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Urban National Landowner Survey: Baltimore, 2018

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Abstract

The Urban National Landowners Survey (UNLS) provides information about who owns the trees across America's urban areas, why they own them, what they have done with them in the past, and what they plan to do with them in the future. The first UNLS was completed for Baltimore, MD, in 2018 and provides estimates for all landowners in the city. Most people in Baltimore valued trees on their property and in their neighborhood evidenced by the following: they agreed that trees make the neighborhood a better place to live, that tree health should be considered during construction, and that good landscaping increases property values. Residents also had concerns about tree branches damaging property, tree roots interfering with building foundations and/or septic systems, and tree branches breaking and causing a power outage. These concerns may explain why the percentage of owners who removed trees was greater than those who planted trees and why about two-thirds of owners who removed trees did not replace them. Appendixes provide a sample of the survey instrument and a full set of results in tabular form.

Keywords: urban landowners, residential land management, urban forestry, yard care, urban wood, UNLS

Cover photo: A residential property in Baltimore, Maryland, USA. USDA Forest Service photo by Nancy Sonti.

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CONTENTS

INTRODUCTION

The Urban National Landowner Survey (UNLS) is a component of the National Woodland Owner Survey (NWOS) program implemented by the U.S. Department of Agriculture (USDA) Forest Service's Forest Inventory and Analysis (FIA) program. The NWOS currently has four components: base (primarily rural forests), large corporate forests, urban, and islands. Additional components (e.g., surveys of owners/managers of forests within Tribal reservation boundaries) are planned. Following a brief description of the UNLS process, summaries are presented along with key findings. The questionnaire used is presented in Appendix 1, and summary tables are provided as supplemental files in Appendix 2.

The purpose of the UNLS is to provide information about who owns the trees across America's urban areas, why they own them, what they have done with them in the past, and what they plan to do with them in the future. The specific focus of the UNLS is on the families, individuals, companies, and other private entities that own residential properties. Initial efforts are focused on private residential landowners with the intent of eventually expanding to all urban landowners.

Data and information collected through the UNLS is complementary to the Urban FIA (UFIA) program's plot-based forest inventory of the Nation's urban trees and vegetation (https://research.fs.usda.gov/programs/urbanfia). This report summarizes the results of the UNLS in Baltimore, MD, which was completed in 2018. Since then, UNLS has expanded to additional cities, and results from these efforts will be reported in the future.

METHODS

As with the broader FIA program, the authorization and general guidance for the NWOS and UNLS comes from the Forest and Rangeland Renewable Resources Research Act of 1978 and the Agricultural Research, Extension, and Education Reform Act of 1998. This legislation requires the USDA to monitor the Nation's forest resources, and this has been interpreted to imply not just the biophysical resource, but also the social and economic contexts within which the forests exist.

All methods used to implement the UNLS have been approved by the Office of Management and Budget (OMB) (OMB approval no. 0596-0078) in accordance with the Paperwork Reduction Act (PL 96- 511). The UNLS is implemented by the Family Forest Research Center (www.familyforestresearchcenter.org), a joint venture between the USDA Forest Service, Northern Research Station, and the University of Massachusetts Amherst (UMass), Department of Environmental Conservation. The work is also subject to the UMass Internal Review Board protocols (UMass IRB approval no. #684 2016-2908).

Detailed methods for the 2018 implementation of the UNLS along with assessments of data quality can be found in Butler et al. (2025). The UNLS methods are adapted from the NWOS (Butler and Caputo 2021, Butler et al. 2021). Additional information is available on the NWOS website at https://research.fs.usda.gov/programs/nwos.

Survey methods and questionnaire content are based on existing scientific literature with pretesting and pilot testing validating the survey instrument prior to implementation (Butler et al. 2025). The final version of the questionnaire is provided in Appendix 1.

The Baltimore UNLS sample (i.e., the landowners who were contacted) was generated using an area-based random sampling method that is derived from FIA (Bechtold and Patterson 2005) and base NWOS (Butler et al. 2021) methods. A set of random points was generated throughout the City of Baltimore, set within an intensified version of the hexagonal sampling grid used by Urban Forest Inventory and Analysis (UFIA) (Butler et al. 2025). Property tax records, a U.S. Postal Service database, and high-resolution aerial photography were used to classify each point in terms of ownership class, residential property status, and land cover, respectively, with only private, residential ownerships being included in the Baltimore UNLS 2018. Beginning in 2019, the Baltimore UNLS transitioned to an annual implementation, with the aim of achieving a target sample of 100 responses every 5 years.

Potential respondents were contacted using the Tailored Designed Method (Dillman et al. 2014), as was done with the other NWOS components. This involved up to four waves of contacts for each potential respondent: a pre-notice postcard, a first questionnaire packet, a reminder/thank you postcard, and a second questionnaire packet. Copies of the postcards and cover letters are available in Appendix 2 of Buter et al. 2025. Nonresponse bias was tested by comparing early to late respondents, and no significant differences were detected (Buter et al. 2025).

There were 1,427 ownerships in the sample for the 2018 Baltimore UNLS (Table BALT-00 in Appendix 2). Of this sample, 667 had either no or insufficient ownership/address information. Of the remaining 760 sample points, 145 were sufficiently complete responses (i.e., missingness ≤25 percent), 30 were partial responses (which were subsequently dropped), and 585 were nonresponses. This yields a cooperation rate of 19.1 percent (145 / [145 + 30 + 585]). Early (first 25 percent) and late (last 25 percent) respondents were compared using Fischer's Exact Test to assess the nonresponse bias, and no differences were found between these groups (see Butler et al. 2025 for full nonresponse assessment).

The data from completed questionnaires were verified for range checks (e.g., values being within logic bounds) and logic checks (e.g., responses being consistent across questions), resulting in 0.02 percent of the records being updated. In addition, quality control checks were performed on a randomly selected 5 percent of the questionnaires, which showed an error rate of less than 0.1 percent. Missing values were imputed using multiple imputation (Butler et al. 2025). All cleaned and verified data were uploaded to a secure database (Caputo et al. 2020).

Survey results reflect population-level estimates for totals and proportions in terms of ownerships for all questions. To account for the inclusion probabilities that come from the area-based sample design, weights were used for all population-level estimates, and bootstrapping was used to generate standard errors and quantify the reliability of the estimates. Additional information on estimation and data quality associated with the 2018 Baltimore UNLS is available in Buter et al. 2025.

RESULTS

Results indicate that about 87 percent of owners reside at their property (Appendix 2, Table BALT-10A). A summary of all findings is presented here based on the questions found in the survey instrument (Appendix 1). For comprehensive tabular results, see Appendix 2.

Property Perceptions

Most property owners in Baltimore think trees are beneficial. Eighty-four percent agree that trees make the neighborhood a better place to live, 89 percent think tree health should be considered during construction, and 96 percent think that good landscaping increases property value (Fig. 1). More than half of landowners think trees reduce noise, stress, and energy use; make properties attractive; provide privacy and shade; and leave a legacy for the future (Fig. 2). Fifty-three percent of landowners enjoy seeing wildlife on their properties (Fig. 1).

Landowners' biggest concerns about trees are branches damaging property (47 percent), tree roots interfering with building foundations, and/or septic systems (45 percent), and tree branches breaking and causing a power outage (41 percent) (Fig. 3).

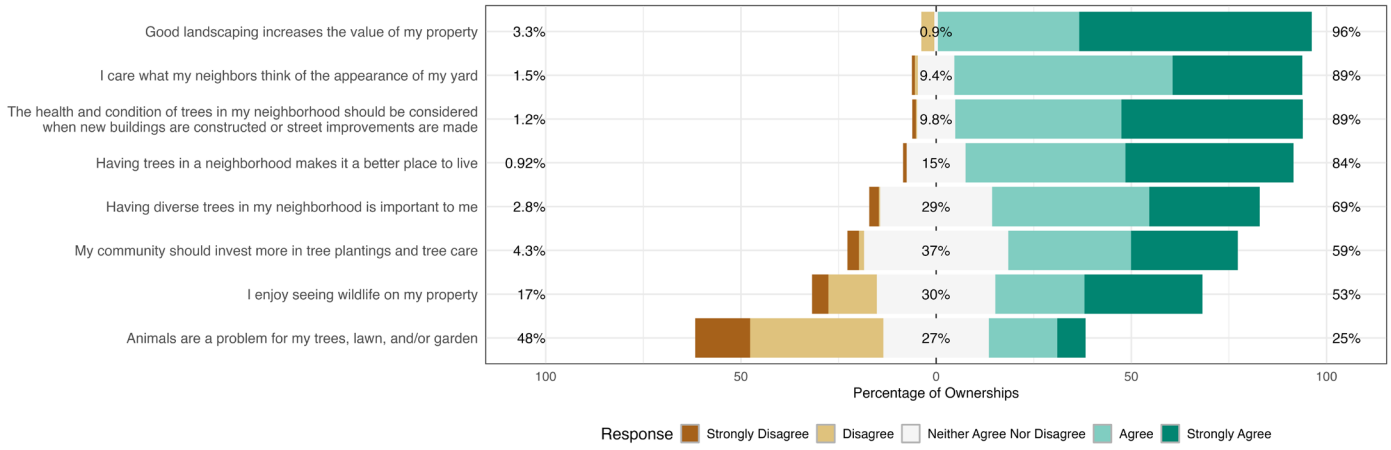

Figure 1.—Estimated percentage of residential ownerships that agree with each statement about trees associated with their property or neighborhood, Baltimore, 2018. The percentages on the left refer to the proportion of the population that disagrees or strongly disagrees (beige and brown bars, respectively), whereas the percentages on the right refer to the proportion that agrees or strongly agrees (light green and dark green bars, respectively). The percentages in the center refer to the proportion that neither agrees nor disagrees. (See also tables BALT-33A through BALT-33D and BALT- 34A through BALT-34D in Appendix 2).

