



University of Warwick, Warwickshire, 10th-13th September 2023

CONFERENCE PROGRAMME





















THE UK'S BIGGEST ARBORICULTURE CONFERENCE











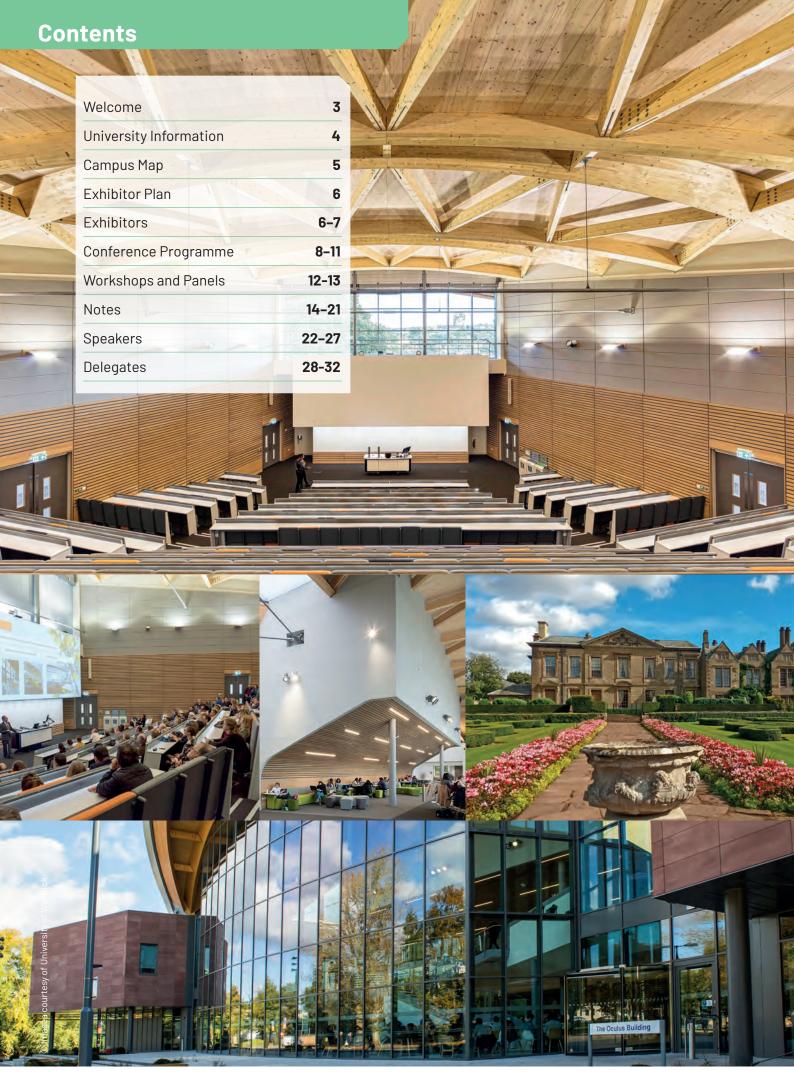








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Welcome to the 2023 **Arboricultural Association** Conference here at the University of Warwick

John Parker, Chief Executive Officer, Arboricultural Association

elcome to Warwick University, and the Arboricultural Association's 56th Annual Conference. This is our first time in the brand new buildings here, and we hope you will agree that this is a great venue to host what promises to be an enjoyable and informative few days.

You will have seen from the Conference programme that we are trying out a slightly different format this year. The Association is determined to support and promote competitive tree climbing, an important part of our sector which helps develop skills and innovation in arboriculture and acts as a great showcase for the profession. This year we have incorporated the UK & Ireland Tree Climbing Competition into Conference, with the Masters event taking place on campus on Sunday.

Monday and Tuesday are packed full of

content from some of the top professionals in arboriculture and urban forestry from the UK and around the world, and we will be covering a huge range of subjects. In addition to the plenary sessions in the main auditorium we have an incredible lineup of workshops for you to choose from, offering an opportunity for delegates to engage with the content and speakers in a way which simply isn't possible online.

This year's field trip is on Wednesday, and will be a tour of the beautiful grounds of Coombe Abbey during which you can



discuss everything you have learned whilst stretching your legs in the sunshine (sunshine not guaranteed). And on top of all of that, of course, we want you all to enjoy the opportunity to socialise with your friends and colleagues over a tea or coffee, or perhaps even something a little stronger.

As ever I would like to thank the Association team for everything they have done to deliver this event. You will see them - and our wonderful volunteers - rushing around over the next few days to make sure everything runs smoothly and that you all have a great time. Thanks too, of course, to all of our speakers and delegates.

I hope you enjoy Warwick 2023.

CONFERENCE **PRESENTATIONS**

Conference presntations will, where possible, be recorded and made available to delegates as soon as possible after the event.

An archive of conference presentations from 2015 to 2021 is available on the Arboricultural Association website. Conference 2022: What is a Tree? Is available to buy on-demand.

www.trees.org.uk/Training

REGISTERING **FOR ISA CEU CREDITS**

The Conference has been approved for 7 ISA CEU credits on Monday and Tuesday, 5 credits on Wednesday.



To register for credits, you must sign in at the Lecture theatre on Monday and Tuesday, then at the coach or at Coombe Abbey on Wednesday.

OUR PLANTABLE SEED PAPER BADGE

All conference delegate badges have been printed on plantable paper embedded with seeds.

Scan this QR code to find out how you can plant your badge to grow basil!



Arboricultural Association Conference 2024

8th-11th September 2024

The 57th Arboricultural Association Conference will take place at the University of Warwick from Sunday 8th - Wednesday 11th September.

DELEGATE INFORMATION



The Oculus, University of Warwick CV4 7SH

ere's everything you need to know about finding your way around the campus and all the particulars. On the following pages, you'll find a campus map and a plan of where speaker sessions and trade exhibition will be held. More comprehensive details can be found in your joining instructions.

Car Parking arrangements

To get free parking, all drivers must register their car using this link:

prebook.apcoa.co.uk

- Fill in "Personal Details", check the "Booking Summary" is correct,
- Add the promotional code: NOTRV (this promotional code will then reduce the price to £0.00)
- 3. Click "Book now"

If you forgot to register before you arrived, you can still do so using the above link. If you fail to register before you leave, however, you will be charged and this is non-refundable.

Once on Central Campus follow the signs for Central Campus parking.

Accommodation

Residential delegates are staying in the **Arthur Vick Halls of Residence**. The halls are a 5-minute walk away from Oculus and 8 minutes from the **Rootes Building**, where breakfast and evening socials will be held.

The en-suite bedrooms have a single bed, bed linen towels, wrapped soap, tea and coffee making facilities, a fridge (in the shared kitchen area) and free Wi-Fi. An iron and ironing board are available on request. Bedrooms do not have televisions or telephones.

Accommodation Check In/Out:

You will be provided with a key card which will give you access to your bedroom and entry door to the accommodation block.

- Bedroom keys will be available to collect from 15:00 to 21:45 at Senate House.
- Bedrooms are to be vacated by 09:30 on your day of departure. Luggage and belongings should be removed by that time.

On the day of departure, keys can be left at Rootes Restaurant (in Rootes Building) or one of the boxes situated in the entrance hall of each accommodation block. We will also be able to take your keys at our registration desk in the Oculus.

Emergency contact for accommodation until 21:45 cvreception@warwick.ac.uk or 02476 528910.

Left Luggage:

If you wish, you can leave luggage with the Association team at the **Oculus cloakroom**, located behind the registration desk.

Conference Registration

Registration for the Conference will take place in the main foyer of the Oculus, at the Association Registration Desk. All delegates must sign in here and collect their conference bag and badge, before attending any sessions on Monday.

