



Tree species selection and how to get it right in a changing climate

(held online)

Agenda

Chair: Phil Askew, Director of Landscape and Placemaking, Peabody

The strategic context

Glenn Gorner, Natural Environment Manager, Leeds City Council

10 principles for tree success

Andy Hiron, Senior Lecturer in Arboriculture, University Centre, Myerscough and co-author of *Tree Species Selection for Green Infrastructure: A Guide for Specifiers*

Know what you have – how to use tree inventories creatively

Kenton Rogers, Director and Co-founder, Treeconomics

Using TDAG's *Tree Species Selection for Green Infrastructure: A Guide for Specifiers* – a review and update

Andy Hiron, Senior Lecturer in Arboriculture, University Centre, Myerscough and co-author of *Tree Species Selection for Green Infrastructure: A Guide for Specifiers*

Partners: Institution of Highway Engineers, Landscape Institute

The presentations, recording and a pdf of this document are on the TDAG website. You can access the recording directly on YouTube <https://www.youtube.com/@treesanddesignactiongroup7020>

QUESTIONS, COMMENTS AND REFERENCES BY TOPIC (AS FAR AS POSSIBLE!)

NB. Questions and comments are anonymised unless answered in the chat by one of the speakers.

Questions and comments for Glenn:

What was the policy that required local authorities to increase canopy cover?

- Glenn: An evidence-based report was provided by University of Leeds/UBoC which demonstrated the scale of tree planting that was required if Leeds was to mitigate 50% of residual CO₂ by 2050 - based on the understanding that Leeds would meet its targets to reduce emissions. This evidence was written into the Leeds Forest strategy and endorsed by Executive Board in 2020. This then influenced the development of revised Core Strategy Policies.

- Glen, are you able to share your compensation calculator for urban trees lost to development please? YES

Did the canopy cover increase assess habitats already present?

- Glenn: No. However, tree planting is design led and particularly for new woodlands creation/enhancement of associated non-treed habitats is built into this.

What is the estimated maintenance cost increase? Have most sites been placed in low use areas away from infrastructure?

How do you calculate numbers of trees to be planted to achieve target canopy cover?

- Glenn: Calculations were based on the mitigation of residual CO₂. UofL used a variety of data (Bluesky NTM and calculations used in iTree Eco for example + species choices based on ESC and carbon capture calculations used in Woodland Carbon Code, together with Yield Class Tables).

Do you map ongoing tree loss? Targets are based on existing cover but we rarely allow for the continued loss of habitats from development.

- Glenn: We started full scale surveys for losses last summer, once the Council had been persuaded that losses were high. These are then mapped in ArcGIS. In addition, we have worked with Mott Mac using their Ash Dieback AI platform to map all ash trees along Leeds A and B roads. This data has been migrated into a Leeds Arc GIS platform to create an Ash Dieback Analysis Dashboard. Tree Location, size, condition, fall radius has been captured, plus hot spots on both LCC land and private land. This is now being backed up with sample on site surveys of hot spot areas. Costs for mitigation of Class 3 and 4 conditions are being prepared based on full tree removal. It is understood that this will mean that TCC will be reduced and, therefore, mitigated.
- Does that relate to the Bristol Tree Replacement Standard to mitigate tree loss/development
 - Glenn: We looked at the Bristol method, but wanted something more evidence based. I can provide Sue with a link to the executive summary that explains this.

Were there any changes to your approach with Developers/S38 agreements?

How do you fund the costs for ongoing establishment/management of newly planted trees?

- Funding often concentrates on capital not revenue from experience

In your species mix, do you consider nitrogen fixing trees like Alder?

Glenn, are these new local plan policies?

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The wide landscape shot with your information about the nature of the sites over time was especially interesting.