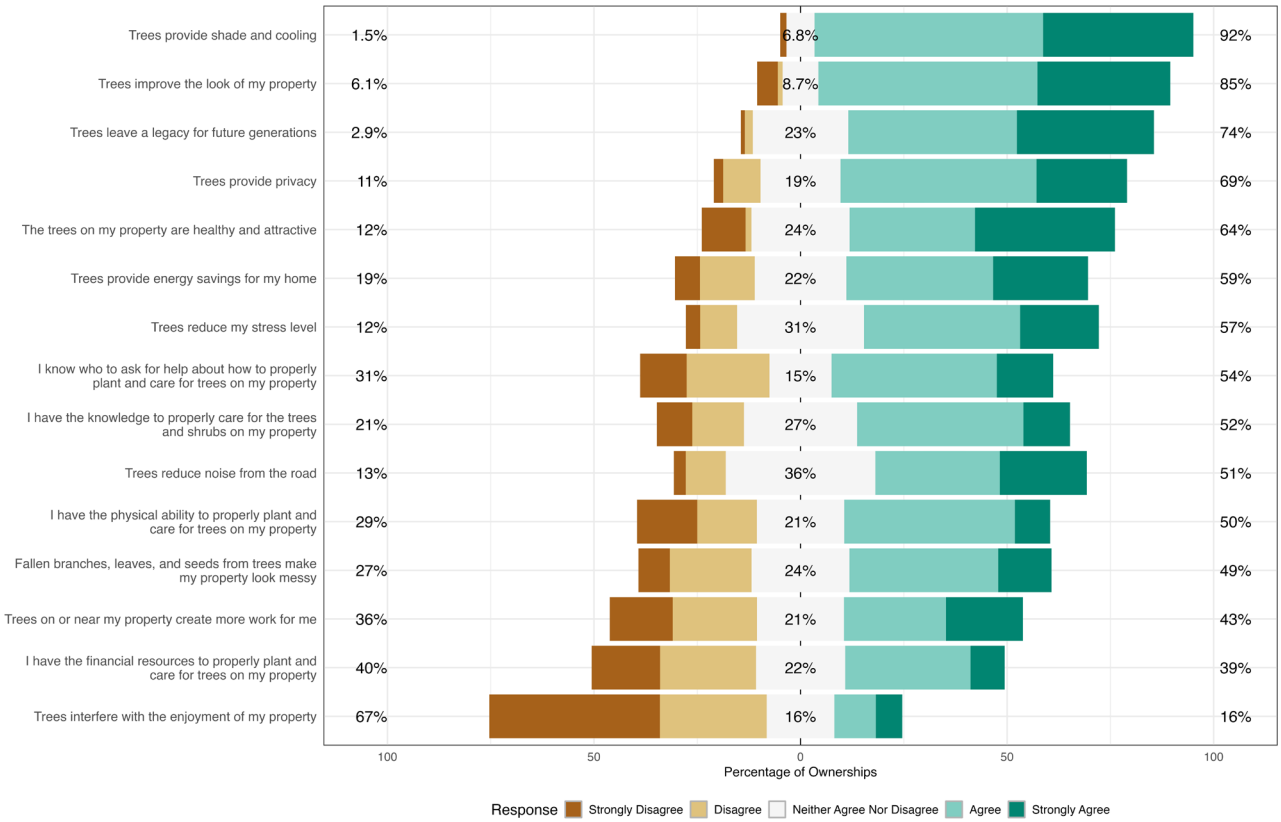

Figure 2.—Estimated percentage of residential ownerships by level of agreement with each statement about trees on their property, Baltimore, 2018. The percentages on the left refer to the proportion of the population that disagrees or strongly disagrees; percentages on the right refer to the proportion that agrees or strongly agrees; percentages in the center refer to the proportion that neither agrees nor disagrees. (See also Tables BALT-32A through BALT-320 in Appendix 2).

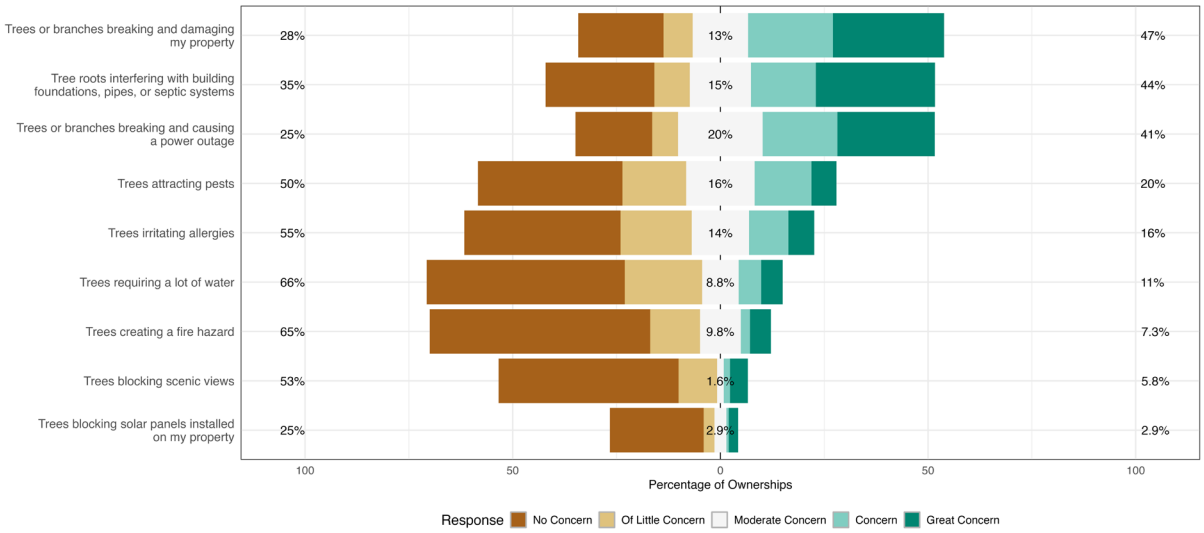

Figure 3.—Estimated percentage of residential ownerships by concerns about trees on their property, Baltimore, 2018. The percentages on the left refer to the proportion of the population that has little or no concerns; percentages on the right refer to the proportion that concerns or great concerns; percentages in the center refer to the proportion that is moderately concerned. (See also Tables BALT-26A through BALT-26I in Appendix 2).

Property

The most common outdoor property features are backyards (Fig. 4). Roughly equal proportions of ownerships have either "none" or "1 to 5" trees of any size on the property (41 percent and 47 percent, respectively), with the remaining approximately 12 percent of the ownerships having six or more trees (Fig. 5).

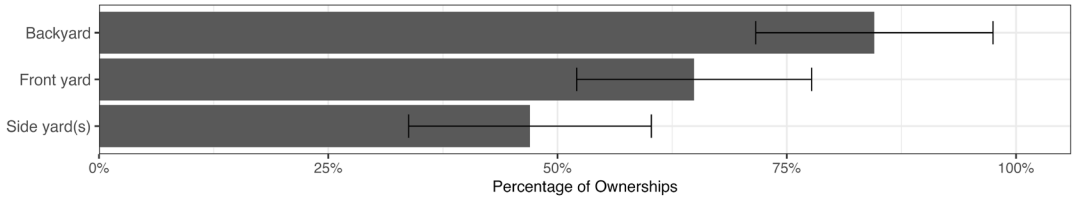

Figure 4.—Estimated percentage of residential ownerships with select features, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-09 in Appendix 2).

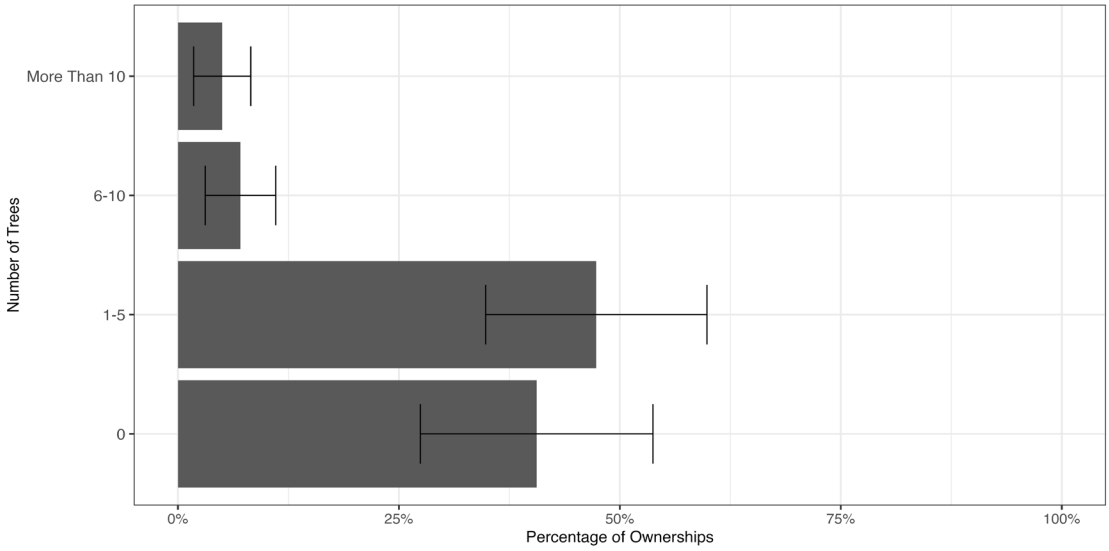

Figure 5.—Estimated percentage of residential ownerships by number of trees on their properties (not including street trees owned by the city), Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-08 in Appendix 2).

Landscape Management

Common annual activities (selected by at least 50 percent of owners) include: lawn mowing; watering lawn, trees, or other plants; gardening; and social activities such as cookouts or parties (Fig. 6). Infrequent activities (done at least once over the past 5 years) include planting shrubs, flowers or ornamental grasses, pruning trees, and invasive species removal (Fig. 7).

