

ROUNDTABLE

Urban Wood Utilization

Grievous as they may be, blow-downs, hazard takedowns, and Asian Longhorned Beetle and Emerald Ash Borer infestations offer opportunities for creative use of urban wood. In this Roundtable, we get program and policy ideas—as well as some important reality checks—from Owen Croy and Stephen Godwin of Surrey, BC; Alan Siewert, Stephanie Miller, and Marianne Prue of the Ohio Division of Forestry; Jessica Simons of the Ash Utilization Options Project of the Southeast Michigan RC&D Council; and Cindy McCall of Lompoc, California.

The City of Surrey's Parks Division adds value to its operations through the utilization of logs and wood salvaged during *Hazard Tree Abatement* and *Forest Health* programs. High-value logs are salvaged and milled locally into specialty wood products used in many park features, assisting us in keeping costs down. Other logs are sold on the open market to help pay for urban forest renovation projects. Specific examples are as follows:

Interpretive Kiosks have been constructed from durable wood milled after two giant sequoia (*Sequoiadendron giganteum*) were removed from local parks.



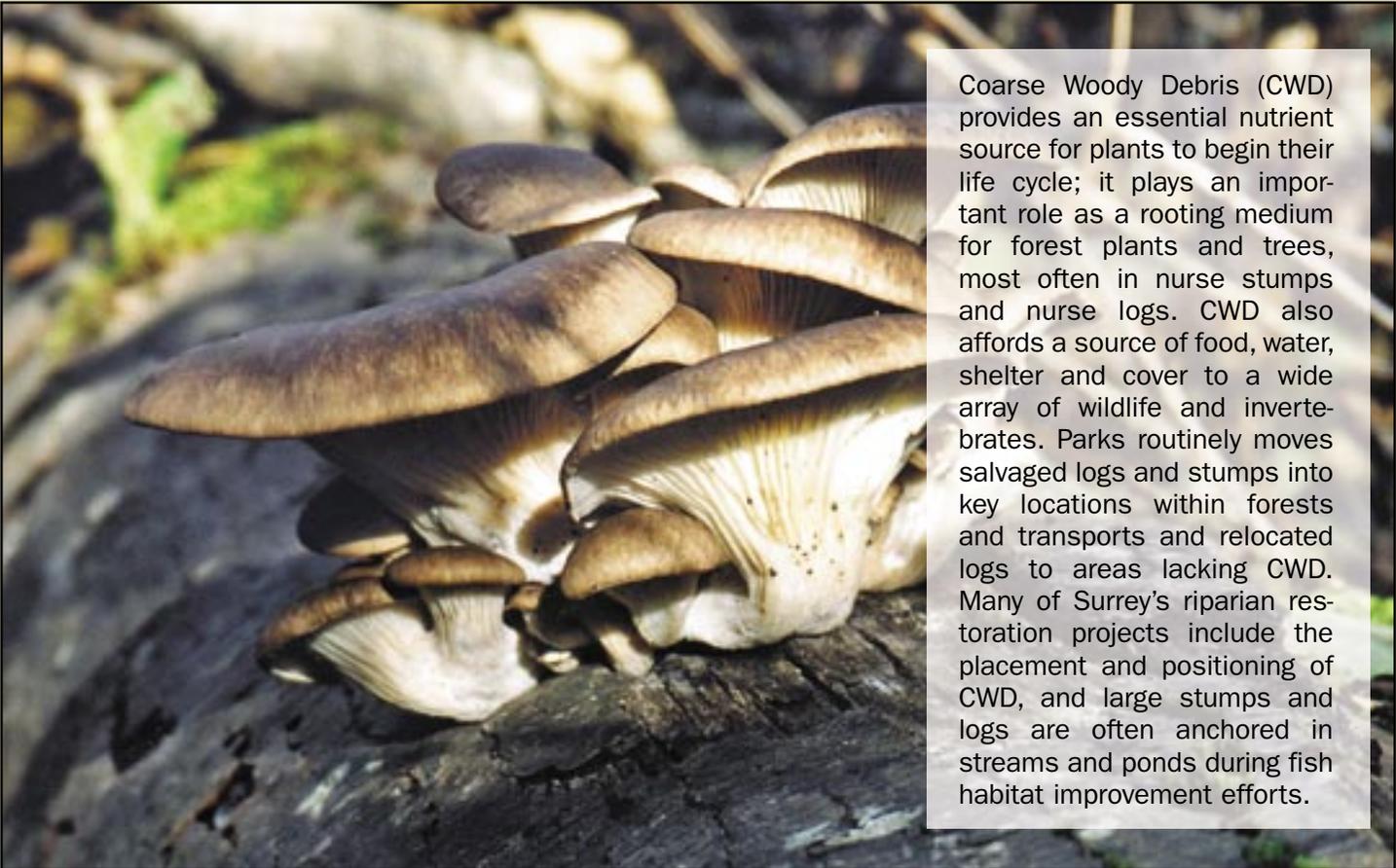


Western red cedar (*Thuja plicata*) wood has been milled into lumber used in the construction of bird houses, which were put together by schoolchildren while attending a Parks interpretive sessions in Green Timbers parks.