Sunday: 14:00 – 18:00Monday: 07:45 – 08:30

■ **Tuesday:** 07:45 – 08:30 (if not already registered)

Lectures will take place in the **Main Lecture Theatre** upstairs in the building. Delegates will have a choice of workshops to attend each afternoon and the registration for these will be on-the-day only.

Sunday activities:

Tree Climbing Competition:

The UK & Ireland Tree Climbing Competition Masters' Finals will be taking place just outside the Oculus building, feel free to watch and cheer on the competitors.

Tree Planting:

The Annual Henry Girling tree planting will take place at 18:15 outside the Rootes Building. We're happy to say that this year's tree will be planted close to some of our trees

from previous conferences, showing the Henry Girling Legacy in all its glory.

Wednesday Field Trip – Coombe Abbey:Joining Instructions are available from the Registration Desk.

If you are attending Wednesday's field trip, the coach will be leaving the Oculus building at 09:30, please aim to get to the coach by 09:00. Please make yourself known to the staff member at the coaches to register your attendance.

Coach delegates will return to the University of Warwick at 16:30, those that choose to drive are free to depart directly from Coombe Abbey.

Trade Exhibitions

The Trade Exhibitions will take place throughout Monday & Tuesday in the **main foyer of the Oculus** building, where refreshments, buffet lunch and Monday's wine reception will be served.

Internet Access on Campus

If you wish to access the Wi-Fi, you will need to search for: **Conference Guest Wi-Fi**. You will be able to register for Wi-Fi access through this and the same free network will work across campus.

Food and Drink

Sunday and Tuesday dinner and all breakfasts will be provided at the restaurant in the Rootes Building. Service times are as follows:

Evening Dinner:

Sunday and Tuesday: 18:30 - 20:00

Breakfast: Monday, Tuesday, Wednesday: 07:00 - 08:30

All lunches, daytime refreshments and the wine reception on Monday evening will be served in the main foyer of the Oculus building. For times, please refer to the conference programme.

■ **Monday Dinner:** Food will be served in the **Panorama Room** in the Rootes building at 20:00. The bar will be open from 17:00.

If you have any special dietary requirements, please ensure that our events team have been notified.

Bars

Fusion Sports Bar is located in the Rootes Building, next to the restaurant, serving a range of local beers, Guinness, cider and spirits, this will be open until 01:00. The bar is cashless, so don't forget your cards!

Please display your conference badge to gain access to the food and drinks that you have booked.

Disability Services:

The Oculus and Rootes building have level entries and lift access to first floor restaurant and meeting spaces.

Onsite contact:

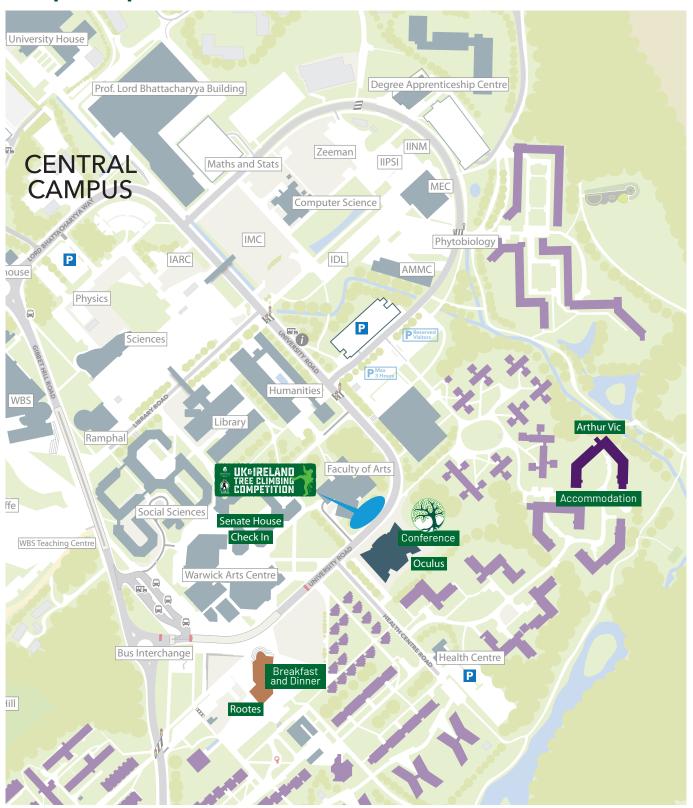
If you need any assistance throughout the event, please go to the Association Welcome Desk, or speak to a member of the team.

Out of Hours contacts:

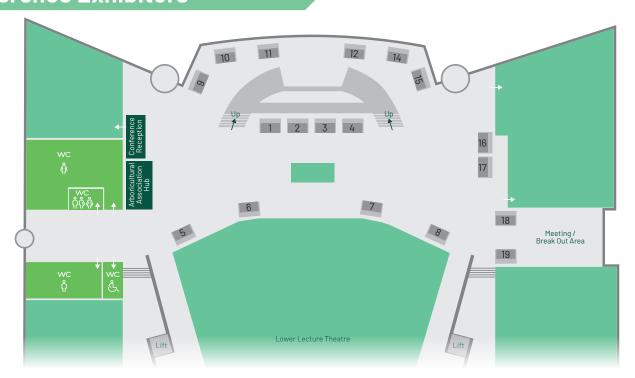
Accommodation queries until 21:45 please contact: Conference reception on **02476 528910**.

For all emergencies and accommodation after 21:25 - please contact the Community Safety team on **024 765 22222**.

Campus Map



Conference Exhibitors





Stand 01

Treeconomics

Kenton Rogers

www.treeconomics.co.uk

Treeconomics will be showcasing
TreeKeeper, a web-based urban forest
management tool, designed to assist
arboricultural professionals in managing the
day-to-day tasks associated with the urban
forest, and the data that supports it. We are
pleased to introduce this system to the UK in
association with the Davey Resource Group.





Tree Diagnostics

Ian Barnes

www.treediagnostics.co.uk

Tree Diagnostics - Importer of specialist products for arboriculture. Including the Cost effective Fakopp range of Tomography systems for wood decay - Arborsonic (Sonic) and ArborElectro - electrical resistance tomography. Tree stability 'Tree Pulls' and Dynamic 'Dynaroot' & 'Dynatree' systems. Full training provided and ongoing support by Arboricultural Consultants. Sub-consultant service available including TreeRadar, Thermal & Drone Surveying.





Stand 03

OTISS

Paul Moran

www.intrinsica.co.uk

OTISS - Online Tree Inspection Survey System. OTISS is a new approach to surveying trees and outdoor assets. It is built around the use of smart phones, tablets and GPS devices which sync the maps, photos and survey data with the secure OTISS website. The website is used to review and manage the survey data, and to create maps and reports.





Pear Technology Services Ltd

Jonathan Smith

www.peartechnology.co.uk

• Tree Mapping, surveying, reporting and management • Surveys: BS5837, VTA, THREATS, OTRA, TEMPO, outlines or user customised. • Ordnance Survey, "topo"/CAD and most common formats. • Full training and support. • Supply of survey hardware • Free trial and demo available

info@peartechnology.co.uk 023 9249 9689



Barcham Trees plc

David Johnson

www.barcham.co.uk

ezytreev



ezytreev

Rachel Judge

www.ra-is.co.uk

Your all-in-one solution for effective and sustainable tree, TPO, and open space asset management.

Holistic data management, Comprehensive inspections and works ordering, Surveys and Risk calculations, Budgeting and resource allocation, Contractor management and efficient Enquiry processing.

EZYTREEV: Your path to greener & healthier environments with data-driven solutions.