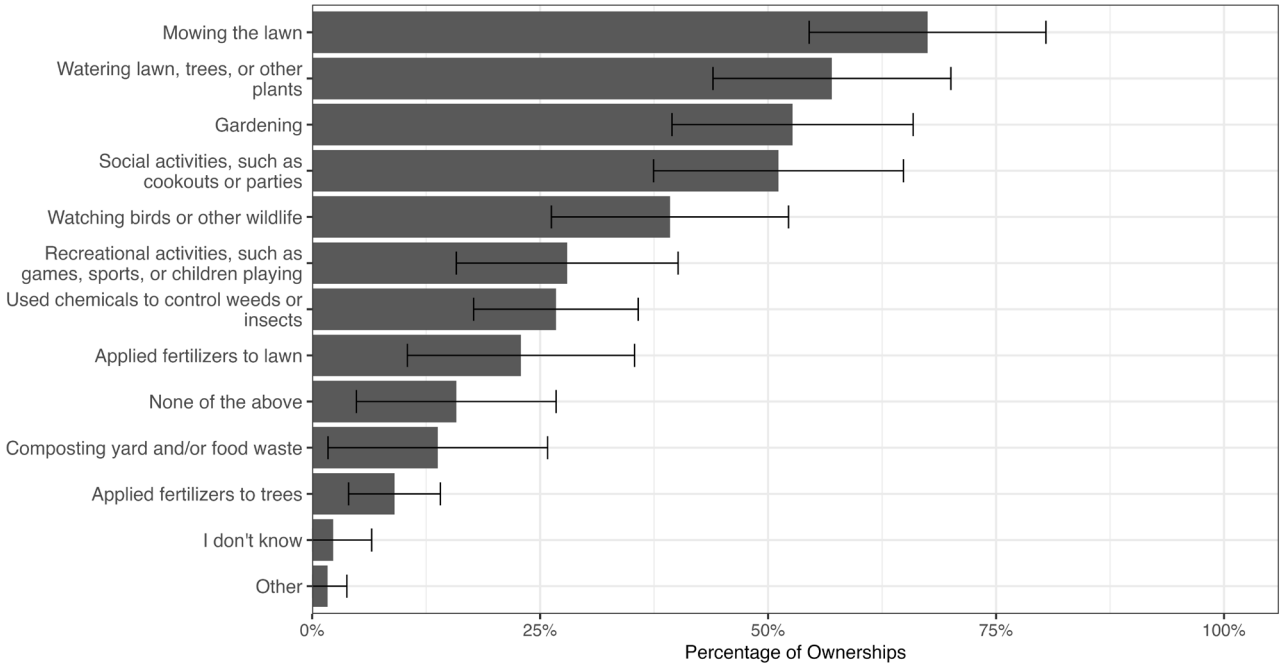

Figure 6.—Estimated percentage of residential ownerships by activities occurring on their property in the last year, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-14 in Appendix 2).

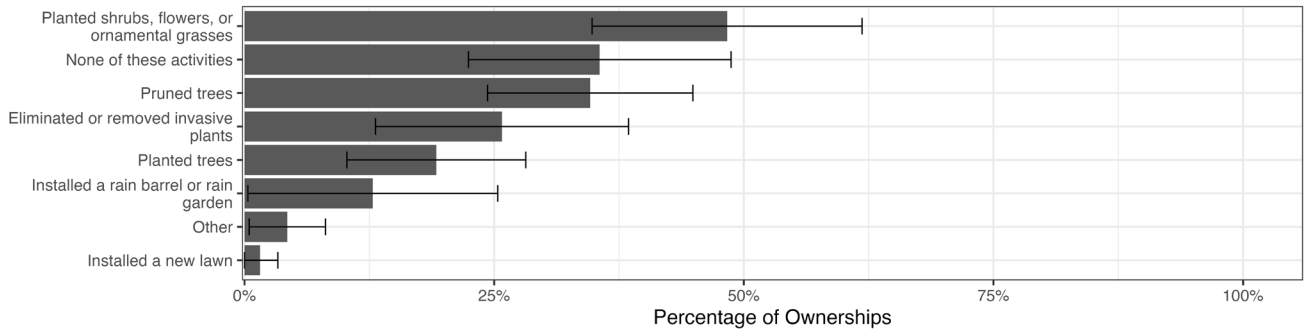

Figure 7.—Estimated percentage of residential ownerships by landscaping activities that have occurred in the previous 5 years, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-13 in Appendix 2).

About 25 percent of owners removed trees in the previous 5 years (Fig. 8), and only about 9 percent of owners who removed trees replaced one or more trees that had been removed (Fig. 9). About 19 percent planted trees (Fig. 7). The most likely persons to perform the tree work on the property were the owner, tree care professionals, and landscaping professionals (Fig. 10).

Owners have taken on various tasks in the past 5 years to mitigate risks or concerns associated with trees on their property. The most common activities were pruning trees (43 percent), contacting a utility company about concerns (26 percent), and removing trees (25 percent) (Fig. 11).

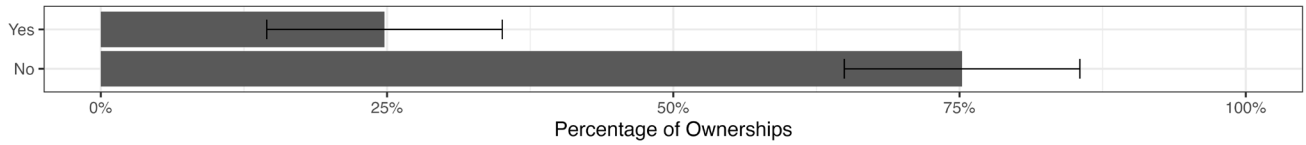

Figure 8.—Estimated percentage of residential ownerships that removed trees on their properties in the last 5 years, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-12A in Appendix 2).

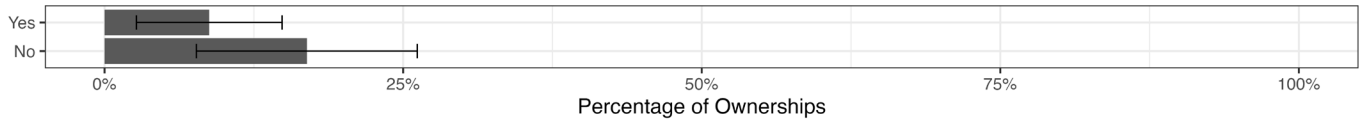

Figure 9.—Estimated percentage of residential ownerships by whether or not they replaced trees that were removed, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-12B in Appendix 2).

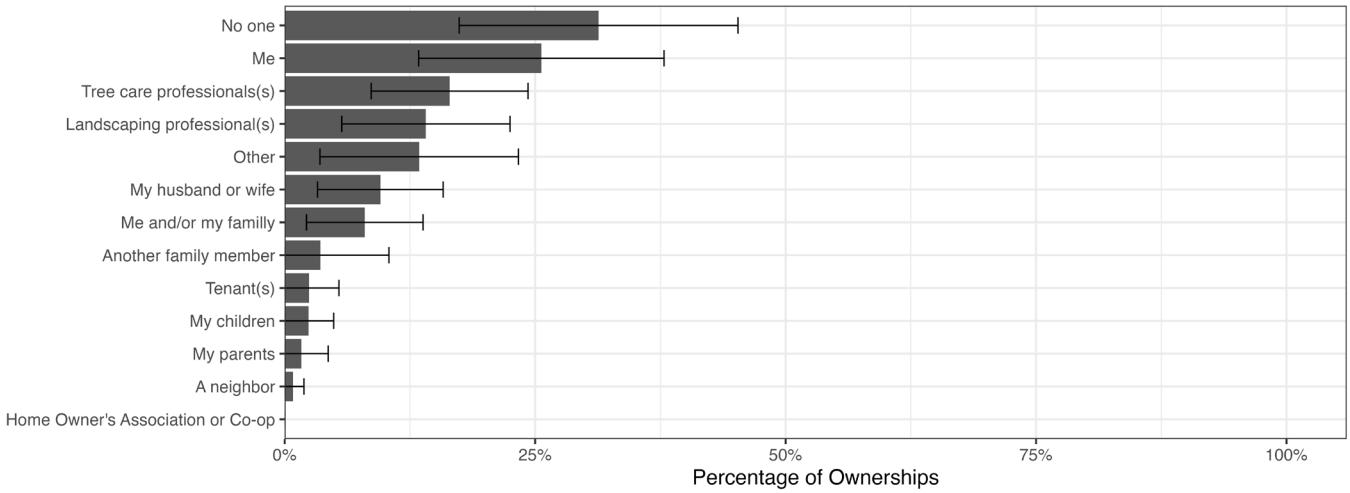

Figure 10.—Estimated percentage of residential ownerships by who performs tree work on the property, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-15 in Appendix 2).

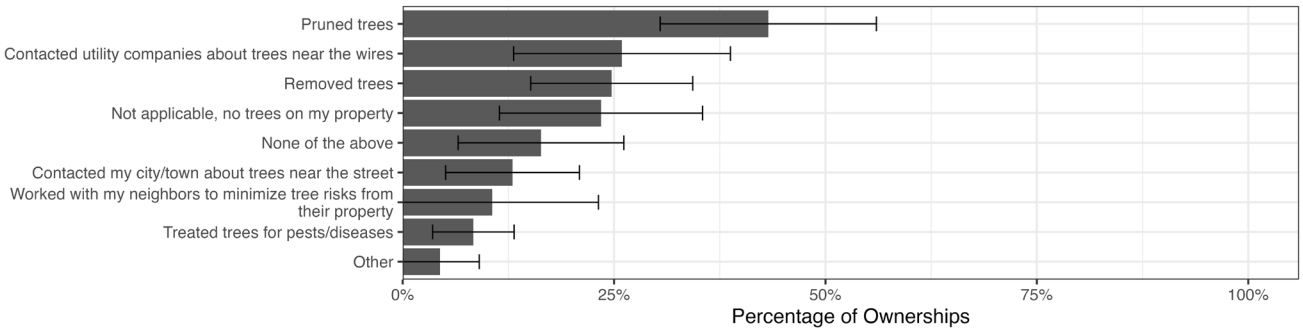

Figure 11.—Estimated percentage of residential ownerships by activities to mitigate concerns about trees over the last 5 years, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-27 in Appendix 2).

