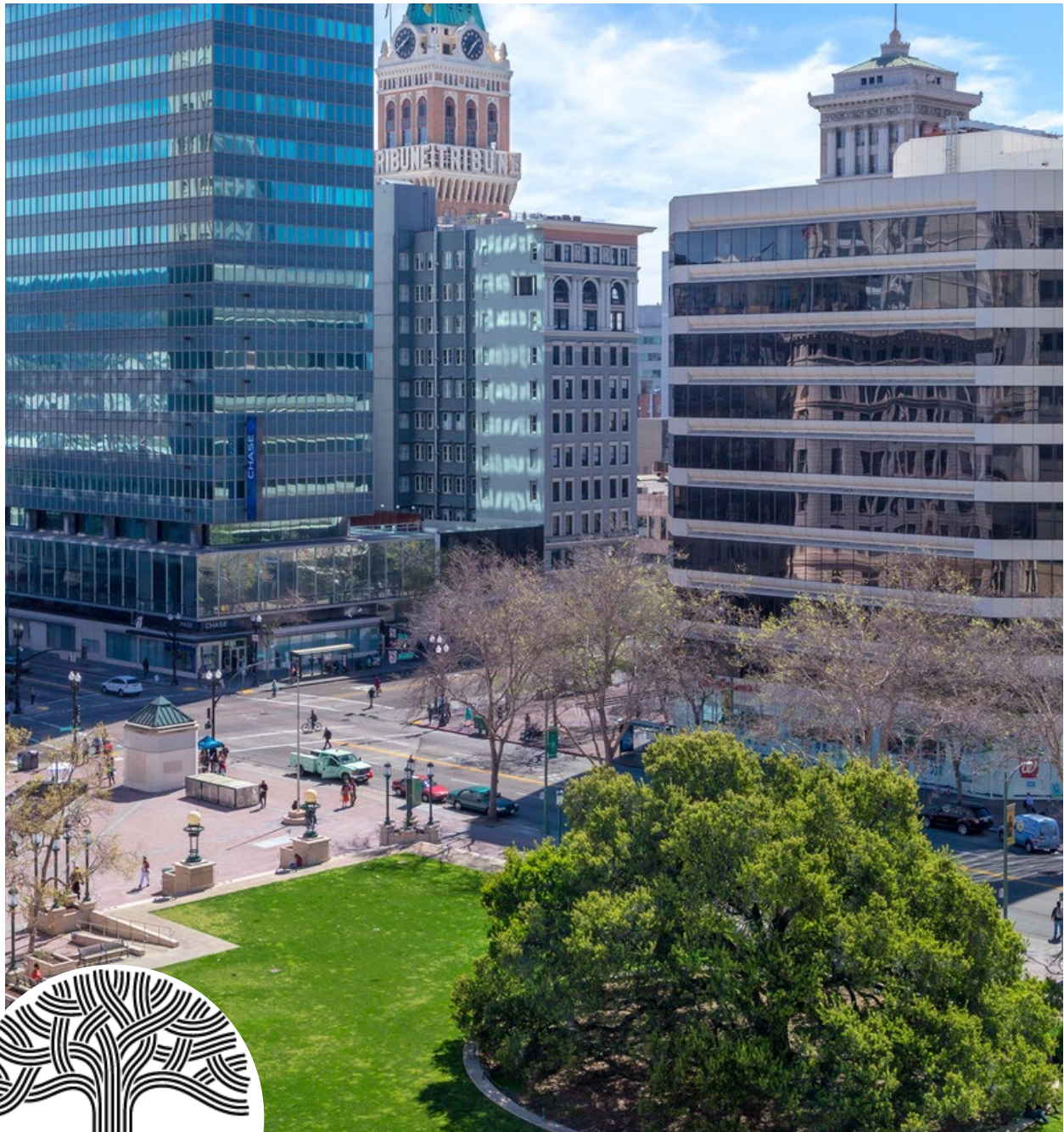# Oakland, CA
Urban Forest Resource Analysis Draft
2021

CITY OF
OAKLAND

DAVEY
Resource Group

Oakland, CA
Urban Forest Resource Analysis
Draft
2021

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Photo Credit:

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Executive Summary

Community trees play a vital role in the City of Oakland. They provide numerous tangible and intangible benefits to residents, employees, visitors, and neighboring communities. The City of Oakland recognizes that trees are a valued resource, a critical component of the urban infrastructure, and part of the community's identity.

In 2019, the City of Oakland contracted with Davey Resource Group, Inc. (DRG) to complete an inventory of community trees which included trees in parks, along city streets with sidewalks, and at city facilities. This was not a conclusive inventory of every tree in Oakland. Trees in open space parks, such as Joaquin Miller Park, and trees in the undeveloped right of way without sidewalks, primarily the Oakland hills, were excluded from the inventory. Trees on private property and on properties outside the jurisdiction of the City of Oakland were also excluded from the inventory. The inventory data was used in conjunction with i-Tree *Eco* benefit-cost modeling software to develop a detailed and quantified analysis of the current structure, function, benefits, and value of the community tree resource. This report details the results of that analysis.

For the purpose of this report, "community trees" only refers to trees planted on streets with sidewalks and in landscaped parks.

Structure

A structural analysis is the first step towards understanding the benefits provided by community trees, as well as their management needs. As of 2021, Oakland's community tree inventory includes 68,664 trees in streets with sidewalks, medians, and landscaped parks and 31,340 available planting sites. Considering species diversity, age distribution, condition, canopy coverage, and replacement value, DRG determined that the following information characterizes Oakland's community tree inventory:

- 535 unique tree species (Appendix C)
- *Platanus* x *hybrida* (London plane, 8.8%) is the most common species, followed by *Lagerstroemia indica* (crapemyrtle, 6.1%), and *Pyrus calleryana* (Callery pear, 5.2%)
- 52.4% of trees are less than 8-inches in diameter (DBH)[1] and 9.2% of trees are larger than 24-inches in diameter, indicating an established age distribution
- 91.0% of community trees are in fair or better condition
- Community trees provide an estimated 500.8 acres of canopy cover
- To date, community trees have stored more than 23,428 tons of carbon (CO_2) in woody and foliar biomass
- To replace Oakland's 68,664 community trees with trees of equivalent size, species, and condition, would cost over $192 million
- 53.3% of Oakland's community trees are susceptible to identified pests and disease threats including defoliating moths, Asian longhorned beetle, and polyphagous shot hole borer

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[1] DBH: Diameter at Breast Height. DBH represents the diameter of the tree when measured at 1.4 meters (4.5 feet) above ground (U.S.A. standard).

- For street trees, including medians, the current stocking level is 64.1%, based on a total 87,332 suitable planting sites, including 55,992 trees and 31,340 vacant sites

Benefits

Many of the benefits from urban trees cannot be accurately quantified with current formulas and peer-reviewed consensus. Numerous studies indicate that urban trees have incalculable benefits to natural ecosystems, economies, and human health and welfare. However, i-Tree *Eco* is currently limited to quantifying the benefits from trees to air quality, stormwater runoff reduction, carbon sequestration, and energy. Energy benefits were not calculated because Oakland's mild climate reduces the need for air conditioning in the summer months.

Annually, Oakland's community trees provide quantifiable benefits to the community totaling $368,081 The average annual benefit per tree is $5.36. These benefits include:

Figure 1: Annual Benefits from the Community Tree Resource

Avoided Runoff $47,637 12.9%

Carbon Sequestration $101,372 27.5%

Pollution Removal $219,072 59.5%

- 5.3 million gallons of avoided stormwater runoff, valued at $47,637, an average of $0.69 per tree
- 13.0 tons of air particulates removed, improving air quality and reducing adverse health incidents for a value of $219,072, an average of $3.19 per tree
- 594.4 tons of carbon directly sequestered, valued at $101,372, an average of $1.48 per tree

Management & Investment

Annually, the city invests approximately $3.5 million ($51.04/tree, $8.05/capita) in the management of community trees. Considering quantifiable benefits from i-Tree *Eco*, the community receives $0.11 for every $1 invested. However, this is inarguably a conservative accounting of the true environmental and socioeconomic benefits from Oakland's community tree resource including benefits to wildlife, property values, and public health and welfare. Additionally, when tree data includes the distance and direction from nearby buildings, i-Tree *Eco* can calculate estimated energy savings (gas and electric) resulting from the shade and protection of trees. Oakland's inventory does not currently include these metrics.

The City of Oakland's tree inventory is a dynamic resource that requires continued investment to maintain and realize its full benefit potential. Trees are one of the few community assets that have the potential to increase in value with time and proper management. Appropriate and timely tree care can substantially increase lifespan. When trees live longer, they provide greater benefits. As individual trees mature, and aging trees are replaced, the overall value of the community forest and the amount of benefits provided grow as well. However, this vital living resource is vulnerable to a host of stressors and requires ecologically sound and sustainable best management practices to ensure a continued flow of benefits for future generations.

Although managers cannot foresee when a pest or pathogen may be introduced to the urban forest, being aware of and able to identify potential threats allows managers to approach management and prevention in a way that fits the community's culture and available resources. Using best management practices to prepare for and/or manage pests and pathogens can lessen the detrimental impacts they have on the urban forest.

Overall, the community tree inventory in Oakland is a resource in fair or better condition with a nearly ideal age distribution. With proactive management, planning, and new and replacement tree planting, the benefits from this resource will continue to increase as young trees mature.

Based on this resource analysis, DRG recommends the following:

- Regularly inspect trees to identify and mitigate structural and age-related defects to manage risk and reduce the likelihood of tree and branch failure
- Increase species diversity in new and replacement tree plantings to reduce reliance on the most prevalent species
- Monitor species performance (e.g., health, structure, longevity, pest and disease resistance) and increase resilience in the urban forest by planting species that perform best in local and regional conditions, including introducing new species that indicate promising traits
- Provide structural pruning for young trees and a routine pruning cycle for all trees
- Plant adequate numbers of key and desirable species on an ongoing and consistent basis to build and maintain an ideal age distribution
- Replace trees that have been removed and continue to increase stocking level for optimal benefits
- Plant large-stature species for greater benefits wherever space allows
- Maintain and update the inventory database to track tree growth and condition, and consider adding distance and direction from buildings to calculate energy benefits
- Follow best management practices when monitoring for and dealing with pests and diseases
- Consider the tree species' net benefits to air pollution benefits when choosing what species to plant and avoid species that produce a relatively high amount of volatile organic compounds (VOCs) in critical or sensitive areas

With adequate protection and planning, the value of the Oakland's tree inventory will continue to increase over time. Proactive management and a tree replacement plan are critical to ensuring that the community continues to receive a high level of benefits. Along with new tree installations and replacement plantings, funding for tree maintenance and inspection is necessary to preserve benefits, prolong tree life, and manage risk. Existing mature trees should be maintained and protected whenever possible since the greatest benefits accrue from the continued growth and longevity of the existing canopy. Managers can take pride in knowing that community trees support the quality of life for residents and neighboring communities.

The greatest benefits accrue from the continued growth and longevity of the existing canopy.

Introduction

Oakland is located on the San Francisco Bay in northern California and is the seat of Alameda County. This geographic region was inhabited by the Ohlone people for thousands of years before European settlement (Guzman, 2018). Oakland is named after the coast live oak tree (*Quercus agrifolia*) that once dominated the landscape. The Oakland hills area is home to second-growth coast redwood (*Sequoia sempervirens*) forest. The original first-growth redwood trees were so prominent and tall that they were used as a landmark for sailors navigating the San Francisco Bay (Marshall, 2017). In 2017, Oakland adopted their motto "love life" in memory of 16-year-old resident LoEshe Lacy. In Nigerian Igbo, Lo'Eshe translates to "love life" and represents the community's stand against violence. Oakland is known as a progressive and diverse city with a thriving art scene, historic buildings, and rich cultural history (City of Oakland, 2020). Approximately 435,224 residents live in Oakland.

The community experiences a moderate climate with an average of 24 inches of rainfall each year, most of which occurs in the spring and winter months. The climate is characterized by summer daytime temperatures in the 70s and winter daytime temperatures in the 40s. There are 261 days of sunshine each year and temperatures do not typically drop below freezing (Sperling's Best Places, n.d.).

Urban trees play an essential role in the community of Oakland by providing many benefits, tangible and intangible, to residents, visitors, and neighboring communities. Research demonstrates that healthy urban trees can improve the local environment and lessen the impact resulting from urbanization and industry (Center for Urban Forest Research, 2017). Trees improve air quality, reduce energy consumption, help manage stormwater, reduce erosion, provide critical habitat for wildlife, and promote a connection with nature. When taken together, the urban forest contributes to a healthier, more livable, and prosperous Oakland.

Oakland's GIS-based tree inventory (2021) was coupled with i-Tree *Eco* benefit-cost modeling software (Eco v6.1.23) to generate this resource analysis. The software uses inventory data collected in the field along with local hourly air pollution and meteorological data to quantify urban forest structure, environmental effects, and value to the community. The program is a central computing engine that makes scientifically sound estimates of the effects of urban forest using peer-reviewed scientific equations to predict environmental and economic benefits. Aesthetic, human health, socio-economic, property value, quality of life, and wildlife benefits are not calculated as part of this study, although they are certainly part of the important benefits provided by Oakland's community tree resource.

This report provides an assessment of the structure and composition of the current community tree inventory, consisting of 68,664 trees and 203 snags[2]. Only street trees along sidewalks and trees in landscaped parks were collected for the inventory. Trees in the right of way in the hills and trees in open space parks were not collected, except when adjacent to city-owned structures. Where possible, this report also quantifies the benefits derived from the community tree resource. This baseline data can be used to make effective resource management decisions, develop policy,

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[2] A snag refers to a standing dead tree, often missing a top or most of its smaller branches. These trees are important wildlife habitat in areas that do not pose a hazard to the public, such as open space parks.

and set priorities. Ultimately, the results of the analysis allow the City of Oakland to better understand, prioritize, and manage the community tree resource.

This summary report provides the following information:

- A description of the current structure of Oakland's community tree resource and an established benchmark for future management decisions.
- Quantifiable economic value of benefits from the community tree resource to air quality, stormwater runoff reduction, and carbon sequestration.
- Data that may be used by resource managers in the pursuit of alternative funding sources and collaborative relationships with utility purveyors, non-governmental organizations, air quality districts, federal and state agencies, legislative initiatives, or local assessment fees.

Individual trees play an essential role in the community of Oakland.

Resource Structure

A tree resource is more thoroughly understood through examination of composition and structure. Consideration of stocking level, species diversity, canopy cover, age distribution, condition, and performance provide a foundation for planning and strategic management. Inferences based on this data can help managers understand the importance of individual trees and species populations to the overall forest as it exists today and provide a basis to plan for and project the future potential of the resource.

Species Diversity

Species diversity is calculated as the proportion of species representing the total community tree resource (Table 1). The City of Oakland's tree resource includes a mix of 535 unique species (Appendix C), with 14% native to California. The species diversity in Oakland is significantly more than the mean of 53 species reported by McPherson and Rowntree (1989) in their nationwide survey of street tree populations in 22 U.S. cities. The most prevalent species are *Platanus* x *hybrida* (London plane, 8.8%), *Lagerstroemia indica* (common crapemyrtle, 6.1%), and *Pyrus calleryana* (common pear, 5.2%) (Table 1 and Figure 2). These three species make up 20.1% of the overall population. Oakland's 19 most prevalent species (representing >1% of the overall population) make up 60.7% of the overall population.

Table 1: Population Summary of Most Prevalent Species

Species	DBH Class (inches)										# of Trees	% of Pop.
	0 - 3	3 - 6	6 - 12	12 - 18	18 - 24	24 - 30	30 - 36	36 - 42	42 - 48	48+		
Platanus x hybrida	594	564	1,692	1,553	1,013	473	140	30	6	0	6,066	8.83
Lagerstroemia indica	1,544	1,520	1,115	5	1	0	2	0	0	0	4,187	6.10
Pyrus calleryana	406	859	1,472	695	118	12	2	0	0	0	3,563	5.19
Liquidambar styraciflua	63	148	745	1,236	781	254	59	4	0	0	3,291	4.80
Quercus agrifolia	376	494	1,002	710	331	190	121	29	12	8	3,273	4.77
Prunus cerasifera	730	1,129	896	86	8	3	0	0	0	0	2,852	4.15
Sequoia sempervirens	85	190	495	463	479	412	241	155	80	76	2,676	3.90
Pistacia chinensis	656	725	652	57	4	2	0	0	0	0	2,095	3.05
Magnolia grandiflora	435	437	668	317	74	16	6	4	2	0	1,958	2.85
Fraxinus angustifolia	84	172	595	583	219	22	8	2	0	0	1,686	2.46
Pyrus kawakamii	108	392	935	194	8	0	2	0	2	0	1,641	2.39
Pinus radiata	20	35	128	237	251	276	233	111	38	23	1,352	1.97
Ginkgo biloba	593	315	197	73	16	2	0	0	0	0	1,196	1.74
Acer rubrum	381	419	261	63	7	0	0	0	0	0	1,132	1.65
Acacia melanoxylon	137	250	310	157	103	77	25	10	2	2	1,074	1.56
Acer buergerianum	365	490	166	28	2	1	0	0	0	0	1,053	1.53
Cercis canadensis	484	285	113	0	0	0	0	0	0	0	882	1.28
Tristaniopsis conferta	130	107	241	304	84	8	2	0	0	0	875	1.27
Tristaniopsis laurina	224	351	199	10	1	0	0	0	0	0	785	1.14
all other species	6,959	4,736	6,346	4,140	2,256	1,257	708	333	173	113	27,021	39.35
all species total	14,376	13,618	18,229	10,912	5,756	3,006	1,548	679	316	224	68,664	100%
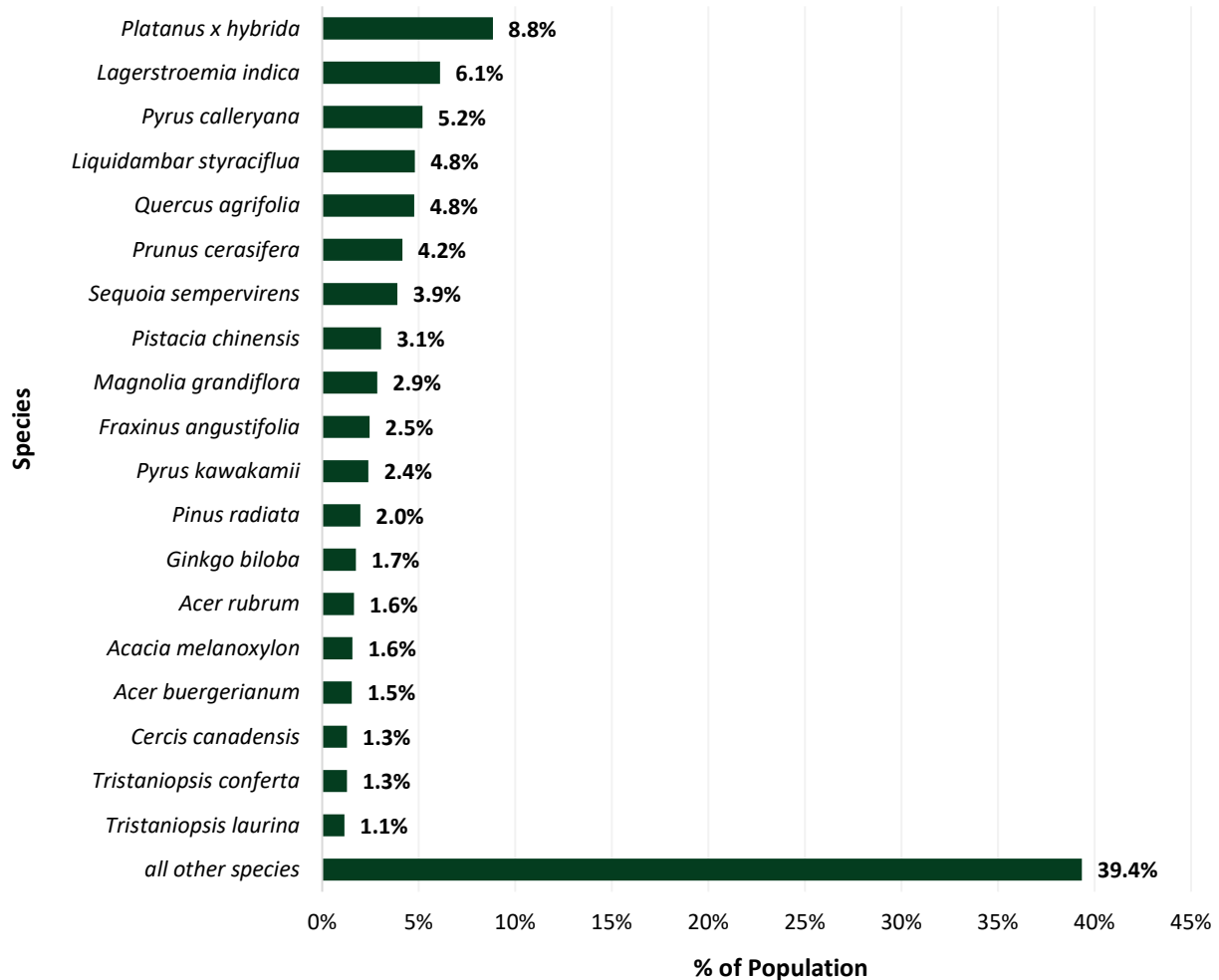
Figure 2: Species Diversity in Oakland's Community Tree Resource

Maintaining diversity in a community tree resource is important. Dominance of any single species or genus can have detrimental consequences in the event of storms, drought, disease, pests, or other stressors that can severely affect a community tree resource and the flow of benefits and costs over time. Catastrophic pathogens, such as Dutch elm disease (*Ophiostoma ulmi*), emerald ash borer (*Agrilus planipennis*), Asian longhorned beetle (*Anoplophora glabripennis*), and sudden oak death (*Phytophthora ramorum*) are some examples of unexpected, devastating, and costly pests and pathogens that highlight the importance of diversity and the balanced distribution of species and genera.

