Examining impact of resilient forest management practices on the wood construction industry

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A softwood mill in the study region. Credit: Peter Osborne

A whole-system functional analysis of tree species is required to achieve climate-adaptive forests and a climate-adaptive building industry, according to a study published in *PNAS Nexus*.

Through the selection and use of wood products, builders and the construction industry are key change agents in forest ecosystems. Peter Osborne and colleagues studied the impact climate change and resilient forest management practices will have on the wood construction industry and how builders could adapt their practices to changing forest compositions.

Focusing on temperate southeastern Canada, the authors categorized tree species according to their ecological traits and building traits suitable for wood across various construction applications.

The authors found that many softwood species currently used in construction are not well adapted to a changing climate, while hardwood species such as tamarack (Larix laricina), red maple (Acer rubrum), oaks (Quercus spp.), and elm (Ulmus americana) could help make the regions' forests more resilient.

Assigning these tree species to a few functional groups based on similar building traits can dramatically simplify the ability for builders to select an appropriate mixture of wood to use in future building. Mixed species cross-laminated timber panels, wood fiber insulation and other engineered wood products are applications that can use a variety of species as feedstocks, the choice of which can be tuned to support forest ecological resilience and maximize functional diversity.

The authors call for a forest-first approach to specifying timber species in both forest prescriptions and timber buildings.

More information: Peter Osborne et al, A trait-based approach to

both forestry and timber building can synchronize forest harvest and resilience, *PNAS Nexus* (2023). DOI: 10.1093/pnasnexus/pgad254

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