

# Upcycle Urban Wood: Putting Urban Tree Waste to Work

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*Although it is the mission of the Arbor Day Foundation to inspire the planting and nurturing of trees, a fact of life is that some trees come down. It may be on their own due to storms, and sometimes it is through management practices as trees succumb to insects, encroach on wires, or become dangerous. What happens next is also part of good stewardship — and there is good news to report.*

Addressing colleagues in the commercial tree care sector, Rick Howland sums up the tree waste “problem” nicely in the February 2019 issue of *Tree Care Industry*. “Tree waste has become anything but that. Green material that a decade ago represented a business cost has become a valuable raw material. The age of zero waste is upon us. It is reducing the negative impact of tree work on the environment while saving operating costs (dumping fees). It is also the foundation of many profit centers for tree care companies, contributing 10, 20, or even 25% or more to the bottom line. Tree trash is now treasure.”

John Haling of John's Urban Timber in Whitmore Lake, Michigan, stands next to bookmatched slabs he cut from a weeping willow.

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As communities lose trees to insect invasions and other causes, emphasis continues to be on the need to replant. However, it behooves tree boards and other organizations, as well as interested individuals, to promote the use of wood from removed trees. “Repurposing” seems to be the popular word for this important process. Not only will this reduce pressure on landfills, it contributes to the economic health of green industries and recognizes the beauty and benefits of wood that can continue beyond the life of living trees.

This issue of the bulletin illustrates some of the ideas and successes that are making burdensome tree waste a thing of the past. All have great potential for much wider adoption throughout the nation.

# Regional Organizations Lend a Hand

*Entrepreneurs who face the unique challenge of repurposing tree waste while making a profit and benefiting the urban forest can get a huge boost through partnerships. In the Midwest, when it became apparent that thousands of trees killed by emerald ash borers or removed in quarantined areas were going to waste, leaders with vision in government and industry stood up to the challenge. They created some amazing and productive networks that are putting urban tree material to good uses such as specialty lumber. Here are examples of two such partnerships.*

## THE URBANWOOD PROJECT

The Urbanwood Project and its affiliates address all of the above needs. Urbanwood was created by the Southeast Michigan Resource Conservation and Development Council and Recycle Ann Arbor. This innovative organization provides raw wood, products, and services. It also encourages municipalities and tree care companies to recycle dead street and park trees into high-quality products and provides an outlet for locally sawed lumber at its Urbanwood Marketplaces found at Recycle Ann Arbor's ReUse Center and the Habitat for Humanity Restore in Flint, Michigan.

Urbanwood's guiding philosophy is "Don't chip that tree. Reclaim it!" According to former Coordinator Jessica Simons, more than 73 million board feet of lumber could be produced from urban trees removed from southeastern Michigan's cities each year instead of ending up in a chipper, fireplace, or landfill.

"The Urbanwood Project advocates for finding the highest and best use for wood from local trees, all while supporting local jobs," Simons says.



Racks of beautiful boards can be seen at Urbanwood's two marketplaces. Each board is unique and available for visual inspection and purchase by professional and amateur carpenters, furniture makers, and craftspeople.

## WHAT IS NEEDED

There are three basic needs in order to capture wood from urban trees for its highest use as lumber and marketable products.

The public needs to be made aware that they can buy locally made products from local wood.

A consistent supply of quality wood is necessary, and suppliers need to be matched with consumers.

Architects and industry leaders such as LEED (Leadership in Energy & Environmental Design) need to recognize the potential value of wood in buildings and promote its use.



## WISCONSIN URBAN WOOD

This nonprofit organization is an affiliate of Urbanwood, and its people clearly have a passion for keeping urban trees out of the waste stream and putting them to their highest use. Executive Director Twink Jan-McMahon says that a guiding policy is "the longest sequestering of carbon possible is the best use." Thus, solid wood products and building structures are emphasized by Wisconsin Urban Wood. The organization is funded by grants and nominal annual fees from its partners. They include:

- Arborists
- Sawmills
- Kiln operators
- Wood product manufacturers, ranging from large companies to craftspeople working out of their garages
- Organizations such as WasteCap, a fellow nonprofit dedicated to the broad range of waste reduction and recycling

"None of the trees we use are harvested for the purpose of lumber," Jan-McMahon says. "Only trees that must be taken down are used." She encourages cities and counties nationwide to get involved and other affiliates to join Urbanwood.

# Objects d'Art



This black walnut table was created from waste wood by Tree-Purposed, a Detroit-based sawmill and custom workshop focused on turning urban wood into high-quality, unique products.