Recognizing that all tree species have a potential vulnerability to pests and disease, urban forest managers have long followed a rule of thumb that no single species should represent greater than 10% of the total population and no single genus more than 20% (Santamour, 1990). Among Oakland's community tree population, no species or genera exceed this widely accepted rule. However, managers should continue to strive for increased diversity to promote greater resiliency and reduce the risk of a significant loss in benefits should any prevalent species become a liability.

Importance Value

To quantify the significance of any one species in Oakland's community tree resource, an importance value (IV) is derived for each of the most prevalent species. Importance values are particularly meaningful to community tree resource managers because they indicate a reliance on the functional capacity of a species. **i-Tree *Eco* calculates importance value based on the sum of two values: percentage of total population and percentage of total leaf area.** Importance value goes beyond tree numbers alone to suggest reliance on specific species based on the benefits they provide. The importance value can range from zero (which implies no reliance) to 200 (suggesting total reliance). A complete table, with importance values for all species, is included in Appendix C.

To reiterate, research strongly suggests that no single species should dominate the composition of a community tree resource. Because importance value goes beyond population numbers, it can help managers to better comprehend the resulting loss of benefits from a catastrophic loss of any one species. When importance values are comparatively equal among the 10 to 15 most prevalent species, the risk of significant reductions to benefits is reduced. Of course, suitability of the dominant species is another important consideration. Planting short-lived or poorly adapted species can result in short rotations and increased long-term management costs.

Table 2 lists the importance values of the most prevalent species in Oakland's community tree resource. These 19 species represent 60.7% of the overall population and 59.0% of the total leaf area for a combined importance value of 119.6. Of these, Oakland relies most heavily on *Platanus* x *hybrida* (London plane, IV=23.5), followed by *Liquidambar styraciflua* (sweetgum, IV=13.3), *Quercus agrifolia* (coast live oak, IV 12.6), and *Sequoia sempervirens* (coast redwood, IV=12.0). Combined, these 4 species represent 22.3% of the inventory, providing significant benefits and a sense of place[3]. They are crucial to the inventory and key to sustaining the benefits provided by the community tree resource, as well as preserving the essence of Oakland for years to come.

For some species, low importance values are primarily a function of species stature and/or age distribution. Immature or small-stature species frequently have lower importance values than their representation in the inventory might suggest. This is due to their relatively small leaf area and canopy coverage. For example, *Prunus cerasifera* (cherry plum), which represents 4.2% of the overall resource and 1.1% of overall leaf area, currently has an importance value of 5.2. While this species does have a large proportion of very young trees (65% <6" DBH), indicating many trees still have room to grow, it is unlikely to increase much in importance value over time due to its small-stature. In contrast, *Pistacia chinensis* (Chinese pistache, IV=3.6) represents 3.1% of the resource and less than 1% of overall leaf area. Nearly 66% of these medium-stature trees are currently under 6-inches in diameter. As these young trees mature and increase in canopy (leaf area), the importance value of this species is likely to increase significantly over time.

Some species are more significant contributors to the urban forest than population numbers would suggest. For example, *Sequoia sempervirens* represents 3.9% of the population and 8.1% of overall leaf area and has an importance value of 12.0. This large-stature species, which is the tallest

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[3] Sense of place is the human relationship to a location, which is determined, in part, by perceptions, experiences, and social interactions (Adams, et al., 2016).

species in the world, has a well-established population in Oakland, with 38.8% of trees greater than 24 inches in diameter. These trees provide significant benefits and a sense of place. They are important to sustaining the benefits provided by the community tree resource, along with contributing to the essence of Oakland.

Table 2: Importance Value (IV) of Prevalent Species in Oakland (Representing >1%)

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Platanus x hybrida	8.83	14.61	23.45
Lagerstroemia indica	6.10	0.70	6.79
Pyrus calleryana	5.19	2.67	7.86
Liquidambar styraciflua	4.80	8.46	13.26
Quercus agrifolia	4.77	7.79	12.56
Prunus cerasifera	4.15	1.06	5.22
Sequoia sempervirens	3.90	8.08	11.97
Pistacia chinensis	3.05	0.52	3.58
Magnolia grandiflora	2.85	2.31	5.16
Fraxinus angustifolia	2.46	3.59	6.05
Pyrus kawakamii	2.39	0.64	3.03
Pinus radiata	1.97	3.50	5.47
Ginkgo biloba	1.74	0.54	2.29
Acacia melanoxylon	1.65	0.48	2.12
Acer rubrum	1.56	1.80	3.36
Acer buergerianum	1.53	0.48	2.01
Tristaniopsis conferta	1.28	0.15	1.43
Cercis canadensis	1.27	1.37	2.64
Tristaniopsis laurina	1.14	0.25	1.39
all other species	39.35	41.03	80.38
Total	**100%**	**100%**	**200**

Canopy Cover

The amount and distribution of leaf surface area is the driving force behind the community tree resource's ability to produce benefits for the community (Clark et al., 1997). As canopy cover increases, so do the benefits afforded by leaf area. Oakland covers an area of 55.9 square miles (35,769.6 acres). i-Tree *Eco* estimates that community trees are providing approximately 500.8 acres of canopy cover which accounts for 1.4% of total land area. To reiterate, privately-owned trees, trees in the undeveloped right of way in the hills, and trees in open space are not included in the community tree inventory.

Stocking Level

Currently, there are 31,340 available planting sites along Oakland's streets with sidewalks and medians, including 29,006 vacant sites, 2,131 stumps. Considering the tree inventory identified 55,992 existing street trees and 31,340 available planting sites, there are 87,332 total planting sites for street and median trees. As a result, the estimated stocking level for Oakland's streets with sidewalks and medians is currently 64.1%.

Relative Age Distribution

Age distribution can be approximated by considering the DBH range of the overall inventory and of individual species. Trees with smaller diameters tend to be younger. It is important to note that palms do not increase in DBH over time, so they are not considered in this analysis. In palms, height more accurately correlates to age.

The distribution of individual tree ages within a tree population influences present and future costs as well as the flow of benefits. An ideally aged population allows managers to allocate annual maintenance costs uniformly over many years and assures continuity in overall tree canopy coverage and associated benefits. A desirable distribution has a high proportion of young trees to offset establishment and age-related mortality as the percentage of older trees declines over time (Richards, 1982/83). This ideal, albeit uneven, distribution suggests a large fraction of trees (~40%) should be young, with a DBH less than eight inches, while only 10% should be in the large diameter classes (>24-inches DBH).
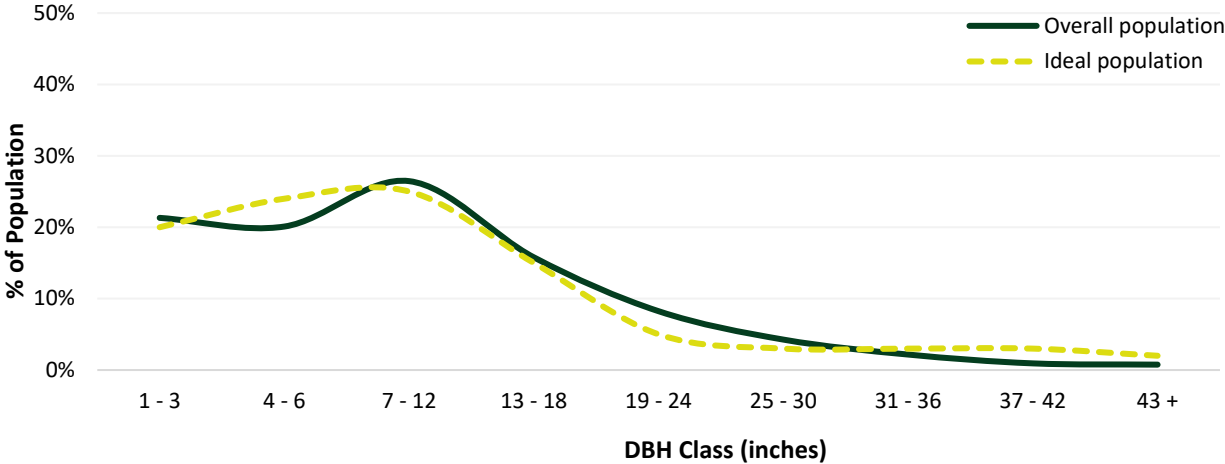
Figure 3: Community Tree Inventory Relative Age Distribution (Excluding Palm Species)

The age distribution of Oakland's community tree resource (excluding palms) shows a nearly ideal population, with 52.4% of trees in the smaller age class (8-inches or less in diameter) and 9.2% of trees in the large diameter classes (>24-inches) (Figure 3). To better understand this unique distribution, it is important to recognize that the inventory includes several native species that commonly exceed the relative age distribution of a typical urban forest. In many regions of the world, urban trees larger than 24-inches are mature and, in some cases, over-mature and beginning to senesce. However, on the central and northern California coastline, native species, including *Sequoia sempervirens* (coast redwood), *Cupressus macrocarpa* (Monterey cypress), and *Quercus agrifolia* (coast live oak) commonly exceed 48-inches in diameter and a 24-inch diameter tree may still be relatively young.
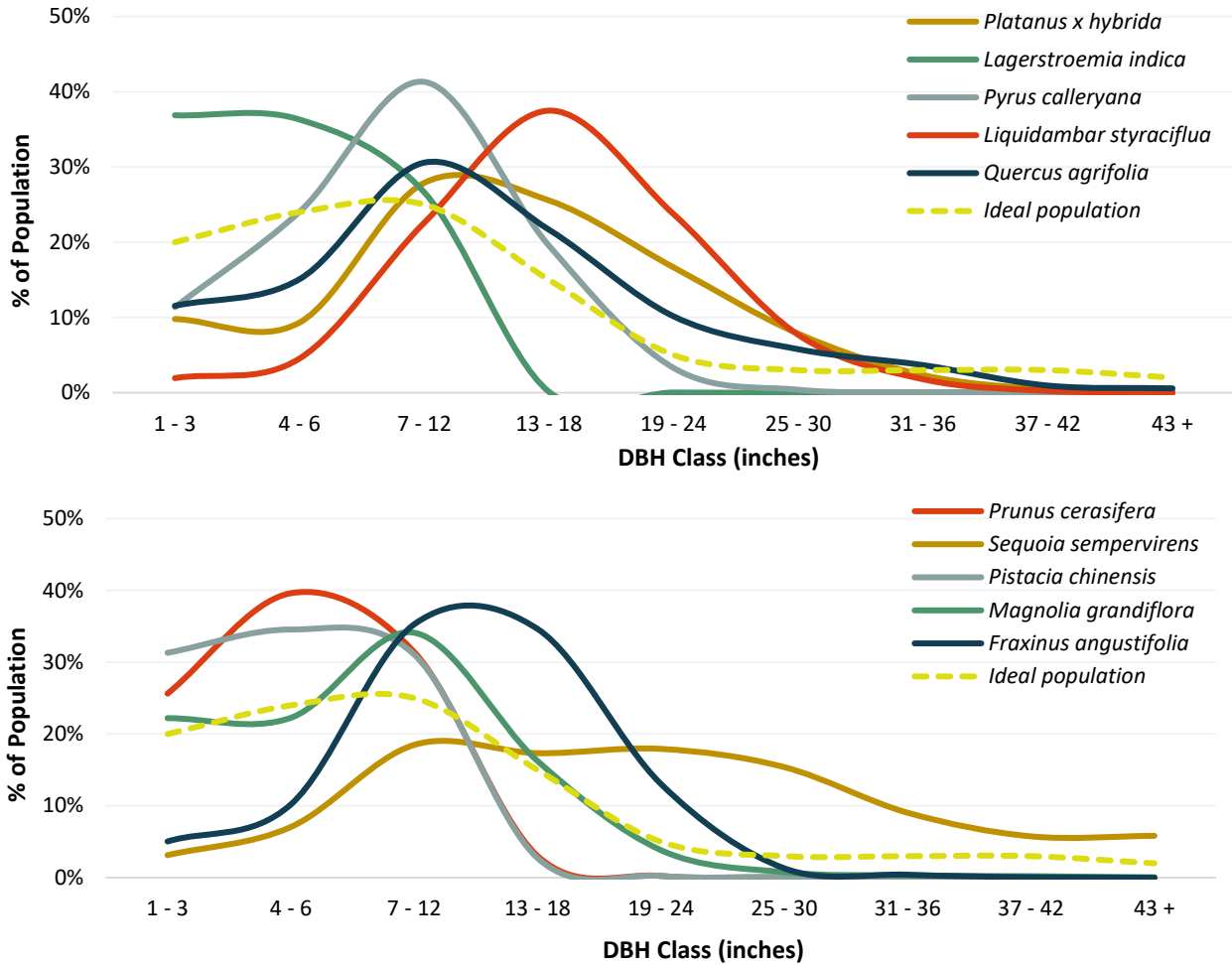
Figure 4: Relative Age Distribution of Oakland's Top 10 Most Prevalent Species

Relative age distribution can also be evaluated for each individual species. Sixty-one percent of *Platanus* x *hybrida* (London plane), the most common species, are between 8 and 24-inches in diameter and 13.4% are greater than 24-inches, indicating a mature, established population for this large-stature species (Figure 4). The data indicates that recent plantings have placed greater emphasis on *Lagerstroemia indica* (common crapemyrtle) and *Pistachia chinensis* (Chinese pistache), with 36.9% and 31.3% of these species represented by trees less than 4-inches in diameter, respectively. *P. chinensis*, a medium-stature species, have greater potential to increase in DBH over time, as 3.0% of the species are greater than 12-inches in diameter. Whereas 26.7% of *L. indica* are greater than 6-inches in diameter, which for this small-stature species are likely mature and are unlikely to increase significantly overtime.

Analysis of the age distribution of prevalent species can help resource managers to understand and foresee maintenance activities and budgetary needs. In addition to informing managers of the economics of prevalent species, managers can use the age distribution to determine trends in plantings and adopt strategies for species selection in the years to come.

Tree Condition & Relative Performance

Tree condition is an indication of how well trees are managed and how well they are performing in the region and in each site-specific environment (e.g., street, median, parking lot, etc.). Condition ratings can help managers anticipate maintenance and funding needs. In addition, tree condition is an important factor for the calculation of resource benefits. A condition rating of good assumes that a tree has no major structural problems, no significant mechanical damage, and may have only minor aesthetic, insect, disease, or structural problems, and is in good health. When trees are performing at their peak, as those rated as good or better, the benefits they provide are maximized.

Community trees in Oakland are in overall fair or better condition (91.0%), with 9.0% of trees in poor or worse condition (Figure 5).

Relative Performance Index

The relative performance index (RPI) is one way to further analyze the condition and suitability of a specific tree species. The RPI provides an urban forest manager with a detailed perspective on how different species perform compared to each other. The index compares the condition ratings of each tree species with the condition rating of every other tree species within the inventory. An RPI of 1.0 or better indicates that the species is performing as well or better than average. An RPI value below 1.0 indicates that the species is underperforming in comparison to the rest of the population.

Figure 5: Tree Condition

Among Oakland's 19 most prevalent tree species, 12 have an RPI of 1.0 or greater (Table 3). *Tristaniopsis laurina* (water gum) and *Lagerstroemia indica* (common crapemyrtle) have the highest RPI at 1.09 and 1.07, respectively. The most abundant species, *Platanus* x *hybrida* (London plane, 8.8%) has an RPI of 1.00. *Pinus radiata* (Monterey pine) has the lowest RPI at 0.89.

The RPI can be a useful tool for urban forest managers. If a community has been planting two or more new species, the RPI can be used to compare their relative performance. If the RPI indicates that one is performing relatively poorly, managers may decide to reduce or even stop planting that species and subsequently save money on both planting stock and replacement costs. For example, *Prunus cerasifera* (cherry plum) has an RPI of 0.97 and *Acer buergerianum* (trident maple) has an RPI of 1.05 (Table 3). The data indicates that both species have been favored in recent plantings and the RPI indicates that *A. buergerianum* is a more suitable species for Oakland where a small sized tree is preferred.

The RPI enables managers to look at the performance of long-standing species as well. Established species with an RPI of 1.00 or greater have performed well over time. These top performers should
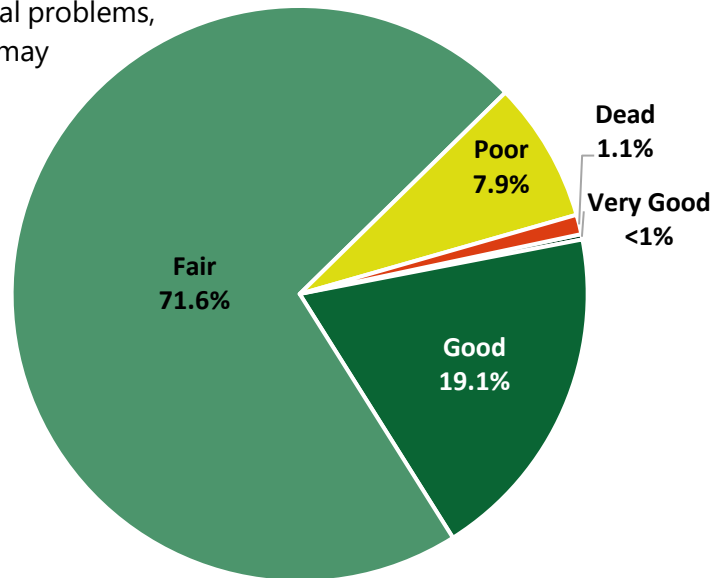
be retained, and planted, as a healthy proportion of the overall population. It is important to keep in mind that, because RPI is based on condition at the time of the inventory, it may not reflect cosmetic or nuisance issues, especially seasonal issues that are not threatening the health or structure of the trees.

Table 3: Relative Performance Index of Most Prevalent Species

Species	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Dead (%)	RPI	# of Trees	% of Pop.
Platanus x *hybrida*	0.20	17.40	74.20	7.80	0.40	**1.00**	6,066	8.83
Lagerstroemia indica	0.20	33.20	63.10	3.00	0.50	**1.07**	4,187	6.10
Pyrus calleryana	0.00	8.90	82.60	7.70	0.80	**0.97**	3,563	5.19
Liquidambar styraciflua	0.00	5.60	84.90	9.40	0.10	**0.96**	3,297	4.80
Quercus agrifolia	0.00	13.30	81.90	4.40	0.40	**1.00**	3,273	4.77
Prunus cerasifera	0.00	10.60	78.60	10.10	0.80	**0.97**	2,852	4.15
Sequoia sempervirens	0.20	22.00	71.40	4.80	1.60	**1.01**	2,676	3.90
Pistacia chinensis	0.00	18.20	76.10	4.70	1.00	**1.01**	2,095	3.05
Magnolia grandiflora	0.00	27.60	64.30	8.00	0.10	**1.04**	1,958	2.85
Fraxinus angustifolia	0.00	3.60	71.90	24.00	0.50	**0.90**	1,686	2.46
Pyrus kawakamii	0.00	9.00	83.20	7.30	0.60	**0.97**	1,641	2.39
Pinus radiata	0.00	3.80	80.00	9.60	6.50	**0.89**	1,352	1.97
Ginkgo biloba	0.00	28.60	67.10	3.90	0.40	**1.05**	1,196	1.74
Acer rubrum	0.00	33.70	59.40	5.70	1.20	**1.05**	1,132	1.65
Acacia melanoxylon	0.00	9.20	74.40	13.80	2.60	**0.93**	1,074	1.56
Acer buergerianum	0.00	28.70	67.40	3.60	0.30	**1.05**	1,053	1.53
Cercis canadensis	0.00	20.20	71.40	7.10	1.20	**1.00**	882	1.28
Tristaniopsis conferta	0.00	21.00	70.60	7.90	0.50	**1.01**	875	1.27
Tristaniopsis laurina	0.00	37.80	60.40	1.70	0.10	**1.09**	785	1.14
all other species	0.68	21.66	67.39	8.71	1.57	**0.76**	27,021	39.35
Total	**<1**	**19.10%**	**71.60%**	**7.90%**	**1.10%**	**1.00**	**68,664**	**100%**

An RPI value less than 1.00 may be indicative of a species that is not well adapted to local conditions. Poorly adapted species are more likely to present increased safety and maintenance issues. Species with an RPI less than 1.00 should receive careful consideration before being selected for future planting choices. However, prior to selecting or deselecting trees based on RPI alone, managers should consider the age distribution of the species, among other factors. A species that has an RPI of less than 1.00 but has a significant number of trees in larger DBH classes, may simply be exhibiting signs of population senescence. A complete table, with RPI values for all species, is included in Appendix C.

RPI is also helpful for identifying underused species that are demonstrating reliable performance. Species with an RPI value greater than 1.00 and an established age distribution may be indicating their suitability for the local environment. These species should receive consideration for additional planting (Table 4).

As an example, *Quercus suber* (cork oak) has an RPI of 1.05 and an age distribution that is adequately represented by young to mature trees (51.7% are less than 12-inches in diameter and

17.9% are greater than 24-inches in diameter). The representation in the population and the age distribution combined support the high RPI. Alternatively, *Gymnocladus dioicus* (Kentucky coffee tree) represents less 0.05% of the population, has an RPI of 1.10, and is primarily represented by trees less than 12-inches in diameter (90.3%) (Table 15). Although expected to do well in Oakland, the current age distribution cannot substantiate the high RPI as there are not enough mature trees, resulting in a lack of evidence for long-term performance.

