

Seattle's Urban Forests

Is there long-term potential for productive forestry in Seattle's urban forests?

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Productive Urban Forestry

Introduction

There is long-term potential for productive forestry in Seattle's urban forests, but one must develop a nuanced understanding of what productive means. If it were an understanding based solely on money the answer is probably, though not definitively, no. If it is an understanding that includes some modest gains in money, providing for some of the city's needs locally and avoiding gathering wood from virgin lands, as well as generating products that have a local character and significance, providing job and youth programs, and contributing to the generation of a network of greater self-sufficiency, not to mention the myriad environmental benefits from a robust forest program focused that might increase tree numbers by focusing some efforts on productivity, then the answer is yes. In this regard, the urban forest can already be considered productive, but there are many ways that its productivity can be significantly increased.

Thousands upon thousands of board feet are generated within many cities on a yearly basis. Simply by using trees that are blown down, removed for construction, or are diseased a city can generate a large supply of useable wood. Products can range from wood chips for mulch and pulp for paper to wood floors and high-end furniture. There are limitations to such a program, however. In terms of truly generating a profit it is important to focus on value added products which makes many trees not worth the effort. Yet, there is also the issue of avoiding disposal costs, and there are many uses for trees that do not necessarily turn a profit for the owner of the log, but at least reduce the cost of disposal and keep wood out of the waste stream. The following will discuss benefits and limitations of urban forestry as well as case studies and ideas for making the most of cities' forests in a variety of ways.

Benefits

The many benefits of urban trees is undeniable. They provide an aesthetic benefit, contribute to the community in terms of image and livability, provide play and recreation opportunities increase property values, remediate noise, and provide a human link to nature. They also have many ecological benefits, such as



Jim Newsome founded Urban Hardwoods, one of Seattle's most successful cases turning waste wood into high-end products. (photos: Urban Hardwoods)

Waste wood is chipped at Rainier Wood Recyclers. Customers pay to have their wood taken and Rainier sells the wood at a profit. The costs for wood disposal, however, are cheaper than sending it to a landfill. (photo: USDA 2002)





The Genesee Power plant in Flint Michigan collects 200,000 tons of waste wood every year and is combusted for power. In this area coal would normally be used for power making the burning of wood a desirable alternative. (photo: USDA 2002)

Different parts of trees have many different uses. Limbs and low value trees might go to lower uses such as power generation and chipping for mulch. More valuable trees can go towards furniture. The key is all parties involved being aware of available resources and potential uses. Many governments have started programs to help aid in this connectivity. King County is one example with its LinkUp program for diverting solid waste to beneficial uses: <http://www.metrokc.gov/dnrp/swd/LinkUp/>

habitat provision, regulation of water temperatures, carbon sequestration (1 acre of trees removes 13 tons of dust and gas per year), erosion prevention, rainwater purification and filtration, and energy savings (City of Seattle, 1998). In this regard it is already clear that Seattle and likely any city has a productive urban forestry program. Given the many benefits it is clear that Seattle should actively plant as many trees as possible. Yet, financing is always an issue in terms of keeping trees on the streets. Viewing the urban forest as a productive one in terms of economy can help by remediating the costs of running an urban forest. If it were managed as a productive forest it might be possible to have more tree cover in the city, while harvesting more wood for productive, local purposes. There are certain limitations to this type of effort, however.

Limitations

Taking advantage of urban wood has many limitations. One problem appears to be coordination. There are many entities that might use urban wood but connections might not be made between those who have wood they want to get rid of and those who can use it. In Seattle the recent notoriety of Urban Hardwoods has led to more connections to save wood and put it to use. Trees that came out of the Rainier Vista project were sent to Urban Hardwoods rather than being chipped or landfilled (King County 2003). In many cities, public entities provide information and a clearinghouse of connections, while private entities provide the actual machinery, skills and labor. Both parties benefit. Municipalities can reduce waste in landfills, and disposal costs, while private businesses receive a cheap supply of wood, which is often the only way to make their businesses viable. Other issues are further described below.

