

Household Survey of Tree Debris Recycling Practices and Consumer Interest in Products Crafted from Local Wood Sources

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Abstract

Thousands of trees are lost in urban areas of Virginia each year to land development, storms, and pests. As a result, large volumes of tree debris, much of which is suitable for high-value wood products, are streaming out of Virginia's urban forests annually. Finding cost-effective, sustainable strategies for recycling this waste, particularly into durable wood products that keep carbon stored indefinitely, could benefit the local economy and the local environment. To inform outreach and technical assistance efforts of the Virginia Urban Wood Group, we conducted a survey in the cities of Harrisonburg and Lynchburg, Virginia to determine household practices of tree debris recycling. A stratified random sample of owner-occupied, single-family dwelling units (1,000 households per city) were contacted by postal mail and asked to complete either a paper or online survey. We obtained survey responses from 311 households—187 in Harrisonburg and 113 in Lynchburg. Nearly all respondents strongly agreed (57%) or agreed (34%) with the statement, "Wood from street trees, park trees, and other neighborhood trees should be recycled into products rather than disposed of in a landfill." The majority of respondents (68%) indicated that one or more trees had been removed during their time living on the property. However, 51% stated that they had not considered recycling wood from those trees. The two most important factors facilitating participation in tree recycling were timely removal of the wood (85% agreed) and free curbside pick-up of the wood (76% agreed). Implications of these and other survey findings are discussed.

Research Findings

Trees on the property

- **95%** have trees on their property: the number and size of existing trees was very diverse
 - **43%** have 1-5 yard trees
 - **25%** have 6-10 yard trees
 - **29%** have >10 yard trees
- **68%** had one or more trees removed during their time living on the property—the number and types of trees removed and reasons for removal varied considerably

These results point to a major challenge of urban wood recovery—a single property is probably not generating a large enough volume of wood to make contract sawing economically feasible.