Table 4: Species That May Be Underused (based on RPI and age distribution)

Species	RPI	% of Pop.
Broadleaf Deciduous Large		
Quercus suber	1.05	0.21
Juglans hindsii	1.00	0.07
Broadleaf Deciduous Medium		
Melaleuca quinquenervia	1.05	0.17
Conifer Evergreen Large		
Pinus canariensis	1.00	0.23
Cedrus atlantica	1.09	0.10
Metasequoia glyptostroboides	1.01	0.04

RPI is most relevant when there is a moderately high representation of the species. In other words, if there is a single individual that has a high RPI (greater than 1.00) but is the only representative of the species at the site, additional trial plantings of the species can help test the accuracy of the RPI. It is important to use RPI as one of many factors for species selection. Species that have historically experienced major issues in Oakland should be avoided and species with a proven track record should be favored.

Replacement Value

The replacement value of Oakland's existing community tree resource is more than $191.7 million. Replacement value accounts for the historical investment in trees over their lifetime and is a way of describing the value of a tree population (and/or average value per tree) at a given time. In other words, the value of a tree is equal to the cost of replacing the tree in its current state (Cullen, 2002). There are several methods available for obtaining a fair and reasonable perception of a tree's value (Council of Tree and Landscape Appraisers, 2018; Watson, 2002). For this analysis, the replacement value reflects current population numbers and is based on the valuation procedures of the Council of Tree and Landscape Appraisers, which uses the Trunk Formula Method where tree species, diameter, condition, and location information are all included in the evaluation (Nowak et al., 2002a; 2002b).

To replace all 68,664 community trees in Oakland with trees of equivalent size and condition would cost over $191.7 million, an average of $2,792 per tree (Table 5). *Platanus* x *hybrida* (London plane) has the highest replacement value of more than $24 million and accounts for the greatest proportion of the overall replacement value (12.6%). This is consistent with its overall representation in the inventory (8.8%), importance value, and age distribution.

The replacement value for Oakland's community tree resource reflects the vital importance of these assets to the community. With proper care and maintenance, the value will continue to increase over time. It is important to recognize that replacement values are separate and distinct from the value of annual benefits produced by this resource and in some instances the replacement value of a tree may be greater than or less than the benefits that a particular tree may provide.

Table 5: Replacement Value for Most Prevalent Species

Species	Number of Trees	% of Pop.	Replacement Value ($)	Average $/tree
Platanus x *hybrida*	6,066	8.83	24,070,476	$3,968.10
Lagerstroemia indica	4,187	6.10	3,540,541	$845.60
Pyrus calleryana	3,563	5.19	6,102,936	$1,712.86
Liquidambar styraciflua	3,297	4.80	14,601,970	$4,428.87
Quercus agrifolia	3,273	4.77	14,828,609	$4,530.59
Prunus cerasifera	2,852	4.15	2,740,384	$960.86
Sequoia sempervirens	2,676	3.90	21,989,855	$8,217.43
Pistacia chinensis	2,095	3.05	1,993,881	$951.73
Magnolia grandiflora	1,958	2.85	4,558,569	$2,328.18
Fraxinus angustifolia	1,686	2.46	4,257,775	$2,525.37
Pyrus kawakamii	1,641	2.39	2,552,878	$1,555.68
Pinus radiata	1,352	1.97	11,761,135	$8,699.06
Ginkgo biloba	1,196	1.74	1,074,273	$898.22
Acer rubrum	1,132	1.65	1,221,226	$1,078.82
Acacia melanoxylon	1,074	1.56	2,984,342	$2,778.72
Acer buergerianum	1,053	1.53	862,157	$818.76
Cercis canadensis	882	1.28	488,428	$553.77
Tristaniopsis conferta	875	1.27	2,127,066	$2,430.93
Tristaniopsis laurina	785	1.14	747,796	$952.61
all other species	27,021	39.35	69,183,102	$2,560.35
Total	**68,664**	**100%**	**$191,687,400**	**$2,791.67**

Resource Benefits

Community trees continuously mitigate the effects of urbanization and development and protect and enhance the quality of life within the community. The amount and distribution of leaf surface area is the driving force behind the ability of the urban forest to produce benefits for the community (Clark et al., 1997). Healthy trees are vigorous, often producing more leaf surface area each year.

The quantifiable benefits from the urban forest are based on the environmental functions trees perform. In addition to air quality benefits, trees slow down stormwater and remove pollutants, resulting in reduced stormwater management costs for municipalities. Tree growth sequesters carbon in woody stems and roots. The economic value of these ecosystem functions is calculated in terms of both volume and cost savings. It is important to note that this assessment does not fully account for all of the benefits trees provide. In addition, i-Tree *Eco* requires information on the distance and aspect of individual trees from homes and other conditioned structures to calculate energy benefits. This information is currently unavailable for Oakland's community tree resource.

Annual environmental benefits tend to increase with an increase in the number and size of healthy trees (Nowak et al., 2002). Through proper management, urban forest values can be increased over time as trees mature and with improved longevity and as stocking levels are increased. Climate, pest, and weather events can cause values to decrease if the amount of healthy tree cover declines. Excluding energy benefits, Oakland's community tree resource provides quantifiable annual environmental benefits valued at $368,081 (Appendix B).

Air Quality

Urban trees improve air quality in five fundamental ways:

- Absorption of gaseous pollutants such as ozone (O_3), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2) through leaf surfaces

- Reduction of emissions from power generation by reducing energy consumption

- Increase of oxygen levels through photosynthesis

- Transpiration of water and shade provision, resulting in lower local air temperatures, thereby reducing ozone levels

- Interception of particulate matter ($PM_{2.5}$)[4]
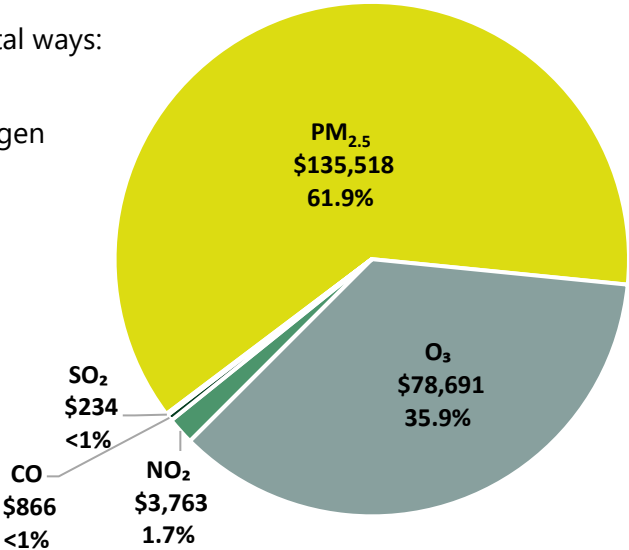
Figure 6: Annual Air Pollution Reduction Benefits

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[4] $PM_{2.5}$ is particulate matter less than 2.5 microns. These microscopic particles are significant air pollutants and are generally more impactful on human health than PM_{10} (i-Tree *Eco* User Manual, 2019)

Air pollutants are known to contribute adversely to human health. Trees decrease the amount of air pollutants in the atmosphere, which can reduce the incidence of numerous negative health effects (Table 6). Ozone is an air pollutant that is particularly harmful to human health. Oakland's community trees reduce adverse health effects associated with ozone by approximately 32 incidents annually, a value of $78,691. Ozone forms when nitrogen oxide from fuel combustion and volatile organic gases from evaporated petroleum products react in the presence of sunshine. In the absence of cooling effects provided by trees, higher temperatures contribute to ozone formation. In addition to consequences to human health, short-term increases in ozone concentrations are statistically associated with increased tree mortality for 95 large US cities (Bell et al., 2004).

Table 6: Adverse Health Incidents Avoided Due to Changes in Pollutant Concentration Levels and Economic Values

	NO_2		O_3		$PM_{2.5}$		SO_2	
	Incidence (reduction/yr.)	Value ($/yr.)	Incidence (reduction/yr.)	Value ($/yr.)	Incidence (reduction/yr.)	Value ($/yr.)	Incidence (reduction/yr.)	Value ($/yr.)
Acute Bronchitis					0.01	0.90		
Acute Myocardial Infarction					0.00	331.01		
Acute Respiratory Symptoms	1.69	53.48	24.03	2,054.13	6.55	641.93	0.11	3.31
Asthma Exacerbation	25.87	2,163.04			4.09	332.20	1.02	80.78
Chronic Bronchitis					0.01	1,611.95		
Emergency Room Visits	0.03	12.32	0.01	5.53	0.01	3.43	0.01	2.36
Hospital Admissions	0.05	1,533.81	0.02	723.55			0.01	147.08
Hospital Admissions, Cardiovascular					0.00	64.58		
Hospital Admissions, Respiratory					0.00	48.77		
Lower Respiratory Symptoms					0.11	5.90		
Mortality			0.01	75,118.56	0.02	132,281.12		
School Loss Days			8.04	789.64				
Upper Respiratory Symptoms					0.10	4.34		
Work Loss Days					1.12	192.22		
Total	**27.64**	**$3,762.66**	**32.12**	**$78,691.41**	**12.02**	**$135,518.36**	**1.14**	**$233.54**

Deposition, Interception, & Avoided Pollutants

Each year, nearly 26,039 pounds of nitrogen dioxide (NO_2), sulfur dioxide (SO_2), small particulate matter ($PM_{2.5}$), and ozone (O_3) are intercepted or absorbed by Oakland's community trees, for a total value of $219,072 (Table 7). As a population, *Platanus* x *hybrida* (London plane) is the greatest contributor to pollutant deposition and interception accounting for 14.6% of the benefit. This is directly related to the species prevalence in the overall population and contributions to the overall leaf area (14.6%).

Trees produce oxygen during photosynthesis, and trees in Oakland produce an estimated 1,585 tons of oxygen annually. Additionally, trees contribute to energy savings by reducing air pollutant emissions (NO_2, $PM_{2.5}$, SO_2, and VOCs) that result from energy production.

Table 7: Annual Air Pollution Removal Benefits

Air Pollutant	Annual Removal (lb.)	Annual Value ($)
$PM_{2.5}$	514.39	135,518.36
O_3	17,630.72	78,691.41
NO_2	5,655.23	3,762.66
CO	1,304.67	865.65
SO_2	933.61	233.54
Total	**26,038.62**	**$219,071.62**
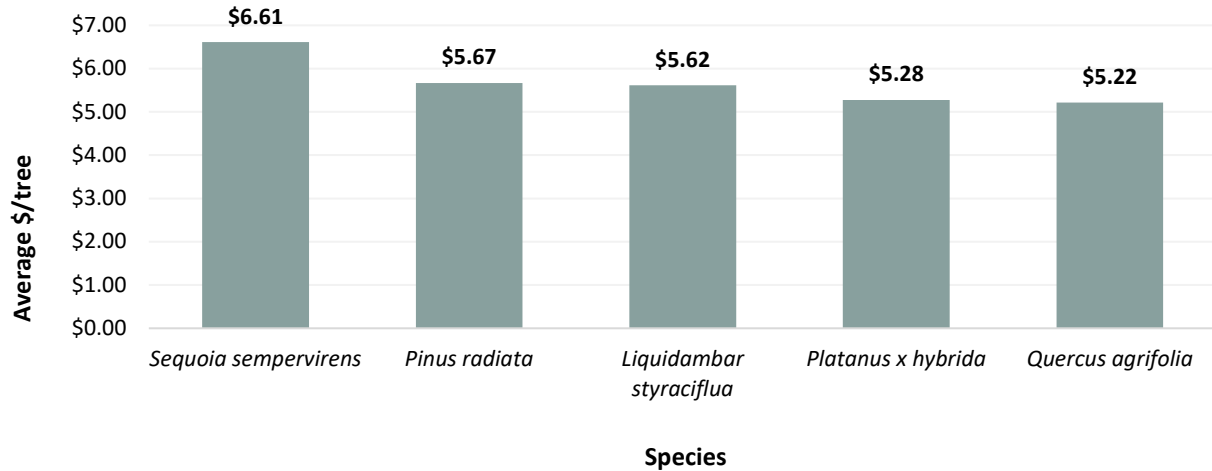
Figure 7: Top 5 Species for Air Pollution Benefits

Table 8: Annual Air Quality Benefits by Most Prevalent Species

Species	Number of Trees	% of Pop.	Pollution Removal (ton/yr.)	Pollution Removal ($/yr.)	Average $/tree	% of Annual Benefit
Platanus x *hybrida*	6,066	8.83	1.90	32,010	5.28	14.61
Lagerstroemia indica	4,187	6.10	0.09	1,524	0.36	0.70
Pyrus calleryana	3,563	5.19	0.35	5,842	1.64	2.67
Liquidambar styraciflua	3,297	4.80	1.10	18,523	5.62	8.46
Quercus agrifolia	3,273	4.77	1.01	17,072	5.22	7.79
Prunus cerasifera	2,852	4.15	0.14	2,330	0.82	1.06
Sequoia sempervirens	2,676	3.90	1.05	17,695	6.61	8.08
Pistacia chinensis	2,095	3.05	0.07	1,148	0.55	0.52
Magnolia grandiflora	1,958	2.85	0.30	5,057	2.58	2.31
Fraxinus angustifolia	1,686	2.46	0.47	7,866	4.67	3.59
Pyrus kawakamii	1,641	2.39	0.08	1,392	0.85	0.64
Pinus radiata	1,352	1.97	0.46	7,665	5.67	3.50
Ginkgo biloba	1,196	1.74	0.07	1,192	1.00	0.54
Acer rubrum	1,132	1.65	0.06	1,042	0.92	0.48
Acacia melanoxylon	1,074	1.56	0.23	3,937	3.67	1.80
Acer buergerianum	1,053	1.53	0.06	1,042	0.99	0.48
Cercis canadensis	882	1.28	0.02	320	0.36	0.15
Tristaniopsis conferta	875	1.27	0.18	2,992	3.42	1.37
Tristaniopsis laurina	785	1.14	0.03	537	0.68	0.25
all other species	27,021	39.35	5.14	89,886	3.33	41.03
Total	**68,664**	**100%**	**13.02**	**$219,072**	**$3.19**	**100%**

While trees do a great deal to absorb air pollutants (especially ozone and particulate matter), some species negatively contribute to air pollution by emitting volatile organic compounds (VOCs). VOCs contribute to ozone (O_3) and carbon monoxide (CO) formation. The i-Tree *Eco* analysis accounts for VOC emissions in the air quality cumulative benefit. Overall, trees provide net benefits that offset any negative effects from VOCs. Community trees in Oakland are estimated

to emit 45,795 pounds of VOCs (27,798 pounds of isoprene and 17,996 pounds of monoterpenes) annually. Emissions vary based on species characteristics (e.g., some genera such as oaks are high isoprene emitters) and amount of leaf biomass. The highest volume of VOC emissions is from *Quercus agrifolia* (coast live oak), accounting for approximately 31.7% of the overall emissions, largely due to their size (7.8% of overall leaf area) and prevalence in the inventory (4.9%). Regardless, the net air quality benefit of *Q. agrifolia* is positive, placing it in the top 5 for per tree benefits.

Air quality impacts of trees are complex, and the i-Tree *Eco* software models these interactions to help urban forest managers evaluate the true impact of urban trees on the Oakland's air quality. The cumulative and interactive effects of trees on climate, pollution removal, VOCs, and power plant emissions determine the net impact of trees on air pollution. Local urban forest management decisions can also help improve air quality by prioritizing tree species recognized for their ability to improve air quality and planting next to large traffic corridors.

Atmospheric Carbon Dioxide Reductions

As environmental awareness continues to increase, conversations around global warming and the effects of greenhouse gas (GHG) emissions are increasing. As energy from the sun (sunlight) strikes the Earth's surface it is reflected into space as infrared radiation (heat). GHGs absorb some of this infrared radiation and trap heat in the atmosphere, modifying the temperature of the Earth's surface. Many chemical compounds in the Earth's atmosphere act as GHGs, including carbon dioxide (CO_2), water vapor, and human-made (gases/aerosols). As GHGs increase, the amount of energy radiated back into space is reduced, and more heat is trapped in the atmosphere. An increase in the average temperature of the Earth may result in changes in weather, sea levels, and land-use patterns, commonly referred to as "climate change" (NASA, 2020).

Local governments are paying particular attention to global warming and the effects of GHG emissions, which have increased by 25% over the last 150 years (US Energy Information Administration). Because urban trees use carbon as a building component for wood and foliar growth, they can help offset carbon emissions and should be recognized as a part of a community's solution for meeting carbon offset goals identified in climate action plans and other environmental policies.

Urban trees reduce atmospheric CO_2 in two ways:

- Directly, through growth and the sequestration of CO_2 in wood, foliar biomass, and soil
- Indirectly, by lowering the demand for heating and air conditioning, thereby reducing the emissions associated with electric power generation and natural gas consumption

Due to Oakland's mild climate and reduced need for air conditioning, CO_2 benefits are primarily related to heating. To date, community trees within Oakland are estimated to have stored nearly 23,429 tons of carbon (CO_2) in woody and foliar biomass valued at nearly $4 million. Annually, the community tree resource directly sequesters an additional 594.4 tons of carbon valued at $101,372, with an average value of $1.48 per tree (Table 9).

Among prevalent species, *Sequoia sempervirens* (coast redwood, $4.07/tree), *Pinus radiata* (Monterey pine, $3.31/tree), and *Platanus* x *hybrida* (London plane, $3.00/tree) provide the greatest annual per-tree benefits to atmospheric carbon removal, sequestering 196.3 tons of

carbon annually (Figure 8). These three species accounts for 33.1% of overall carbon benefit and 14.7% of the overall population.
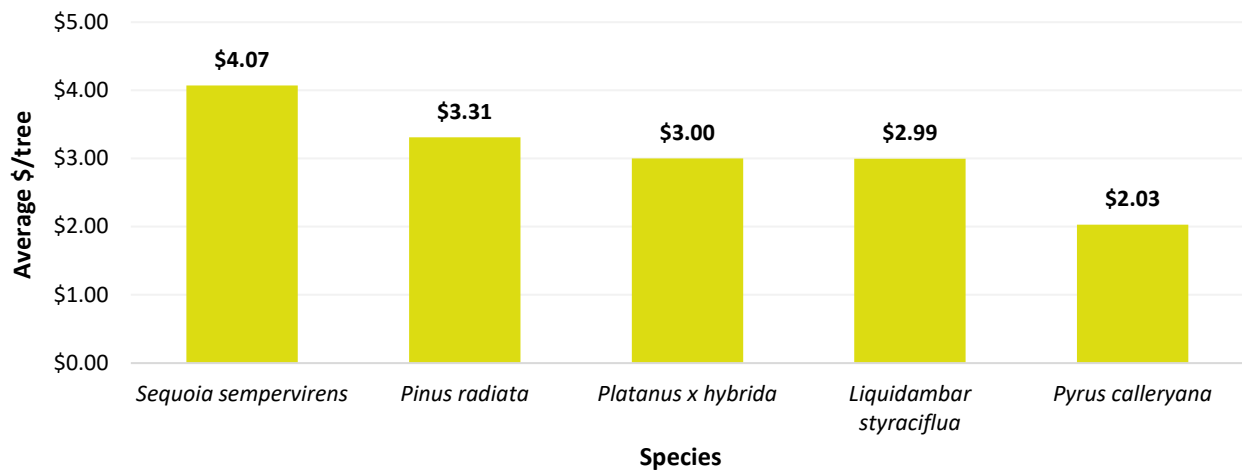
Figure 8: Top 5 Species for Carbon Benefits

Table 9: Annual Carbon Sequestration Benefits by Most Prevalent Species

Species	Number of Trees	% of Pop.	Carbon Sequestration (ton/yr.)	Carbon Sequestration ($/yr.)	Average $/tree	% of Annual Benefit
Platanus x *hybrida*	6,066	8.83	106.75	18,206.96	3.00	17.96
Lagerstroemia indica	4,187	6.10	15.83	2,700.38	0.64	2.66
Pyrus calleryana	3,563	5.19	42.37	7,226.37	2.03	7.13
Liquidambar styraciflua	3,297	4.80	57.89	9,872.78	2.99	9.74
Quercus agrifolia	3,273	4.77	29.11	4,965.38	1.52	4.90
Prunus cerasifera	2,852	4.15	4.61	786.92	0.28	0.78
Sequoia sempervirens	2,676	3.90	63.85	10,890.38	4.07	10.74
Pistacia chinensis	2,095	3.05	7.36	1,254.74	0.60	1.24
Magnolia grandiflora	1,958	2.85	19.87	3,388.27	1.73	3.34
Fraxinus angustifolia	1,686	2.46	8.61	1,467.92	0.87	1.45
Pyrus kawakamii	1,641	2.39	15.00	2,557.82	1.56	2.52
Pinus radiata	1,352	1.97	26.23	4,474.15	3.31	4.41
Ginkgo biloba	1,196	1.74	1.80	307.21	0.26	0.30
Acer rubrum	1,132	1.65	9.22	1,573.20	1.39	1.55
Acacia melanoxylon	1,074	1.56	0.70	119.49	0.11	0.12
Acer buergerianum	1,053	1.53	1.10	187.64	0.18	0.19
Cercis canadensis	882	1.28	0.31	53.71	0.06	0.05
Tristaniopsis conferta	875	1.27	1.53	260.72	0.30	0.26
Tristaniopsis laurina	785	1.14	0.61	104.34	0.13	0.10
all other species	27,021	39.35	181.40	30,974.03	460.29	30.55
Total	**68,664**	**100%**	**594.38**	**$101,372.36**	**$1.48**	**100%**

Stormwater Runoff Reductions

Rainfall interception by trees reduces the amount of stormwater that enters collection and treatment facilities during large storm events (Figure 9). Trees intercept rainfall in their canopy, acting as mini reservoirs, controlling runoff at the source. Healthy urban trees reduce the amount of runoff and pollutant loading in receiving waters in three primary ways:

- Leaves and branch surfaces intercept and store rainfall, thereby reducing runoff volumes and delaying the onset of peak flows
- Root growth and decomposition increase the capacity and rate of soil infiltration by rainfall and reduce overland flow
- Tree canopies reduce soil erosion and surface flows by diminishing the impact of raindrops on bare soil

Oakland's community tree resource is estimated to contribute to the avoidance of 25.4 million gallons of stormwater runoff annually through the interception of precipitation on the leaves and bark of trees for an average of 370.5 gallons per tree (Table 10). The total value of this benefit is more than $47,637 annually, an average of $0.69 per tree.