Logistics

A particular problem with harvesting wood to be made into products is logistics. One logistical problem is wood location. In Seattle where topography is often steep, it is typically not worth removing fallen trees from greenbelt areas where access is difficult. This would disturb soil and also remove the benefits of a decomposing tree to a forest. Because of this it is generally considered not useful or beneficial to remove trees from Seattle's more natural areas.

Trees do sometimes fall on roadways because of storms or need to be removed from backyards. In this case there is access, but the problem is that one tree is not necessarily cost effective to take to a mill, making it very difficult to make any money in these cases. When areas are logged, those doing the logging decide when to go and cut down many trees at one time creating an economy of scale. Cities usually cannot choose when they remove trees or where they will be.

Municipalities may not make money on individual trees, but when they can be used for some sort of product disposal costs can be avoided. For example, King County might sell a tree for only \$400-\$500 or give it away, but they can avoid \$1,200 in disposal costs (Vane 2005). There is the added benefit of removing wood from the waste stream which makes up about 17% of all landfill waste.

Quality

Wood quality is another primary issue. Many logs can be turned into low-end products, such as wood chips. Rainier Wood Recyclers currently produces wood chips from city trees in Seattle, but those who bring trees to them do not receive payment and are only avoiding the costs associated with landfilling. In order to make money, high value products must be produced from high value trees. Urban Hardwoods actively seeks exceptional trees that can be turned into products, typically furniture, that has high quality and character and comes with a local history attached. This does not make up a large percentage of the trees available, however. Planting future trees with quality in mind might generate an urban forest with more potential value many years in the future. Care should be taken not to sacrifice ecological benefits and diversity in this effort, however.

Politics and Permitting

It is politically difficult to promote the concept of logging in urban areas, though the right of way provides large amounts of useable land with easy access (Mead 2005). If these concepts can be developed, however, Seattle is a likely place given its history of milling (City of Seattle 1998). Using local trees to provide goods within the city is a concept that is ripe for larger scale implementation, particularly given the desire to preserve pristine areas.

Permitting is another issue. If more than 5,000 board feet are intentionally harvested the entity must have forest practices permit. If the available volume is not high enough this may not be practical.

Potential: What About the Right of Way Anyway?

There is great potential for productive urban forestry in an economic sense if it is an active focus. The City of Seattle reported that only 1/3 of all possible places were planted with trees (1998). There are thousands of acres available, particularly in rights of way that could accommodate more trees. Given the existing street network, it might make more sense to log in populated areas, rather than building more roads through forests. Any one neighborhood might be impacted once every several decades. If rights of way were used strategically, for example integrating trees meant for production with heritage trees, the impacts might not seem as great. Street trees tend to be planted at the same time and are often the same type. Planting a more diverse set by age and species may also bring habitat diversity benefits and reduce the risk of losing an entire street of trees to disease. Perhaps certain trees would be systematically harvested over a period of 20 or 30 years, the proceeds from which would go toward planting more trees. Some of this wood could go into improvements for the neighborhood from which the trees were taken. Additionally, many trees eventually conflict with power lines. These could also be harvested and then replanted until they are once again too large.

This type of effort goes hand in hand with urban agriculture. With the ability to receive resources from outside the city likely to decrease, it is important to begin supplying ourselves locally. A local material system is important as is a local food system. If this sort of large-scale effort is possible or not, some cities, businesses and individual are at least focusing on taking advantages of opportunities to use urban wood, where it would otherwise become waste. Maximizing the usefulness of wood that becomes available for various reasons is a first and most important step. There is little reason for wood to go to a landfill, and all attempts should be made to put it to other uses.

Selected Cases

Following are examples of efforts that take advantage of opportunities to use waste wood that have economic, social, and environmental benefits.