Owners are also largely unfamiliar with different landscaping services (e.g., contractors, tree care professionals, landscape designers) and even less familiar with services provided by government agencies, such as local government tree care, master gardener programs, extension agents, and educators (Fig. 12). Landscaping or tree care professionals, employees at a lawn or garden center, neighbors, and nonprofit organizations were the most common sources of past advice (Fig. 13).

When it comes to the topics of advice received, owners received advice most commonly about their trees, lawn care, and gardening (Fig. 14). Owners preferred to get advice from the internet, through a direct personal contact, or from a brochure or other written information (Fig. 15). However, only about 29 percent of owners have received any advice in the past 5 years (Fig. 16).

Owners are largely unaware of programs that help property owners cover the expenses of planting new trees or caring for existing trees (Fig. 17). Only about 6 percent of owners have used programs that provide free trees in the previous 5 years (Fig. 18).

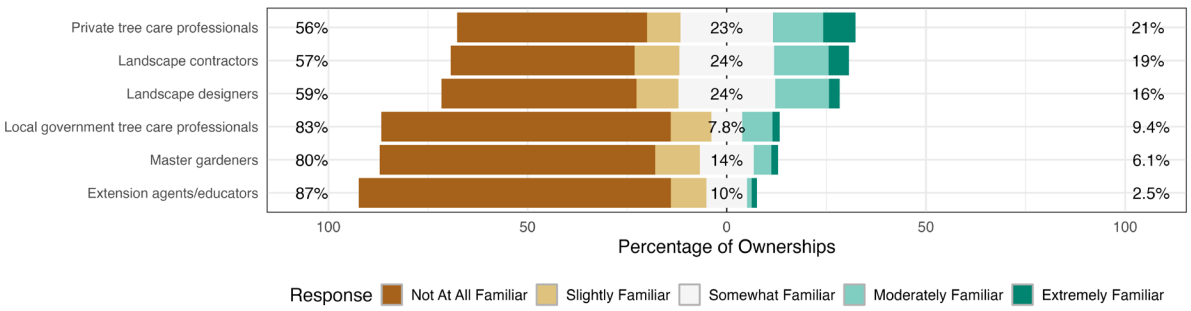

Figure 12.—Estimated percentage of residential ownerships that are familiar with services provided by professionals, Baltimore, 2018. The percentages on the left refer to the proportion of the population that is not at all familiar or slightly familiar; percentages on the right refer to the proportion that is moderately or extremely familiar; percentages in the center refer to the proportion that is somewhat familiar. (See also Table BALT-22A through BALT-22F in Appendix 2).

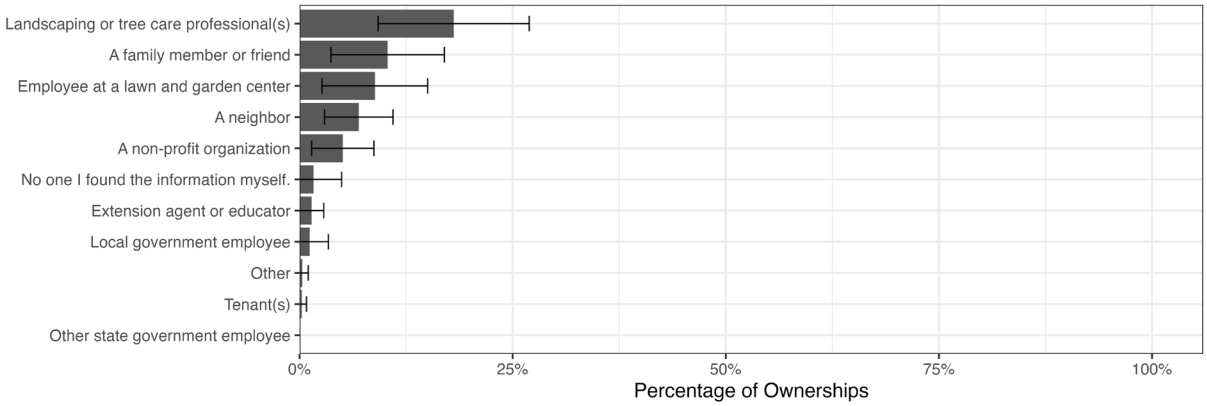

Figure 13.—Estimated percentage of residential ownerships by who was involved in receiving landscaping advice, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-24D in Appendix 2).

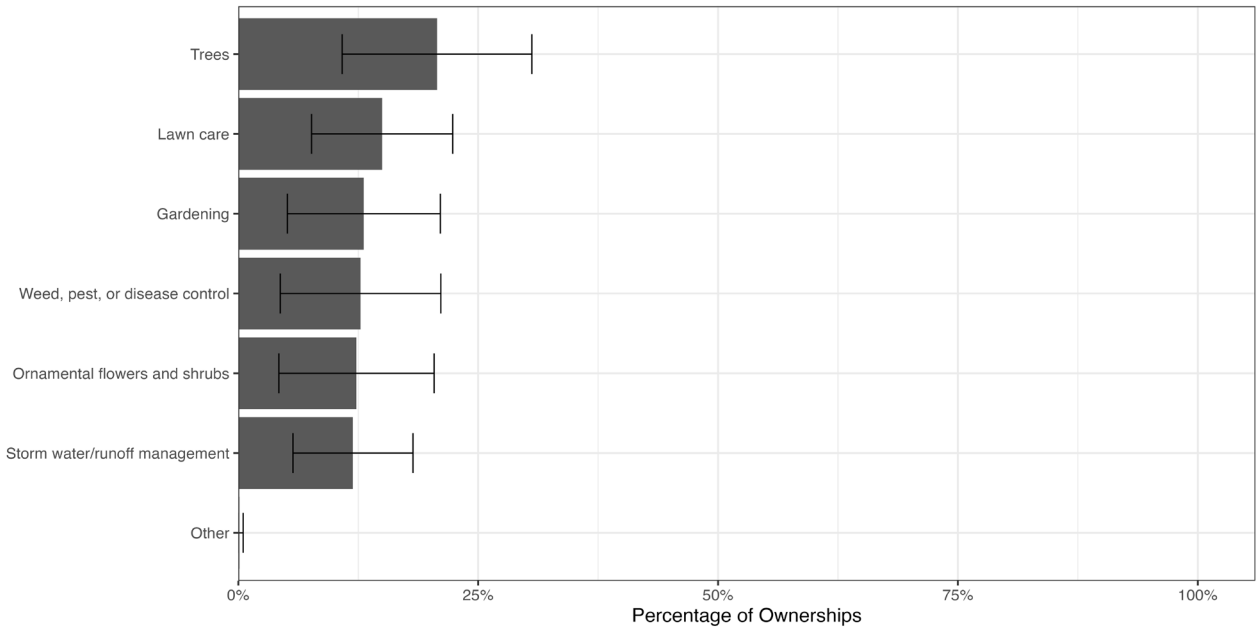

Figure 14.—Estimated percentage of residential ownerships by what kind of advice they received about their property, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-24B in Appendix 2).

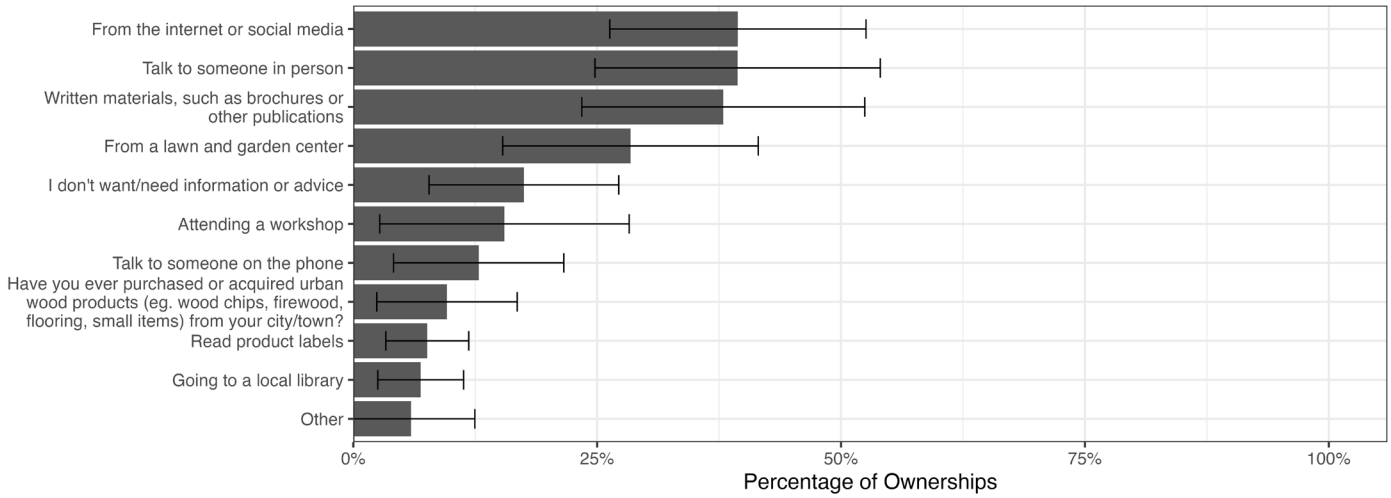

Figure 15.—Estimated percentage of residential ownerships by preferred way of receiving information or advice about trees, grass, and/or shrubs, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-25 in Appendix 2).