Platanus x *hybrida* (London plane) provide nearly 14.6% of the estimated total avoided runoff. Among the most prevalent species, *Sequoia sempervirens* (coast redwood) provide the greatest per tree benefit of $1.44 (Figure 10). Their age distribution and stature allow them to provide a larger benefit in comparison to other species. In contrast, common crapemyrtle (*Lagerstroemia indica*), which represent 6.1% of the population, reduce less than 1% of the estimated total avoided runoff. This small stature species is limited in its ability to intercept stormwater. Characteristics that contribute to greater stormwater capture include large leaves, broad or dense canopies, and furrowed bark.

As trees grow, the benefits that they provide tend to grow as well. Some species provide more benefits than others, based on their architecture and leaf morphology. Other trees have characteristics that hinder their ability to be strong contributors to stormwater runoff reduction, possibly due to a tree having smaller leaves and thinner canopies.
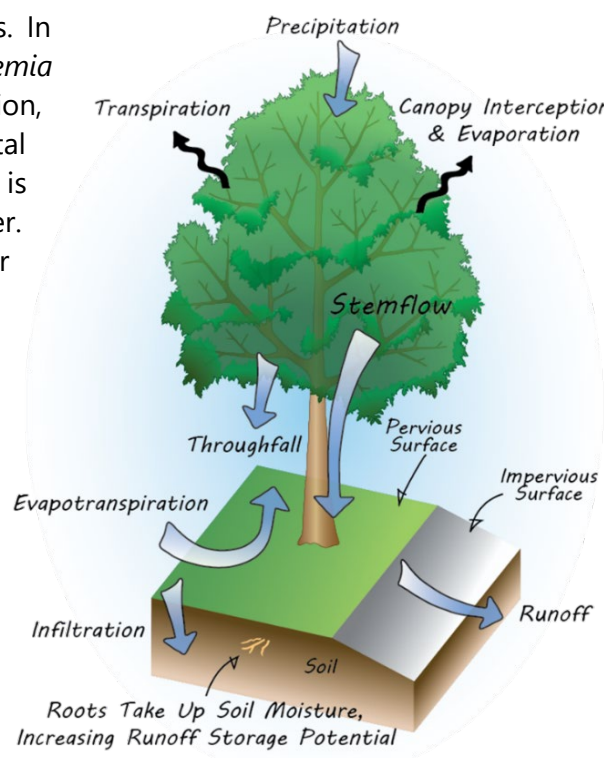
Figure 9: How Trees Impact Stormwater
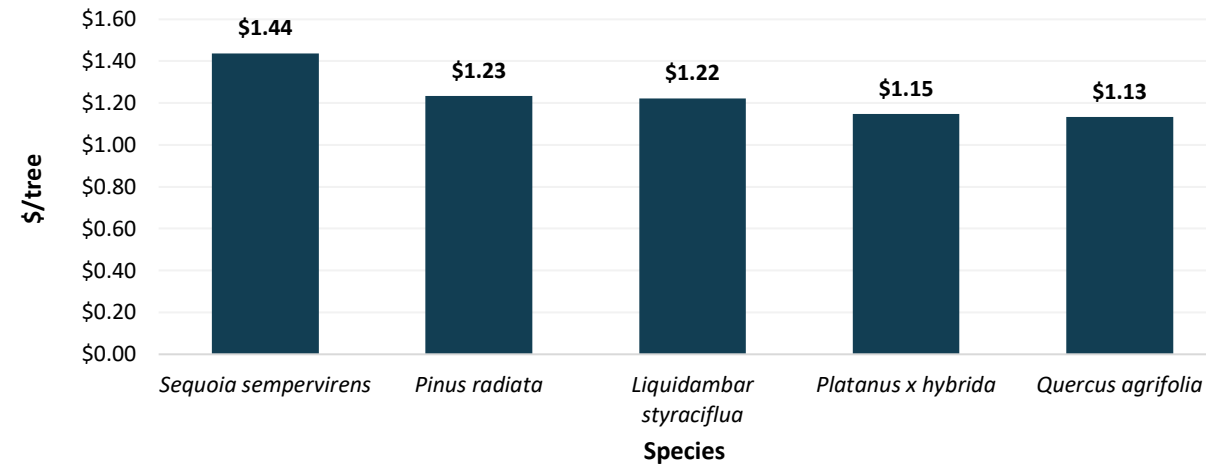
Figure 10: Top 5 Species for Stormwater Benefits

Table 10: Stormwater Benefits by Most Prevalent Tree Species

Species	Number of Trees	% of Pop.	Leaf Area (acres)	Potential ET[5] (gallon)	Evaporation (gallon)	Transpiration (gallon)	Water Intercepted (gallon)	Avoided Runoff (gallon)	Avoided Runoff Value ($)	% of Annual Benefit
Platanus x hybrida	6,066	8.83	302.21	45,402,551	3,717,026	20,441,387	3,717,026	778,935	6,960.53	14.61
Lagerstroemia indica	4,187	6.10	14.39	2,161,376	176,948	973,106	176,948	37,081	331.35	0.70
Pyrus calleryana	3,563	5.19	55.15	8,286,064	678,365	3,730,597	678,365	142,157	1,270.31	2.67
Liquidambar styraciflua	3,297	4.80	174.88	26,273,497	2,150,965	11,828,999	2,150,965	450,753	4,027.91	8.46
Quercus agrifolia	3,273	4.77	161.18	24,214,518	1,982,400	10,901,994	1,982,400	415,429	3,712.26	7.79
Prunus cerasifera	2,852	4.15	22.00	3,304,980	270,573	1,487,986	270,573	56,701	506.68	1.06
Sequoia sempervirens	2,676	3.90	167.06	25,098,352	2,054,757	11,299,919	2,054,757	430,592	3,847.75	8.08
Pistacia chinensis	2,095	3.05	10.84	1,628,202	133,298	733,058	133,298	27,934	249.61	0.52
Magnolia grandiflora	1,958	2.85	47.74	7,172,818	587,226	3,229,386	587,226	123,058	1,099.64	2.31
Fraxinus angustifolia	1,686	2.46	74.26	11,156,824	913,389	5,023,087	913,389	191,409	1,710.42	3.59
Pyrus kawakamii	1,641	2.39	13.14	1,973,757	161,588	888,636	161,588	33,862	302.59	0.64
Pinus radiata	1,352	1.97	72.37	10,872,176	890,086	4,894,931	890,086	186,525	1,666.78	3.50
Ginkgo biloba	1,196	1.74	11.26	1,690,944	138,435	761,306	138,435	29,010	259.23	0.54
Acer rubrum	1,132	1.65	9.84	1,477,633	120,971	665,268	120,971	25,351	226.53	0.48
Acacia melanoxylon	1,074	1.56	37.17	5,584,568	457,199	2,514,315	457,199	95,810	856.15	1.80
Acer buergerianum	1,053	1.53	9.84	1,477,606	120,969	665,256	120,969	25,350	226.53	0.48
Cercis canadensis	882	1.28	3.02	453,380	37,117	204,123	37,117	7,778	69.51	0.15
Tristaniopsis conferta	875	1.27	28.25	4,244,130	347,459	1,910,816	347,459	72,813	650.66	1.37
Tristaniopsis laurina	785	1.14	5.07	761,899	62,375	343,026	62,375	13,071	116.80	0.25
all other species	27,021	39	849	127,494,170	10,437,721	57,401,127	10,437,721	2,187,314	19,546	41.03
Total	**68,664**	**100%**	**2,068.28**	**310,729,445**	**25,438,867**	**139,898,323**	**25,438,867**	**5,330,933**	**$47,637.02**	**100%**

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[5] Evapotranspiration (ET)

Energy Savings

Trees modify climate and conserve energy in three principal ways:

- Shading reduces the amount of radiant energy absorbed and stored by hardscape surfaces, thereby reducing the heat island effect

- Transpiration converts moisture to water vapor, thereby cooling the air by using solar energy that would otherwise result in heating of the air

- Reduction of wind speed plus the movement of outside air into interior spaces, and conductive heat loss where thermal conductivity is relatively high (e.g., glass windows) (Simpson, 1998)

The heat island effect describes the increase in urban temperatures in relation to surrounding suburban and rural areas. Heat islands are associated with an increase in hardscape and impervious surfaces. Trees and other vegetation within an urbanized environment help reduce the heat island effect by lowering air temperatures 5°F (3°C) compared with outside the green space (Chandler, 1965). On a larger scale, temperature differences of more than 9°F (5°C) have been observed between city centers without adequate canopy coverage and more vegetated suburban areas (Akbari et al., 1997). The relative importance of these effects depends upon the size and configuration of trees and other landscape elements (McPherson, 1993). Tree spacing, crown spread, and vertical distribution of leaf area each influence the transport of warm air and pollutants along streets and out of urban canyons where the built environment creates a canyon-like environment. Trees reduce conductive heat loss from buildings by reducing air movement into buildings and against conductive surfaces (e.g., glass, metal siding). Trees can reduce wind speed and the resulting air infiltration by up to 50%, translating into potential annual heating savings of 25% (Heisler, 1986).

Electricity & Natural Gas Reductions

Energy reduction metrics are calculated using data on tree distance and direction from buildings. Due to Oakland's mild climate and reduced need for air conditioning in the summer months, the annual energy reductions from Oakland's trees were not calculated. This data is not currently captured in the inventory database. However, trees in Oakland contribute to electric and natural gas savings through shading and climate buffering effects.

Trees in Oakland contribute to energy savings through shading and climate buffering.

Aesthetic, Property Value, & Socioeconomic Benefits

Trees provide beauty in the urban landscape, privacy and screening, improved human health, a sense of comfort and place, and habitat for urban wildlife. Research shows that trees promote better business by stimulating more frequent and extended shopping and a willingness to pay more for goods and parking (Wolf, 2007). In residential areas, the values of these benefits are captured as a percentage of the value of the property on which a tree stands. There is no current model for calculating the aesthetic benefits of an urban forest. Although, there are many indicators that suggest trees and tree canopy cover contribute significantly to quality of life and community well-being.

It is important to acknowledge that this assessment does not account for all the benefits provided by the tree resource. Some benefits are intangible and/or difficult to quantify, such as:

- Impacts on psychological and physical health and wellness
- Reduction in crime and violence
- Increases in tourism revenue
- Quality of life
- Wildlife habitat
- Socio-economic impacts
- Increases in property values
- Overall community well-being

Empirical evidence of these benefits does exist (Wolf, 2007; Kaplan and Kaplan, 1989; Ulrich, 1986), but there is limited knowledge about the physical processes at work and the complex nature of interactions make quantification imprecise. Tree growth and mortality rates are highly variable. A true and full accounting of benefits and investments must consider variability among sites (e.g., tree species, growing conditions, maintenance practices), as well as variability in tree growth. In other words, trees are worth far more than what one can ever quantify!

Calculating Tree Benefits

While all these tree benefits are provided by the urban forest, it can be useful to understand the contribution of just one tree. Individuals can calculate the benefits of individual trees to their property by using i-Tree *Design* (design.itreetools.org).

[Calculate My Tree Benefits](#)
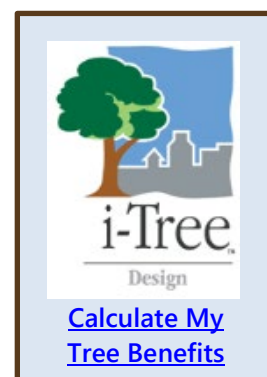
Annual Benefits of Most Prevalent Species

It is important to keep in mind that a benefits analysis provides a snapshot of the community tree inventory as it exists today. The calculated benefits are based on the size and condition of existing trees. To provide greater context for the overall per tree and per species benefits of the most prevalent tree species (Figure 11, Table 11), and to determine if these benefits are a true indicator

of performance, the age distribution and stature of the species must also be considered (Table 1, Figure 4).

The most prevalent tree species in Oakland, *Platanus* x *hybrida* (London plane, 8.8%) is providing the greatest overall annual benefit, a value of $57,177, which is attributable to its prevalence in the population (Figure 11). Among other prevalent species, *Sequoia sempervirens* (coast redwood, 3.9%) provides $32,433 in annual benefits and the highest per tree benefit, an average of $12.12 per tree. This long-lived, large-statured species is well established in the population, but without the addition of young trees, as this population ages, maintenance needs (and costs) may increase and per tree benefits will begin to level out. *Cercis canadensis* (eastern redbud) provides $443 in annual benefits, an average of $0.50 per tree. While 100% of these trees are less than 12 inches in diameter, the benefits that this small-statured species provides are unlikely to increase much over time.
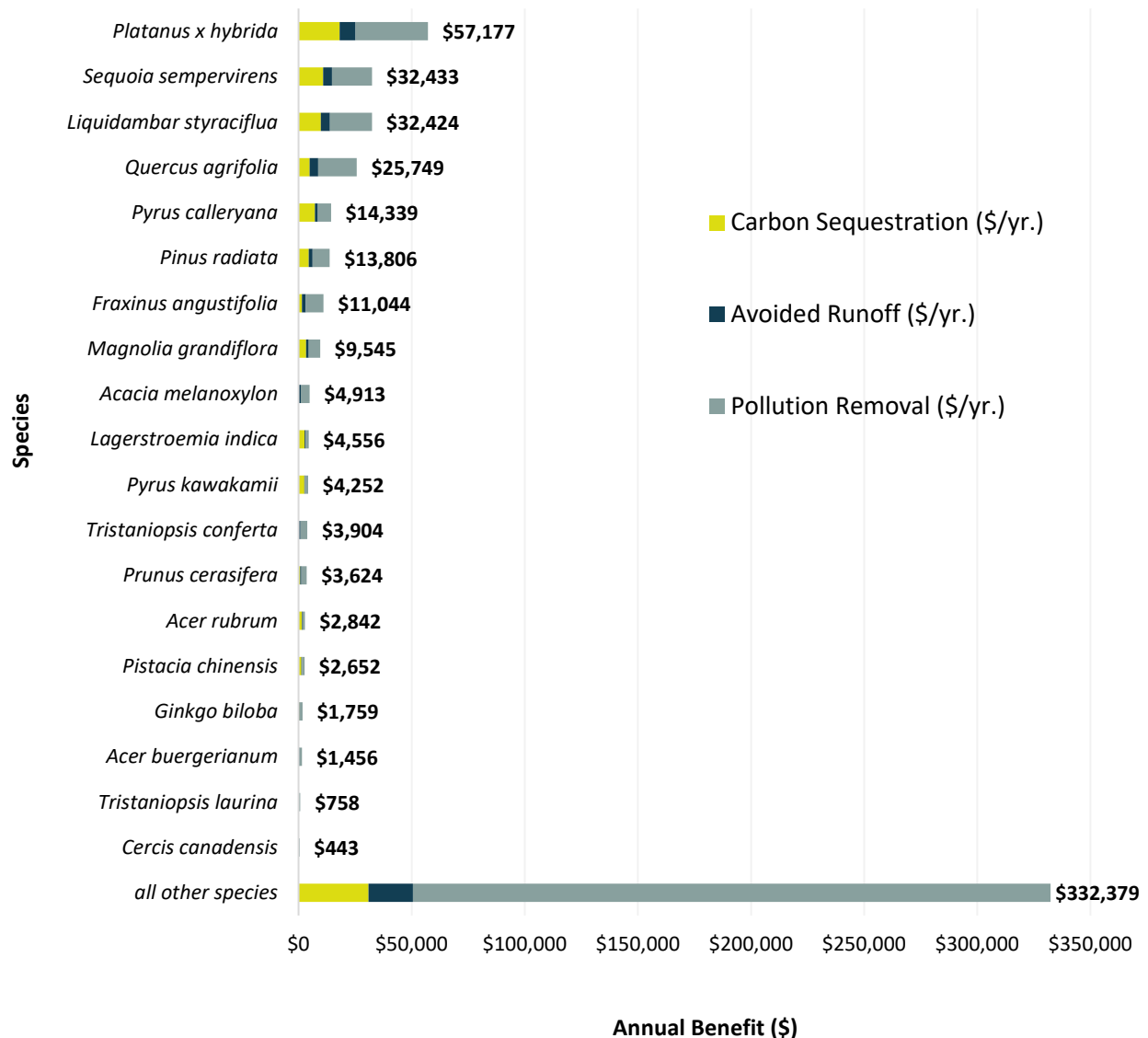
Figure 11: Summary of Annual Benefits for Most Prevalent Species

Table 11: Summary of Annual Benefits of Most Prevalent Species

Species	Number of Trees	% of Pop.	Carbon Sequestration ($/yr.)	Avoided Runoff ($/yr.	Pollution Removal ($/yr.)	Total Annual Benefit ($/yr.)	Average $/tree
Platanus x hybrida	6,066	8.83	18,207	6,961	32,010	57,177	9.43
Lagerstroemia indica	4,187	6.10	2,700	331	1,524	4,556	1.09
Pyrus calleryana	3,563	5.19	7,226	1,270	5,842	14,339	4.02
Liquidambar styraciflua	3,297	4.80	9,873	4,028	18,523	32,424	9.83
Quercus agrifolia	3,273	4.77	4,965	3,712	17,072	25,749	7.87
Prunus cerasifera	2,852	4.15	787	507	2,330	3,624	1.27
Sequoia sempervirens	2,676	3.90	10,890	3,848	17,695	32,433	12.12
Pistacia chinensis	2,095	3.05	1,255	250	1,148	2,652	1.27
Magnolia grandiflora	1,958	2.85	3,388	1,100	5,057	9,545	4.87
Fraxinus angustifolia	1,686	2.46	1,468	1,710	7,866	11,044	6.55
Pyrus kawakamii	1,641	2.39	2,558	303	1,392	4,252	2.59
Pinus radiata	1,352	1.97	4,474	1,667	7,665	13,806	10.21
Ginkgo biloba	1,196	1.74	307	259	1,192	1,759	1.47
Acer rubrum	1,132	1.65	1,573	227	1,042	2,842	2.51
Acacia melanoxylon	1,074	1.56	119	856	3,937	4,913	4.57
Acer buergerianum	1,053	1.53	188	227	1,042	1,456	1.38
Cercis canadensis	882	1.28	54	70	320	443	0.50
Tristaniopsis conferta	875	1.27	261	651	2,992	3,904	4.46
Tristaniopsis laurina	785	1.14	104	117	537	758	0.97
all other species	27,021	39.35	30,974	19,546	89,886	140,406	5.20
Total	**68,664**	**100%**	**$101,372**	**$47,637**	**$219,072**	**$368,081**	**$5.36**

Net Annual Benefits

Oakland receives substantial benefits from their community tree resource; however, managers should understand and evaluate the investment required to preserve the community tree resource along with the benefits that it provides. A limitation of the annual benefits summary is that it does not fully account for all benefits provided by the community tree resource. Many of the documented environmental and socioeconomic benefits provided by trees are intangible and not able to be quantified using current methods (University of Washington, 2018; University of Illinois, 2018). Additionally, these results are only based on trees collected in the inventory and do not include trees in the undeveloped right of way in the hills, in open space, on private property, or property outside the jurisdiction of the City of Oakland.
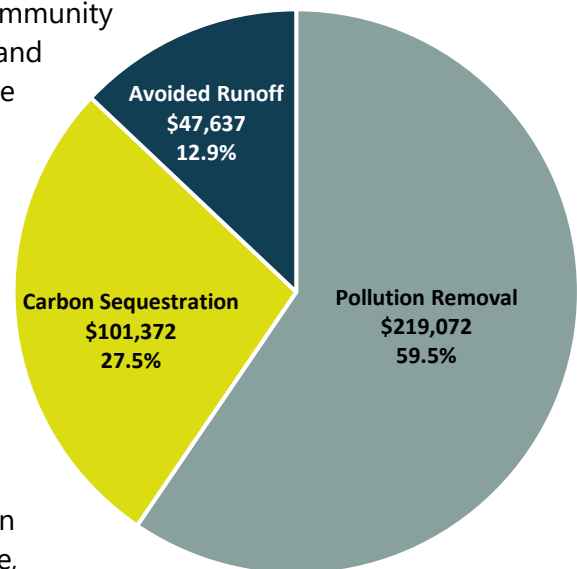
Figure 12: Annual Environmental Benefits

Oakland's community tree resource has a beneficial effect on the environment, and annually contributes $368,081 in quantifiable benefits to the community (Figure 12). Individual components of the environmental benefits include improved air quality $219,072 (59.5%), carbon reduction of $101,372 (27.5%), and stormwater management for $47,637 (12.9%) (Table 12).

Annually, Oakland's community trees provide a total benefit of $368,081, a value of $5.36 per tree and $0.85 per capita.

Annual Investment & Benefit Offset

Investment costs were provided by Oakland Parks and Tree Services staff. The total annual cost of managing the community tree resource in Oakland is estimated to be $3.5 million. The quantifiable benefits from i-Tree *Eco* offset this investment by $368,081.

