Making Futures 2026, Plymouth

Track number(s):

Track 1 – Material Intelligence as a Framework for Ecological Care, or

Track 5 – Education as Infrastructure: Regenerative & Circular Systems of Making.

Abstract for paper:

Expanding Design Models for Enhanced Utilisation of Urban Woodland Resources.

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Urban woodlands are an overlooked yet ecologically and culturally significant material resource within contemporary design practice. Despite their potential to support biodiversity, climate resilience, and local economies, they remain under-utilised as sources of materials due to economic constraints, limited access and reliance on globalised supply chains. This paper presents a practice-led research project that asks how situated, community-based making with local timber, can reframe urban woodland as sites of regenerative material production and ecological citizenship.

Working within an urban, council-owned woodland, we developed a hybrid methodology combining accessible digital tools with low-tech, cost-effective making processes, to enable local use of mixed hardwood species for the fabrication of exterior benches. Volunteer-led making workshops engaged participants directly in ecological woodland management, informed tree selection, and outdoor furniture prototyping, using simple jigs. This process foregrounded a relational material practice in which irregular, mixed-species hardwoods and unconventional tree forms became generative design constraints, rather than barriers to use.

Digital scanning (photogrammetry and LiDAR – fig. 1) acted as an augmented enabler, informing material understanding, ecological impact and bench designs. Individual tree scans afforded simulation of timber yields and fabrication processes prior to harvest, whilst landscape LiDAR scanning informed low-impact forestry practices and ecological narratives. Digital tools were paired with vernacular, craft fabrication methods such as cleaving, in-situ sawmilling, and simple joinery such as dowelling and stitching. Together, they supported a form of critical making that bridges digital, environmental and tacit material knowledge, challenging dominant logics of extraction, standardisation and importation.

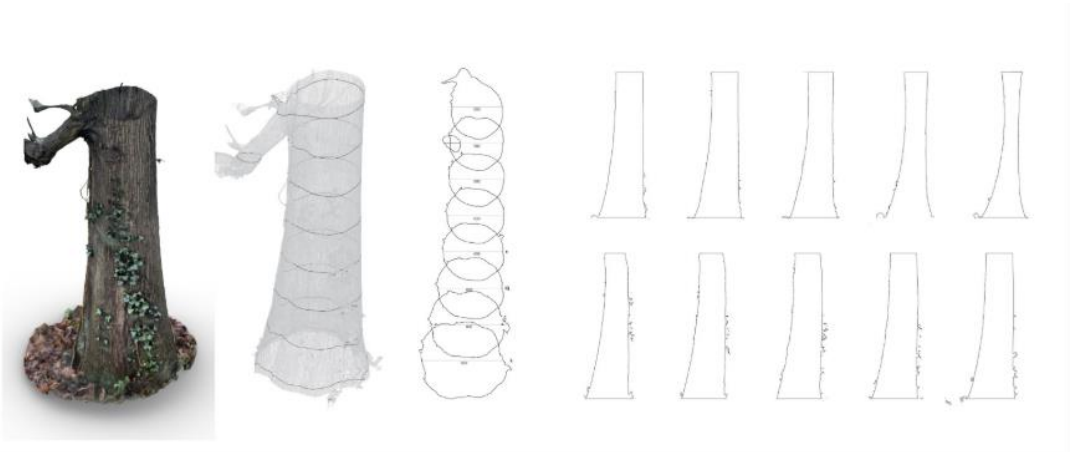

Figure 1. (L) Digital photogrammetry scan of a standing sweet chestnut tree at Lesnes Abbey Woods, London. (R) Simulated horizontal and vertical 'digital milling' helped the designers to identify specific trees prior to any felling.

Outputs included a series of furniture installations fabricated by community volunteers and installed on-site for public use (fig.2), as well as an open-access archive of digital models for improved public understanding.

The project proposes a transferable template for a highly distributed, community-led woodland enterprise, integrating design, ecology, and participation, for enacting in other underutilised urban woodlands. By entwining digital models, local materials, collective making, and ecological stewardship, this research contributes to Making Futures discourse on regenerative practice, material agency, and more just relationships between people, place, and nature.



Figure.2 - 'Crown and coppice bench' made from interlocking sawn green oak legs, reinforced with quarter-cleft, small diameter coppiced sweet chestnut poles. The design reflects the 'standard and coppice' forestry technique, where mature oak standards grow above a productive understorey of coppiced species.

Author Bios:

Associate Teaching Professor, George Fereday is a designer/academic in London, specialising in regenerative product design, construction with hardwood, and live-build projects in the community. He teaches at London Metropolitan University's school of Architecture. George has an MA (RCA) in Design Products, has conducted research at the Centre for Natural Materials Innovation (University of Cambridge), and worked as a Materials Researcher (Foster + Partners Architects). His design has been exhibited nationally (V&A Museum, Wood Awards 2023, Structural Timber Awards 2022) and internationally (Powerhouse Museum, Sydney, 2024). George's research has focused on functional uses for locally sourced hardwood, connecting forestry, the bio-economy and local community. His research

has been presented internationally (UN Climate Change Conferences COP26, COP29), featured in a book on regenerative design (*The Regenerative Structural Engineer*, 2024) and been published in peer-reviewed journals.

Assistant Professor, Dr Xan Browne is an architect/researcher residing in Copenhagen, Denmark. His PhD, *Architecture and (Waste) Wood: Integrating material traits into structural applications (2024)* established new methods and solutions for utilising discarded wood in high value building applications. Xan's research methods are primarily practice-based with a strong emphasis on prototyping and empirical evaluation. This requires an interdisciplinary approach adopting methods associated with wood science, engineering, parametric digital design and material culture. Xan's work has been disseminated internationally in the form of scientific literature, magazines, and exhibitions.