Sorbus International Limited

Thomas Wade

www.sorbus-intl.co.uk

Sorbus supply specialist products for arboriculture, forestry, utilities, horticulture, landscaping & grounds maintenance. Including the remarkable IML Resi-PD microdrill for wood decay evaluation and the PICUS range for trees including the market leading PICUS 3 sonic tomography system, TreeTronic electrical resistance tomography and TreeMotion Sensor systems. Recently introduced the PICUS Tension drought stress monitoring system gives early warning when trees are under drought.



Stand 08

Green Grid Systems

Lewis Holmes

www.greengridsystems.com

Green Grid Systems offer a comprehensive solution for the ongoing preservation of trees. Our RootBridge system helps integrate existing trees into new projects by protecting the sensitive tree roots and providing a support layer for a surface finish.



Stand 09

KaarbonTech

Leigh Harris

kaarbontech.co.uk

Delivering software and data solutions for local authority tree management, with over 10 years experience KaarbonTech are committed to sustainability, biodiversity and environmental protection and recognise the crucial role that trees play in our ecosystem.



Stand 10

TreeBeeRescue

Mark Gale

treebeerescue.org

Have you found a wild bee colony? Do not call a beekeeper. Entrust Tree Bee Rescue to relocate a section of the tree with its colony of honeybees. Help us save our natural unseen assets.





Stand 11

PlanIT Geo

Katherine Curtis

planitgeo.com

The TreePlotter™ software suite by PlanIT Geo™ sets the standard for tree inventory, ground maintenance, urban parks, and asset management worldwide. Products include INVENTORY, PARKS, CANOPY, and the Development Survey module, based on BS583.



Stand 12

Geosynthetics

Chris Davis

www.geosyn.co.uk



Stand 14

Transoft Solutions UK

Michael Shilton

transoftsolutions.com

KeyTREE is the essential companion to any tree consultant who needs to quickly create BS5837-compliant tree surveys. KeyTREE allows you to import and present multiple trees into AutoCAD from you own data sheets, mobile surveying equipment or Google Earth.



Stand 15

Summerfield Books

Paul O'Hara

summerfieldbooks.com

Summerfield Books is an independent familyrun bookseller, specialising in arboriculture, botany and all aspects of natural history. We stock a wide range of titles for the UK, Europe and the rest of the world.







ArborTrack & ArborFlight

Ouentin Nicholls

www.arbortrack.com www.arborflight.co.uk

Tree & vegetation management software and Aerial tree & vegetation surveying.



Stand 18

Greenfix

Roy Partington

www.greenfix.co.uk

Greenfix is the leading designer and supplier of soil stabilisation and erosion control systems in the UK.





John O'Conner Ltd

Nikki Singh-Barmi

www.johnoconner.co.uk

John O'Connor Arboriculture and Consultancy is a 50 year old family business with national coverage delivering a full suite of tree services.



Arboricultural Association

Event Staff

trees.org.uk



A.M. Lane Ltd

Tony Lane

amlane.co.uk

Exhibitors on upper level



Registered **Consultant Scheme**

Simon Richmond

trees.org.uk/regcon



ARB Approved Contractor Scheme

Fran Henrion-Brown

trees.org.uk/arbac



Institute of **Chartered Foresters**

Mark Goodwin

www.charteredforesters.org



Women in **Arboriculture Group**

Stella Bolam/Michelle Ryan

trees.org.uk/wia



European **Arboricultural** Council

Junko Oikawa-Radscheit

www.eac-arboriculture.com



LTOA London Tree **Officers Association**

Dale Mortimer

www.ltoa.org.uk



Perennial

Phil Swainston

perennial.org.uk

Monday 11th September morning session

07:45-08:30	Registration
08:45-08:55	WELCOME AND INTRODUCTION Session Chair: John Parker
08:55-09:20	ANDREW BENSON The Effects of Utility Wire Pruning on Ecosystem Services of Urban Trees
09:20-09:45	BENOIT DE REVIERS A new perspective on cabling and bracing systems
09:45-10:10	KRISTIN MOLDESTAD A field guide to identification of tree roots
10:10-10:30	Questions
10:30-11:10	Break
11:10-11:15	WELCOME AND INTRODUCTION Session Chair: Stella Bolam
11:15-11:40	GREG PACKMAN The Science and Management of Massaria Disease of Plane
11:40-12:05	RICHARD HAUER On your doorstep: Emerald ash borer. Economics, planning and management
12:05-12:30	JON HARTILL Meripilus on beech: Investigation of decay progression
12:30-12:50	Questions
12:50-13:50	Lunch

Monday 11th September afternoon session

13:50-13:55	WELCOME AND INTRODUCTION Session Chair: Jim Smith
13:55-14:20	SPEED BRIEFING AND Student Voung Award Presentations Award Presentations
14:20-14:45	ELIZABETH NICHOLLS The legal implications of Biodiversity Net Gain (BNG)
14:45-15:10	EMILIE WADSWORTH The Central Scotland Greening Network: A National Planning Development
15:10-15:30	Questions
15:30-16:15	INTERNATIONAL PANEL SESSION: Challenges and opportunities in global arboriculture Session Chair: Kevin Frediani Panel speakers: Paul Barber (Australia) Jon Harthill (Sweden) Lee Mueller (USA) Yana Bobrova (Ukraine)
16:15-16:30	Break to join Workshop Sessions
16:30-17:45	WORKSHOPS Succession in Arboriculture - Michelle Ryan and Luke Fay Regulating works to trees - can we simplify the law? Do we need it anyway? - Charles Mynors Major Oak Gallery Guided Tour - Reg Harris Tree planting: More than just numbers - Keith Sacre and Ben Coles Detection Dogs In Arboriculture - Ivan Button and Sika Registered Consultants Scheme - Simon Richmond and Registered Consultants International Panel Session - Discussion continues
17:45	CLOSE
17:45-19:00	Exhibitors' Wine reception - Oculus Atrium Exhibitor Award announced at 18:15
19:00	Free time
20:00	Conference dinner in the Panorama Suite, Rootes Building Bar until 01:00

Please note that speakers, times and content may change due to unforeseen circumstances.

Tuesday 12th September

07:45-08:30	Registration
08:45-08:55	WELCOME AND INTRODUCTION Session Chair: Michelle Ryan
08:55-09:20	PAUL BARBER Biodiversity Net Gain and remote sensing
09:20-09:45	LEE MUELLER Technological advancements in tree inventory and monitoring
09:45-10:10	MARTIN DOBSON When it all comes crashing down: Litigation in tree failure cases
10:10-10:30	Questions
10:30-11:10	Break
11:10-11:15	WELCOME AND INTRODUCTION Session Chair: Keith Sacre
11:15-11:40	JILL BUTLER Can trees of national special interest help address the climate and biodiversity crises?
11:40-12:05	JASON HASAKA Re-Propping the Allerton Oak
12:05-12:30	EMMA GILMARTIN What's new with old trees? A research update
12:30-12:50	Questions
12:50-13:50	Lunch

Tuesday 12th September afternoon session

13:50-13:55	WELCOME AND INTRODUCTION Session Chair: John Parker
13:55-14:20	KATE LEWTHWAITE Recording Nature's Calendar
14:20-14:45	CAT WALKER Lessons learned from engaging communities in tree planting
14:45-15:10	JIM MULLHOLLAND Surveying trees for bats; a new hope
15:10-15:30	Questions
15:30-16:15	INTERNATIONAL PANEL SESSION: Challenges and opportunities in global arboriculture Session Chair: Kevin Frediani Panel speakers: Kristen Moldestad (Norway) Benoit de Reviers (France) Richard Hauer (USA) Andrew Benson (New Zealand)
16:15-16:30	Break to join Workshop Sessions
	WORKSHOPS
16:30-17:45	Succession in Arboriculture – Michelle Ryan and Luke Fay Regulating works to trees – can we simplify the law? Do we need it anyway? – Charles Mynors Major Oak Gallery Guided Tour – Reg Harris Tree planting: More than just numbers – Keith Sacre and Ben Coles Detection Dogs In Arboriculture – Ivan Button and Sika Registered Consultants Scheme – Simon Richmond and Registered Consultants International Panel Session – Discussion continues
17:45	CLOSE
18:30	For delegates booked to stay on Tuesday Dinner in the restaurant in the Rootes Building Bar until 01:00

Please note that speakers, times and content may change due to unforeseen circumstances.

t Conference 2023 the Association is running an expanded range of workshops and panel sessions, offering more choice than ever to delegates and encouraging the sort of in-person engagement and discussion that even the best online events are unable to offer.