Table 12: Quantifiable Benefits and Investments

Benefits	Total $	$/tree	$/capita
Pollution Removal	219,072	3.19	0.50
Carbon Sequestration	101,372	1.48	0.23
Avoided Runoff	47,637	0.69	0.11
Total Benefits	$368,081	$5.36	$0.85

Investments	Total $	$/tree	$/capita
Tree Services	3,504,766	51.04	8.05
Total Investments	$3,504,766	$51.04	$8.05

Net Benefit	-$3,136,685		

Benefit-Investment Ratio	$0.11		

Urban Forest Threats

Management of pests and disease organisms can be a challenge in any urban forest. In some cases, a pest or disease can result in significant tree damage or loss and/or be costly to manage. Involvement in the global economy, an active port, and a highly mobile human population increase the risk of an invasive pest or pathogen introduction into Oakland. To further investigate the risk of pests and pathogens, i-Tree *Eco* identifies the susceptibility of tree populations to 36 emerging and existing pests and pathogens in the United States (Appendix B). According to the analysis, 36,751 (53.5%) of Oakland's trees are susceptible to the included pests and pathogens and the potential risk is estimated at $131 million. The pests and pathogens identified as most relevant to Oakland are included in Table 13. Anticipating and monitoring for these threats is an important part of urban forest management.

Among the pests of greatest concern for Oakland's urban forest is the Asian longhorned beetle (ALB, *Anoplophora glabripennis*). Currently, California does not have any ALB infestations but 17.3% of Oakland's community trees are susceptible to this threat, which comprises 18.6% of the leaf area (Table 13). Symptoms of infestations include flagging, or leaf yellowing, branch dieback, and weeping wounds. The feeding and tunneling damage caused by immature beetles block the flow of water and nutrients throughout the tree. The known preferred hosts include many hardwood trees such as planetree (*Platanus*), maple (*Acer*), buckeye (*Aesculus*), birch (*Betula*), willow (*Salix*), and elm (*Ulmus*) (USDA APHIS, n.d.).

Defoliating moths, such as gypsy moth (*Lymantria dispar*) and winter moth (*Operophtera brumata*), are not yet present in California, but they threaten a broad range of tree hosts present in Oakland and (23.5% and 9.8% of trees susceptible, respectively). During outbreaks, the feeding damage weakens the tree host, and renders it more vulnerable to other pests and diseases (Collins, 1996). The gypsy moth is known to feed on hundreds of species of trees and shrubs; oaks (*Quercus*) are one of their preferred hosts.

Sudden oak death (caused by the pathogen *Phytophthora ramorum*) has been detected in oak woodlands of Alameda County for more than a decade (Alameda County Department of Agriculture, 2008). In susceptible hosts, the pathogen can become systemic and girdle trees as quickly as one year after infection (Daugherty and Hung, 2020). Of Oakland's community trees, 13.4% are at risk to sudden oak death. *Quercus agrifolia* (coast live oak) is highly susceptible to sudden oak death and incurs high mortality rates upon infection.

Although not currently present in Oakland, gold spotted oak borer (*Agrilus auroguttatus*) causes mortality to mature coast live oak, canyon live oak, and California black oak in southern California. These beetles cause feeding damage in the phloem; the tissue that carries sugars and plant hormones throughout the tree, as well as the xylem tissues that transport water. Gold spotted oak borer may not be noticed during the initial stages of infestation, but trees exhibit crown thinning, dieback, staining, woodpecker damage, and beetle exit holes during later stages. Typically, infested oak trees die after several years of feeding damage (Flint et al., 2013). Currently, *Quercus agrifolia* (coast live oak) comprises 4.8% of the community tree inventory and the 42.8% mature individuals (>12 inches DBH) are at the most risk.

Table 13: Pest & Pathogen Proximity to Oakland

Pest Name	Number of Trees Susceptible	Not Susceptible	Replacement Value ($) Susceptible	Not Susceptible	Leaf Area (%) Susceptible	Not Susceptible	Leaf Area (acres) Susceptible	Not Susceptible
aspen leafminer	622	68,042	507,736	191,179,664	0.20	99.80	4.90	2,063.30
Asian longhorned beetle	11,885	56,779	30,974,800	160,712,599	18.60	81.40	385.00	1,683.20
beech bark disease	26	68,638	74,334	191,613,066	0.10	99.90	1.90	2,066.40
butternut canker	14	68,650	15,554	191,671,845	0.00	100.00	0.20	2,068.10
balsam woolly adelgid	3	68,661	20,918	191,666,482	0.00	100.00	0.20	2,068.10
chestnut blight	0	68,664	0	191,687,400	0.00	100.00	0.00	2,068.30
dogwood anthracnose	36	68,628	4,897	191,682,503	0.00	100.00	0.00	2,068.30
Douglas-fir black stain root disease	78	68,586	255,737	191,431,663	0.10	99.90	2.30	2,066.00
Dutch elm disease	377	68,287	479,622	191,207,777	0.30	99.70	6.40	2,061.80
Douglas-fir beetle	66	68,598	234,716	191,452,684	0.10	99.90	2.00	2,066.30
emerald ash borer	2782	65,882	9,702,841	181,984,559	6.60	93.40	136.30	1,932.00
fir engraver	68	68,596	254,364	191,433,036	0.10	99.90	2.10	2,066.10
fusiform rust	25	68,639	35,226	191,652,174	0.00	100.00	0.40	2,067.80
gypsy moth	16,166	52,498	49,812,614	141,874,786	25.80	74.20	532.80	1,535.50
goldspotted oak borer	3275	65,389	14,830,260	176,857,139	7.80	92.20	161.20	1,907.10
hemlock woolly adelgid	0	68,664	0	191,687,400	0.00	100.00	0.00	2,068.30
Jeffrey pine beetle	0	68,664	0	191,687,400	0.00	100.00	0.00	2,068.30
large aspen tortrix	1,102	67,562	1,386,674	190,300,726	0.90	99.10	18.60	2,049.70
laurel wilt	821	67,843	3,671,332	188,016,068	1.70	98.30	35.20	2,033.10
mountain pine beetle	13	68,651	27,165	191,660,235	0.00	100.00	0.30	2,067.90
northern spruce engraver	10	68,654	11,161	191,676,239	0.00	100.00	0.10	2,068.10
oak wilt	4,575	64,089	19,461,834	172,225,566	10.30	89.70	213.30	1,855.00
pine black stain root disease	11	68,653	18,767	191,668,632	0.00	100.00	0.20	2,068.10
Port-Orford-cedar root disease	43	68,621	110,855	191,576,544	0.00	100.00	0.80	2,067.50
pine shoot beetle	2020	66,644	15,731,148	175,956,251	5.10	94.90	106.20	1,962.10
polyphagous shot hole borer	463	68,201	1,348,082	190,339,317	0.90	99.10	19.20	2,049.00
spruce beetle	14	68,650	13,842	191,673,557	0.00	100.00	0.20	2,068.10
spruce budworm	77	68,587	243,260	191,444,140	0.10	99.90	2.00	2,066.20
sudden oak death	9177	59,487	47,148,419	144,538,981	21.60	78.40	446.50	1,621.80
southern pine beetle	1,967	66,697	15,511,131	176,176,268	5.10	94.90	104.50	1,963.80
sirex wood wasp	1953	66,711	15,496,304	176,191,095	5.00	95.00	104.30	1,964.00
thousand canker disease	59	68,605	300,106	191,387,294	0.10	99.90	3.10	2,065.20
winter moth	6737	61,927	21,226,873	170,460,527	11.30	88.70	234.50	1,833.70
western pine beetle	5	68,659	24,174	191,663,226	0.00	100.00	0.30	2,068.00
white pine blister rust	3	68,661	6,355	191,681,044	0.00	100.00	0.10	2,068.20
western spruce budworm	83	68,581	280,138	191,407,262	0.10	99.90	2.50	2,065.80
all pests	36,751	31,913	$131,082,298	$60,605,102	66.00%	34.00%	1,364.80	703.50

Staying alert and prepared to manage current and emerging pests and diseases can help promote resiliency in the urban forest. In 2020, managers reported areas with blackwood (*Acacia melanoxlon*) dieback and discoloration in the Oakland Hills and several other locations in the Bay Area. This new disease is currently not included in i-Tree *Eco's* emerging and existing pests analysis. Due to the unusual speed at which the die-off occurred, an expedited investigation is underway. The preliminary results suggest two fungi (*Diaporthe foeniculina* and *Dothiorella viticola*), acting independently of each other, are the causal agents. It is likely that these fungi shifted from endophytic to pathogenic lifestyles as a result of changes in climate and precipitation patterns stressing the host trees (Garbelotto, 2021). Blackwood acacia represents 1.6% of Oakland's community tree inventory. While it is not known whether trees in municipalities will experience mortality, managers are monitoring the situation.

Pest Management

Although managers cannot foresee when a pest or pathogen may be introduced to the urban forest, being aware of potential threats is the first step in a preparedness program. Following Integrated Pest Management (IPM) protocol and best management practices when preparing for and addressing pest and diseases can help to minimize their economic, health, and environmental consequences (Wiseman & Raupp, 2016). Some management practices include:

- Obtain current information on emergent pests and pathogens
- Increase understanding of the biology of the pest and pathogen as well as the tree symptoms that indicate infestation/infection
- Identify procedures and protocols that will be followed in the case of an introduced pest or pathogen
- Complete training and licensing in the case of pesticide or fungicide use
- Plant tree species that are resistant or tolerant to identified pest and pathogen threats
- Choose healthy, vigorous nursery stock
- Diversify plantings at the genus level, as many pests threaten several species within a genus
- Prevent the movement of felled tree materials that may be harboring pests or pathogens such as untreated logs, firewood, and woodchips

Conclusion

This analysis describes the current structural characteristics of Oakland's community tree resource, using established numerical modeling and statistical methods to provide a general accounting of the benefits. The analysis provides a "snapshot" of this resource at its current population, structure, and condition. Trees are providing quantifiable impacts on air quality, reduction in atmospheric CO_2, stormwater runoff, and aesthetic benefits. Oakland's 68,664 community trees provide cumulative annual benefits worth $368,081, a value of $5.36 per tree and $0.85 per capita.

Industry standards suggest that no one tree species should represent more than 10% of the urban forest. In Oakland, no species or genus in the overall community tree population violate this well accepted diversity rule. The rule provides a baseline for greater genetic diversity, therefore future new and replacement tree plantings should continue to focus on increasing the diversity of the community tree resource. Not only does the climate allow a broad species palette to thrive, but urban forest managers are uniquely poised to strive for no species representing more than 5% of the overall diversity.

Oakland's community tree resource has a nearly ideal age distribution in fair or better condition with 535 distinct species. The city should continue to focus resources on preserving existing and mature trees to promote health, strong structure, and tree longevity. Structural and training pruning for young trees will maximize the value of this resource, reduce long-term maintenance costs, reduce risk, and ensure that as trees mature, they provide the greatest possible benefits over time.

Based on this resource analysis, DRG recommends the following:

- Protect existing trees and regularly inspect trees to identify and mitigate structural and age-related defects.

- Maintain established age distribution for key species by continuing to include them in new tree plantings.

- Plant tree species considering species performance and increasing resilience in the urban forest.

- Regularly inspect trees to identify and mitigate structural and age-related defects to manage risk and reduce the likelihood of tree and branch failure.

- Provide structural pruning for young trees and a routine pruning cycle for all trees.

- Increase genus and species diversity in new and replacement tree plantings to reduce reliance on over-represented species. Managers in Oakland should strive for no species representing more than 5% of the overall population and greater diversity at the genus level (<20%).

- Prioritize planting replacement trees for those trees that are removed.

- Consider successional planting of important species, as supported by relative performance index (RPI) and the relative age distribution.

- Use available planting sites to improve diversity, increase benefits, and support an ideal age distribution of park trees.

- Plant large-stature species for greater benefits wherever space allows.

- Follow best management practices when monitoring for and dealing with pests and diseases. When monitoring trees, pay particular attention to *Quercus agrifolia* (coast live oak) due to its abundance in the inventory and the risk of several threatening pests and diseases.

- Maintain and update the inventory database to include new tree plantings, removals, as well as changes in diameter, condition for new trees. Consider adding information on distance and orientation to nearest structure/building so that energy benefits can be calculated in future analysis.

- While trees do a great deal to absorb air pollutants, in some ways they contribute to pollution, specifically the development of VOCs. Managers need to consider what types of trees they are planting and where in order to avoid unintended consequences of creating VOCs in critical or sensitive areas.

Urban forest managers can better anticipate future trends with an understanding of the status of the tree population. Managers can also anticipate challenges and devise plans to increase the current level of benefits. Performance data from this analysis can be used to make determinations regarding species selection, distribution, and maintenance policies. Documenting current structure is necessary for establishing goals and performance objectives and can serve as a benchmark for measuring future success.

Oakland's community trees are of vital importance to the environmental, social, and economic well-being of the community. Inventory data can be used to plan a proactive and forward-looking approach to the care of community trees. Updates should continue to be incorporated into the inventory as regular maintenance is performed, including information on the diameter and condition of existing trees. Current and complete inventory data will help staff to track maintenance activities and tree health more efficiently and will provide a strong basis for making informed management decisions. A continued commitment to planting, maintaining, and preserving these trees will support the health and welfare of the city and the community at large.

Trees are of vital importance to the environmental, social, and economic well-being of the community.

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Appendix B: Methods

i-Tree *Eco* Model and Field Measurements

All field data was collected during the leaf-on season to properly assess tree canopies. The i-Tree *Eco* model uses inventory data, local hourly air pollution, and meteorological data to quantify the urban forest and its structure and benefits (Nowak & Crane, 2000), including:

- Urban forest structure (e.g., genus composition, tree health, leaf area, etc.).
- Amount of pollution removed hourly by the urban forest, and its associated percent air quality improvement throughout a year. Pollution removal is calculated for ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide and particulate matter (<2.5 microns).
- Total carbon stored and net carbon annually sequestered by the urban forest.
- Structural value of the forest as a replacement cost.
- Potential impact of infestations by pests or pathogen.

Definitions and Calculations

Avoided surface water runoff value is calculated based on rainfall interception by vegetation, specifically the difference between annual runoff with and without vegetation. Although tree leaves, branches, and bark may intercept precipitation and thus mitigate surface runoff, only the precipitation intercepted by leaves is accounted for in this analysis. The U.S. value of avoided runoff, $0.067 per ft^3, is based on the U.S. Forest Service's Community Tree Guide Series (McPherson et al., 1999-2010; Peper et al., 2009; 2010; Vargas et al., 2007a-2008).

Carbon dioxide emissions from automobile assumed six pounds of carbon per gallon of gasoline if energy costs of refinement and transportation are included (Graham et al., 1992).

Carbon emissions were calculated based on the total city carbon emissions from the 2010 US per capita carbon emissions (Carbon Dioxide Information Analysis Center, 2010) This value was multiplied by the population of Oakland (435,224) to estimate total city carbon emissions.

Carbon sequestration is removal of carbon from the air by plants. Carbon storage and carbon sequestration values are calculated based on $170.55 per short ton (EPA, 2015; Interagency Working Group on Social Cost of Carbon, 2015).

Carbon storage is the amount of carbon bound up in the above-ground and below-ground parts of woody vegetation. Carbon storage and carbon sequestration values are calculated based on $171 per ton (EPA, 2015; Interagency Working Group on Social Cost of Carbon, 2015).

Diameter at Breast Height (DBH) is the diameter of the tree measured 4'5" above grade.

Household emissions average is based on average electricity kWh usage, natural gas Btu usage, fuel oil Btu usage, kerosene Btu usage, LPG Btu usage, and wood Btu usage per household in 2009 (EIA, 2013; EIA, 2014), CO_2, SO_2, and NO_3 power plant emission per KwH (Leonardo Academy, 2011), CO emission per kWh assumes 1/3 of one percent of C emissions is CO (EIA, 2014), PM_{10} emission per kWh (Layton 2004), CO_2, NO_3, SO_2, and CO emission per Btu for natural gas, propane and butane (average used to represent LPG), Fuel #4 and #6 (average used to represent fuel oil

and kerosene) (Leonardo Academy, 2011), CO_2 emissions per Btu of wood (EIA, 2014), CO, NO_3 and SO_2 emission per Btu based on total emissions and wood burning (tons) from (British Columbia Ministry, 2005; Georgia Forestry Commission, 2009).

Leaf area was estimated using measurements of crown dimensions and percentage of crown canopy missing.

Monetary values ($) are reported in US dollars throughout the report.

Ozone (O_3) is an air pollutant that is harmful to human health. Ozone forms when nitrogen oxide from fuel combustion and volatile organic gases from evaporated petroleum products react in the presence of sunshine. In the absence of cooling effects provided by trees, higher temperatures contribute to ozone (O_3) formation.

Passenger automobile emissions assumed 0.72 pounds of carbon per driven mile (U.S. Environmental Protection Agency, 2010) multiplied by the average miles driven per vehicle in 2011 (Federal Highway Administration, 2013).

Pollution removal is calculated based on the prices of $1,327 per ton (carbon monoxide), $8,927 per ton (ozone), $1,331 per ton (nitrogen dioxide), $500 per ton (sulfur dioxide), $526,912 per ton (particulate matter less than 2.5 microns) (Nowak et al., 2014).

Potential pest impacts were estimated based on tree inventory information from the study area combined with i-Tree *Eco* pest range maps. The input data included species, DBH, total height, height to crown base, crown width, percent canopy missing, and crown dieback. In the model, potential pest risk is based on pest range maps and the known pest host species that are likely to experience mortality.

Pest range maps for 2012 from the Forest Health Technology Enterprise Team (FHTET) (Forest Health Technology Enterprise Team, 2014) were used to determine the proximity of each pest to Alameda County. For the county, it was established whether the insect/disease occurs within the county, is within 250 miles of the county edge, is between 250 and 750 miles away, or is greater than 750 miles away. FHTET did not have pest range maps for Dutch elm disease and chestnut blight. The range of these pests was based on known occurrence and the host range, respectively (Eastern Forest Environmental Threat Assessment Center; Worrall 2007). Due to the dates of some of these resources, pests may have encroached closer to the tree resource in recent years.

Replacement value is based on the physical resource itself (e.g., the cost of having to replace a tree with a similar tree). Structural values were based on valuation procedures of the Council of Tree and Landscape Appraisers, which uses tree species, diameter, condition, and location information (Nowak et al., 2002a; 2002b).

Ton is equivalent to a U.S. short ton, or 2,000 pounds.

Appendix C: Tables

Table 14: Botanical and Common Names of Tree Species

Botanical Name	Common Name	Number of Trees	% of Pop.
Platanus x *hybrida*	London plane	6,066	8.83
Lagerstroemia indica	common crapemyrtle	4,187	6.10
Pyrus calleryana	Callery pear	3,563	5.19
Liquidambar styraciflua	sweetgum	3,297	4.80
Quercus agrifolia	coast live oak	3,273	4.77
Prunus cerasifera	cherry plum	2,852	4.15
Sequoia sempervirens	coast redwood	2,676	3.90
Pistacia chinensis	Chinese pistache	2,095	3.05
Magnolia grandiflora	southern magnolia	1,958	2.85
Fraxinus angustifolia	narrow-leafed ash	1,686	2.46
Pyrus kawakamii	evergreen pear	1,641	2.39
Pinus radiata	Monterey pine	1,352	1.97
Ginkgo biloba	ginkgo	1,196	1.74
Acer rubrum	red maple	1,132	1.65
Acacia melanoxylon	blackwood	1,074	1.56
Acer buergerianum	trident maple	1,053	1.53
Cercis canadensis	eastern redbud	882	1.28
Tristaniopsis conferta	brisbane box	875	1.27
Tristaniopsis laurina	water gum	785	1.14
Quercus rubra	northern red oak	567	0.83
Eucalyptus globulus	blue gum eucalyptus	563	0.82
Podocarpus gracilior	fern pine	559	0.81
Jacaranda mimosifolia	blue jacaranda	535	0.78
Acer palmatum	Japanese maple	523	0.76
Cinnamomum camphora	camphor tree	523	0.76
Prunus	plum spp	476	0.69
Robinia pseudoacacia	black locust	438	0.64
Arecastrum romanzoffianum	queen palm	428	0.62
Olea europaea	olive	428	0.62
Phoenix canariensis	Canary island date palm	419	0.61
Ulmus parvifolia	Chinese elm	403	0.59
Fraxinus uhdei	Shamel ash	397	0.58
Arbutus unedo	strawberry tree	386	0.56
Prunus serrulata	Japanese flowering cherry	375	0.55
Celtis sinensis	Chinese hackberry	343	0.50
Cupressus sempervirens	Italian cypress	335	0.49
Pittosporum undulatum	Victorian box	329	0.48
Cedrus deodara	deodar cedar	322	0.47
Ligustrum lucidum	glossy privet	314	0.46
Washingtonia robusta	Mexican fan palm	308	0.45