(left) Western red cedar wood has been used to construct park boardwalks through sensitive wetland areas.

(right) Mountain bike parks within Surrey have many built structures and features that provide skill elements to the rider while providing excitement to the trail. At two of our City parks, milled wood from logs salvaged during the Parks Hazard Tree Abatement program provided building materials for the construction and maintenance of the biking structures.



Coarse Woody Debris (CWD) provides an essential nutrient source for plants to begin their life cycle; it plays an important role as a rooting medium for forest plants and trees, most often in nurse stumps and nurse logs. CWD also affords a source of food, water, shelter and cover to a wide array of wildlife and invertebrates. Parks routinely moves salvaged logs and stumps into key locations within forests and transports and relocated logs to areas lacking CWD. Many of Surrey's riparian restoration projects include the placement and positioning of CWD, and large stumps and logs are often anchored in streams and ponds during fish habitat improvement efforts.

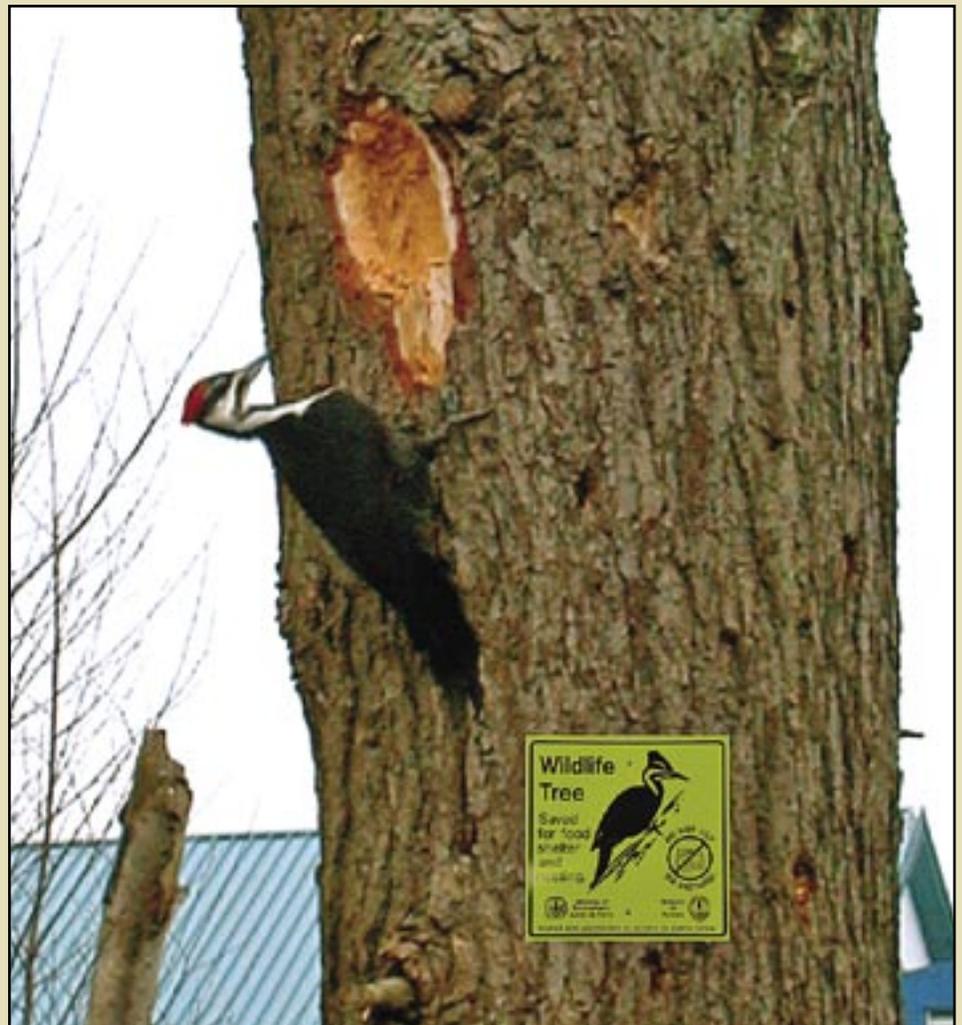




(left) Root rot containment log salvage over three phases resulted in a total of \$220,500.00 of revenue from logs sold. This money was then allocated to pay for the root rot containment, future forest health initiatives, interpretive signage and community plantings within the Sunnyside Acres urban forest.