Each day of Conference features workshops to choose from, including panel discussions, workshops, masterclasses, indoor and outdoor sessions and even a gallery. Their sessions will last around 90 minutes, and some sessions will have a cap on numbers.

Succession in Arboriculture





How do we identify the next generation of arboriculturists, including those starting out in employment and those seeking a career change? How do we ensure that these professionals are representative of the communities in which they work? How do we encourage people to join the arboricultural sector, and then support them in developing their career over many years? In this workshop Michelle Ryan (Arboricultural Association and Transport for London) and Luke Fay (Treework Environmental Practice) will share some of their ongoing work and will invite delegates to contribute to this vital discussion.

Major Oak Gallery Guided Tour

Reg Harris (Urban Forestry Bury St Edmonds) will be giving guided tours of the Major Oak Gallery Tour. Explore highlights of Reg's extensive collection of images of this remarkable tree, and find out more about how we can learn a lot about the history of arboriculture through a single specimen.



Regulating works to trees – can we simplify the law? Do we need it anyway?



Join Charles Mynors, barrister and co-author of *The law of trees, forests and hedges* (Third Edition), to explore current tree work regulations and discuss how the system could be simplified. Charles will deliver a presentation outlining his thoughts, and then delegates will have the opportunity to participate in a discussion session to consider the question – do we need the law anyway?

Tree planting: More than just numbers





Following on from their popular workshops at conference in Loughborough in 2022 and a series of articles in ARB Magazine over the last year, Keith Sacre (Barcham Trees) and Ben Coles (Treeconomics) will present their thoughts about the dangers of chasing tree planting targets, and the importance of quality over quantity.





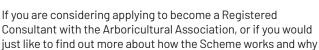
Detection dogs in Arboriculture

Sika has been specially trained to detect decay fungi on trees, and is used by Ivan Button of Crown Tree Consultancy during his arboricultural surveys. In this workshop, Ivan will describe how he works with Sika and explain some of the amazing possibilities of using dogs in arboriculture. Sika will then be giving an outdoor demonstration of her fungi-finding skills.

Registered Consultants Scheme











it is so important to our sector, then join the Association's Senior Technical Officer Simon Richmond and some of our Registered Consultants for an in-depth discussion.



International Panel Sessions

Chaired by Kevin Frediani An in-depth moderated Q&A and discussion workshop which will delve into the challenges and opportunities in global arboriculture.

Following on from the main conference speakers of each day. Monday's session will include Paul Barber (Australia), Lee Mueller (USA), Jon Harthill (Sweden) and Yana Bobrova (Ukraine). Tuesday will feature Kristen Moldestad (Norway), Benoit de Reviers (France), Richard Hauer (USA) and Andrew Benson (New Zealand).

Monday's Panel









Tuesday's Panel









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Monday **Presentations**



ANDREW BENSON (New Zealand)

The effects of utility wire pruning on ecosystem services of urban trees

08:55 09:20

Urban trees play an important role in human society, by providing a range of ecosystem service benefits. Ecosystem services are defined as the direct and indirect contributions of ecosystems to human wellbeing, for example, carbon sequestration, pollutant adsorption, and stormwater runoff interception. The amounts of these so-called 'regulating services' are positively correlated to leaf area, and so large trees with large total leaf areas will produce greater benefits. However, it is common for urban trees to be pruned to meet modern requirements set by the electricity generation provider, wherein branches are removed to achieve statutory clearances between trees and the overhead utility wires, to prevent outages and faults in the electrical network. This sort of pruning can remove considerable proportions of live foliage.

Using iTree Eco, this research investigated whether utility wire pruning affected ecosystem service benefits for three regulating services (carbon sequestration, pollutant adsorption, and runoff interception). The 25 most common urban street trees in Auckland, New Zealand, were ascertained by examining a record of 10,323 tree records held in our database. A further 15 trees selected by Auckland Council's urban forest manager were added to the list making a total of 40 urban trees. Mean mature dimensions (trunk diameter at 1.4 m, height, and crown spread) and standard deviations were ascertained for each species and 100 representative trees for each species were simulated with a normal distribution for each dimension in each species. Trees were stratified into small, medium, and large trees, being trees with a mean mature height of < 5 m, 5 m–10 m, and > 10 m, respectively. Two simulated utility wire pruning

treatments were then established, being an L-shaped treatment, and a topped treatment, where an elliptical segment was removed from the latter, and half the elliptical segment was removed from the former. The percentage loss of crown volume for each tree was computed based on the two pruning treatments and the data were entered into iTree Eco for analysis of ecosystem services.

Utility wire pruning significantly reduced ecosystem service provision in large trees at p \leq 0.05, but not in small or medium trees. Large trees that had been topped (\$26.68) had significantly fewer total annual benefits than control (\$46.11) and L-shaped trees (\$36.97). The effect of tree size on ecosystem services was significant for all treatments. Large control trees had significantly greater ecosystem services than small control trees for all ecosystem services. Large control trees had significantly greater ecosystem

services than small and medium trees for all ecosystem services. The differences in ecosystem service provision between trees in different size classes and between different treatments can be explained by differences in leaf area. Interestingly, large, topped trees still had significantly greater total ecosystem service benefits than small unpruned control trees. Local communities can still receive greater ecosystem service benefits by planting large trees that require ongoing utility wire pruning at maturity, than from small trees that do not.



KRISTIN MOLDESTAD (Norway)

0 9 : 4 5 10:10

A field guide to identification of tree roots

Construction works and existing trees are a common and complex combination. The responsibility for overseeing the protection and wellbeing of trees on a site often falls to arborists. When it comes to trunks and crowns, methods of species identification and assessment are plentiful and well known, but this has not been the case for tree roots.

The aim of our project has been to create a field guide for arborists to aid the identification of roots. My colleagues and I are often on site to ensure that the correct procedures are followed to

BENOIT DE REVIERS

(France)

A new perspective on cabling and bracing systems

Bracing and cabling systems are two solutions to prevent or consolidate a tree or one of its parts. The objectives are to protect the surrounding potential target, reducing the associated risks, and maintain the integrity of a tree.

However, cabling and bracing systems require regular checks and the management of these inspections for releasing or replacing old systems can be complex.

This has become particularly problematic since the 1990s with the introduction of the well-named 'non-invasive' systems, which appeared easy to install and less expensive than the 'old systems'.





After years of practice and reflection, we will be presenting our developments in cabling, using measuring tools and modern mixed systems integrating drilling techniques with newer materials.

The different bracing systems are compared and critiqued, in order to understand their strengths and limitations, and to raise the possibilities for further development.

Kristin Moldstad continued...

protect existing trees. When digging works reveal tree roots, it is not always obvious which tree the roots belong to. Roots can expand far beyond a tree's crown, and they are covered in soil and dirt. This recurring challenge - and our professional responsibility to save trees - inspired me and my colleague Olve Lundetræ to study more closely the roots we came across during our work. We began to assess roots more systematically as they appeared in trenches and on building sites. As a result, we learned that roots of different species are almost as different as their branches and leaves. We found roots with beautiful colours, amazing patterns, strange bark and different structures, and some with a distinct smell. So far, we have identified roots from around 40 different tree species. Our field guide includes descriptions and photographs of the roots. We hope that this information will help other arborists on site, and perhaps give them the evidence they need to change the direction of a trench or get a planned building moved by a few metres.

