analysis of Torbay's tree stock.

The results showed that Torbay's urban forest stored around £5.1m worth of carbon, filtered 50 tonnes of pollutants every year (a service worth £1.4m annually) and would cost £280m to replace.

The publication of the Torbay report meant that for the first time in the UK there was a comprehensive evaluation of the urban forest (both publicly and privately owned), directly related to benefits that were quantified and expressed in monetary terms.

Since then other i-Tree Eco projects have been completed in towns and cities across the UK including Glasgow, Edinburgh and Swansea. And, last year the Forestry Commission led the London i-Tree Eco project with the Re:Leaf Partnership.

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Three hundred volunteers surveyed 724 plots across London to gather information on the structure and composition of the urban forest. To date, this is the largest urban forest citizen science project in the world.

The results are currently being analysed and when released this spring will provide detailed, comprehensive and valuable information on this important resource.

By identifying and articulating the role of trees as economic assets or as a biotechnology to improve the places where we live and work, we can finally put them on the asset register and have the evidence to justify further investment, improve our canopy cover and make better places to live.

Having introduced the subject this month, Pro Arb will be taking a closer look at the London project, its delivery and aspirations in the next issue.

What is i-Tree?

i-Tree is a peer-reviewed software suite developed by the US Forest Service and the Davey Tree Expert Company. i-Tree has been used to quantify urban forest structure, function and values in more than 100 countries worldwide.

Randomly generated plots stratified by land use type combined with local pollution and meteorological data can quantify the ecological benefits provided by trees and shrubs.

By understanding the tangible, local ecological benefits trees provide, i-Tree users can link urban forest management activities with environmental quality and community livability.

i-Tree provides the baseline data that can demonstrate value and set priorities for more effective decision-making. More information is available at: www.itreetools.org

ABOUT KENTON ROGERS

Kenton Rogers is a Chartered Forester and a Fellow of the Royal Geographical Society. He is also co-founder of Treconomics, a social enterprise with a mission to work with communities, businesses and public bodies to highlight the value of trees.

For further details of i-Tree studies in the UK please contact Kenton Rogers at kenton@treeconomics.co.uk