Publications, Links and Chat table
Webinar - Trees in Historic Gardens in Climate Change

GARDEN CONSERVATION

Contributor	Topic	Digital Source/Publication/Comment
Hanna Nimmenich	Soil moisture sensors	https://www.f6s.com/company/plantobelly-ug-haftungsbeschrankt#about https://www.arbor-revital.de/ https://www.iml-electronic.com/treeinspection/
Dr. Meike Kirscht	Seed-mixture to loosen soil under tree crowns:	Project Sanurbaum, HAWK Göttingen, Dr. Katharina Weltecke <weltecke@bodenundbaum.de>
Kate Nicoll	Biochar	There was a session on the benefits of biochar in the Soil Management Workshop in Norway in 2022. The film on the website show it is possible to make on site using waste wood. https://www.youtube.com/watch?v=AGxG4UAwBYE&t=266s
Claire Nash	Plant health	Quercus cerris hosts insects that cause galls on Q. robur and Q. petrea so be cautious.
Claire Nash	Native v non-native	How do we get ecologists to move from knee-jerk specification of 'native' only to embracing 'near-natives'?
Philipp Sattler and Christian Gruesson	Future trees for urban planting in Climate change	The publication *Zukunftsbäume für die Stadt* (Trees of the future for urban environments" lists about 70 different trees that have been identified as climate resistant. Each tree is presented on one page. The list has been compiled by GALK – Deutsche Gartenamtsleiterkonferenz (Association of Heads of Urban Green Services) und Bund Deutscher Baumschulen (Association of German Nurseries) and is available as E-Paper and download: https://www.galk.de/arbeitskreise/stadtbaeume/themenuebersicht/zukunftsbaeume-fuer-die-stadt
Christian Gruesson	Historic gardens and climate change	*Historische Gärten im Klimawandel. Empfehlungen zur Bewahrung.* Conference Report. Editors: Generaldirektion der Stiftung Preußische Schlösser und Gärten Berlin-Brandenburg (SPSG), Deutsche UNESCO-Kommission und ICOMOS-IFLA. Leipzig, 2014.
Christian Gruesson	Historic gardens and climate change	*Gehölze in historischen Gärten im Klimawandel* (Trees and shrubs in historic gardens in times of climate change) - Transdisciplinary approaches for conservation of a cultural asset. Editors: Sten Gillner, Antje Schmidt-Wiegand, Norbert Kühn Universitätsverlag der TU Berlin / 2017. Can be ordered here: https://verlag.tu-berlin.de/produkt/978-3-7983-2958-4/
Christian Gruesson	Nursery information	Lorenz von Ehren Nurseries in Germany have an online catalogue with climate resistant trees. Filters allow specific searches. You find it here: https://www.lve-baumschule.de/pflanzen/klimabaeume/ A publication (in English too) will be available soon.
Christian Gruesson	Future trees	Neue Branitzer Baumuniversität. In 2022, the Zukunftsbaumschule (Nursery for Future Trees) started as important pilot project to safeguard historic gardens in times of climate change.