Community Woodworks, Oakland

Community Woodworks operates at the Oakland Army Base, receiving much of its wood from old barracks. It is important to remember that the useful life of wood is not just from tree to product, but also product to product. Construction and demolition waste is significant and can be put to other uses in some cases. An important feature of Community Woodworks is that it provides job opportunities for low-income individuals (USDA 2002).

An important feature of productive urban forestry is providing work opportunities for youth or underemployed individuals. This plays an important social benefit in job training or as after school programs. In this case the urban forest can be viewed not as a way to make money, but as a way to help finance social projects.

City of Olympia, Woodwaste Recycling Study

The City of Olympia has conducted research into the various potentials of the trees removed from its forest. They have identified multiple uses for wood removed due to hazard or disease. A wood artisan's program would provide local craftsmen

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The City of Olympia is actively engaged in salvaging and milling urban wood. (Photos: Roush and Royer)

	Grade	Use(s)	Value Type	Value Amount*
Spruce		siding		\$4-\$12/bdft
		instrument making		
Poplar, tulip		unknown		Unknown
Lindon - Basswood		wood carving		\$3-\$4/bdft
Cottonwood		cabinets		\$2-\$3/bdft
Fir, White		exterior trim		\$1-\$2/bdft
Retail Market values are taken from Puget Sound hardwood store retail prices Wholesale prices are 50-70% of retail prices.				

The City of Olympia has developed charts of wood user networks as well as uses and prices for wood to help direct wood to appropriate places , contributing to social programs, arts, ecology and business development. A portion of a one chart is shown here. (Roush and Royer 2001)

From Seattle DOT Tree Inventory: <http://www.seattle.gov/transportation/treeinventory.htm>

Health of Existing Trees

In 1994, Seattle Transportation conducted a health study of the city's 84,000 street trees. Each tree's health was rated from 1 (poor) to 5 (great). 59% of the trees ranked ranged from good to great. 42% of the trees ranged from poor to over half-dead. Many of the trees suffer from one or more problems, including trunk-area decay, canopy defoliation, tree topping, branch structure defects and root structure problems.

The Overall Condition of Seattle's Trees - % of Total - Actual Number

Over half dead - 3% - 2,214
 1/4 to 1/2 dead - 8% - 6,927
 Poor - 31% - 26,211
 Good - 34% - 28,860
 Great - 25% - 19,704

with free wood. Some wood could be used in business development, while a portion would go back to the city in the form of a product, such as a bench or public art. The city could also donate wood to high school woodshop programs, put it up for public auction as well as using some in retail sales. A particularly useful feature of the study is information to determine the value and use of a particular type of wood versus the cost of transportation and milling it depending on the particular circumstances.

King County and Seattle

King County and Seattle are actively engaged in similar projects like Olympia. King County is considering creating woodlots in portions of parks to store fallen trees from county land. This wood would be cut intermittently by a mobile mill and used for fences, signs, kiosks and other park needs (Vane 2006). Additionally the City of Seattle has begun developing a cost matrix, like Olympia, to determine the best uses for timber depending on where it is located and what type of wood it is (Mead 2006). Further developing such programs will continue to open new business opportunities that will mutually benefit community, ecology, and economy. The information at right shows that many of Seattle's trees are not in good shape. As these trees are removed a good program directing them in the appropriate places is all the more necessary.

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Other Resources

Sherrill, Sam. 2003. Harvesting Urban Timber: A Complete Guide.

King County Forestry Program: <http://dnr.metrokc.gov/wlr/lands/forestry/>

King County. 1998. Small Forest Management on the Urban Finge: A Bibliography.

Seattle Department of Transportation Urban Forestry: <http://www.ci.seattle.wa.us/transportation/forestry.htm>

LinkUp: <http://www.metrokc.gov/dnrp/swd/LinkUp/>
King County program to connect waste streams with potential users.

University of Washington College of Forest Resources: <http://www.cfr.washington.edu/>

Tree Link: <http://www.treelink.org/>
Urban forestry portal

USDA Forest Service: <http://www.fs.fed.us/ucf/>

American Forests: <http://www.americanforests.org/>