(below) Tree hazards in our urban forest trees can often be abated while retaining vertical structure for wildlife. Many appropriately located hazardous trees may be creatively pruned, resulting in wildlife trees that will provide roosting, nesting and foraging habitat for wildlife, and providing nutrient deposition over time to the forest floor.

Owen Croy, Manager of Parks and Stephen Godwin, Urban Forestry Coordinator City of Surrey, British Columbia



Wildlife Tree
 Saved for food
 shelter
 and
 nesting

To fully discuss urban wood utilization, it should be defined first. In discussions with our colleagues from around the country, there seem to be two definitions:

1. *To utilize all urban wood to the best use for economic gain (Long Term Approach) or*
2. *To find alternative ways to use, rather than dispose of, the anticipated influx of ash logs due to Emerald Ash Borer (EAB) and possibly offset traditional disposal costs (Short Term Approach)*

These are important distinctions, because in the latter scenario, the glut of logs and wood will come and go in a given area in just a few years. Developing a market and systems to handle this product will need to be transient to follow EAB infestations. The prospect of

developing a migratory market and systems is grim. However, there are several success stories on the local level that deal with alternative uses of ash wood.

If our intent is to address the long-term use of urban wood, then we need to face the stark reality that urban wood has little in common with the wood harvested from our nation's forests for lumber production. Our urban timber product is characterized by rot and decay, large branches in inconvenient places, and a vast assortment of metal and foreign debris. To the logger and sawmill operator, it is junk!

A forest tree reaches its peak dollar value when it is cut down and processed into lumber. Until then, its economic value is only potential, not actual. Urban foresters do not harvest urban trees at the peak of wood quality (if we did, we would get fired!) The value of an urban tree reaches its peak as a living, func-

tional part of our city infrastructure. To truly develop an urban wood utilization market we must understand the product we are marketing and understand that the wood from EAB is atypical of what we have to sell in everyday urban forest management.

In addition to the poor product we have to offer, the logistics of "logging" community streets is difficult at best. Efficiently and safely removing full-size urban logs from neighborhoods and tree lawns—and then delivering them anywhere—requires tremendous coordination with municipal departments, property owners, and contractors. Fuel, equipment, expertise, staging areas, travel distance, and personnel are some of the bigger costs. We have estimated that urban trees cost five times their lumber value to remove—or as one Ohio logger reminds us, "You have to buy lunch for everyone that touches the log!"



Ohio Urban Wood Utilization Workshop in February 2007. Teaching urban forest managers how to measure potentially marketable logs. Photo by Stephanie Miller

Therefore, each community must examine what utilization methods offer the wisest use of taxpayer dollars and offers the best options for offsetting traditional disposal costs. This certainly depends on each town's local resources and outlets. Is there a mill nearby? Is chipping for mulch or cutting firewood more cost effective? Do we have the manpower to run a portable mill, and what do we do with the boards when we are done? It takes homework and investigation by each community to determine what is in their best interest.

It boils down to Economics 101: Supply & Demand. The future of urban wood utilization will require resource managers to explore new, untapped markets for poor quality, urban wood fiber. The traditional market of dimensional lumber is an acceptable end point for only a small portion of urban wood. The supply is currently met by harvesting the logs that cost the least to extract from our forestlands. In addition, the competition here and abroad to supply raw materials for that market is great and growing every year. New players in this market include recycled plastic and metal building products. The supply side of this market is saturated, yet the demand side (building, furniture, etc.) is struggling, making this market extremely weak, with an unreliable future.

Resource managers need to set their sights on markets with limited and diminishing supplies combined with growing demand. A major player is energy. The demand for energy is growing and the supply of fossil fuels is shrinking. The future is growing brighter for alternative sources of energy, including biofuels. Successful urban wood utilization will require thinking outside the traditional markets and beyond short-term solutions.