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		https://www.pueckler-museum.de/park-schloss/branitzer-baumuniversitaet/ Contact person: Christoph Haase, +49 (0) 355 7515-141, Christoph.haase@pueckler-museum.de
Christian Gruesson	Future trees	*Klimabäume. Welche Arten können in Zukunft gepflanzt werden?* This short publication by Dr. Phillipp Schönfeld, Bayerische Landesanstalt für Weinbau und Gartenbau gives recommendations on climate resistant trees (also based on recommendations by nurseries). Veitshöchheim, 2019. Download here: https://www.lwg.bayern.de/mam/cms06/landespflege/dateien/zukunft_klimabaeume.pdf
Hanna Nimmenich	Biodiversity	There are results from Würzburg, Germany (Projekt Stadtgrün 2020), that show, that the underplanting and the wider area around the tree have a bigger influence on biodiversity than the tree species itself. So meadows instead of lawns would be a start, wouldn't it? https://www.lwg.bayern.de/landespflege/urbanes_gruen/085113/index.php
Geraldine Donovan	Future trees	BGCI has new tool using tree data base and future forecasting to give an indication of which species will be resilient to 2050 conditions. Models do vary but the succession planning has to be started now.
Rachel Robinson	Climate assessment tools	https://cat.bgci.org/ https://www.gbif.org/
Robert Brett	Climate assessment tools	https://www.bgci.org/resources/bgci-hosted-data-tools/climate-assessment-tool/
William Hinchliffe	Future trees	For Botanic Gardens selection for future climates is going to heavily influence our collections strategy and acquisitions policies.
Chris Poole	Biodiversity	Biodiversity in Urban Gardens (BUGS) - understanding nature in the garden - https://impact.ref.ac.uk/casestudies/CaseStudy.aspx?Id=11853
Kevin Frediani	Conservation of wild plants	Price, M. R. S., Maunder, M., Soorae, P. S., Guerrant, E. O., & Havens, K. (2004). Ex situ support to the conservation of wild populations and habitats: Lessons from zoos and opportunities for botanic gardens. Ex situ plant conservation: Supporting species survival in the wild, 3, 84.
William Hinchliffe	Plant Health	Ruth Mitchell produced a report on Ash that looked at analogous lichen hosts. A similar study is underway looking at Scots Pine https://stories.rbge.org.uk/archives/36592
Lucy Pitman	UK National Plant Collections:	https://www.plantheritage.org.uk/
Renske Ek	Genebanks	Netherlands have a genebank for trees at Staatsbosbeheer

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Meike Kirscht	Trees, roots and soil research	Dr. Katharina Weltecke Project Sanurbaum https://www.baumimboden.de/index.html

Chat not yet included in the table:

Lucy Pitman : Planting lists for planting situations like garden boundaries, hedges and sometimes urban landscapes can be very restricted in Britain - councils requiring only 'native' species - is this the same in other countries?

Geraldine Donovan : Thanks Hendrick - agree with being braver and with Philipp on pre planning with nurseries. Local govt authorities need to catch up to create more resilient designs, fit for the future

Claire Nash : I have seen few good T. henryana in UK outside arboreta and gardens. I wonder how well they grow in the UK? Is T. mongolica more successful? Claire

Claire Nash: Q. cerris hosts alternative generations of the knapper gall wasp. Galls on Q. robur are an increasing problem in Uk because of C. cerris planting. Perhaps do not plant Q. cerris in areas with collections of old-mature and ancient Q. robur/petrae? Claire

Rebecca Slack : I have Quercus cerris and Quercus robur and the Knopper gall wasp (Andricus quercuscalicis) has reduced the number of acorns from Q robur but the tree is very healthy - just impacts on fecundity of native tree?

Chris Reynolds : Tree species diversity is the key its the obligates that will suffer

Kevin Frediani : Simon this raises the need for a transition to a true metapopulation of collections management across gardens, within nations and across national borders, to ensure the species are translocated to areas where they can grow and thrive - I would welcome national hubs with more collaboration and alignment of collection plans to reflect this - for us with RBGE (Will and the wider team). Compliment not compete between these spaces and collections for true conservation of biodiversity with viable populations (50-200 individuals) rather than curatorial whims that result in their own stand-alone individual collections being perpetuated.

Jim Handley : Is there an opportunity that greater incentives - grants are available to nurseries for growing the much wider variety of species that we need and that are grown at the moment, similar to incentives for farmers for increasing biodiversity etc?

William Hinchliffe : How do we factor in benefit sharing for the countries where trees are collected from? How do we ensure collections are made with the correct permissions for it to transition from botanic collections to cultivation in the nursery trade? There is probably a lot of genetic material already in collections that could be utilised.

Joakim Seiler : The clone archives in Sweden are national answers to the Convention of Biodiversity.

Geraldine Donovan : Plant Heritage collections in UK

Nathan Doe : Did anyone make note of the non-suckering Robinia varieties? slide moved on before I got a chance to write it down.

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Kevin Frediani : There is a role for heritage and botanic gardens to help inform local and regional sustainable urban ecosystems of the future but also to enable discussions and facilitate awareness of the need to retain functional landscapes in our rural landscape. The early insight into the impact of climate change and awareness we have been sharing today can be interpreted and brought into garden narratives that will also help local and regional nature conservation have a platform to raise awareness of the challenge for biodiversity. Indeed you could say its our moral duty to do so.

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