GREG PACKMAN

(United Kingdom)

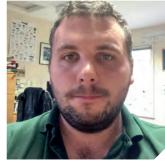
The Science and Management of Massaria Disease of Plane

Massaria disease of plane has been a recognised management consideration in London since 2008; with more urban areas across the country having to recognise Massaria as part of their ongoing tree management as it develops and emerges.

While the identification symptoms have been more widely understood and publicised, the biology and implications upon tree health are not widely known while misunderstanding remains around the ways in which to manage the disease.

This presentation will cover the known biology of Massaria: how the fungus is understood to work; how it capitalises on stressed branches: the trees' natural defences to inhibit Massaria and how

MONDAY 11:15 11:40



environmental conditions and change can enable Massaria development.

We will also explore aspects of Massaria management, such as the legal duty of care and how Massaria factors into this. The defensibility of ground-based surveys; the survey process, timing and frequency of inspections, and wider management decisions at a population level that Massaria may impact.

JON HARTILL (Sweden)

MONDAY 11:40

12:05

Meripilus on beech: **Investigation of decay** progression and management MONDAY 12:05 12:30



RICHARD HAUER

(United States)

On your doorstep: Emerald ash borer (EAB) economics, planning and management

Planning for emerald ash borer (EAB) is a first and important step rather than dwelling in the EAB financial blues. Since EAB is on your doorstep in the UK, this talk will set out what we have learned to date with emerald ash borer management in North America.

Since it was discovered in 2002 in North America, several ways to manage the insect have been developed that are both effective and economically efficient. Urban forestry management approaches for EAB management include economic analysis, treatment, tree risk assessment, and other strategies to shift the blues back to keeping the green in your urban forest. Learn how to estimate the costs and net benefits associated with pre-emptive removal, postmortem removal, and treatments. Learn the implications of long-term tree injections and how ash trees respond to wounding. We will present studies using external wounding and internal discolouration associated with wounding with tree injection.

This talk will also further present the financial impact of emerald ash borer on municipal forestry budgets. Our research team was the first to test the net present value of EAB management options.

We also discovered three distinct phases were evident: an initial time period of 0 to 4 years (little budget change), years 5 to 8 time period (rapid budget increase), and years 9 to 12 (rapid budget decrease) after EAB was confirmed. Financial impacts on budgets will be set out and the effects on urban forestry activity (removal, pruning, education, safety training, tree planting) budgets further discussed. Research we conducted from the City of Milwaukee and the loss of ecological values of tree populations will be conveyed. Ultimately, the audience will learn how to plan now to make the impact of EAB on tree populations as painless as possible.

Using examples, I will explore problems with the management of Meripilus on beech, the premature felling of valuable trees, what happens when we prune them, root and soil biomechanics, root adaptations according to load, diagnostic methods, wind-load analysis and wholetree stability assessment based on data.

I will also discuss the ceramic root problem and some other takes on that. the possibility of exaptation rather than weakness by looking at decay profiles of roots, and strength loss, including what that actually means in the direction of load.

All the large beech trees we have inspected over the last 25 years that are known to have Meripilus have had no increased risk of failure ... and they haven't failed even in hurricane winds.

Intervention may make things worse, and careful inspection rather than knee-jerk responses would save many more trees. Many of the trees that have been felled did not have serious decay and those that were pruned were ultimately felled later because decay progressed more rapidly after crown a reduction.



ELIZABETH NICHOLLS (United Kingdom)

14:20 14:45

The legal implications of biodiversity net gain (BNG)

Elizabeth will speak about what is biodiversity net gain? What are the requirements? Who does it affect? And what (if any) are the legal implications for non-compliance?

EMILIE WADSWORTH

(United Kingdom)

The Central Scotland
Greening Network:
A National Planning Development

The Central Scotland Green Network is a National Development in the lately adopted Scottish National Planning Framework 4. It was initially conceived in 2010, and had environmental action at its heart, aiming to deliver social and economic benefits through environmental regeneration.

This presentation will set out the drivers behind the idea of the CSGN, and its development from the only "green" initiative within Scottish Governments Planning Policy into a major National Development

14:45 15:10



delivering a step change in environmental quality on the ground in areas of real need.

We will cover the outputs, outcomes and benefits of the CSGN, how it is delivering and both the landscape and the local scale, discuss some of the challenges and successes, and look at some exemplar projects from recent years.



Tuesday **Presentations**

PAUL BARBER (Australia)

Biodiversity Net Gain and remote sensing

Biodiversity Net Gain (BNG) is a concept that seeks measurable improvements to biodiversity with delivery of a mandatory 10% BNG to be maintained for a period of 30 years. The metrics focus only on habitat with some key attributes, including the size, condition, and connectivity. Methods for measuring BNG can be very resource intensive, expensive, time consuming, and open to interpretation/error depending on the expertise of the assessor(s). This presents a key challenge to managers and stakeholders with access to limited personnel, resources and funding.

Very high-resolution, airborne, remote sensing tools have the capacity to provide BNG metrics across space and time in an affordable, rapid, efficient, accurate and repeatable manner, across the entire country. Satellite data can scale but has many limitations around spatial resolution and lack of accurate height data, with vertical structure a critical attribute for

biodiverse habitats. Unmanned aerial vehicles and drones can provide the spatial resolution and accurate height data, but are limited in their scalability and are resource intensive. We will present examples where airborne remote sensing data has been combined with artificial intelligence to accurately measure not only the size, condition and connectivity of habitats, but

08:55 09:20



also delineate individual trees, benchmark their size and condition, and identify and discriminate species of tree and shrub for classification of habitats according to their diversity and distinctiveness, other key factors for measuring BNG.

LEE MEULLER (United States)

Technological advancements in tree inventory and monitoring

Data-driven decision making and the need for accurate, up-to-date tree information is holding back the urban forestry industry from tackling hard social and environmental issues like tree equity, climate change, and resilience. One of the greatest impediments for city foresters and planners with regard to creating and updating street tree inventories is the cost and time it takes to conduct a comprehensive inventory of public trees. Moreover, as biological assets, trees change and inventories become outdated within a short period of time.

Technologies used in the monitoring of urban trees are rapidly changing. Simple applications of aerial and ground-based imagery (e.g. google, bing), as well as robust machine-learning approaches are opening the way for City Foresters and Planners to quickly and accurately map public trees and potentially identify species, assess health, and collect biometrics. With these new approaches, urban foresters are

afforded more options for the assessment of their trees than ever before. Further, machine-learning screening tools may help arborists and foresters identify tree issues that require additional investigation, better prioritizing their time spent in the field.

While these technologies are new, they are rapidly advancing. The performance of initial tree assessments from a desktop computer may be a reality, sooner than

09:20 09:45



we think. While technology is unlikely to replace arborists anytime soon, arborists who use advancements in technology are likely to outpace those who don't. The presentation will discuss emerging approaches in tree assessment and machine learning at the community level. The data that can currently be collected, limitations, costs, and additional opportunities will be explored.

MARTIN DOBSON (United Kingdom)

When it all comes crashing down: Litigation in tree failure cases

This presentation will consider recent court cases where trees have failed and look behind the scenes at the role of a tree expert in the legal process where a claim for injury or damage has been made against the tree owner – from examining a fallen tree, to cross-examination and legal judgments.