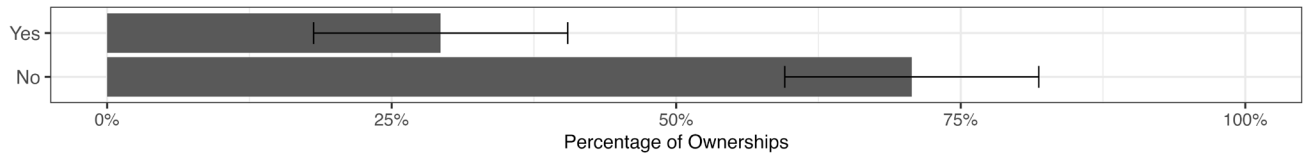

Figure 16.—Estimated percentage of residential ownerships by whether they received information or advice about how to maintain their landscape in the last 5 years, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-24A in Appendix 2).

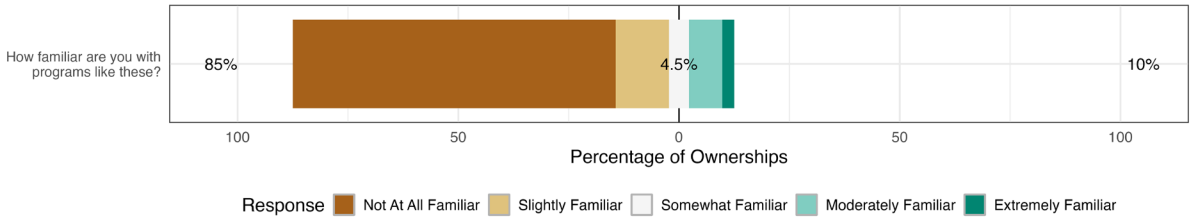

Figure 17.—Estimated percentage of residential ownerships by familiarity with tree planting programs, Baltimore, 2018. The percentages on the left refer to the proportion of the population that is not at all familiar or slightly familiar; percentages on the right refer to the proportion that is moderately or extremely familiar; percentages in the center refer to the proportion that are somewhat familiar. (See also Table BALT-21A in Appendix 2).

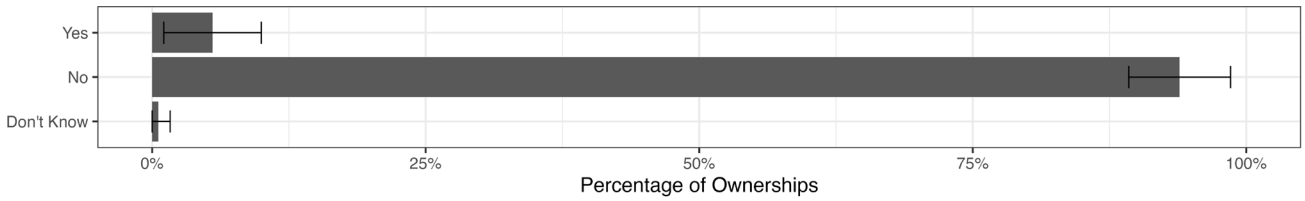

Figure 18.—Estimated percentage of residential ownerships by tree program participation in the last 5 years, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-21B in Appendix 2).

When it comes to information sources for caring or planting trees (Fig. 19), trust in government and government-affiliates was very low, while landscaping and tree care professionals were the most trusted (54 percent). Twenty percent of respondents trust "no one" to provide information about caring for or planting trees on their properties. Receiving advice over the previous 5 years for landscape maintenance was low; 29 percent received information in the previous 5 years. When it comes to receiving new information about how to maintain the property's landscape, landowners preferred in-person contact, the internet, and from a lawn and garden center rather than other methods (Fig. 20).

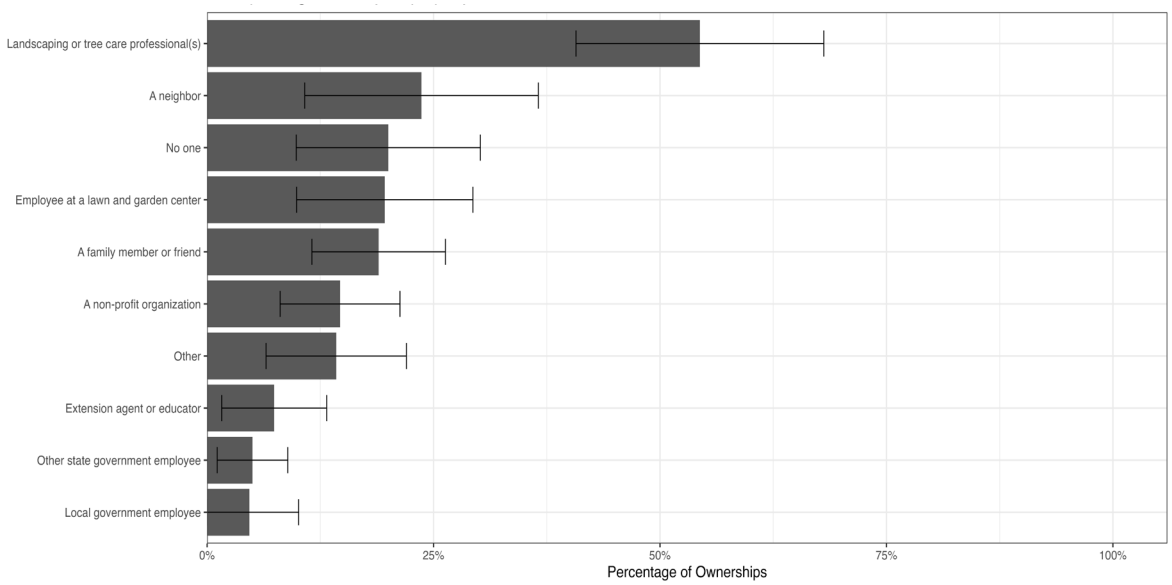

Figure 19.—Estimated percentage of residential ownerships by trust in sources of information about caring for trees on their property, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Tables BALT-23 in Appendix 2).

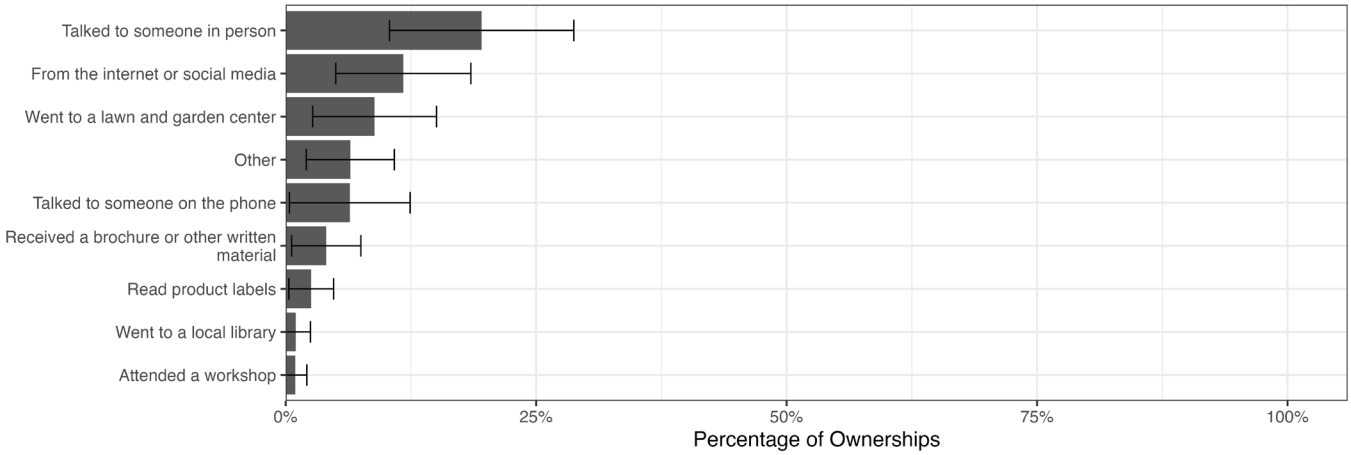

Figure 20.—Estimated percentage of residential ownerships by how receiving landscaping advice happened, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Tables BALT-24C in Appendix 2).

Urban Wood: What happens to the wood?

The extent to which wood removed from urban properties was utilized for wood products is largely unknown. However, no more than 30 percent of owners in Baltimore were interested in products being made from wood removed from their properties or the city at large (Fig. 21 and 22, respectively). When it comes to trees being removed from their city and used in wood products, 30 percent of property owners showed some interest in purchasing mulch (interested or highly interested) and 20 percent were interested in compost (interested or highly interested) made from local trees, with fewer interested in other products (Fig. 23). Part of the reason for low interest in lumber, firewood, or whole logs may be that Baltimore residential owners do not typically use these products, whether made from urban wood or not (Fig. 24).

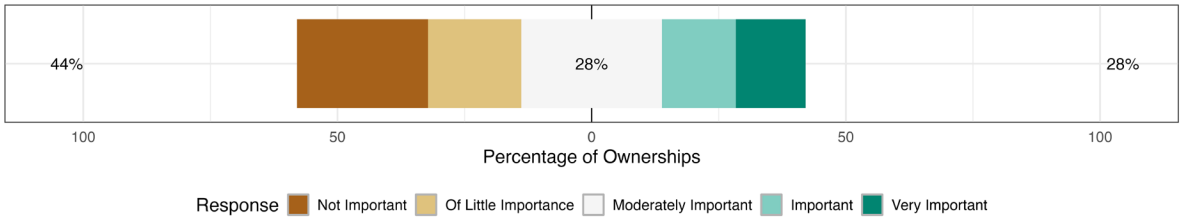

Figure 21.—Estimated percentage of residential ownerships by how important it is for trees removed from their property to be used as urban wood products, Baltimore, 2018. The percentages on the left refer to the proportion of the population that feels it is not important or of little importance; percentages on the right refer to the proportion that feels it is important or very important; percentages in the center refer to the proportion that feels it is moderately important. (See also Table BALT-31 in Appendix 2).