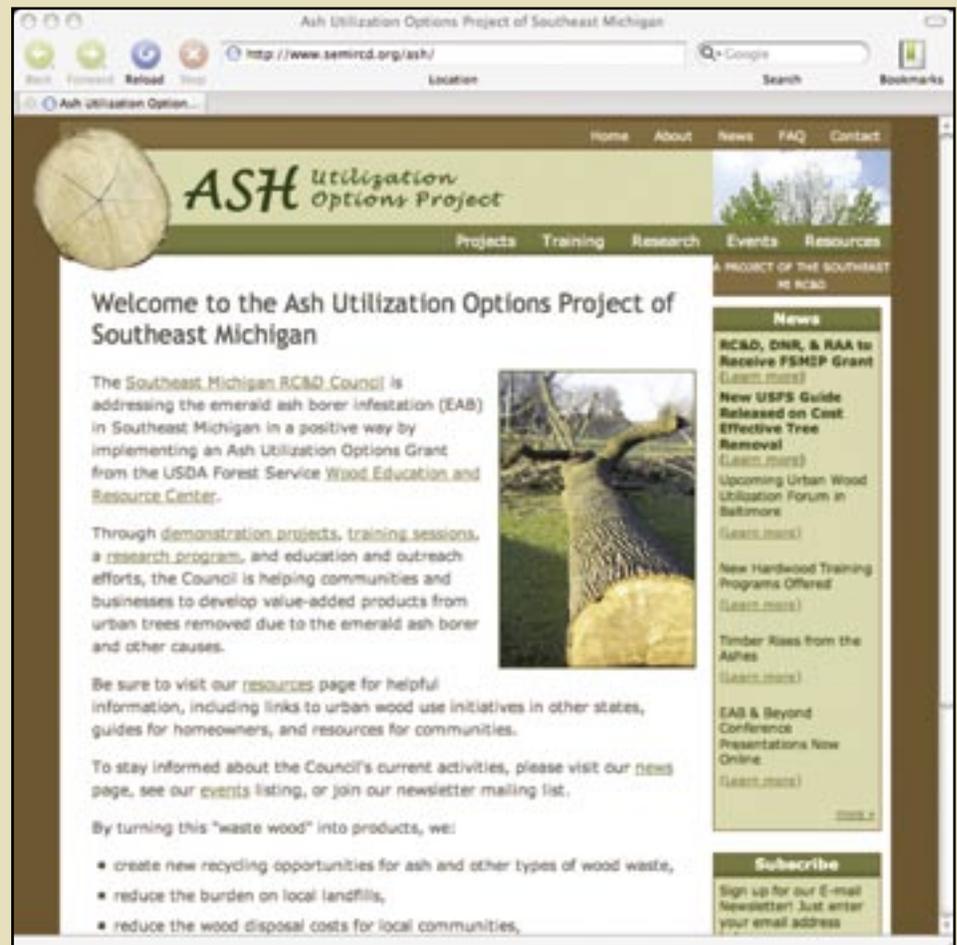
Alan Siewert & Stephanie Miller,
Regional Urban Foresters, and **Marianne Prue,**
EAB Urban Forester,
Ohio Division of Forestry

The Southeast Michigan Resource Conservation and Development (RC&D) Council has been working since 2004 to identify value-added uses for urban wood residues, driven largely by the need for wood disposal options following the state's Emerald Ash Borer (EAB) outbreak. The RC&D's aims to reduce wood waste disposal costs for communities, promote sustainable use of urban wood resources, and create economic development opportunities for the area. Using grant funds from the USDA Forest Service, the Council has implemented demonstration projects, research initiatives, training workshops, and outreach and networking strategies to build local momentum for the growth of industries based on recycling dead ash and other urban trees.

The RC&D Council has granted nearly \$200,000 to a variety of local wood products companies, scientists, municipalities, community

groups, and woodworkers. These grants have produced inspiring results. Nearly one million board feet of urban lumber has been processed on a local mill. Ash floors are being installed in the new Ann Arbor District Library building, wood energy assessments are in progress in local public buildings, and art exhibits of salvaged wood pieces by Michigan woodworkers have been held. Other successful Council activities have included a series of training programs for local wood industries and many public educational and outreach efforts.

Both generators and users of urban wood have found more ways to work together in Southeast Michigan. New businesses and public-private partnerships have developed, existing operations have expanded, and new retail opportunities have been created. The public has developed a stronger awareness of urban forestry concerns and of the value that trees



play in their communities. Most importantly, we've seen that when community leaders and local industries are allowed to be innovative and responsive, our cities can take an expensive problem and create a positive solution that results in both economic benefits and wise stewardship of public natural resources. For more information about the Ash Utilization Options Project, please visit www.semircd.org/ash.