For many, the role of an 'expert witness' is shrouded in mystery, but Martin will lift the lid on the process of gathering data, forming an opinion, being challenged by a barrister, preparation of a joint statement with the opponent's expert, and cross-examination in court. He will then set out some of the legal principles that have been determined by the courts in tree-failure

judgments and consider a number of recent cases (including Hoyle v Hampshire County Council and others), offering an opinion on what they tell us about the law (and published guidance), and how they might influence attitudes to tree-safety inspections and liability

09:45 10:10



JILL BUTLER (United Kingdom)

Can trees of national special interest help address the climate and biodiversity crises?

Trees of National Special Interest are those which – because of their age, size, condition, associated species, rarity, heritage or cultural value as individuals or collections of trees – have qualities of such significance that they differentiate them from most trees of the same species. Some trees are

particularly valuable because they have multiple national values, e.g. King John's Oak – a very large-girthed, open-crowned, ancient oak with a unique historic name which is host to at least one extremely rare decay fungus.

TUESDAY 11:15

11:40

Across Europe there are interesting distributions of autochthonous species of ancient trees such as yews, oaks and beech. The distribution of such tree species, and especially old-growth remnants at the limit of their range, gives us insights into the way changing conditions across the continent are affecting their associated biodiversity and their adaptation to changing climate. This information should help us in assessing the risks to our current trees and what we should do in the future.

The UK has a long history of famous plant hunters who over several centuries have brought back tree and shrub species from across the world. Many trees have been introduced since the 16th century and the oldest ones are now up to 400 years old. Some of these are closely related by genus to other indigenous species but others are completely different. In some cases trees in the UK are perhaps the last remaining specimens of species that are under extinction threat in their home ranges. How such trees adapt to the conditions in the British Isles gives us insights into their tolerance to entirely different circumstances and how they may provide useful alternatives to our native trees if they cannot adapt to the changes that are forecast.

All of our Trees of National Special Interest have lived lives which should be of great interest to arboriculture and society.



JASON HASAKA (United Kingdom)

11:40 12:05

Re-Propping the Allerton Oak

The Allerton Oak is a veteran tree, estimated to have stood within the landscape of Calderstones Park, Liverpool since the 1400's. A series of steel props were installed circa 1960 to prevent failure of the tree due separation of the stem into multiple functional units as well as the presence of wood decay.

However, as time passed, many of the props themselves entered into a state of failure and redundancy, putting the Allerton Oak at risk once again. Commencing in 2019, a multidisciplinary team of professionals led by Bartlett Tree Experts designed and installed a new set of props to replace and reinforce the old steel props, aimed at preventing biomechanical failure of the Allerton Oak and maintaining it within the landscape for decades to come.

This presentation will take the delegates on a journey through the various process and stages of the project including: team meetings; data collection and analysis; prop design iterations; soil sampling; vitality testing; soil amelioration; prop installation; and monitoring following installation – sharing what we learned, what we achieved, and what can still be accomplished through this project with the wider arboricultural profession (as well as relevant external parties) for future use.

EMMA GILMARTIN

(United Kingdom)

What's new with old trees? A research update

Ancient and veteran trees are irreplaceable structures of exceptional value for nature and people. And they have many secrets to reveal.

These trees can appear to be stalwarts in the environment – old, resilient or unchanging – in fact, they are easily lost. There seems to be a decline in the number of ancient and veteran trees in the UK and globally, as their conservation needs are often overlooked or not understood.



I am interested in scientific storytelling and developing evidence-informed policy and practice. In this talk, I will share some science that excites me. Join me to hear about recent research and preliminary results from Woodland Trust-funded studies.

KATE LEWTHWAITE

(United Kingdom)

Recording Nature's Calendar

Nature's Calendar is the Woodland Trust's longest running citizen science scheme and potentially the UK's longest written biological record, dating back to 1736.

Trees and shrubs make up about half of the species recorded. Volunteers are asked to note annual phenological events such as the dates of budburst, first leaf, flowering and leaf fall.

13:55 14:20

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14:45



When combined with meteorological records these provide a compelling story of how our trees, shrubs and wildlife are responding to climate change.

JIM MULLHOLLAND (United Kingdom)

11:40 12:05

CAT WALKER (United Kingdom)

Lessons learned from engaging communities in tree planting

Much of the research on the social benefits of trees tends to focus on people passively engaging with trees, such as using green spaces which contain trees (Turner-Skoff, 2019), rather than the effect of actually participating in tree-planting (Watkins et al.,

2018). However, what research there is shows that active involvement in tree-planting is linked to higher satisfaction with trees being planted, reduced desire for trees to be removed and a greater appreciation of the impact of trees on the local area (Sommer et al., 1994).

Furthermore, community involvement in greening more broadly helps people learn new skills, build relationships with neighbours and empower people to feel they can make a difference (Ohmer et al., 2009). The government has also identified community involvement in tree-planting in the England Trees Action Plan 2021-24 (DEFRA, 2021) as an important way of connecting people to nature.

Trees for Cities' delivery model is centred around local communities and has evolved over thirty years of the charity's existence.

This approach involves community mapping, community outreach – introducing the project, community consultation – sharing the initial design, event planning and delivery, and the use of the site by community members. Drawing on survey responses from the 2021/22 planting season, we have found three core findings:

- Our community events engage local people - we found that the majority (64%) of people attending planting events are local to the site, having travelled 30 minutes or less to get there (n = 298).
- 2. Most community volunteers already value urban trees and are highly

connected to nature – community members scored highly on a scale asking them to rate the importance of urban trees as well as the Nature Connection Index (NCI). On average, community volunteers had a score of 74 out of 100 before the event (n = 674), rising to 77 out of 100 after the event (n = 461). This baseline score is already higher than the mean adult NCI score of 61.16 set out by Richardson *et al.* in 2019.

 Most people volunteering at our planting events have had no previous experience - 74% of 896 volunteers surveyed had no previous experience in planting or looking after urban trees before attending our events.

These findings demonstrate that there is a role to play not only in inspiring new individuals but also to build the confidence, knowledge and skills of those already interested in trees and nature, in the areas where they live.

Trees for Cities' new community engagement strategy draws on these learnings, aiming to both inspire and enable groups and individuals to plant and protect trees. We have plans to build codesign and more in-depth consultations into more of our projects.

Surveying trees for bats; a new hope

Surveying trees

In 2017, Jim spoke at conference on the topic of surveying trees for bats. Posing the question 'Can we do better?' he shared the results of his research, including details of the types of trees used by bats and the difficulties of finding bat roosts in trees.

Continued research, utilising trail camera technology, has sought to overcome the low encounter rate of standard bat surveys. Jim will share findings from his ongoing research: Can trail cameras give us the advantage we need? What information can we glean from these cameras? And who would win in a fight between a noctule and a grey squirrel? For the answer to these questions, and many more, come along and find out.

Creating bat roosts in trees

14 of the UK's 17 bat species are known to roost in trees. Whilst some species demonstrate a degree of flexibility, others are entirely reliant on trees. The bat species which are tree-roosting specialists are some of the rarest.

Mitigation measures for these tree-roosting bats are limited to bat boxes. However, these boxes provide sub-optimal conditions and don't work for all species. Building on existing veteranisation research, Jim will share an update on his work seeking to create bat roosts in living trees.the wider arboricultural profession (as well as relevant external parties) for future use.

