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TRASH
TRASH
TRASH



WOOD: FROM WASTE TO RESOURCE

TEXT BY TAMAR PISTER

The versatility of wood as a resource has led to some innovative efforts to make better use of this valuable and, more often than not, wasted material



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01/ The City of Toronto's woodlot currently handles all wood from east-end trees killed by emerald ash borer. The City currently chips and grinds most of it into mulch.

IMAGE/ Lija Skobe/LEAF/City of Toronto

02-03/ Toronto disposal waste wood site, Nashdene Yard Sawmill

IMAGES/ Courtesy of City of Toronto



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There is widespread consensus on the social and environmental benefits of trees in cities. A 2014 TD Economics Report also identifies the economic value of trees in Toronto, estimating their worth at \$7 billion, or about \$700 per tree.

Yet due to the environmental stresses on urban green spaces, such as land development, pest infestations, extreme weather events, soil compaction, and over-salting of roads, thousands of urban trees die each year—including an estimated 200,000 trees in Toronto alone. Their removal involves a somewhat complicated web of private and public stakeholders. And so, in an urban context, we find ourselves in the paradoxical situation of viewing trees as a resource and wood as waste.

However, individuals across industries and interests are slowly carving out an exciting market for urban wood utilization, demanding higher value for an otherwise discarded material. For designers, urban wood is often coveted for its natural aesthetic, as well as its local narrative, and others see opportunity in decreasing the costs, both economic and environmental, of waste disposal.

When removing trees on public property, municipalities coordinate with tree companies and regional government services to transfer this “waste” to official city waste disposal lots, which in turn process some of the wood into mulch, firewood, or compost for local parks. When removing dead trees on private property, the landowner is responsible for finding and paying a tree

company, a process that can cost upwards of \$3,000 per tree. In Toronto, private tree companies can dispose of wood independently, or opt to pay a fee and drop off pre-grinded wood to the city's wood waste transfer stations. As the majority (in Toronto, 60 percent) of urban trees are on private property, a large portion of urban wood across Canadian cities is being removed in a somewhat unregulated and untraceable way.

The large numbers of trees infected with emerald ash borer (EAB), a deadly invasive beetle that is killing millions of trees across southern Ontario and the Great Lakes States, has been a catalyst for dealing with an immediate surplus of urban wood. This led to roundtable discussions in 2013 between municipal urban forest officials in the Greater Toronto Area (GTA) and disparate industry stakeholders, such as resource suppliers, processors, high-value resource



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producers (for example, designers), and high-volume resource producers (for example, biomass and firewood producers). The results of these discussions included a slew of marketing strategies, pilot projects, and online resources to promote and help grow the urban wood utilization movement.

In 2013, IIDEXCanada (a national design and architecture exposition and conference), the City of Toronto, and Ideacious.com partnered to create the first IIDEXCanada Woodshop. The exhibit, held annually

at IIDEX in Toronto, features the work of local designers utilizing fallen ash trees infected with EAB. Jason van der Burg of Urbanworm Design, an architect and the designer of *Leaning Loop* in the 2014 IIDEXCanada Woodshop exhibit, explains, "Beetles really only burrow under the bark and on the surface of the cambium, which strangles the tree but results in logs that have no burrow holes beyond the outer surface once the bark is removed. The material is thus entirely suitable for any use after it has been milled and dried. We wanted to show that you could make a perfectly functional consumer product out of material that is currently regarded as wood waste."

Many of the barriers to utilizing urban wood lie in large-scale tree-to-lumber logistics. City trees are often heavily branched, can be stunted in growth, or have nails and metal pieces embedded in the bark. Cutting, drying, milling, and storing wood is also a physically demanding, time-intensive, and messy project. However, there are a few operations, such as Eco Tree Co., that do undertake all these processes.

According to Lori Smith, a behind-the-scenes organizer of both Trashswag, an online crowd-sourced map for people to share and post reusable materials spotted outside, and Design X Nature, an annual design competition to utilize salvaged materials, a major limiting factor in the urban wood utilization movement is the inconsistencies in the supply and demand chain—for example, the hefty financial risk sawyers must undertake to mill urban wood without a guaranteed buyer. Similar to other "buy local" movements, the social and environmental benefits of utilizing local lumber can come with a higher financial price tag for consumers.

Since the GTA roundtable discussions in 2013, Sawmill Sid, a portable sawmill company that serves the Ontario market, has been commissioned by the City of Toronto to mill "The Maple Leaf Forever Tree," as well as for pilot projects showcasing the use of EAB-infested wood. In their most recent partnership—undoubtedly the most innovative for its potential to be scaled up—the portable sawmill was brought to the Nashdene Public Works Yard, one of the



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city's wood disposal sites, to process city trees into lumber to be used for city operations as well as marketed to the private sector. Rob McMonagle of the Economic Development & Culture office in the City of Toronto notes that the next step of this pilot project, which wrapped up in January, 2015, will be in evaluating any operational issues and calculating disposal cost savings, as well as revenue and job creation potential.

There is a role for landscape architects and others involved in public realm design to play an active part in ripening the cultural paradigm of utilizing local resources. Chatham-Kent was one of the first municipalities in Ontario to be hit by EAB, and when redesigning the Kingston Park Pavilion

in 2011, Brown+Storey Architects Inc. chose to use salvaged local ash for the pavilion's wall cladding. Celebrating significant felled trees by incorporating salvaged logs from nearby development into site designs, prioritizing local urban wood as a material, or simply making design decisions based on tree species availability can have large-scale impacts when implemented across industries.

Sometimes industry innovation must start with its basic materials. As Frank Lloyd Wright said, "When we use the tree respectfully and economically, we have one of the greatest resources on the earth."

BIO/ TAMAR PISTER IS A GRADUATE STUDENT IN LANDSCAPE ARCHITECTURE AT THE UNIVERSITY OF TORONTO AND A MEMBER OF THE *GROUND* EDITORIAL BOARD; SHE PREVIOUSLY WORKED AT LEAF, A NON-PROFIT ORGANIZATION DEDICATED TO THE PROTECTION AND IMPROVEMENT OF THE URBAN FOREST.



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- 04-05/ The non-profit organization LEAF held an urban wood utilization tour in July, 2014.
- IMAGES/ Michael Barlas, LEAF
- 06/ The *Leaning Loop*, designed by Jason van der Burg of Urbanworm Design, used wood from EAB-infected trees.
- IMAGE/ Courtesy of Urbanworm Design
- 07/ Lars Dressler, of Brothers Dressler, selecting unprocessed wood from the City's woodlot; notice the EAB scars along the outside of the log.
- IMAGE/ Lija Skobe/LEAF/City of Toronto
- 08/ Designer Sathvik Sivaprakash used slabs selected from Urban Tree Salvage for an innovative blind system.
- IMAGE/ Lija Skobe/LEAF/City of Toronto
- 09/ LEAF's urban wood utilization tour
- IMAGE/ Colleen Bain, LEAF