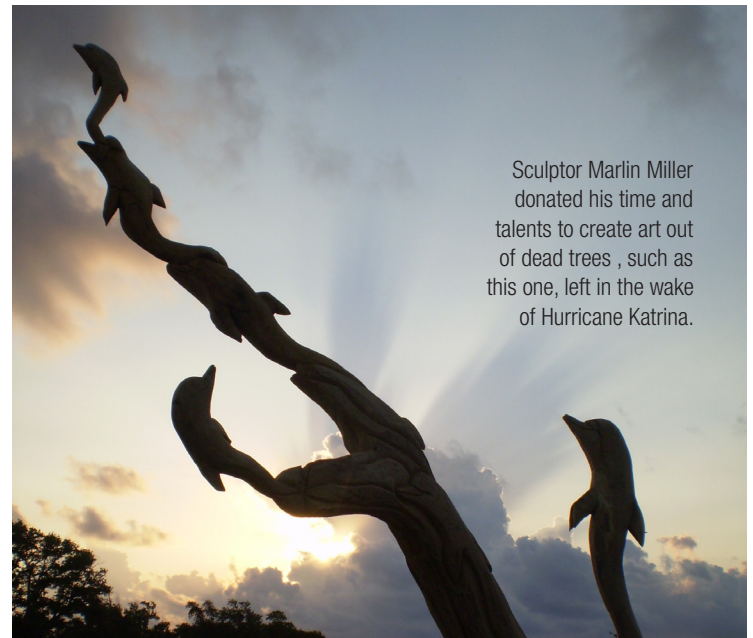


↑ Amateur wood turner Ed Krumpe of Moscow, Idaho, created this bowl from a decadent tree that once stood over a pathway in the local arboretum.



## INSPIRING THE NEXT GENERATION

Dormant talent and interest can be cultivated to prepare tomorrow's artists to work with wood. Recognizing this, the Chicago Park District offers classes designed to teach essential woodworking skills, such as design and measuring, cutting with various saws, and sanding. Classes are offered for three age groups: children 7-8, youth 9-12, and adults. In many cases, students use urban wood salvaged from trees removed from Chicago's parks to make finished products ranging from bird houses to cabinets.



Sculptor Marlin Miller donated his time and talents to create art out of dead trees, such as this one, left in the wake of Hurricane Katrina.

## FUELWOOD BOILERS

Biomass combustion is becoming an important means of providing an outlet for wood residues, reducing energy costs, and lowering the amount of carbon that enters our atmosphere from the use of fossil fuels. Modern fuelwood burners are efficient and clean, offering a combination of advantages that often pay significant dividends when used in schools, factories, greenhouses, municipal buildings, and other facilities that once were heated with oil or gas. According to officials at Biomass Combustion Systems Inc., one of the many manufacturers of industrial-scale wood-burning equipment, “We are also convinced that the adoption of wood energy ... contributes to national economic independence.”

Good examples of fuelwood boilers can be found throughout the United States. When a campus uses wood fuel, there is the additional advantage of making students — the country’s future leaders — aware of the possibilities of using waste wood. In the cold climate, wood-rich area of northwestern Montana, Troy Elementary School was one of the first in the state to switch to wood to heat its boilers. Officials say they save \$12,000 annually using wood pellets. Troy’s 55,000-square-foot high school then made the switch from oil and gas to wood. The source of the wood for these schools is only 20 miles away.

At the University of Idaho, one of the pioneering institutions in this movement, 90% of the steam generated



Nestled within the campus of the University of Idaho, steam for hot water in the dorms and heat to warm all buildings in the campus core area come from this wood-burning boiler plant.

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is from wood chip fuel. The switchover from fossil fuels made in 1986 has saved the university more than \$11 million by not relying on oil or gas. In the 1990s, eight water chillers for summer air conditioning were installed, five of which are powered by wood fuel. This use of wood has the additional advantage of benefiting the community by providing a steady market for mill wastes within a 60-mile radius of campus.

## BIOFUELS AND BIOCHAR

More and more research and innovative companies are heralding the use of wood as an environmentally friendly way to reduce dependence on fossil fuels and reduce atmospheric inputs that contribute to climate change. Wood chips, for example, can be used to produce ethanol without the fertilization, irrigation, and other downsides of using corn. Biochar, a kind of charcoal made through pyrolysis (elevated temperatures in the absence of oxygen), not only locks up carbon that would otherwise end up in the air, but can be produced with low energy inputs. It results in a product that:

- Increases plant growth.
- Reduces the need for traditional fertilizers.
- Helps retain soil moisture.
- Enriches marginal soils.
- Fosters the growth of mycorrhizal fungi.

## WOOD PELLETS

Pellets are made by compression and extrusion of lignin (structural material in plant cell walls) that acts as a natural glue. Numerous large-scale production plants use sawdust, planer shavings, and removed trees for conversion into pellets sold through chain stores and other outlets. Small-scale equipment is also available on the market to make local production more practical. Either way, pellets are considered a green product that turns waste into clean, renewable, carbon-neutral biofuel.

# Local Use is Good Use

Using wood locally goes beyond contributing to the economy, reducing pressures on landfills, or preventing additional carbon compounds from entering the atmosphere. Moving dead wood long distances is a contributor to the spread of invasive insects, such as the emerald ash borer. On its own, this beetle can only fly about one-half to 2 miles in its lifetime. But firewood or similarly cut wood containing the eggs or larvae (or a clinging adult, for that matter) is easily transported to new areas where the infestation can start anew. There are at least 35 insect pests and 20 tree diseases that can be spread in this manner.

The good news is that the kinds of uses described in this bulletin can be made from wood without danger of spreading pests, especially if it is used locally or processed appropriately.



## WAYS TO SUPPORT WOOD RECYCLING IN YOUR AREA

- Select products for your home improvement projects from partners working with urban wood organizations.
- Use arborists, tree care companies, and sawmills that recycle wood responsibly.
- Ask about how your municipality handles its tree removals.
- Spread the word about using local tree waste for local products.
- Plant at least one tree for every one removed (and the right tree for the right site).