Really wonderful to hear how you are working across a large landscape scale with a breadth of vision. how are you incorporating increased diversity, resilience with non-natives

Really interesting presentation and strategy, thank you. Re outsourcing, the Tree Council did some research comparing volunteer and contractor plantings on the same site and conditions, the volunteers' trees had near all surviving, contractors less than half... Better to employ inhouse workers if not enough volunteers

- That's an interesting set of data Anthony, is that available on their website?
 - Paul Lambert, it was part of Jon Stokes presentation to the Tree Wardens Regional Forum a few weeks ago. Don't know if it's on their website

Tree planting contractors need incentives to perform.

- Interesting point...financial incentive relating to establishment i.e. after 5/10 years?
- I think there's a real opportunity to link tree planting and carbon footprint. i.e. the carbon offset cost of a failed tree could be passed into the contractor to mitigate the loss.

Questions and comments for Andy

Regarding air quality - the best role for trees is part of good urban design - separating people from pollution and promoting/encouraging active travel. The only way to significantly improve air quality in an urban setting is to reduce emissions; the amount of pollution taken in by trees is unlikely to have a significant impact on ambient air quality - i.e. the air that we breathe in.

- Absolutely agree, although apparent impact also varies with scale of planting, deposition models used, target pollutant, etc., etc. There is also a notable difference between pollutant 'removal' (at city scale) and exposure reduction (at street scale), with the latter achievable by effective GI design with respect to the surrounding built environment, as you've already indicated

Andy, how about adding canopy spread too so that it helps with calculating soil volumes, or better still add soil volumes too

As for Principle 8, shouldn't good nurseries obtain seed from local healthy tree stock where possible in hopes to retain local genetics, a large number of nurseries import native species from European growers (linking in with biosecurity, bringing in OPM and spreading it through the UK around 4/5 years back).

Actually, the focus should start with what already exists and growing that well into maturity

Is there value in a broader genetic base of 'native' trees to support resilience?

Does increased drought tolerance reduce tree cooling, and if so, could that justify urban tree irrigation?

Do you have these 10 principles up online somewhere?

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- Andy and I are talking about putting them on the TDAG website. If we do, it will be under Resources (<https://www.tdag.org.uk/resources.html>) and scroll down to External Resources.

Mature, over mature, veteran and ancient trees have survived decades, centuries and in rare cases, over millennia, indicating they have strong genetics, growing seed from strong contenders is likely to create a more resilient tree stock.

- I take your point, Paul, but I suggest that there is no such thing as an 'over mature' tree. What does it mean? How about old-mature as a more appropriate term?

...and access to native soils too

Anyone interested in supporting extending the TDAG guide can make a donation to our JustGiving page on the website

Questions and comments for Kenton

Canopy spread is so rarely expressed or considered in designers' presentations. There is a lot of available data now. Hampshire CC used to require planted and 25-year canopies shown on plans. Shame that didn't seem to gain ground.

Our fire marshal is not allowing large trees due to obstruction for fire ladder access to windows on tall buildings. Have any of you dealt with this? For us, this means trees no larger than 30-50 feet.

- That might end up killing more people from increased air pollution than it saves.

Kenton, should we identify a frequency of how often street tree inventories should be carried out? To quantify changes over time - is this something you already do?

Age and size diversity are forest management considerations. What is critical within the built environment is condition and how we can mitigate the abiotic challenges that would improve survivability.

This puts the emphasis on the beginning of the process - planning / preparing / enhancing the proposed or existing planting site.

I work in national landscape advice for Historic England and would be really interested in hearing about ongoing research with historic botanic gardens and arboreta and where these collections are helping us to understand tree planting for the future

- Erika, I work at a heritage property in Surrey and would love to chat about this! Please get in touch - yendle.barwise@westhorsleyplace.org
- From Kenton: Kevin Frediani at Dundee Botanic and Kevin Martin at Kew would be good starting points

A link to the climate scenario species check, please

- Here it is: <https://www.bgci.org/resources/bgci-hosted-data-tools/climate-assessment-tool/>

From Kenton:

Sorry - because I lost WIFI I also 'lost' the chat history. If you have any queries please email Kenton at kenton@treeconomics.co.uk

Questions and comments for Andy on tree species selection

Does the species selector take into account the propensity for subsidence? hard landscape direct damage?