*Jessica Simons, Natural Resource Specialist
Southeast Michigan RC&D Council*

With the passage of the California Integrated Waste Management Act of 1989, urban forest managers and their solid waste counterparts were faced with some hard decisions about the reduction of urban wood in the waste stream. The requirement to reduce our waste stream in California by 50% by the year 2000 was a stringent standard to meet. Waste wood is one of the largest and heaviest components of the waste stream, and to meet the reduction mandate, creative utilization is essential.

Communities with healthy, thriving, and respected urban forests should be able to find solutions, but what about a forest in decline that is not very important to its community? This is the first partnership that must be developed—respect for the urban forest and a sincere love of trees. Education is crucial, so trees are not topped or removed for convenience. When people are informed about the value of their trees and proper care, waste stream reduction is automatic.

A second partnership involves community as well. Heat is required daily in our area. With the depressed economy of our region, gas and electric heat can be prohibitive. Most of our homes burn wood for heat during off-winter months. Wood can be expensive, so nineteen years ago we implemented a low-cost wood sale program that has been extremely successful. Our wood is offered split or unsplit at a minimum fee to residents within our city. So successful is the program that we now take wood from local contractors to reduce their tipping fee costs and to improve our diversion ratios. We

use the revenue to pay rent on our three-acre nursery and wood facility and to purchase equipment.

Over the last four years, we have established partnerships with local woodworking artisans, and we receive products in exchange for our wood. Products have included furniture, shelving, benches, and stepping stones. Some of the products are used in-house; the artisans sell others and forward a check to us.

Recently we developed our own milling operation. With a grant from the California Department of Forestry and Fire Protection, we borrowed a portable mill and kiln. This was the best possible solution for our city so that we could mill hardwoods that could be made into bleachers, dugouts, etc. that withstand the extent of use and abuse that our parks experience. A milling operation allows us to use our hardwoods for these purposes, resulting in a closed loop that produces durable products that we use daily.

*Cindy McCall, Parks & Urban Forestry Manager
Lompoc, California*



The Asian longhorned beetle (ALB) was detected in two separate New Jersey locations—in Jersey City in 2002 and in Middlesex/Union counties in 2004. The removal of infested trees and potential host trees and the disposal of the wood chips produced by these trees is an ongoing cooperative project between the State of New Jersey, U.S. Department of Agriculture, Union County, and industry—mainly, Covanta Energy Inc.

Barry Emens, APHIS Director of the ALB Program, determined the need to remove 21,000 host trees that included 616 infested trees in the quarantined area. This was to be done in a highly residential and industrial area. Contractors began removing the trees and grinding the stumps in late 2004. This material would produce approximately

15,000 tons of wood chips—the equivalent in volume of 750 full 40-foot trailer loads of wood chips. This volume of wood chips was too much to be processed quickly into mulch and/or for composting. Enter a cooperative effort to dispose of this material effectively and efficiently.

We contacted Tom Delacruz of Covanta Energy, a waste recovery/energy company located in the quarantine area. We asked whether Covanta could process the wood chips in their resource recovery and energy production system, where the heat generated is used to produce steam that in turn runs turbines to generate electricity. Two problems quickly surfaced: 1) Covanta's per-

mit from the New Jersey Department of Environmental Protection Solid Waste Division did not allow the burning of wood chips, and 2) since wood has a higher heating value than trash, steam flow had to be slightly increased.

Once we brought this to the attention of the DEP Commissioner, a one-time project waiver was granted to Covanta's permit that allowed the company to take the infested wood chips and increase steam pressure slightly. In return, as a public service to the eradication effort, Covanta waived the \$71/ton tipping fee for the 15,000 tons of wood chips (\$1,065,000). The New Jersey Department of Agriculture was also

contacted and approved the plan.

How much electricity was produced? As of May 2007, 21,000 trees had been removed and chipped and the stumps ground up. The resulting 15,000 tons of wood chips were mixed in with the trash and burned by Covanta. Through the use of Covanta's resource recovery technology, 15,000 tons of wood chips generated 14.2 million kilowatt-hours, enough energy to supply electricity to 7,780 households in our Mid-Atlantic region for a period of three months.

Edward Lempicki, New Jersey Forest Service and Ron Sheay, Certified Forester (Retired) 