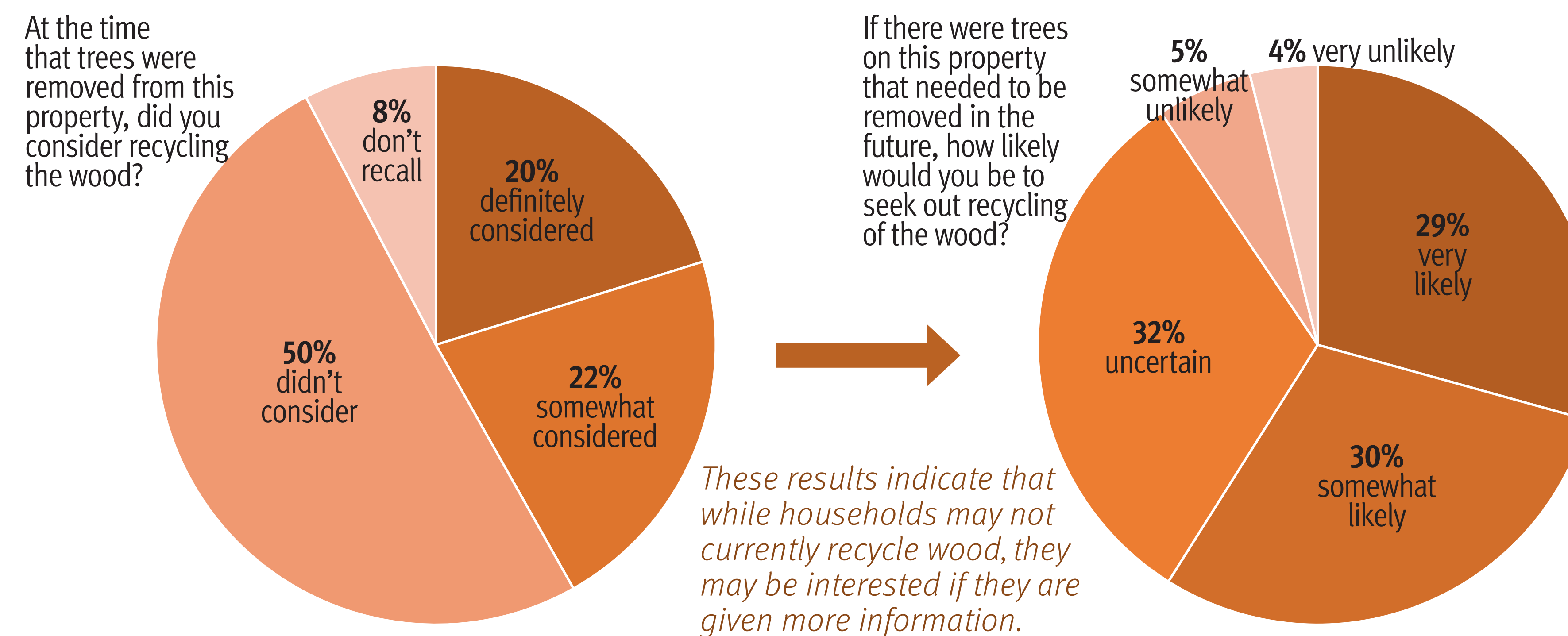
Tree removal

- **47%** hired a contractor to remove trees
- **33%** personally removed the trees
- **50%** didn't consider recycling the wood when trees were removed from their property
- **59%** would be very or somewhat likely to recycle the wood in the future

Tree disposal

| Disposal Method | Always | Often | Sometimes | Rarely | Never |
|--|--------|-------|-----------|--------|-------|
| Tree removal contractor hauled it away | 29% | 18% | 19% | 6% | 27% |
| Firewood for heating on-site | 9% | 21% | 22% | 8% | 39% |
| Discarded on property | 6% | 16% | 18% | 15% | 44% |
| Chipped and used as mulch on-site | 4% | 9% | 22% | 9% | 55% |
| Municipality hauled it away | 3% | 13% | 20% | 6% | 58% |
| Hauled to landfill by you or a friend | 4% | 11% | 13% | 9% | 63% |
| Burned on-site to dispose of it | 14% | 7% | 7% | | 71% |
| Logger or woodworker hauled it away | 7% | 14% | 6% | | 72% |
| Used as lumber on-site | 7% | 7% | | | 85% |

Recycling participation



These results highlight the importance of outreach and market development with tree care contractors.

Factors that would encourage household wood recycling (% of participants)

- **85%** timely removal of wood
- **76%** free curbside pickup
- **72%** contact list for local businesses that haul or mill wood
- **68%** keeping wood out of the landfill
- The least important factors were getting paid for the wood (36%), and getting a share of the wood products (27%).

Research Justification



Tree planting in residential areas is encouraged for their many environmental and economic benefits.



An estimated 700,000 tons of urban wood waste must be disposed of annually in Virginia.



Finding cost-effective strategies for up-cycling wood waste to durable products could benefit the local economy and environment.



Most of this wood waste goes to landfills and is ground into low-value mulch.

Barriers and Knowledge Gaps

- Lack of infrastructure to stockpile and process waste wood.
- Lack of staff to transport, manage, and distribute waste wood resources.
- Municipal governments may be hesitant to invest in infrastructure and staff without better understanding their constituent's perceptions of wood recycling.

Research Methods

Survey

- A 35-question survey was sent to households in Harrisonburg and Lynchburg in 2018.
- Questions were designed to understand:
 - Participant demographics and property characteristics.
 - Tree removal practices and fate of removed trees.
 - Perceptions of wood recycling—if they currently recycled wood, their attitude towards recycling wood, and factors that may encourage them to recycle wood.



Participants

- Survey participants were selected from a *stratified sample* of owner occupied, single-family dwelling units.
- 1,000 residents from each locality were mailed a request to participate in the survey.
- Participants had the option of completing the survey on paper or online.
- Total response 311 (16%):
 - 187 (19%) from Harrisonburg
 - 113 (11%) from Lynchburg
 - 11 didn't disclose location



Take Home Messages

1. Many households aren't currently recycling wood from yard trees.
2. Most waste wood is hauled away by contractors—highlighting the importance of waste wood recycling outreach to tree care contractors as well as property owners.
3. Many households may participate in recycling if given appropriate information and services.
4. Getting rid of waste wood quickly and not being hassled by the process are important factors for respondents to participate in a waste wood recycling program.
5. While a single property is not likely to generate a large enough volume of wood to make contract sawing economically feasible, a large volume of wood coming from properties **collectively** could make a municipal scale recovery operation viable.

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Virginia Urban Wood Group