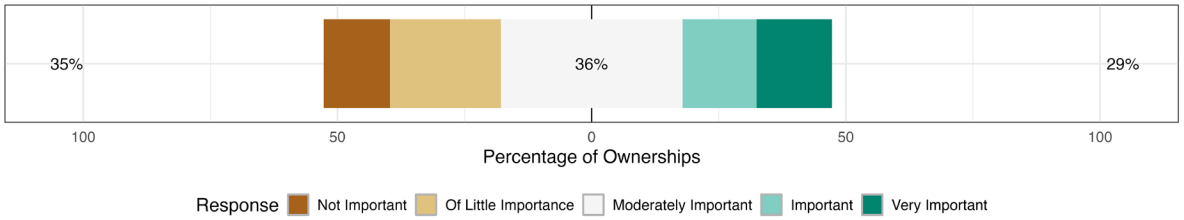

Figure 22.—Estimated percentage of residential ownerships by how important it is for trees removed from the city are used as urban wood products, Baltimore, 2018. The percentages on the left refer to the proportion of the population that feels it is not important or of little importance; percentages on the right refer to the proportion that feels it is important or very important; percentages in the center refer to the proportion that feels it is moderately important. (See also Table BALT-30 in Appendix 2).

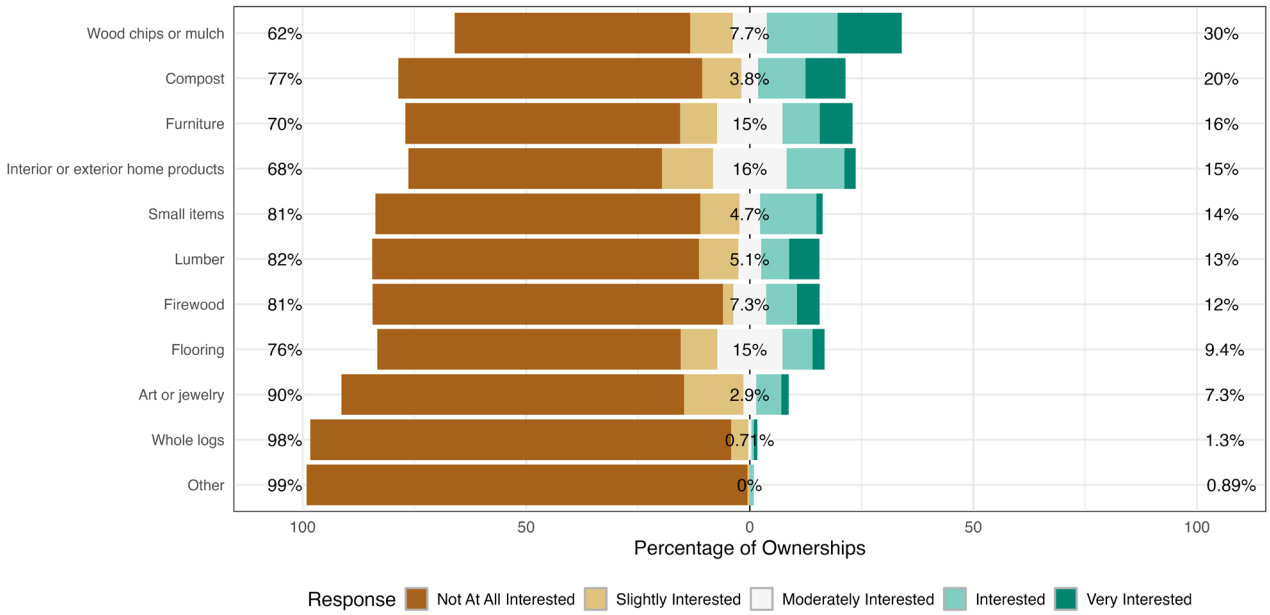

Figure 23.—Estimated percentage of residential ownerships by interest in purchasing urban wood products made from trees removed from the city, Baltimore, 2018. The percentages on the left refer to the proportion of the population that is not at all interested or slightly interested; percentages on the right refer to the proportion that is interested or very interested; percentages in the center refer to the proportion that are moderately familiar. (See also Table BALT-29A through BALT- 29K in Appendix 2).

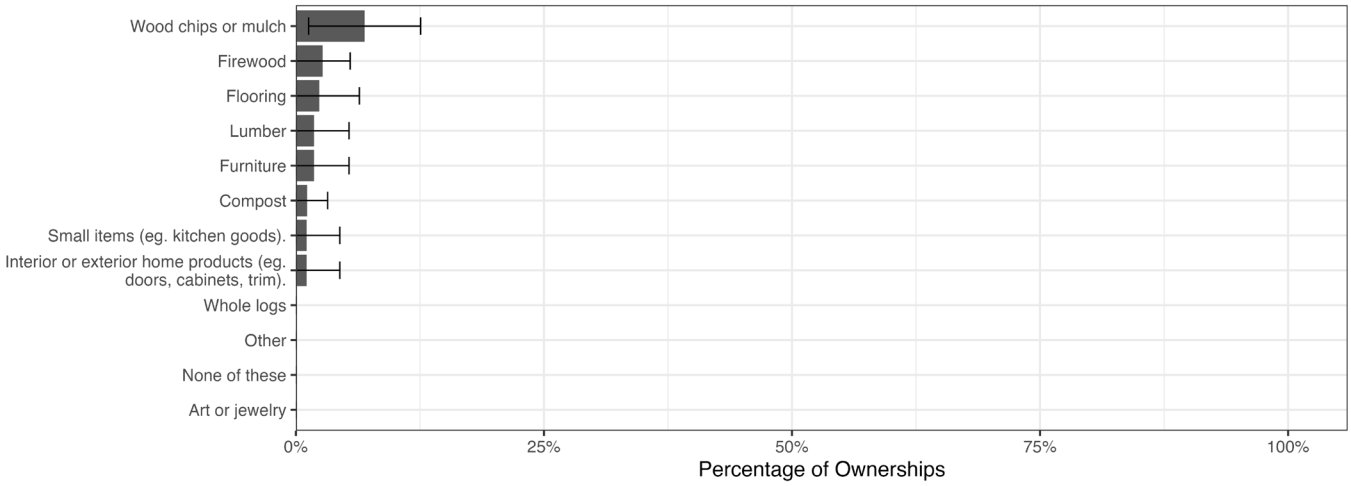

Figure 24.—Estimated percentage of residential ownerships by whether they purchased or acquired various urban wood products, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-28B in Appendix 2).

Neighborhood Characteristics and Civics

Owners were asked about their neighborhood, which was broadly defined as "the block or street you live on and several blocks or streets in each direction." Trespassing and vandalism were the top concerns for owners (66 percent), though almost as many owners indicated that people in the neighborhood were willing to help one another (62 percent) (Fig. 25). Neighborhood characteristics centered on "fair" (Fig. 26).

Group participation was moderate, with an estimated 17 percent participating in a neighborhood association, 17 percent with a religious group, 2 percent with a parent-teacher organization, 2 percent with an environmental group, and 2 percent with other community groups (Fig. 27). Roughly 38 percent of owners were at least somewhat familiar with volunteer opportunities to help maintain public green spaces in their neighborhoods (Fig. 28); approximately 18 percent of owners have participated with these kinds of groups (Fig. 29). Talking with neighbors (87 percent) and walking around the neighborhood (73 percent) were the most common activities. Visiting parks (26 percent) and attending social events (20 percent) were also relatively common (Fig. 30).

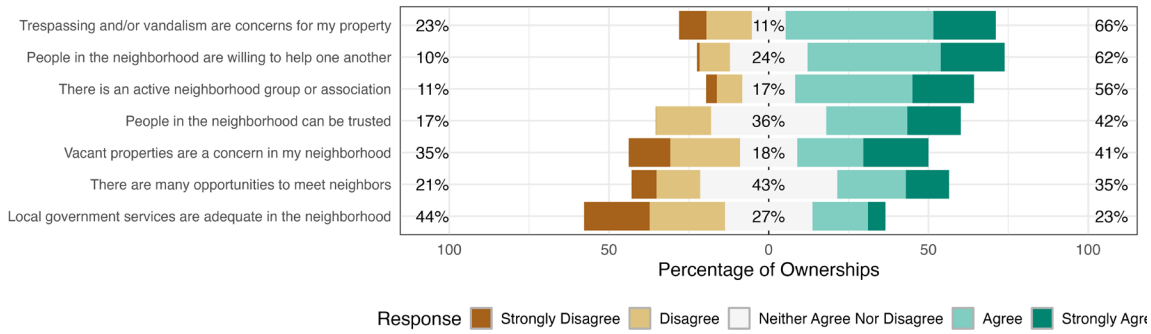

Figure 25.—Estimated percentage of residential ownerships by level of agreement about neighborhood characteristics, Baltimore, 2018. The percentages on the left refer to the proportion of the population that disagrees or strongly disagrees; percentages on the right refer to the proportion that agrees or strongly agrees; percentages in the center refer to the proportion that neither agrees nor disagrees. (See also Tables BALT-19A through BALT-19G in Appendix 2).