Botanical Name	Common Name	Number of Trees	% of Pop.
Yucca gloriosa	moundlily yucca	292	0.43
Cordyline australis	giant dracaena	289	0.42
Gleditsia triacanthos	honeylocust	280	0.41
Crataegus phaenopyrum	Washington hawthorn	272	0.40
Schinus terebinthifolia	Brazilian peppertree	270	0.39
Triadica sebifera	Chinese tallowtree	265	0.39
Cupressus macrocarpa	Monterey cypress	263	0.38
Pinus pinea	Italian stone pine	260	0.38
Eriobotrya japonica	loquat tree	260	0.38
Nyssa sylvatica	black tupelo	257	0.37
Betula pendula	European white birch	242	0.35
Umbellularia californica	California laurel	227	0.33
Calocedrus decurrens	incense cedar	216	0.31
Rhus lancea	African sumac	214	0.31
Quercus ilex	holly oak	212	0.31
Melaleuca linariifolia	cajeput tree	209	0.30
Ulmus	elm spp	200	0.29
Prunus blieriana	blierana plum	199	0.29
Fraxinus oxycarpa	caucasian ash	196	0.29
Eucalyptus camaldulensis	red gum eucalyptus	195	0.28
Laurus nobilis	bay laurel	195	0.28
Geijera parviflora	Australian willow	187	0.27
Platanus occidentalis	American sycamore	184	0.27
Populus nigra v. italica	lombardy poplar	178	0.26
Citrus	citrus spp	173	0.25
Acacia dealbata	silver wattle	168	0.24
Acer x *freemanii*	Freeman maple	167	0.24
Koelreuteria paniculata	Goldenrain tree	166	0.24
Schinus molle	California peppertree	165	0.24
Platanus x *acerifolia* 'Bloodgood'	London planetree Bloodgood	162	0.24
Maytenus boaria	mayten	159	0.23
Metrosideros excelsus	New Zealand Christmas tree	159	0.23
Washingtonia filifera	California palm	156	0.23
Pinus canariensis	Canary Island pine	156	0.23
Callistemon citrinus	crimson bottlebrush	153	0.22
Syzygium paniculatum	syzygium paniculatum	150	0.22
Aesculus x *carnea*	red horsechestnut	149	0.22
Celtis occidentalis	northern hackberry	148	0.22
Quercus suber	cork oak	145	0.21
Albizia julibrissin	Persian silk tree	144	0.21
Leptospermum laevigata	coastal teatree	142	0.21
Ceratonia siliqua	carob	139	0.20
Malus	apple spp	137	0.20
Acacia baileyana	Bailey acacia	136	0.20

Botanical Name	Common Name	Number of Trees	% of Pop.
Magnoliopsida	unknown	134	0.20
Ulmus americana	American elm	133	0.19
Tilia tomentosa	silver linden	132	0.19
Grevillea robusta	silk oak	131	0.19
Prunus domestica	common plum	129	0.19
Trachycarpus fortunei	windmill palm	127	0.18
Liriodendron tulipifera	tulip tree	120	0.17
Melaleuca quinquenervia	punk tree	119	0.17
Populus fremontii	Fremont cottonwood	115	0.17
Platanus racemosa	California sycamore	111	0.16
Aesculus californica	California buckeye	110	0.16
Alnus rhombifolia	white alder	109	0.16
Fraxinus excelsior	European ash	109	0.16
Pyrus calleryana 'Bradford'	Bradford Callery pear	107	0.16
Nerium oleander	oleander	106	0.15
Malus floribunda	Japanese flower crabapple	105	0.15
Ficus microcarpa	Caucho microcarpa	103	0.15
Callistemon viminalis	weeping bottlebrush	102	0.15
Eucalyptus nicholii	willow-leaved gimlet	102	0.15
Crataegus laevigata	smooth hawthorn	98	0.14
Morus alba	white mulberry	92	0.13
Cupressus arizonica	Arizona cypress	92	0.13
Dracaena draco	Canary Island dragon tree	92	0.13
Prunus cerasifera 'Thundercloud'	'Thundercloud' purple-leaf plum	88	0.13
Juniperus chinensis	Chinese juniper	88	0.13
Melaleuca styphelioides	prickly-leaved paperbark	88	0.13
Salix	willow spp	87	0.13
Arbutus 'Marina'	marina arbutus	84	0.12
Styphnolobium japonicum	pagoda tree	84	0.12
Acer negundo	boxelder	82	0.12
Fraxinus	ash spp	82	0.12
Corymbia ficifolia	redflower gum	80	0.12
Quercus shumardii	Shumard oak	80	0.12
Fraxinus pennsylvanica	green ash	77	0.11
Prunus persica	peach	77	0.11
Fraxinus velutina 'Modesto'	Modesto ash	75	0.11
Fraxinus americana	white ash	73	0.11
Prunus laurocerasus	cherry laurel	73	0.11
Quercus lobata	California white oak	71	0.10
Crataegus	hawthorn spp	69	0.10
Prunus avium	sweet cherry	69	0.10
Eucalyptus polyanthemos	silver dollar eucalyptus	68	0.10
Eucalyptus sideroxylon	Mugga ironbark	68	0.10
Ficus carica	common fig	68	0.10

Appendix C: Tables

Botanical Name	Common Name	Number of Trees	% of Pop.
Koelreuteria bipinnata	Chinese flame tree	68	0.10
Cedrus atlantica	Atlas cedar	68	0.10
Tilia cordata	littleleaf linden	66	0.10
Pinus resinosa	red pine	66	0.10
Pseudotsuga menziesii	Douglas fir	66	0.10
Rhaphiolepis	Rhaphiolepis spp	65	0.09
Ligustrum japonicum	Japanese privet	64	0.09
Persea americana	avocado	64	0.09
Alnus cordata	Italian alder	64	0.09
Zelkova serrata	Japanese zelkova	63	0.09
Acer saccharinum	silver maple	62	0.09
Quercus palustris	pin oak	61	0.09
Platycladus orientalis	oriental arborvitae	61	0.09
Photinia x *fraseri*	fraser photinia	60	0.09
Crataegus x *lavallei*	Carriere hawthorn	56	0.08
Ilex aquifolium	English holly	56	0.08
Carpinus betulus	European hornbeam	54	0.08
Celtis	hackberry spp	54	0.08
Phoenix dactylifera	date palm	54	0.08
Tilia americana	American basswood	54	0.08
Salix matsudana	corkscrew willow	53	0.08
Prunus ilicifolia ssp. *lyonii*	Catalina cherry	53	0.08
Quercus robur	English oak	52	0.08
Magnolia x *soulangeana*	saucer magnolia	52	0.08
Juniperus virginiana	eastern red cedar	52	0.08
Melaleuca ericifolia	heath melaleuca	50	0.07
Araucaria heterophylla	Norfolk Island pine	49	0.07
Juglans hindsii	Hind walnut	49	0.07
Fraxinus velutina	velvet ash	48	0.07
Pinus halepensis	Aleppo pine	48	0.07
Acer pseudoplatanus	sycamore maple	46	0.07
Cercis occidentalis	California redbud	45	0.07
Eriobotrya deflexa	bronze loquat	44	0.06
Acer macrophyllum	bigleaf maple	43	0.06
Cupressus leylandii	Leyland cypress	43	0.06
Lagerstroemia	Lagerstroemia spp	43	0.06
Carpinus caroliniana	American hornbeam	42	0.06
Podocarpus macrophyllus	yew podocarpus	42	0.06
Acer rubrum 'October glory'	October glory red maple	39	0.06
Agave attenuata	agave spp	39	0.06
Eucalyptus	gum spp	39	0.06
Xylosma congestum	shiny xylosma	39	0.06
Cycas revoluta	Sago palm	37	0.05
Juglans regia	English walnut	37	0.05

Botanical Name	Common Name	Number of Trees	% of Pop.
Lyonothamnus floribundus	lyontree	37	0.05
Liquidambar formosana	Chinese sweet gum	35	0.05
Cotinus coggygria	smoke tree	33	0.05
Magnolia acuminata	cucumber tree	33	0.05
Chitalpa	chitalpa spp	33	0.05
Arbutus menziesii	Pacific madrone	33	0.05
Dodonaea viscosa	Florida hopbush	32	0.05
Citrus limon	lemon	32	0.05
Fraxinus latifolia	Oregon ash	31	0.05
Gymnocladus dioicus	Kentucky coffeetree	31	0.05
Pittosporum eugenioides	tarata	31	0.05
Platanus x *hispanica*	London planetree	30	0.04
Pittosporum tobira	Japanese pittosporum	30	0.04
Quercus muehlenbergii	chinkapin oak	29	0.04
Prunus ilicifolia	hollyleaf cherry	29	0.04
Acer platanoides	Norway maple	29	0.04
Ficus benjamina	Benjamin fig	29	0.04
Magnolia	magnolia spp	28	0.04
Metasequoia glyptostroboides	dawn redwood	28	0.04
Phoenix roebelenii	pygmy date palm	28	0.04
Photinia serrulata	photinia	28	0.04
Prunus caroliniana	Carolina laurelcherry	28	0.04
Pyracantha coccinea	Fire thorn	28	0.04
Quercus virginiana	live oak	28	0.04
Diospyros virginiana	common persimmon	27	0.04
Pinus	pine spp	27	0.04
Salix babylonica	Babylon weeping willow	27	0.04
Acer campestre	hedge maple	26	0.04
Burretiokentia hapala	New Caldonian palm	26	0.04
Lagerstroemia indica x *fauriei* 'Zuni'	purple crape myrtle	26	0.04
Betula nigra	river birch	26	0.04
Fagus sylvatica	European beech	26	0.04
Ulmus pumila	Siberian elm	25	0.04
Acer saccharum	sugar maple	25	0.04
Prunus dulcis	sweet almond	25	0.04
Punica granatum	pomegranate	25	0.04
Quercus	oak spp	25	0.04
Sambucus nigra	European black elderberry	25	0.04
Prunus armeniaca	apricot	24	0.03
Heteromeles arbutifolia	toyon	23	0.03
Myoporum laetum	mioporo	23	0.03
Sequoiadendron giganteum	giant sequoia	23	0.03
Brugmansia suaveolens	angel's-tears	23	0.03
Malus sylvestris	European crabapple	22	0.03

Botanical Name	Common Name	Number of Trees	% of Pop.
Celtis australis	European hackberry	22	0.03
Chamaerops humilis	Mediterranean fan palm	22	0.03
Citrus aurantifolia	key lime	22	0.03
Acca sellowiana	feijoa	21	0.03
Feijoa sellowiana	pineapple guava	21	0.03
Prunus serotina	black cherry	20	0.03
Buxus sempervirens	common box	20	0.03
Cotoneaster buxifolius	box-leaf cotoneaster	20	0.03
Juniperus communis	common juniper	20	0.03
Parrotia persica	Persian ironwood	20	0.03
Pittosporum tenuifolium	tawhiwhi	20	0.03
Pyrus communis	common pear	19	0.03
Aesculus pavia	red buckeye	19	0.03
Juniperus occidentalis	western juniper	19	0.03
Paulownia tomentosa	royal paulownia	18	0.03
Carpinus betulus 'Fastigiata'	fastigate hornbeam	18	0.03
Citrus sinensis	orange	18	0.03
Liquidambar orientalis	oriental sweetgum	18	0.03
Vitex agnus-castus	chaste tree	17	0.02
Thuja plicata	western redcedar	17	0.02
Cornus kousa	kousa dogwood	17	0.02
Eucalyptus citriodora	lemon-scented gum	17	0.02
Acer	maple spp	16	0.02
Casuarina cunninghamiana	river she-oak	16	0.02
Lycianthes rantonnetii	Paraguay nightshade	16	0.02
Pyrus	pear spp	16	0.02
Myrtus communis	myrtle	15	0.02
Prunus x *yedoensis*	Yoshino flowering cherry	15	0.02
Eucalyptus rudis	desert gum eucalyptus	15	0.02
Thuja occidentalis	northern white cedar	15	0.02
Chamaecyparis lawsoniana	Port Orford cedar	14	0.02
Leptospermum scoparium	broom teatree	14	0.02
Musa acuminata	edible banana	14	0.02
Washingtonia	palm species	14	0.02
Acer palmatum v. *dissectum*	lace-leaf maple	13	0.02
Tibouchina granulosa	Brazilian glorytree	13	0.02
Pyrus calleryana 'Aristocrat'	'Aristocrat' callery pear	13	0.02
Eucalyptus viminalis	ribbon gum eucalyptus	13	0.02
Gleditsia triacanthos v. *inermis*	thornless honeylocust	13	0.02
Betula papyrifera	paper birch	12	0.02
Butia capitata	jelly palm	12	0.02
Cornus florida	flowering dogwood	12	0.02
Ficus	fig spp	12	0.02
Juniperus	juniper spp	12	0.02

Botanical Name	Common Name	Number of Trees	% of Pop.
Magnolia macrophylla	bigleaf magnolia	12	0.02
Psidium guajava	common guava	12	0.02
Ravenala madagascariensis	traveler's tree	11	0.02
Acacia longifolia	Sydney golden wattle	11	0.02
Agonis flexuosa	peppermint tree	11	0.02
Ceanothus thyrsiflorus	blue blossom	11	0.02
Ficus retusa	ficus retusa	11	0.02
Pinus thunbergiana	Japanese pine	11	0.02
Thuja	red cedar spp	11	0.02
Populus nigra	black poplar	11	0.02
Acer nigrum	black maple	10	0.01
Catalpa bignonioides	southern catalpa	10	0.01
Ficus elastica	rubber plant	10	0.01
Juglans nigra	black walnut	10	0.01
Melia azedarach	chinaberry	10	0.01
Acer rubrum 'Armstrong'	Armstrong maple	9	0.01
Populus alba	white poplar	9	0.01
Magnolia stellata	star magnolia	9	0.01
Lagunaria patersonii	primrose tree	9	0.01
Archontophoenix cunninghamiana	king palm	9	0.01
Betula	birch spp	9	0.01
Eucalyptus cinerea	silver dollar eucalyptus	8	0.01
Acer griseum	paperbark maple	8	0.01
Taxus brevifolia	Pacific yew	8	0.01
Ligustrum	privet spp	8	0.01
Ceanothus	ceanothus spp	8	0.01
Araucaria bidwillii	bunya bunya	8	0.01
Aesculus hippocastanum	horse chestnut	8	0.01
Alnus	alder spp	8	0.01
Persea borbonia	redbay	7	0.01
Tilia platyphyllos	bigleaf linden	7	0.01
Ulmus alata	winged elm	7	0.01
Tilia	basswood spp	7	0.01
Rhamnus cathartica	European buckthorn	7	0.01
Pinus patula	Mexican weeping pine	7	0.01
Picea glauca	white spruce	7	0.01
Pinus contorta	lodgepole pine	7	0.01
Photinia	chokeberry spp	7	0.01
Ceiba speciosa	silk floss tree	7	0.01
Fraxinus nigra	black ash	7	0.01
Acer platanoides 'Crimson King'	Crimson king norway maple	7	0.01
Cryptomeria japonica	Japanese red cedar	7	0.01
Cupaniopsis anacardioides	carrotwood	7	0.01
Eucalyptus lehmannii	bushy yate	7	0.01

Appendix C: Tables

Botanical Name	Common Name	Number of Trees	% of Pop.
Eucalyptus robusta	beakpod euclayptus	7	0.01
Euonymus	spindletree spp	7	0.01
Fremontodendron californicum	California flannelbush	7	0.01
Camellia japonica	camellia	7	0.01
Diospyros kaki	Japanese persimmon	6	0.01
Pittosporum crassifolium	stiffleaf cheesewood	6	0.01
Acacia	acacia spp	6	0.01
Campsis radicans	trumpet vine	6	0.01
Ulmus procera	English elm	6	0.01
Sabal palmetto	cabbage palmetto	6	0.01
Pittosporum rhombifolium	Queensland pittosporum	6	0.01
Morella californica	Pacific bayberry	6	0.01
Hymenosporum flavum	sweetshade	6	0.01
Chionanthus retusus	Chinese fringe tree	6	0.01
Chamaecyparis obtusa	hinoki cypress	6	0.01
Ailanthus altissima	tree of heaven	6	0.01
Leucaena leucocephala	white lead tree	6	0.01
Livistona chinensis	Chinese fan palm	5	0.01
Acacia stenophylla	shoestring acacia	5	0.01
Tecoma stans	ginger-thomas	5	0.01
Ulmus rubra	slippery elm	5	0.01
Quercus macrocarpa	bur oak	5	0.01
Populus	cottonwood spp	5	0.01
Pinus banksiana	jack pine	5	0.01
Phoenix reclinata	Senegal date palm	5	0.01
Eucalyptus leucoxylon	white ironbark	5	0.01
Duranta erecta	golden dewdrops	5	0.01
Corylus avellana	European filbert	5	0.01
Cornus	dogwood spp	5	0.01
Alnus rubra	red alder	5	0.01
Ficus macrophylla	Moreton bay fig	5	0.01
Citrus x paradisi	grapefruit	5	0.01
Syringa vulgaris	common lilac	4	0.01
Maclura pomifera	Osage orange	4	0.01
Michelia champaca	michelia champaca	4	0.01
Pinus mugo	Swiss mountain pine	4	0.01
Pinus ponderosa	ponderosa pine	4	0.01
Quercus coccinea	scarlet oak	4	0.01
Quercus douglasii	blue oak	4	0.01
Rhus glabra	smooth sumac	4	0.01
Aesculus parviflora	bottlebrush buckeye	4	0.01
Juglans cinerea	butternut	4	0.01
Radermachera sinica	serpent tree	4	0.01
Chamaecyparis	false cypress spp	4	0.01

Botanical Name	Common Name	Number of Trees	% of Pop.
Araucaria columnaris	coral reef araucaria	4	0.01
Ilex	holly spp	4	0.01
Acer ginnala	amur maple	4	0.01
Chilopsis linearis	desertwillow	4	0.01
Chamaecyparis pisifera	sawara cypress	4	0.01
Cornus capitata	Himalayan Strawberry Tree	4	0.01
Fagus	beech spp	4	0.01
Griselinia lucida	akapuka	4	0.01
Hamamelis virginiana	witch hazel	4	0.01
Aloe arborescens	tree aloe	4	0.01
Stenocarpus sinuatus	firewheel tree	3	0.00
Prosopis	mesquite spp	3	0.00
Livistona australis	Australian fan palm	3	0.00
Morus	mulberry spp	3	0.00
Morus nigra	black mulberry	3	0.00
Pinus strobus	eastern white pine	3	0.00
Prunus serrulata 'Shirofugen'	Shirofugen cherry	3	0.00
Quercus alba	white oak	3	0.00
Quercus velutina	black oak	3	0.00
Lagerstroemia speciosa	Queen's crapemyrtle	3	0.00
Salix nigra	black willow	3	0.00
Phoenix rupicola	cliff date palm	3	0.00
Taxus	yew spp	3	0.00
Rhododendron	rhododendron spp	3	0.00
Borinda	bamboo spp	3	0.00
Populus deltoides	eastern cottonwood	3	0.00
Juniperus scopulorum	Rocky Mountain juniper	3	0.00
Arctostaphylos glauca	bigberry manzanita	3	0.00
Schefflera actinophylla	schefflera	3	0.00
Brahea edulis	Guadalupe palm	3	0.00
Callistemon	bottlebrush spp	3	0.00
Castanopsis cuspidate	Japanese chinquapin	3	0.00
Elaeagnus angustifolia	Russian olive	3	0.00
Carya illinoinensis	pecan	3	0.00
Cercidiphyllum japonicum	katsura tree	3	0.00
Corylus colurna	Turkish hazelnut	3	0.00
Cydonia oblonga	quince	3	0.00
Chrysolepis chrysophylla	giant chinkapin	3	0.00
Araucaria araucana	monkeypuzzle tree	3	0.00
Elaeocarpus decipiens	Japanese blueberry tree	3	0.00
Osmanthus fragrans	sweet olive	2	0.00
Populus balsamifera	balsam poplar	2	0.00
Ziziphus	jujube spp	2	0.00
Picea sitchensis	sitka spruce	2	0.00

Botanical Name	Common Name	Number of Trees	% of Pop.
Picea pungens	blue spruce	2	0.00
Parkinsonia aculeata	Jerusalem thorn	2	0.00
Oxydendrum arboreum	sourwood	2	0.00
Prunus americana	American plum	2	0.00
Tilia cordata 'Greenspire'	'Greenspire' littleleaf linden	2	0.00
Philadelphus coronarius	sweet mock orange	2	0.00
Quercus falcata	southern red oak	2	0.00
Quercus phellos	willow oak	2	0.00
Quercus wislizeni	interior live oak	2	0.00
Rhamnus caroliniana	Carolina buckthorn	2	0.00
Ricinus communis	castorbean	2	0.00
Cistus ladanifer	gum rockrose	2	0.00
Sabal mexicana	Rio Grande palmetto	2	0.00
Aronia arbutifolia	red chokeberry	2	0.00
Ulmus davidiana	The David Elm	2	0.00
Chamaecyparis thyoides	Atlantic white cedar	2	0.00
Magnifera indica	mango	2	0.00
Baccharis pilularis	dwarf chaparral broom	2	0.00
Michelia doltsopa	michelia	2	0.00
Echium candicans	pride of madeira	2	0.00
Abies grandis	grand fir	2	0.00
Acer tataricum	tatar maple	2	0.00
Archontophoenix	archontophoenix spp	2	0.00
Bauhinia purpurea	orchid tree	2	0.00
Bauhinia variegata	mountain ebony	2	0.00
Bougainvillea spectabilis	great bougainvillea	2	0.00
Brachychiton populneus	kurrajong	2	0.00
Hibiscus syriacus	rose-of-sharon	2	0.00
Juniperus monosperma	one seed juniper	2	0.00
Annona cherimola	cherimoya	2	0.00
Leucadendron argenteum	silver tree	2	0.00
Caryota gighas	giant fishtail palm	2	0.00
Juniperus californica	California juniper	2	0.00
Hibiscus rosa-sinensis	Chinese hibiscus	2	0.00
Ficus rubiginosa	rustyleaf fig	2	0.00
Cornus nuttallii	Pacific dogwood	2	0.00
Cercocarpus betuloides	mountain mahogany spp	2	0.00
Carya glabra	pignut hickory	2	0.00
Prosopis chilensis	Chilean mesquite	1	0.00
Picea abies	Norway spruce	1	0.00
Picea mariana	black spruce	1	0.00
Pinus coulteri	coulter pine	1	0.00
Pinus brutia	Turkish pine	1	0.00
Pistacia vera	pistachio	1	0.00