Delegates

Key:

Monday Delegate	Tuesday Do	elegate 🥡 Wednesday Field Trip
Delegate	Event Days	Notes
Adam Floyd	O	
Adam Hope	M	
Adam Steggles	M O	
Adrian Butler	Ū	
Adrian Hope	M	
Aileen O'Connor	M O	
Al Buchanan	M O	
Alan Richardson	Ū	
Alan Simson	(1) (1) (1)	
Alan Thompson	M O W	
Alastair Cuthill	M O W	
Alex Finn	M O	
Alex Tilbury	M O	
Alexander Needs	M	
Alice Mcauley	Ū	
Alistair Godfrey	M O	
Alistair Hearn	M O	
Andrew Belson	M O W	
Andrew Benson	(1) (1) (1)	
Andrew Cayley	M	
Andrew Coombes	(1) (1) (1)	
Andrew Cunningham	M	
Andrew Gale	M	
Andrew Gardner	M O	
Andrew Igoea	M O	
Andrew Martin	O	
Andrew Mortimer	M	
Andrew Scott	M O	
Andrew Summerley	(1) (1) (1)	
Andy Luddington	M T	
Andy Warren	M O	
Angus Blankenstein	W	
Ann De Jong	M W	
Antonino Cacace	M D W	
Antony Price	M T W	
Aran Kimberlee	M O W	
Ben Alexander	M O W	
Ben Coles	M O W	
Ben Jones	M O	

Delegate	Event Days	Notes
Ben Oates	W • W	
Ben Riches	W • W	
Ben Vause	M	
Ben Williams	O	
Ben Williams	M O	
Benedict Edmonds	M T	
Benjamin Bennett	M	
Benjamin Brooker	M O	
Benjamin Hallinan	M O	
Benoit De Reviers	M T W	
Bettina Broadway-Mann	M T W	
Bob Staig	M O	
Bruce Hauxwell	M O W	
Carol Castlo	0	
Cat Walker	T W	
Catherine Fforde	M T W	
Catherine Nuttgens	M O	
Catherine Stent	M D W	
Charles Mynors	M T W	
Charlie Usher	O	
Charlotte Bancroft	0	
Chris Jones	M O	
Chris Rayner-Rix	M O W	
Christian O'Connor	•	
Christine Croton	M O	
Christopher Cadd	M T	
Christopher Wren	M O W	
Christopher Wright	M	
Claudia Canedoli	W O W	
Colin Quinney	M T	
Cormac Downey	M O	
Craig McCrindle	M T	
Dale Mortimer	M O W	
Dan Konstantindis	M T	
Darren Parkin	M	
Darren Whitaker	M O W	
Dave Baldwin	•	
David Archer	M 1	
David Challice	(1)	
David Clarke	•	
David Dowson	M O W	

Delegate	Event Days	Notes
David Ford	M	
David Frye	M	
David Gower	M T	
David Johnson	M O	
David Newton	M T	
David Peake	W O W	
David Simpkin	M O	
David Woodhouse	M T	
Davide Corengia	M O W	
Dealga O'Callaghan	O	
Dean Meadows	M T	
Derek Eames	M	
Dirk Doornenbal	M O	
Dominic Scanlon	M T	
Dorothy Hayden	M O W	
Douglas Williams	M O W	
Duncan Armstrong	•	
Duncan Smith	•	
Eamonn Wall	M O	
Edward Chandler	W	
Edward Walker	M	
Eileen Woodbyrne	M O W	
Elizabeth Nicholls	M O W	
Elliott Brydon	M O	
Emilie Wadsworth	M	
Emily Bancroft	0	
Emily Kempson	M O	
Emma Barker	M O	
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Ethan Gannon	M O	
Felim Sheridan	M T	
Fiona Bradshaw	M T	
Frank Gill	•	
Frank Spooner	M O	
Freddy McCreery	M T	
Gareth Davies	M T	
Gareth Machell	W • W	
George Brown	O	
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Delegate	Event Days	Notes
Glen Poole	M T	
Graeme Cahill	M O W	
Graham King	M O	
Graham Underhill	M O W	
Greg Packman	M T W	
Heather Eilbeck	W	
Henry Kuppen	M O	
Holly O'Connor	M O	
Hugo Loudon	M O	
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Ivan Button	M T W	
Jack Barnard	(1)	
James Allnutt	M O W	
James Chambers	M O W	
James Cox	M 1	
James Hollo- way-Holson	M T	
James Jeffery	(1)	
James Percy-Lan- caster	MI	
James Taylor	•	
James Worsley	M O	
Jamie Pratt	M	
Janette Burton	•	
Jason Hasaka	M O W	
Jay Smith	M O W	
Jennifer Sinclair	M O	
Jerry Gunton	•	
Jess Henman	M W	
Jill Butler	M O W	
Jill Yates	M O W	
Jim Mullholland	O	
Jim Reynolds	0	
Jim Stimpson	M O	
Jo Williams	0	
Joe Berryman	0 0	
Joe Codd	0 0	
Joe Smith	M	
Joe Woolf	M	
Joel Gray		

Delegates

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Keith Turner Ken Ryan Ken Sheppard Keri Hargest Kevin Chase Kevin Frediani Kevin Slezacek Kieran Legg Kim Yung Fung Kimberley Howard Kirsten Bowden Kojiro Suzuki Kristin Moldestad	Keith Pitchford	M T W	
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Ken Sheppard Keri Hargest Kevin Chase Kevin Frediani Kevin Slezacek Kieran Legg Kim Yung Fung Kimberley Howard Kirsten Bowden Kojiro Suzuki Kristin Moldestad	Keith Turner	M O	
Keri Hargest Kevin Chase Kevin Frediani Kevin Slezacek Kieran Legg Kim Yung Fung Kimberley Howard Kirsten Bowden Kojiro Suzuki Kristin Moldestad	Ken Ryan	M O	
Kevin Chase Kevin Frediani Kevin Slezacek Kieran Legg Kim Yung Fung Kimberley Howard Kirsten Bowden Kojiro Suzuki Kristin Moldestad	Ken Sheppard	M T	
Kevin Frediani Kevin Slezacek Kieran Legg Kim Yung Fung Kimberley Howard Kirsten Bowden Kojiro Suzuki Kristin Moldestad	Keri Hargest	M	
Kevin Slezacek Kieran Legg Kim Yung Fung Kimberley Howard Kirsten Bowden Kojiro Suzuki Kristin Moldestad	Kevin Chase		
Kieran Legg Kim Yung Fung Kimberley Howard Kirsten Bowden Kojiro Suzuki Kristin Moldestad M T W	Kevin Frediani	M O	
Kim Yung Fung Kimberley Howard Kirsten Bowden Kojiro Suzuki Kristin Moldestad	Kevin Slezacek		
Kimberley Howard Kirsten Bowden Kojiro Suzuki Kristin Moldestad M 1 W	Kieran Legg		
Kirsten Bowden Kojiro Suzuki W T W Kristin Moldestad	Kim Yung Fung		
Kojiro Suzuki W T W Kristin Moldestad	Kimberley Howard		
Kristin Moldestad 🛈 🛈 🖤	Kirsten Bowden		
	Kojiro Suzuki		
Kurt Langley 🕥 🕡	Kristin Moldestad		
	Kurt Langley	O	

Delegate	Event Days	Notes
Lawrence-Thor Stephen	M O W	
Lee Collins	(1) (1)	
Lee Davies	(1)	
Lee Garner	M O	
Lee Mueller	W W	
Lee Oakey	(1)	
Leo Smith	(1)	
Leo Stringer	O	
Lesley Adams	M	
Liz Trenchard	O	
Loren Daley	(1)	
Louise Purnell	O W	
Louise Simpson	M T W	
Luke Allwright	(1) (1)	
Luke Dineley	Ū	
Luke Fay	W W	
Luke Gough-Willis	W O W	
Luke Nixon	O	
Lynden Reed	M T W	
Marc Wastle	(1) (1)	
Marcus Brooke	(1) (1) (1)	
Margaret Usher	M	
Mark Carter	(1)	
Mark Cleaver	M O	
Mark Hinsley	M T W	
Mark Hollings	(1)	
Martin Bayley	•	
Martin Dilworth	M T	
Martin Dobson	M T	
Martin Gammie	M T	
Martin Jenkins	M T	
Martin Osman	•	
Martin Steele	M T	
Matt Levett	M T	
Matt Rew	M T	
Matt Searle	•	
Matthew Alford	•	
Matthew Barker	M O W	
Matthew Edwards	M T	
Matthew Godfrey	M T	
Matthew Hirons	M T	
Matthew Godfrey	M T	