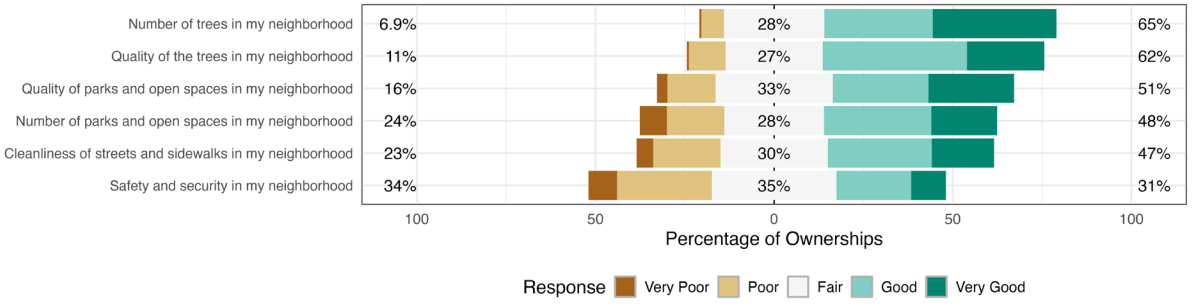

Figure 26.—Estimated percentage of residential ownerships' opinions of neighborhood characteristics, Baltimore, 2018. The percentages on the left refer to the proportion of the population that thinks the specific characteristic is very poor or poor; percentages on the right refer to the proportion that thinks the characteristic is good or very good; percentages in the center refer to the proportion that think the characteristic is fair. (See also Tables BALT-18A through BALT-18F in Appendix 2).

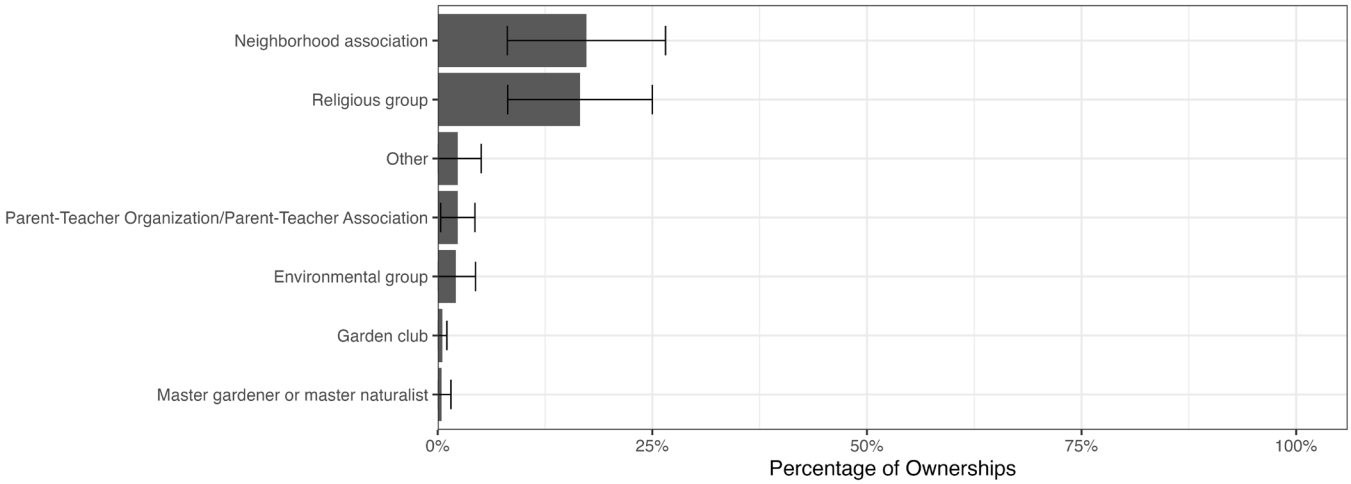

Figure 27.—Estimated percentage of residential ownerships by participation in different types of community groups, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-17 in Appendix 2).

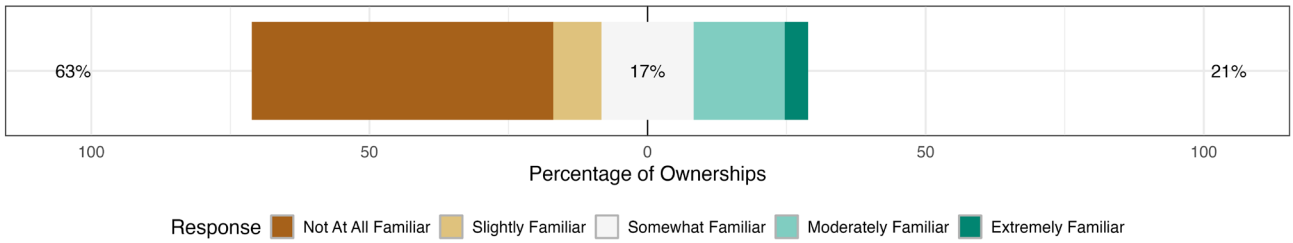

Figure 28.—Estimated percentage of residential ownerships by familiarity with volunteer groups that maintain public green spaces, Baltimore, 2018. The percentages on the left refer to the proportion of the population that is not at all familiar or slightly familiar; percentages on the right refer to the proportion that is moderately or extremely familiar; percentages in the center refer to the proportion that is somewhat familiar. (See also Table BALT-20A in Appendix 2).

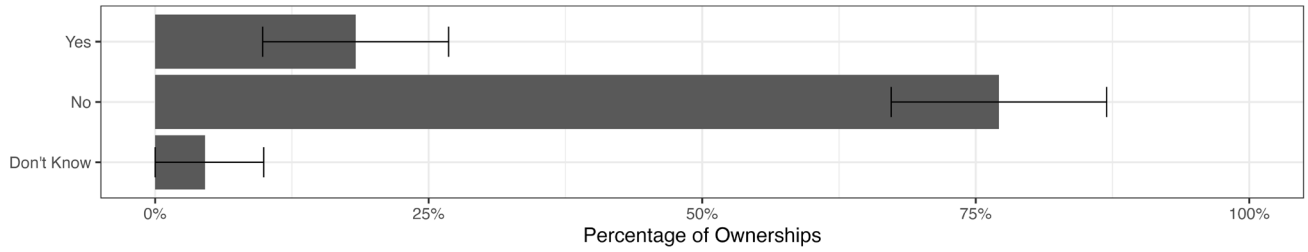

Figure 29.—Estimated percentage of residential ownerships by participation with volunteer groups who maintain public green spaces in the past 5 years, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-20B in Appendix 2).

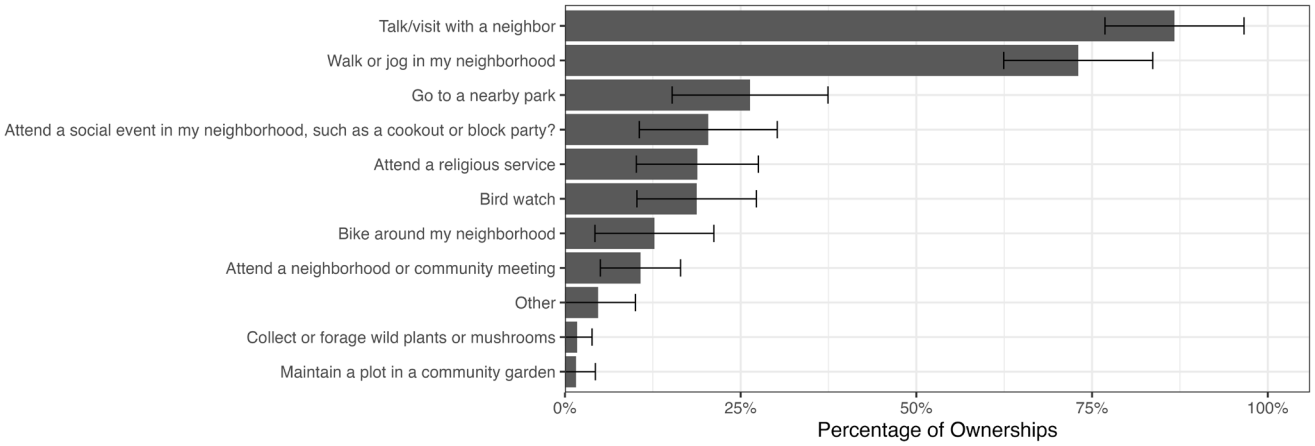

Figure 30.—Estimated percentage of residential ownerships by type of neighborhood or community activities the owner regularly participates in, Baltimore, 2018. Error bars represent 95 percent confidence intervals. (See also Table BALT-16 in Appendix 2).

Demographics

Estimated ownerships were distributed across ages, with 20 percent being primary decision-makers[1] who were younger than 45 years old, 24 percent ages 45 to 54, 20 percent 55 to 64, 29 percent 65 to 74 years, and 5 percent 75 years or older. An estimated 60 percent of the primary decision-makers were female, and 53 percent have a bachelor's degree or additional educational attainment, 97 percent were not of Hispanic or Latino origin. Seventy-seven percent of the primary decision-makers were estimated to identify[2] as White, 17 percent Black or African American, 9 percent Asian, 2 percent Native Hawaiian/Other Islander, 2 percent Not Applicable, and less than 1 percent American Indian or Alaska Native. (Tables BALT-35 through BALT-39 in Appendix 2.)

Estimates reported for 2018 by the American Community Survey (ACS) from the U.S. Census Bureau (U.S. Census Bureau, n.d.) are similar for owner-occupied housing units in Baltimore for all but one age range, educational attainment, and for most racial groups. The ACS and UNLS margins of error overlapped for age, except for the younger than 44-year-old group, where the ACS estimate was larger than the one from UNLS. The ASC estimate for percentage of owner-occupied housing occupied by White people was lower than the UNLS, and the opposite was true for Black or African Americans. However, ACS tabulations refer to owner-occupied units only, whereas the UNLS looks at all residential properties, including non-owner occupied. Observed differences therefore, might be attributable to differences in the population sought, survey methods, or true underlying differences.

[1] Demographics are only available for owner-occupied properties. Other ownerships (e.g., corporations) are tabulated as "not applicable."

[2] These categories are not exclusive; respondents could select one or more racial categories.

KEY FINDINGS

Most people value trees on their property and in their neighborhood.