Botanical Name	Common Name	Number of Trees	% of Pop.
Pittosporum viridiflorum	cape cheesewood	1	0.00
Polygala myrtifolia	myrtle-leaf milkwort	1	0.00
Prunus angustifolia	chickasaw plum	1	0.00
Picea	spruce spp	1	0.00
Lonicera	honeysuckle spp	1	0.00
Podocarpus henkelii	long-leafed yellowwood	1	0.00
Peumus boldo	boldo	1	0.00
Nyssa aquatica	water tupelo	1	0.00
Neolitsea sericea	laurel tree	1	0.00
Melaleuca armillaris	drooping melaleuca	1	0.00
Magnolia tripetala	umbrella magnolia	1	0.00
Macadamia ternifolia	small fruited queensland nut	1	0.00
Malus pumila	paradise apple	1	0.00
Prosopis glandulosa	honey mesquite	1	0.00
Berberis bealei	leatherleaf mahonia	1	0.00
Rhus typhina	staghorn sumac	1	0.00
Loropetalum chinense	fringe flower	1	0.00
Ligustrum ovalifolium	California privet	1	0.00
Magnolia kobus	kobushi magnolia	1	0.00
Robinia x ambigua	pink locust	1	0.00
Viburnum	viburnum spp	1	0.00
Vernonia amygdalina	bitter leaf	1	0.00
Ulmus thomasii	rock elm	1	0.00
Tsuga heterophylla	western hemlock	1	0.00
Tipuana tipu	pride of bolivia	1	0.00
Taxodium distichum	baldcypress	1	0.00
Sorbus aucuparia	European mountain ash	1	0.00
Solanum aviculare	poroporo	1	0.00
Sideroxylon lanuginosum	gum bully	1	0.00
Senna lindheimeriana	velvetleaf cassia	1	0.00
Sapindus saponaria ssp. Drummondii	western soapberry	1	0.00
Quercus stellata	post oak	1	0.00
Roystonea regia	florida royal palm	1	0.00
Prunus serrulata 'Shirotae'	Mt. Fuji cherry	1	0.00
Ribes sanguineum	redflower currant	1	0.00
Grevillea banksii	kahiliflower	1	0.00
Rhopalostylis sapida	Nikua palm	1	0.00
Livistona decipiens	Ribbon palm	1	0.00
Quercus kelloggii	California black oak	1	0.00
Quercus imbricaria	shingle oak	1	0.00
Quercus ellipsoidalis	northern pin oak	1	0.00
Quercus chrysolepis	canyon live oak	1	0.00
Quercus bicolor	swamp white oak	1	0.00
Quercus acutissima	sawtooth oak	1	0.00

Botanical Name	Common Name	Number of Trees	% of Pop.
Prunus subhirtella	Higan cherry	1	0.00
Salix caprea	goat willow	1	0.00
Buddleja davidii	orange eye butterflybush	1	0.00
Coprosma repens	creeping mirrorplant	1	0.00
Conocarpus erectus	button mangrove	1	0.00
Combretum apiculatum	red bush willow	1	0.00
Cinnamomum	cinnamon spp	1	0.00
Chionanthus virginicus	fringe tree	1	0.00
Chamaecyparis nootkatensis	Alaska cedar	1	0.00
Cercis reniformis	southwestern redbud	1	0.00
Celtis reticulata	western hackberry	1	0.00
Parkinsonia florida	blue paloverde	1	0.00
Cercidium praecox	Sonoran palo verde	1	0.00
Halesia carolina	snowdrop tree	1	0.00
Catalpa	catalpa spp	1	0.00
Cussonia spicata	cabbage tree	1	0.00
Brachychiton rupestris	Brachichiton rupestris	1	0.00
Brahea armata	Mexican blue palm	1	0.00
Brachychiton acerifolius	illwarra flame tree	1	0.00
Bauhinia galpinii	pride of de kaap	1	0.00
Azara dentata	Azara	1	0.00
Arctostaphylos	manzanita spp	1	0.00
Annona squamosa	sugar apple	1	0.00
Amelanchier	serviceberry spp	1	0.00
Acer truncatum	purple blow maple	1	0.00
Acer shirasawanum	Shirasawa's maple	1	0.00
Yucca recurvifolia	curveleaf yucca	1	0.00
Senna siamea	Siamese cassia	1	0.00
Fraxinus ornus	flowering ash	1	0.00
Koelreuteria elegans	flamegold	1	0.00
Iochroma coccinea	scarlet tube flower	1	0.00
Ilex opaca	American holly	1	0.00
Ilex cassine	dahoon	1	0.00
Hydrangea	hydrangea spp	1	0.00
Hyophorbe lagenicaulis	bottle palm	1	0.00
Hakea suaveolens	sweet hakea	1	0.00
Hakea salicifolia	willow-leaved hakea	1	0.00
Griselinia littoralis	kapuka	1	0.00
Grewia	grewia spp	1	0.00
Grevillea obtusifolia	obtuse leaved grevillea	1	0.00
Crataegus douglasii	black hawthorn	1	0.00
Fuchsia	fuchsia spp	1	0.00
Crataegus viridis	green hawthorn	1	0.00
Euphorbia tirucalli	Indiantree spurge	1	0.00

Botanical Name	Common Name	Number of Trees	% of Pop.
Eucalyptus grandis	flooded gum eucalyptus	1	0.00
Eucalyptus erythrocorys	red-cap gum	1	0.00
Eucalyptus cornuta	yate	1	0.00
Erythrina crista-galli	cockspur coral tree	1	0.00
Erythrina caffra	kaffirboom coral tree	1	0.00
Elaeagnus umbellata	autumn olive	1	0.00
Elaeagnus	elaeagnus spp	1	0.00
Dichotomanthes tristaniiicarpa	dichotomanthes	1	0.00
Dicksonia sellowiana	xaxim	1	0.00
Leucospermum cordifolium	nodding pincushion	1	0.00
Gleditsia triacanthos v. *inermis* 'Imperial'	imperial honeylocust	1	0.00
Total		**68,664**	**100%**

Table 15: Population Summary for All Species

Species	DBH Class (inches)										Number of Trees	% of Pop.
	0 - 3	3 - 6	6 - 12	12 - 18	18 - 24	24 - 30	30 - 36	36 - 42	42 - 48	48+		
Platanus x hybrida	594	564	1,692	1,553	1,013	473	140	30	6	0	6,066	8.83
Lagerstroemia indica	1,544	1,520	1,115	5	1	0	2	0	0	0	4,187	6.10
Pyrus calleryana	406	859	1,472	695	118	12	2	0	0	0	3,563	5.19
Liquidambar styraciflua	63	148	745	1,236	781	254	59	4	0	0	3,291	4.80
Quercus agrifolia	376	494	1,002	710	331	190	121	29	12	8	3,273	4.77
Prunus cerasifera	730	1,129	896	86	8	3	0	0	0	0	2,852	4.15
Sequoia sempervirens	85	190	495	463	479	412	241	155	80	76	2,676	3.90
Pistacia chinensis	656	725	652	57	4	2	0	0	0	0	2,095	3.05
Magnolia grandiflora	435	437	668	317	74	16	6	4	2	0	1,958	2.85
Fraxinus angustifolia	84	172	595	583	219	22	8	2	0	0	1,686	2.46
Pyrus kawakamii	108	392	935	194	8	0	2	0	2	0	1,641	2.39
Pinus radiata	20	35	128	237	251	276	233	111	38	23	1,352	1.97
Ginkgo biloba	593	315	197	73	16	2	0	0	0	0	1,196	1.74
Acer rubrum	381	419	261	63	7	0	0	0	0	0	1,132	1.65
Acacia melanoxylon	137	250	310	157	103	77	25	10	2	2	1,074	1.56
Acer buergerianum	365	490	166	28	2	1	0	0	0	0	1,053	1.53
Cercis canadensis	484	285	113	0	0	0	0	0	0	0	882	1.28
Tristaniopsis conferta	130	107	241	304	84	8	2	0	0	0	875	1.27
Tristaniopsis laurina	224	351	199	10	1	0	0	0	0	0	785	1.14
Quercus rubra	151	74	120	90	77	39	11	2	1	1	567	0.83
Eucalyptus globulus	3	31	97	99	80	72	68	48	37	28	563	0.82
Podocarpus gracilior	70	38	115	174	118	39	5	0	0	0	559	0.81
Jacaranda mimosifolia	107	97	241	84	6	0	0	0	0	0	535	0.78
Acer palmatum	365	108	36	10	4	0	0	0	0	0	523	0.76
Cinnamomum camphora	19	15	74	126	148	82	40	15	3	1	523	0.76
Prunus	220	131	111	12	1	0	0	1	0	0	476	0.69
Robinia pseudoacacia	99	108	109	85	25	9	1	1	1	0	438	0.64
Arecastrum romanzoffianum	70	68	170	118	2	0	0	0	0	0	428	0.62
Olea europaea	151	111	117	33	11	4	1	0	0	0	428	0.62
Phoenix canariensis	7	12	22	38	45	122	93	52	27	1	419	0.61
Ulmus parvifolia	24	29	62	215	65	6	2	0	0	0	403	0.59
Fraxinus uhdei	5	15	37	92	119	67	45	12	4	1	397	0.58
Arbutus unedo	183	76	97	29	0	1	0	0	0	0	386	0.56

Species	DBH Class (inches)										Number of Trees	% of Pop.
	0 - 3	3 - 6	6 - 12	12 - 18	18 - 24	24 - 30	30 - 36	36 - 42	42 - 48	48+		
Prunus serrulata	180	113	75	6	1	0	0	0	0	0	375	0.55
Celtis sinensis	2	18	120	167	34	1	0	0	1	0	343	0.50
Cupressus sempervirens	64	74	138	50	8	1	0	0	0	0	335	0.49
Pittosporum undulatum	69	77	122	45	13	3	0	0	0	0	329	0.48
Cedrus deodara	13	17	37	70	47	52	46	22	12	6	322	0.47
Ligustrum lucidum	95	73	83	45	12	4	2	0	0	0	314	0.46
Washingtonia robusta	1	3	55	103	136	10	0	0	0	0	308	0.45
Yucca gloriosa	150	85	35	11	9	1	1	0	0	0	292	0.43
Cordyline australis	153	98	30	4	4	0	0	0	0	0	289	0.42
Gleditsia triacanthos	45	72	126	35	2	0	0	0	0	0	280	0.41
Crataegus phaenopyrum	86	86	86	14	0	0	0	0	0	0	272	0.40
Schinus terebinthifolia	5	10	54	105	69	22	4	1	0	0	270	0.39
Triadica sebifera	15	55	166	28	1	0	0	0	0	0	265	0.39
Cupressus macrocarpa	9	23	41	43	27	22	34	30	25	9	263	0.38
Eriobotrya japonica	168	61	27	3	1	0	0	0	0	0	260	0.38
Pinus pinea	8	13	36	52	40	47	40	14	5	5	260	0.38
Nyssa sylvatica	141	42	68	6	0	0	0	0	0	0	257	0.37
Betula pendula	37	71	112	22	0	0	0	0	0	0	242	0.35
Umbellularia californica	14	61	64	35	17	18	8	4	5	1	227	0.33
Calocedrus decurrens	7	13	52	67	35	18	10	8	2	4	216	0.31
Rhus lancea	31	58	108	16	0	1	0	0	0	0	214	0.31
Quercus ilex	44	38	69	37	13	7	4	0	0	0	212	0.31
Melaleuca linariifolia	3	3	30	71	55	28	9	7	3	0	209	0.30
Ulmus	74	84	34	4	2	2	0	0	0	0	200	0.29
Prunus blieriana	81	81	35	1	1	0	0	0	0	0	199	0.29
Fraxinus oxycarpa	3	23	71	83	12	4	0	0	0	0	196	0.29
Eucalyptus camaldulensis	4	34	42	36	15	18	17	9	7	13	195	0.28
Laurus nobilis	99	63	32	1	0	0	0	0	0	0	195	0.28
Geijera parviflora	36	16	69	54	11	1	0	0	0	0	187	0.27
Platanus occidentalis	12	32	79	33	19	6	3	0	0	0	184	0.27
Populus nigra v. italica	11	17	25	26	37	36	15	4	1	6	178	0.26
Citrus	137	28	7	1	0	0	0	0	0	0	173	0.25
Acacia dealbata	4	55	62	40	7	0	0	0	0	0	168	0.24
Acer x freemanii	98	42	21	3	1	1	1	0	0	0	167	0.24
Koelreuteria paniculata	68	20	62	12	4	0	0	0	0	0	166	0.24
Schinus molle	13	25	44	41	27	7	2	2	2	2	165	0.24
Platanus x acerifolia 'Bloodgood'	16	13	23	46	40	22	1	1	0	0	162	0.24
Maytenus boaria	61	50	42	6	0	0	0	0	0	0	159	0.23
Metrosideros excelsa	63	17	38	22	18	1	0	0	0	0	159	0.23
Pinus canariensis	22	3	22	27	38	25	12	6	1	0	156	0.23
Washingtonia filifera	3	6	81	31	26	8	0	1	0	0	156	0.23
Callistemon citrinus	15	26	82	29	1	0	0	0	0	0	153	0.22
Syzygium paniculatum	12	24	41	37	18	9	6	3	0	0	150	0.22
Aesculus x carnea	58	80	7	3	0	1	0	0	0	0	149	0.22
Celtis occidentalis	6	9	60	63	10	0	0	0	0	0	148	0.22
Quercus suber	27	25	23	21	23	18	6	2	0	0	145	0.21
Albizia julibrissin	19	14	59	49	3	0	0	0	0	0	144	0.21
Leptospermum laevigata	17	24	69	21	9	2	0	0	0	0	142	0.21
Ceratonia siliqua	6	2	20	45	46	14	6	0	0	0	139	0.20
Malus	79	35	18	5	0	0	0	0	0	0	137	0.20
Acacia baileyana	9	66	50	11	0	0	0	0	0	0	136	0.20
Magnoliopsida	101	21	9	1	1	0	1	0	0	0	134	0.20
Ulmus americana	59	24	21	5	7	6	3	7	1	0	133	0.19
Tilia tomentosa	86	26	19	1	0	0	0	0	0	0	132	0.19
Grevillea robusta	2	2	6	39	60	17	5	0	0	0	131	0.19

Species	DBH Class (inches)										Number of Trees	% of Pop.
	0 - 3	3 - 6	6 - 12	12 - 18	18 - 24	24 - 30	30 - 36	36 - 42	42 - 48	48+		
Prunus domestica	54	41	28	4	2	0	0	0	0	0	129	0.19
Trachycarpus fortunei	0	23	95	9	0	0	0	0	0	0	127	0.18
Liriodendron tulipifera	10	15	44	32	6	8	2	1	2	0	120	0.17
Melaleuca quinquenervia	34	16	21	17	17	11	1	2	0	0	119	0.17
Populus fremontii	11	14	33	26	10	7	8	2	1	3	115	0.17
Platanus racemosa	7	21	23	31	15	5	7	2	0	0	111	0.16
Aesculus californica	27	31	34	8	6	3	0	0	1	0	110	0.16
Fraxinus excelsior	0	1	3	6	30	37	22	9	1	0	109	0.16
Alnus rhombifolia	6	8	30	33	16	13	2	1	0	0	109	0.16
Pyrus calleryana 'Bradford'	7	24	51	24	1	0	0	0	0	0	107	0.16
Nerium oleander	87	9	8	2	0	0	0	0	0	0	106	0.15
Malus floribunda	58	29	18	0	0	0	0	0	0	0	105	0.15
Ficus microcarpa	7	10	26	20	19	9	12	0	0	0	103	0.15
Eucalyptus nicholii	4	5	11	20	15	16	24	3	0	4	102	0.15
Callistemon viminalis	8	25	44	23	1	0	1	0	0	0	102	0.15
Crataegus laevigata	16	39	34	9	0	0	0	0	0	0	98	0.14
Cupressus arizonica	39	31	15	3	3	0	0	0	0	1	92	0.13
Dracaena draco	81	9	1	1	0	0	0	0	0	0	92	0.13
Morus alba	8	17	35	28	3	1	0	0	0	0	92	0.13
Melaleuca styphelioides	0	2	15	29	29	8	5	0	0	0	88	0.13
Juniperus chinensis	15	14	34	18	5	2	0	0	0	0	88	0.13
Prunus cerasifera 'Thundercloud'	23	28	32	5	0	0	0	0	0	0	88	0.13
Salix	13	32	25	13	4	0	0	0	0	0	87	0.13
Styphnolobium japonicum	1	4	14	22	38	4	1	0	0	0	84	0.12
Arbutus 'Marina'	43	22	18	1	0	0	0	0	0	0	84	0.12
Acer negundo	38	4	9	16	6	5	2	0	2	0	82	0.12
Fraxinus	16	7	11	30	11	4	1	2	0	0	82	0.12
Quercus shumardii	33	11	6	13	9	7	1	0	0	0	80	0.12
Corymbia ficifolia	1	2	8	17	18	18	6	4	4	2	80	0.12
Fraxinus pennsylvanica	11	5	19	24	10	4	4	0	0	0	77	0.11
Prunus persica	62	15	0	0	0	0	0	0	0	0	77	0.11
Fraxinus velutina 'Modesto'	6	4	3	9	18	18	13	3	0	1	75	0.11
Prunus laurocerasus	20	43	8	1	1	0	0	0	0	0	73	0.11
Fraxinus americana	46	8	6	3	6	3	0	1	0	0	73	0.11
Quercus lobata	30	13	14	6	4	1	1	2	0	0	71	0.10
Prunus avium	28	27	14	0	0	0	0	0	0	0	69	0.10
Crataegus	9	13	33	11	3	0	0	0	0	0	69	0.10
Eucalyptus polyanthemos	1	2	9	17	21	12	5	1	0	0	68	0.10
Eucalyptus sideroxylon	0	0	2	7	16	23	15	4	0	1	68	0.10
Ficus carica	50	14	4	0	0	0	0	0	0	0	68	0.10
Koelreuteria bipinnata	17	12	32	2	5	0	0	0	0	0	68	0.10
Cedrus atlantica	9	10	10	9	9	6	6	5	1	3	68	0.10
Tilia cordata	25	21	16	4	0	0	0	0	0	0	66	0.10
Pinus resinosa	0	5	23	33	4	1	0	0	0	0	66	0.10
Pseudotsuga menziesii	1	2	23	25	3	8	2	1	1	0	66	0.10
Rhaphiolepis	57	7	1	0	0	0	0	0	0	0	65	0.09
Alnus cordata	3	4	43	13	1	0	0	0	0	0	64	0.09
Ligustrum japonicum	32	13	8	6	4	1	0	0	0	0	64	0.09
Persea americana	32	20	8	3	1	0	0	0	0	0	64	0.09
Zelkova serrata	10	7	28	15	2	1	0	0	0	0	63	0.09
Acer saccharinum	10	12	11	11	8	6	2	1	1	0	62	0.09
Platycladus orientalis	25	17	17	2	0	0	0	0	0	0	61	0.09

Species	DBH Class (inches)										Number of Trees	% of Pop.
	0 - 3	3 - 6	6 - 12	12 - 18	18 - 24	24 - 30	30 - 36	36 - 42	42 - 48	48+		
Quercus palustris	25	1	5	13	10	3	2	2	0	0	61	0.09
Photinia x fraseri	39	15	5	1	0	0	0	0	0	0	60	0.09
Crataegus x lavallei	1	15	32	7	1	0	0	0	0	0	56	0.08
Ilex aquifolium	25	23	6	2	0	0	0	0	0	0	56	0.08
Phoenix dactylifera	3	3	2	13	22	5	2	3	1	0	54	0.08
Carpinus betulus	20	17	12	4	0	0	0	0	1	0	54	0.08
Tilia americana	10	8	22	7	6	1	0	0	0	0	54	0.08
Celtis	1	3	24	26	0	0	0	0	0	0	54	0.08
Prunus ilicifolia ssp. lyonii	2	27	21	2	1	0	0	0	0	0	53	0.08
Salix matsudana	18	13	14	7	1	0	0	0	0	0	53	0.08
Magnolia x soulangeana	37	11	4	0	0	0	0	0	0	0	52	0.08
Juniperus virginiana	17	31	4	0	0	0	0	0	0	0	52	0.08
Quercus robur	9	5	18	5	7	5	2	0	1	0	52	0.08
Melaleuca ericifolia	0	0	4	4	7	20	9	2	3	1	50	0.07
Araucaria heterophylla	22	9	12	4	1	0	0	1	0	0	49	0.07
Juglans hindsii	7	7	10	6	6	1	5	2	0	5	49	0.07
Fraxinus velutina	1	12	23	3	1	5	2	1	0	0	48	0.07
Pinus halepensis	6	0	8	14	11	5	4	0	0	0	48	0.07
Acer pseudoplatanus	11	29	6	0	0	0	0	0	0	0	46	0.07
Cercis occidentalis	38	4	3	0	0	0	0	0	0	0	45	0.07
Eriobotrya deflexa	19	12	12	1	0	0	0	0	0	0	44	0.06
Cupressus leylandii	15	2	7	14	2	3	0	0	0	0	43	0.06
Lagerstroemia	20	14	9	0	0	0	0	0	0	0	43	0.06
Acer macrophyllum	5	7	17	12	1	1	0	0	0	0	43	0.06
Podocarpus macrophyllus	22	7	10	3	0	0	0	0	0	0	42	0.06
Carpinus caroliniana	19	11	3	0	4	4	1	0	0	0	42	0.06
Xylosma congestum	15	22	1	1	0	0	0	0	0	0	39	0.06
Acer rubrum 'October Glory'	36	3	0	0	0	0	0	0	0	0	39	0.06
Eucalyptus	4	0	6	6	7	5	5	3	1	2	39	0.06
Agave attenuata	19	15	3	2	0	0	0	0	0	0	39	0.06
Lyonothamnus floribundus	28	6	3	0	0	0	0	0	0	0	37	0.05
Cycas revoluta	8	9	16	4	0	0	0	0	0	0	37	0.05
Juglans regia	13	9	5	6	2	1	0	1	0	0	37	0.05
Liquidambar formosana	2	2	2	1	13	13	2	0	0	0	35	0.05
Cotinus coggygria	30	2	1	0	0	0	0	0	0	0	33	0.05
Arbutus menziesii	7	16	7	3	0	0	0	0	0	0	33	0.05
Chitalpa	30	0	3	0	0	0	0	0	0	0	33	0.05
Magnolia acuminata	11	14	4	3	1	0	0	0	0	0	33	0.05
Citrus limon	22	10	0	0	0	0	0	0	0	0	32	0.05
Dodonaea viscosa	30	2	0	0	0	0	0	0	0	0	32	0.05
Fraxinus latifolia	1	4	7	12	4	3	0	0	0	0	31	0.05
Gymnocladus dioicus	22	1	5	3	0	0	0	0	0	0	31	0.05
Pittosporum eugenioides	5	15	9	2	0	0	0	0	0	0	31	0.05
Pittosporum tobira	15	9	5	1	0	0	0	0	0	0	30	0.04
Platanus x hispanica	1	0	4	8	5	7	4	1	0	0	30	0.04
Acer platanoides	8	8	11	2	0	0	0	0	0	0	29	0.04
Quercus muehlenbergii	0	0	1	8	8	10	2	0	0	0	29	0.04
Ficus benjamina	14	8	5	2	0	0	0	0	0	0	29	0.04
Prunus ilicifolia	5	5	12	5	1	1	0	0	0	0	29	0.04
Quercus virginiana	8	12	5	0	1	1	0	0	1	0	28	0.04
Pyracantha coccinea	26	1	1	0	0	0	0	0	0	0	28	0.04
Metasequoia glyptostroboides	0	0	5	3	7	4	5	1	2	1	28	0.04