- Root directors and correct preparation of substrate are key.
<https://stratagreen.com.au/urban-trees-root-control/root-control-barriers/root-director-900mm/> or <https://greenblue.com/gb/product-category/root-management/>
- I think the NHBC had a table of recommended planting distances for different species, which doesn't necessarily equate to relationship to subsidence but may give an idea?
 - TDAG is working with NHBC to update this information. The IStructE *Subsidence* guidance is the most up to date.
<https://www.istructe.org/resources/guidance/subsidence/>

Could nurseries be allowed to input their inventories onto the species selector - or produce their own version based on the TDAG profiles?

Maybe linking the species names to the really rather excellent resource Trees and Shrubs Online from IDS

I'm interested in the links between Glenn's tree planting groups and the TDAG species guide

Way back in time, the Afforestation Programme we implemented in Telford New Town used the concept of intra-specific competition - planting groups of the same species for there to be competition between the same species, much like Glenn does in some parts of Leeds. We planted some 6.5 million trees of 138 different species, and the town is now a Tree City of the World.

Actually, looking at the diversity of tree stock offered by the main UK tree nurseries is really quite narrow. All planting the same cultivars/clones selections with actually very little diversity.

- *Pyrus chanticleer* is a fairly good urban tree but ALL from 1 clone ! No intra diversity there....
- Variability in gene pool is so important. Also, the work done in soil works is key - fungal health / compaction etc
- Leeds setting up their own nursery for genetic variability is so interesting
- *Pyrus calleryana* is sooo overused and funnily enough there are various other *Pyrus* species proven to be better and more drought tolerant
 - They are also invasive so should be avoided

To promote collaboration Trees, People and the Built Environment 5 hosted by the ICF is a partnership with the RIBA, IStructE, CIEEM, LI, UDG, TDAG, Ciria, CABE, Arboricultural Association etc...so really cross sector...it also needs a cross-sector audience... All details are here - <https://www.charteredforesters.org/event/trees-people-and-the-built-environment-5>

How do we try and avoid failure from vandalism.

I should have said that the TDAG Guidance species list is based on what is available at standard tree sizes (8-10 and above).

Why aren't they reaching out to Arboriculturists - Landscape Architects know we exist?

- Because landscape architecture has always been elitist and they don't want to admit they have a knowledge gap and bow to the experience of an arb
- The LI membership has to make clear what they want to see happening in LI education
- As a current student on a Landscape Institute accredited course, I think there has to be a push on horticultural learning in the curriculum. Fortunately, I have a background in Arboriculture which has been invaluable.
- - Thank you Sue and Thomas for your comment about Horticulture skills for LAs. I will take this back to the team for discussion. Our President Carolin Gohler has a special interest here too and I am sure we will see more on it.

Not sure it's always planners that dictate that native species should be planted. My experience is that it is Ecologists engaged during the consultation stage.

May I also make a plea for differences in trees supplied too....as in not being hide bound by standardised tree stock heights etc

Horrified that horticulture is no longer a core skill. I am a landscape architect and have encountered this mindset throughout my career. The LI should be on this

Pressure for BNG delivery / credits is also driving the assumed use of 'native' tree species, whether appropriate or not.

- Often assumed that only 'native' species can provide habitat benefits.

I didn't think that BNG went down to species level for any habitats including trees?

- It doesn't...yet.

Do we approve of planting semi-mature trees?

- No one should be planting semi-mature trees should not be permitted. Landscape Architects need to get over their design delusion.
- LI Biosecurity Guidance advocates the use of smaller tree sizes where possible for these reasons.
- Semi-mature are usually specified to prevent vandalism, I believe.

Contract growing is the answer to supporting quality trees and nursery existence.