Eighty-four percent of owners agree that trees make the neighborhood a better place to live, 89 percent agree tree health should be considered during construction, and 96 percent believe that good landscaping increases property values (Fig. 1). This is consistent with prior research that shows residents value the aesthetics of street trees and trees on residential lands (Coleman et al. 2021, Locke et al. 2015, Lohr et al. 2004). Moreover, owners are active in managing vegetation in their yards, including trees (Figs. 6, 7, and 8).

Also consistent with prior research are concerns about trees (Roman et al. 2021). Owners' biggest concerns are tree branches damaging property (47 percent), tree roots interfering with building foundations and/or septic systems (45 percent), and tree branches breaking and causing a power outage (41 percent; Fig. 3). These concerns may explain why the percentage of owners who remove trees (25 percent; Fig. 8) is greater than those who plant trees (19 percent; Fig. 7). Of the 25 percent of owners who removed trees, only about 17 percent replaced the tree (Fig. 9).

Property owners are mostly unaware of programs that cover the expense of planting new trees or cover the cost of caring for existing trees.

Results show that 85 percent of owners are not at all familiar with programs that help property owners cover the expense of planting new trees or the cost of caring for existing trees on their property (Fig. 17). Tree giveaways are used in many cities to get trees planted on private residential land in an effort to expand urban tree canopy cover (Locke and Grove 2016, Nguyen et al. 2017). However, only 6 percent of Baltimore owners participated in tree planting programs in the past 5 years (Fig. 18). Furthermore, 71 percent of owners had not talked with anyone or received information/advice about how to maintain their property's landscape in the past 5 years (Fig. 16). These results suggest that there may be opportunities to increase owners' awareness of such programs.

Property owners have low interest in wood products made from urban wood waste.

In recent years, the urban wood industry has emerged to provide a higher value-added outlet for trees felled in urban areas, diverting wood waste from landfills while contributing to local economies (Pitti et al. 2019). In addition, effectively using urban wood can reduce carbon emissions and provide revenue for municipal urban forest reinvestment (Galvin et al. 2020).

Only 28 percent of Baltimore residential property owners think it is important that trees removed from their property be used in urban wood products (Fig. 21). A similar percentage (29 percent) think it is important that trees removed from Baltimore in general should be used in wood products (Fig. 22). Baltimore owners were most likely to have purchased wood chips (Fig. 24) and were most interested in wood chips as an urban wood product (Fig. 23).

Researchers, urban forestry professionals, and private sector firms have characterized the challenges and benefits of establishing and supporting a local urban wood economy (Galvin et al. 2020), yet less is documented about market demand for urban wood products (Pitti 2019).

Wood chips are currently likely to be the most widely available urban wood product in Baltimore, so owners may be most familiar with them. Higher-value urban wood products (furniture, flooring, whole logs) were less frequently purchased and garnered less interest from Baltimore owners, possibly because they are needed less frequently regardless of whether they are made from urban wood. With the growing interest in urban wood economies, there is a need to further understand the motivations and barriers to market demand for urban wood products, particularly when sourced from trees on private land. Sources of urban wood can include both municipal and private (arborist or utility) tree removal operations (Galvin et al. 2020). The logistics of utilizing trees removed from private urban land may pose challenges, but also present an untapped opportunity for expansion of the urban wood economy.

CONCLUSIONS

The Urban National Landowner Survey (UNLS) is a component of the National Woodland Owner Survey (NWOS) program implemented by the U.S. Department of Agriculture (USDA), Forest Service's Forest Inventory and Analysis (FIA) program. The UNLS is to seeks to provide information about who owns the trees across America's urban residential areas, why they own them, what they have done with them in the past, and what they plan to do with them in the future. This report summarizes the results of the UNLS conducted in Baltimore, MD in 2018.

Most people in Baltimore value trees on their property and in their neighborhood. Residents are also concerned about tree branches damaging property, tree roots interfering with building foundations and/or septic systems, and tree branches breaking and causing a power outage. Concerns like this may partially explain why about two-thirds of owners who removed trees did not replace them. Owners are largely unaware

of tree replacement programs that cover expenses. There is some interest in local wood products, but most owners do not find urban wood use to be important.

The focus is specifically on the families, individuals, companies, and other private entities that own residential properties within the City of Baltimore. More information is available in Appendix 2. Information provided by the UNLS is complementary to the Urban FIA (UFIA) program's plot-based forest inventory of the Nation's urban trees and vegetation (https://research.fs.usda.gov/programs/urbanfia).

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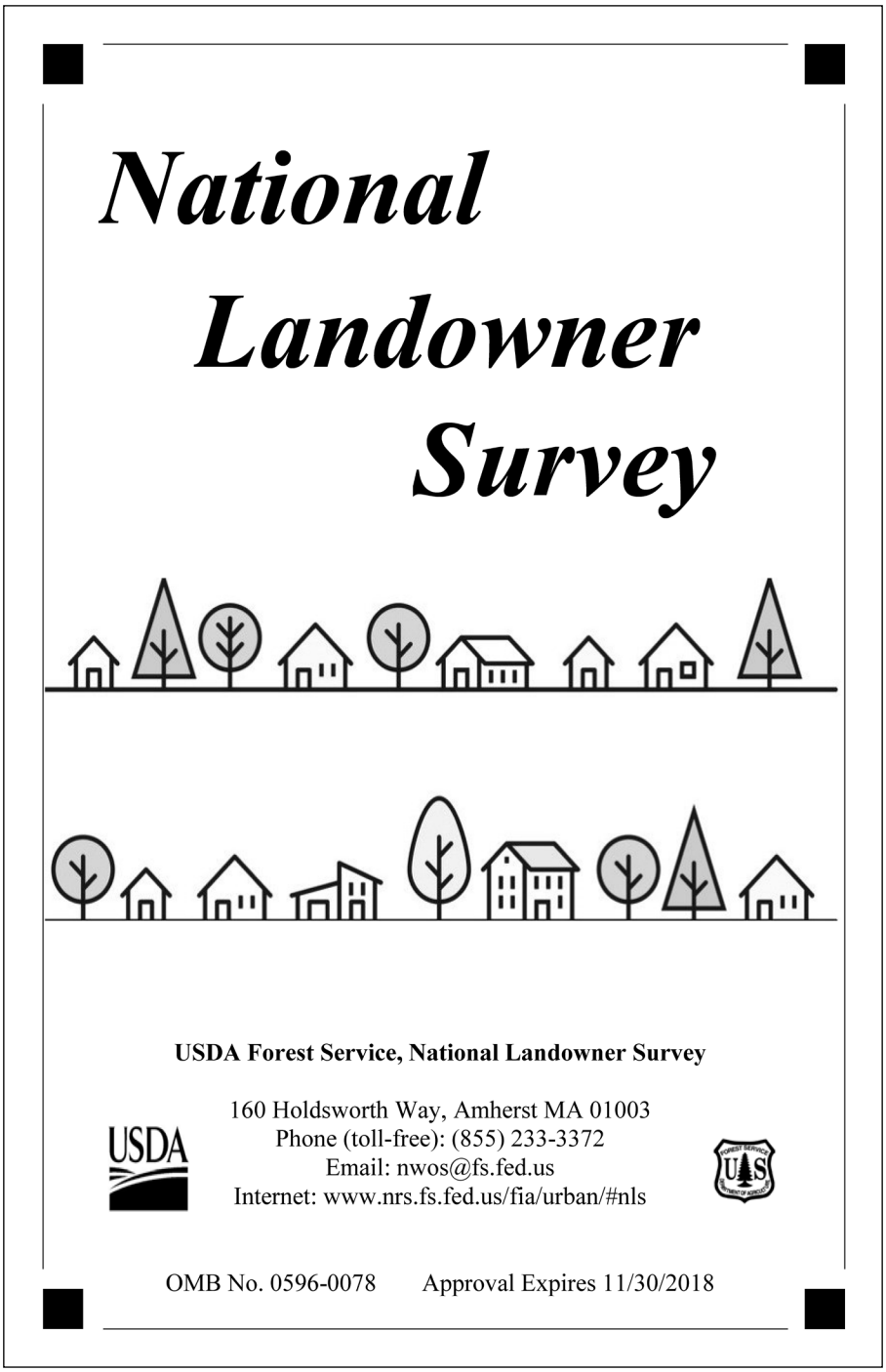
APPENDIX 1

Survey Instrument

The survey instrument booklet used for the Urban National Landowner Survey: Baltimore, 2018 is available online and can be accessed from the link found on the Treesearch landing page at https://doi.org/10.2737/NRS-GTR-229. Annotations, in red text, correspond to the variable names as included in the metadata in the National Woodland Owner Database (NWOS-DB) (Caputo et al. 2020).



APPENDIX 2

List of Summary Tables

Tabular results for the "Urban National Landowner Survey: Baltimore, 2018" report are available in html format and can be accessed from the link found on the Treesearch landing page at https://doi.org/10.2737/NRS-GTR-229.

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Table BALT-34B (2018).—Estimated number of residential ownerships by agreement/disagreement about having trees in a neighborhood making it a better place to live, Baltimore, 2018

Table BALT-34C (2018).—Estimated number of residential ownerships by agreement/disagreement about having diverse trees in their neighborhood being important to them, Baltimore, 2018

Table BALT-34D (2018).—Estimated number of residential ownerships by agreement/disagreement about whether the health and condition of trees in their neighborhood should be considered when new buildings are constructed or street improvements are made, Baltimore, 2018

Table BALT-35 (2018).—Estimated number of residential ownerships by age of the owner, Baltimore, 2018

Table BALT-36 (2018).—Estimated number of residential ownerships by gender of the owner, Baltimore, 2018

Table BALT-37 (2018).—Estimated number of residential ownerships by educational level of the owner, Baltimore, 2018

Table BALT-38 (2018).—Estimated number of residential ownerships by ethnicity of the owner, Baltimore, 2018

Table BALT-39 (2018).—Estimated number of residential ownerships by race of the owner, Baltimore, 2018

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