Delegate	Event Days	Notes	Delega	te
Matthew Jones	M O		Peter Hasted	
Matthew Large	M T		Peter Holloway	
Matthew Middle	M T		Peter Rodriguez	
Matthew Shute	M T W		Peter Styles	
Matthew Underwood	d M		Peter Wilkins	
Michael Barker	•		Phil Cowpland	
Michael Barker	M T		Philip Barwell	
Michael Boyd	W O W		Quentin Nicholls	
Michael Connick	O		Rachel Judge	
Michael Vinsun	M		Raef Johnson	
Michael Yallop	M		Rebekah Browning	
Michelle Ryan	M T W		Reg Harris	6
Mike Kiss	W		Richard Daubeny	M
Mike Lee	M T		Richard Finn	M
Mike O'Connor			Richard Haley	
Mike Sanders	M O		Richard Hauer	M
Monica Gillespie	i		Richard Morrish	C
Naomi Zurcher	M T W		Richard O'Shea	G
Nathan Cantell	M		Richard Ravencroft	M
Nathan Steward	M T		Richard Shipston	M
Neil Ford	M T		Richard Trippett	M
Neil Strong	O		Rob Anderson	M T
Neil Wilson	M		Rob Duffy	(1)
Nicholas Barton	M T		Rob Jones	M (
Nicholas Bolton	0		Rob Murison	M T
Nicholas Organ	M T		Robert Bell	M u
Nick Martin	M T W		Robert Booth	M u
Nick Scott	M T W		Robert De Jong	1 W
Nigel Kirby	0		Robert Godwin	O
Oliver Frost	0		Robert Taylor	M T
Oliver Needham	M		Robert Thackray	M T
Oliver Tong	M T		Robert Widd	(1) (1)
Olve Lundetræ	M T W		Robert Wortley	M
Patrick Prendergast	t (1) (1) (1)		Robin Grimes	W
Paul Barber	M T W		Rod Usher	M
Paul Barton	M O		Roger Pearson	M
Paul Bunce	M O		Rory Proctor	M O
Paul Cleaver	W O W		Roy Partington	M G
Paul Jones	W		Russell Ball	M T
Paul O'Hara	(1) (1)		Russell Miller	
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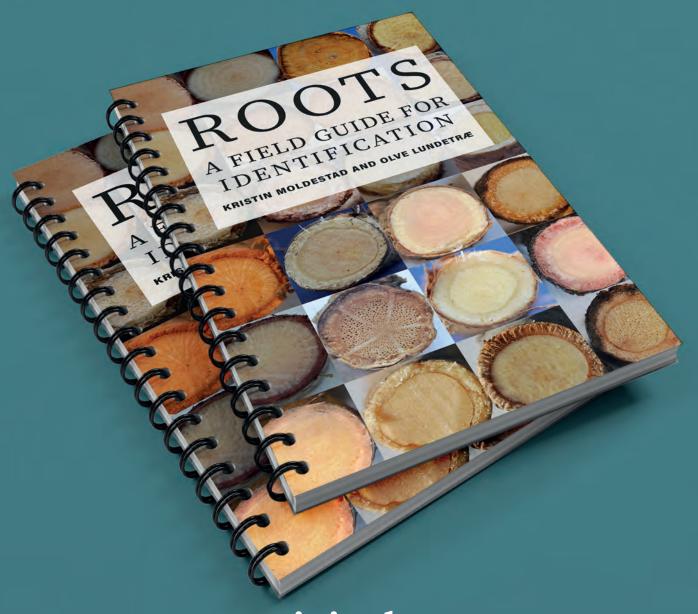
Delegates

Delegate	Event Days	Notes
Sam Heath	(1)	
Sam Hoar	(1) (1) (1)	
Sam Hobson	(1)	
Sam Prior	M	
Samantha Village	①	
Samuel Archer	①	
Samuel Dudley	(1) (1) (1)	
Samuel Hargreaves	(1)	
Samuel Selwyn	(1)	
Sarah Duckworth	M T	
Sarah Kiss	M T	
Sarah Venners	M	
Scott Anderson	M T	
Scott Fairley	M	
Sean Crothers	M O	
Sean Roberts	W	
Sebastian Onslow	①	
Shane Lanigan	(1) (1) (1)	
Shaun Phillips	(1) (1) (1)	
Sheridan Sayer	(1)	
Shinobu Cooper	M	
Shuta Tamura	(1) (1) (1)	
Simon Farrimond	M	
Simon Forster	(1) (1) (1)	
Simon Stephens	M	
Simon Threadgold	①	
Siobhan Dickenson	M T	
Sitara Gare	M T	
Stella Bolam	M T	
Stephanie Bryant	M T	

Delegate	Event Days	Notes
Stephen Cutmore	(1) (1)	
Stephen Gilkes	M T W	
Stephen Hayden	M	
Stephen McAnenay	(1) (1) (1)	
Steve Cox	(1)	
Steve Launchbury	•	
Steve Westmore	(1) (1) (1)	
Steven Davis	(1)	
Stuart Roberts	M	
Tamsin Miles	①	
Tamsin Miles	M	
Ted Green	(1) (1) (1)	
Thomas Smith	(1)	
Tim Beckley	O	
Timothy Williams	W W	
Tom Crump	W W	
Tom Hurley	(1)	
Tom Morrison	(1)	
Tom Popplewell	1 W	
Tom Wigfall	(1)	
Trevor Garvey	•	
Vanessa Lyons	M	
Vaughan Lewis	M	
Wayne Isaacson	M T	
Will Rawson	W	
William Anderson	M O W	
William Ross	M T	
Wilson Scott	M	
Yana Bobrova	M T W	



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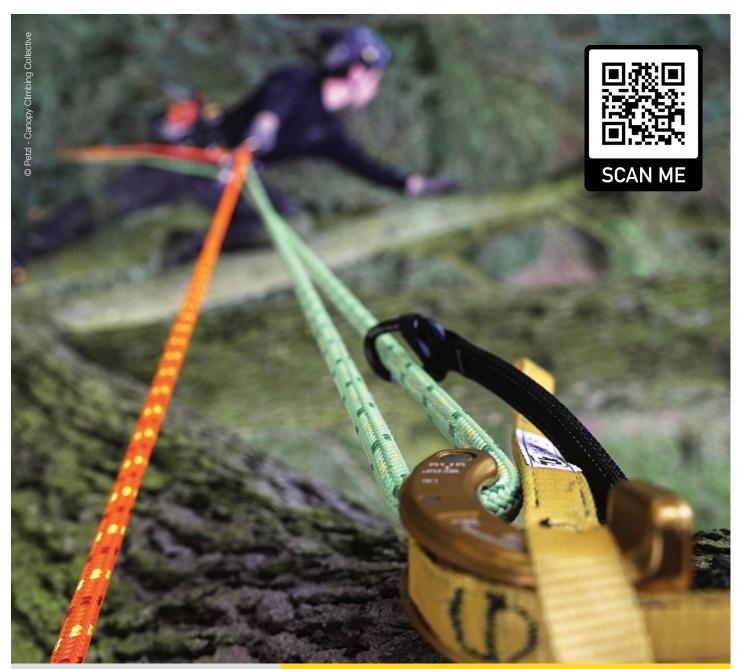




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