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	0 - 3	3 - 6	6 - 12	12 - 18	18 - 24	24 - 30	30 - 36	36 - 42	42 - 48	48+		
Magnolia	21	4	3	0	0	0	0	0	0	0	28	0.04
Phoenix roebelenii	3	10	15	0	0	0	0	0	0	0	28	0.04
Photinia serrulata	21	2	5	0	0	0	0	0	0	0	28	0.04
Prunus caroliniana	14	6	5	2	1	0	0	0	0	0	28	0.04
Diospyros virginiana	16	10	0	0	0	1	0	0	0	0	27	0.04
Salix babylonica	3	2	6	8	5	2	1	0	0	0	27	0.04
Pinus	7	3	5	3	4	3	1	1	0	0	27	0.04
Lagerstroemia indica x fauriei 'Zuni'	12	12	2	0	0	0	0	0	0	0	26	0.04
Acer campestre	2	2	16	6	0	0	0	0	0	0	26	0.04
Fagus sylvatica	1	2	10	10	3	0	0	0	0	0	26	0.04
Burretiokentia hapala	0	6	18	2	0	0	0	0	0	0	26	0.04
Betula nigra	14	1	11	0	0	0	0	0	0	0	26	0.04
Acer saccharum	23	2	0	0	0	0	0	0	0	0	25	0.04
Prunus dulcis	7	5	10	3	0	0	0	0	0	0	25	0.04
Punica granatum	23	2	0	0	0	0	0	0	0	0	25	0.04
Quercus	9	6	8	2	0	0	0	0	0	0	25	0.04
Sambucus nigra	5	16	2	2	0	0	0	0	0	0	25	0.04
Ulmus pumila	0	2	6	5	7	2	0	2	1	0	25	0.04
Prunus armeniaca	16	4	4	0	0	0	0	0	0	0	24	0.03
Brugmansia suaveolens	16	7	0	0	0	0	0	0	0	0	23	0.03
Myoporum laetum	3	4	14	0	1	0	0	0	1	0	23	0.03
Sequoiadendron giganteum	1	0	0	6	2	3	4	2	1	4	23	0.03
Heteromeles arbutifolia	11	11	1	0	0	0	0	0	0	0	23	0.03
Citrus aurantifolia	19	3	0	0	0	0	0	0	0	0	22	0.03
Chamaerops humilis	0	3	17	2	0	0	0	0	0	0	22	0.03
Malus sylvestris	16	6	0	0	0	0	0	0	0	0	22	0.03
Celtis australis	2	1	9	9	1	0	0	0	0	0	22	0.03
Feijoa sellowiana	17	3	1	0	0	0	0	0	0	0	21	0.03
Acca sellowiana	21	0	0	0	0	0	0	0	0	0	21	0.03
Buxus sempervirens	17	3	0	0	0	0	0	0	0	0	20	0.03
Cotoneaster buxifolius	10	9	1	0	0	0	0	0	0	0	20	0.03
Juniperus communis	7	7	5	1	0	0	0	0	0	0	20	0.03
Parrotia persica	19	1	0	0	0	0	0	0	0	0	20	0.03
Pittosporum tenuifolium	2	12	5	1	0	0	0	0	0	0	20	0.03
Prunus serotina	6	8	3	3	0	0	0	0	0	0	20	0.03
Pyrus communis	17	1	1	0	0	0	0	0	0	0	19	0.03
Aesculus pavia	12	5	0	2	0	0	0	0	0	0	19	0.03
Juniperus occidentalis	8	5	6	0	0	0	0	0	0	0	19	0.03
Liquidambar orientalis	3	1	6	7	1	0	0	0	0	0	18	0.03
Carpinus betulus 'Fastigiata'	18	0	0	0	0	0	0	0	0	0	18	0.03
Citrus sinensis	8	6	3	1	0	0	0	0	0	0	18	0.03
Paulownia tomentosa	3	4	8	3	0	0	0	0	0	0	18	0.03
Thuja plicata	5	2	5	1	2	1	1	0	0	0	17	0.02
Cornus kousa	16	1	0	0	0	0	0	0	0	0	17	0.02
Eucalyptus citriodora	0	1	4	5	4	1	0	1	0	1	17	0.02
Vitex agnus-castus	13	3	1	0	0	0	0	0	0	0	17	0.02
Casuarina cunninghamiana	3	1	3	6	1	0	0	0	2	0	16	0.02
Acer	8	4	3	1	0	0	0	0	0	0	16	0.02
Lycianthes rantonnetii	12	4	0	0	0	0	0	0	0	0	16	0.02
Pyrus	10	4	2	0	0	0	0	0	0	0	16	0.02
Prunus x yedoensis	11	1	3	0	0	0	0	0	0	0	15	0.02
Thuja occidentalis	8	4	3	0	0	0	0	0	0	0	15	0.02
Eucalyptus rudis	0	0	3	7	5	0	0	0	0	0	15	0.02

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	0 - 3	3 - 6	6 - 12	12 - 18	18 - 24	24 - 30	30 - 36	36 - 42	42 - 48	48+		
Myrtus communis	4	6	5	0	0	0	0	0	0	0	15	0.02
Leptospermum scoparium	6	5	3	0	0	0	0	0	0	0	14	0.02
Chamaecyparis lawsoniana	0	1	5	6	1	0	1	0	0	0	14	0.02
Musa acuminata	8	5	1	0	0	0	0	0	0	0	14	0.02
Washingtonia	2	3	8	1	0	0	0	0	0	0	14	0.02
Eucalyptus viminalis	0	2	0	1	1	2	3	4	0	0	13	0.02
Gleditsia triacanthos v. *inermis*	1	3	7	2	0	0	0	0	0	0	13	0.02
Pyrus calleryana 'Aristocrat'	1	8	2	2	0	0	0	0	0	0	13	0.02
Acer palmatum v. *dissectum*	9	4	0	0	0	0	0	0	0	0	13	0.02
Tibouchina granulosa	12	1	0	0	0	0	0	0	0	0	13	0.02
Cornus florida	11	1	0	0	0	0	0	0	0	0	12	0.02
Butia capitata	0	2	1	2	3	3	1	0	0	0	12	0.02
Juniperus	3	2	4	2	0	1	0	0	0	0	12	0.02
Psidium guajava	9	3	0	0	0	0	0	0	0	0	12	0.02
Ficus	3	3	4	2	0	0	0	0	0	0	12	0.02
Magnolia macrophylla	4	4	2	2	0	0	0	0	0	0	12	0.02
Betula papyrifera	6	4	1	1	0	0	0	0	0	0	12	0.02
Acacia longifolia	0	1	4	3	1	2	0	0	0	0	11	0.02
Pinus thunbergiana	4	3	2	2	0	0	0	0	0	0	11	0.02
Thuja	5	4	2	0	0	0	0	0	0	0	11	0.02
Populus nigra	2	2	0	1	3	2	1	0	0	0	11	0.02
Ceanothus thyrsiflorus	5	6	0	0	0	0	0	0	0	0	11	0.02
Ficus retusa	1	0	2	7	1	0	0	0	0	0	11	0.02
Ravenala madagascariensis	0	5	6	0	0	0	0	0	0	0	11	0.02
Agonis flexuosa	7	0	1	1	1	0	0	0	1	0	11	0.02
Acer nigrum	9	1	0	0	0	0	0	0	0	0	10	0.01
Catalpa bignonioides	0	0	1	3	1	4	0	1	0	0	10	0.01
Ficus elastica	8	1	1	0	0	0	0	0	0	0	10	0.01
Juglans nigra	2	1	3	3	1	0	0	0	0	0	10	0.01
Melia azedarach	0	2	4	1	1	1	0	1	0	0	10	0.01
Archontophoenix cunninghamiana	1	0	2	5	1	0	0	0	0	0	9	0.01
Acer rubrum 'Armstrong'	9	0	0	0	0	0	0	0	0	0	9	0.01
Lagunaria patersonii	5	1	1	1	1	0	0	0	0	0	9	0.01
Magnolia stellata	8	1	0	0	0	0	0	0	0	0	9	0.01
Betula	1	1	7	0	0	0	0	0	0	0	9	0.01
Populus alba	3	0	1	2	1	1	0	0	1	0	9	0.01
Acer griseum	7	1	0	0	0	0	0	0	0	0	8	0.01
Aesculus hippocastanum	4	1	0	3	0	0	0	0	0	0	8	0.01
Alnus	0	1	4	3	0	0	0	0	0	0	8	0.01
Araucaria bidwillii	0	0	0	0	0	0	1	2	0	5	8	0.01
Ceanothus	3	5	0	0	0	0	0	0	0	0	8	0.01
Eucalyptus cinerea	1	1	2	1	1	2	0	0	0	0	8	0.01
Ligustrum	4	2	1	1	0	0	0	0	0	0	8	0.01
Taxus brevifolia	1	2	3	2	0	0	0	0	0	0	8	0.01
Cryptomeria japonica	0	1	1	0	3	1	1	0	0	0	7	0.01
Cupaniopsis anacardioides	1	1	1	2	2	0	0	0	0	0	7	0.01
Eucalyptus robusta	0	0	0	1	1	0	0	3	2	0	7	0.01
Euonymus	1	2	2	1	1	0	0	0	0	0	7	0.01

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Fremontodendron californicum	1	3	1	2	0	0	0	0	0	0	7	0.01
Rhamnus cathartica	2	3	2	0	0	0	0	0	0	0	7	0.01
Tilia	3	2	2	0	0	0	0	0	0	0	7	0.01
Tilia platyphyllos	1	0	1	3	2	0	0	0	0	0	7	0.01
Ulmus alata	1	3	1	0	0	1	0	1	0	0	7	0.01
Acer platanoides 'Crimson King'	1	3	3	0	0	0	0	0	0	0	7	0.01
Ceiba speciosa	2	0	2	3	0	0	0	0	0	0	7	0.01
Fraxinus nigra	0	3	3	1	0	0	0	0	0	0	7	0.01
Persea borbonia	1	0	3	3	0	0	0	0	0	0	7	0.01
Photinia	5	2	0	0	0	0	0	0	0	0	7	0.01
Picea glauca	5	0	2	0	0	0	0	0	0	0	7	0.01
Pinus patula	0	2	5	0	0	0	0	0	0	0	7	0.01
Eucalyptus lehmannii	0	0	2	4	0	0	0	1	0	0	7	0.01
Camellia japonica	7	0	0	0	0	0	0	0	0	0	7	0.01
Pinus contorta	7	0	0	0	0	0	0	0	0	0	7	0.01
Chamaecyparis obtusa	1	1	1	0	1	0	1	0	1	0	6	0.01
Sabal palmetto	0	0	1	4	1	0	0	0	0	0	6	0.01
Ulmus procera	0	1	3	1	1	0	0	0	0	0	6	0.01
Ailanthus altissima	1	2	3	0	0	0	0	0	0	0	6	0.01
Diospyros kaki	6	0	0	0	0	0	0	0	0	0	6	0.01
Hymenosporum flavum	6	0	0	0	0	0	0	0	0	0	6	0.01
Leucaena leucocephala	6	0	0	0	0	0	0	0	0	0	6	0.01
Morella californica	6	0	0	0	0	0	0	0	0	0	6	0.01
Campsis radicans	6	0	0	0	0	0	0	0	0	0	6	0.01
Acacia	5	0	1	0	0	0	0	0	0	0	6	0.01
Chionanthus retusus	5	1	0	0	0	0	0	0	0	0	6	0.01
Pittosporum rhombifolium	2	0	3	1	0	0	0	0	0	0	6	0.01
Pittosporum crassifolium	2	2	2	0	0	0	0	0	0	0	6	0.01
Acacia stenophylla	2	0	2	1	0	0	0	0	0	0	5	0.01
Alnus rubra	0	3	2	0	0	0	0	0	0	0	5	0.01
Citrus x paradisi	3	0	2	0	0	0	0	0	0	0	5	0.01
Cornus	5	0	0	0	0	0	0	0	0	0	5	0.01
Corylus avellana	3	1	1	0	0	0	0	0	0	0	5	0.01
Duranta erecta	5	0	0	0	0	0	0	0	0	0	5	0.01
Eucalyptus leucoxylon	0	0	0	0	2	2	1	0	0	0	5	0.01
Ficus macrophylla	1	0	1	1	0	2	0	0	0	0	5	0.01
Livistona chinensis	0	0	4	1	0	0	0	0	0	0	5	0.01
Phoenix reclinata	0	0	3	1	0	1	0	0	0	0	5	0.01
Pinus banksiana	0	1	0	4	0	0	0	0	0	0	5	0.01
Populus	3	1	0	1	0	0	0	0	0	0	5	0.01
Quercus macrocarpa	2	2	1	0	0	0	0	0	0	0	5	0.01
Tecoma stans	5	0	0	0	0	0	0	0	0	0	5	0.01
Ulmus rubra	5	0	0	0	0	0	0	0	0	0	5	0.01
Acer ginnala	4	0	0	0	0	0	0	0	0	0	4	0.01
Aesculus parviflora	4	0	0	0	0	0	0	0	0	0	4	0.01
Aloe arborescens	2	2	0	0	0	0	0	0	0	0	4	0.01
Araucaria columnaris	0	1	3	0	0	0	0	0	0	0	4	0.01
Chamaecyparis	2	0	2	0	0	0	0	0	0	0	4	0.01
Chamaecyparis pisifera	1	1	2	0	0	0	0	0	0	0	4	0.01
Chilopsis linearis	0	3	1	0	0	0	0	0	0	0	4	0.01
Cornus capitata	3	0	0	1	0	0	0	0	0	0	4	0.01
Fagus	0	1	3	0	0	0	0	0	0	0	4	0.01
Griselinia lucida	0	0	4	0	0	0	0	0	0	0	4	0.01
Hamamelis virginiana	4	0	0	0	0	0	0	0	0	0	4	0.01

Appendix C: Tables

Species	DBH Class (inches)										Number of Trees	% of Pop.
	0 - 3	3 - 6	6 - 12	12 - 18	18 - 24	24 - 30	30 - 36	36 - 42	42 - 48	48+		
Ilex	1	2	1	0	0	0	0	0	0	0	4	0.01
Juglans cinerea	1	3	0	0	0	0	0	0	0	0	4	0.01
Maclura pomifera	2	1	0	1	0	0	0	0	0	0	4	0.01
Michelia champaca	3	0	1	0	0	0	0	0	0	0	4	0.01
Pinus mugo	0	2	2	0	0	0	0	0	0	0	4	0.01
Pinus ponderosa	0	0	1	2	1	0	0	0	0	0	4	0.01
Quercus coccinea	3	1	0	0	0	0	0	0	0	0	4	0.01
Quercus douglasii	0	2	1	0	1	0	0	0	0	0	4	0.01
Radermachera sinica	2	0	0	1	1	0	0	0	0	0	4	0.01
Rhus glabra	4	0	0	0	0	0	0	0	0	0	4	0.01
Syringa vulgaris	4	0	0	0	0	0	0	0	0	0	4	0.01
Arctostaphylos glauca	2	1	0	0	0	0	0	0	0	0	3	0.00
Borinda	3	0	0	0	0	0	0	0	0	0	3	0.00
Brahea edulis	0	0	0	3	0	0	0	0	0	0	3	0.00
Callistemon	0	0	3	0	0	0	0	0	0	0	3	0.00
Castanopsis cuspidate	0	0	1	2	0	0	0	0	0	0	3	0.00
Cercidiphyllum japonicum	1	2	0	0	0	0	0	0	0	0	3	0.00
Chrysolepis chrysophylla	0	1	2	0	0	0	0	0	0	0	3	0.00
Corylus colurna	3	0	0	0	0	0	0	0	0	0	3	0.00
Cydonia oblonga	3	0	0	0	0	0	0	0	0	0	3	0.00
Elaeocarpus decipiens	0	0	3	0	0	0	0	0	0	0	3	0.00
Juniperus scopulorum	0	3	0	0	0	0	0	0	0	0	3	0.00
Lagerstroemia speciosa	0	3	0	0	0	0	0	0	0	0	3	0.00
Livistona australis	0	0	1	2	0	0	0	0	0	0	3	0.00
Morus nigra	0	0	3	0	0	0	0	0	0	0	3	0.00
Phoenix rupicola	0	0	0	2	1	0	0	0	0	0	3	0.00
Pinus strobus	0	1	2	0	0	0	0	0	0	0	3	0.00
Populus deltoides	0	0	3	0	0	0	0	0	0	0	3	0.00
Prosopis	3	0	0	0	0	0	0	0	0	0	3	0.00
Prunus serrulata 'Shirofugen'	0	3	0	0	0	0	0	0	0	0	3	0.00
Quercus alba	0	2	1	0	0	0	0	0	0	0	3	0.00
Quercus velutina	0	0	2	0	1	0	0	0	0	0	3	0.00
Rhododendron	1	2	0	0	0	0	0	0	0	0	3	0.00
Salix nigra	1	0	2	0	0	0	0	0	0	0	3	0.00
Schefflera actinophylla	3	0	0	0	0	0	0	0	0	0	3	0.00
Stenocarpus sinuatus	3	0	0	0	0	0	0	0	0	0	3	0.00
Taxus	2	0	0	1	0	0	0	0	0	0	3	0.00
Araucaria araucana	0	0	0	0	0	1	1	1	0	0	3	0.00
Carya illinoinensis	1	1	0	1	0	0	0	0	0	0	3	0.00
Elaeagnus angustifolia	1	0	1	1	0	0	0	0	0	0	3	0.00
Morus	0	1	1	1	0	0	0	0	0	0	3	0.00
Abies grandis	0	0	0	0	0	2	0	0	0	0	2	0.00
Acer tataricum	2	0	0	0	0	0	0	0	0	0	2	0.00
Annona cherimola	2	0	0	0	0	0	0	0	0	0	2	0.00
Archontophoenix	0	2	0	0	0	0	0	0	0	0	2	0.00
Baccharis pilularis	0	2	0	0	0	0	0	0	0	0	2	0.00
Bauhinia purpurea	0	1	0	0	0	1	0	0	0	0	2	0.00
Bauhinia variegata	2	0	0	0	0	0	0	0	0	0	2	0.00
Bougainvillea spectabilis	2	0	0	0	0	0	0	0	0	0	2	0.00
Brachychiton populneus	0	0	0	0	2	0	0	0	0	0	2	0.00
Carya glabra	0	0	1	1	0	0	0	0	0	0	2	0.00
Caryota gigas	0	0	0	1	1	0	0	0	0	0	2	0.00
Cercocarpus betuloides	1	1	0	0	0	0	0	0	0	0	2	0.00
Chamaecyparis thyoides	0	2	0	0	0	0	0	0	0	0	2	0.00
Cornus nuttallii	2	0	0	0	0	0	0	0	0	0	2	0.00

Species	DBH Class (inches)										Number of Trees	% of Pop.
	0 - 3	3 - 6	6 - 12	12 - 18	18 - 24	24 - 30	30 - 36	36 - 42	42 - 48	48+		
Echium candicans	0	2	0	0	0	0	0	0	0	0	2	0.00
Ficus rubiginosa	0	0	1	1	0	0	0	0	0	0	2	0.00
Rhamnus caroliniana	1	0	1	0	0	0	0	0	0	0	2	0.00
Hibiscus rosa-sinensis	2	0	0	0	0	0	0	0	0	0	2	0.00
Hibiscus syriacus	2	0	0	0	0	0	0	0	0	0	2	0.00
Juniperus californica	2	0	0	0	0	0	0	0	0	0	2	0.00
Juniperus monosperma	1	1	0	0	0	0	0	0	0	0	2	0.00
Leucadendron argenteum	1	1	0	0	0	0	0	0	0	0	2	0.00
Michelia doltsopa	2	0	0	0	0	0	0	0	0	0	2	0.00
Osmanthus fragrans	1	1	0	0	0	0	0	0	0	0	2	0.00
Oxydendrum arboreum	0	2	0	0	0	0	0	0	0	0	2	0.00
Parkinsonia aculeata	1	0	1	0	0	0	0	0	0	0	2	0.00
Philadelphus coronarius	2	0	0	0	0	0	0	0	0	0	2	0.00
Picea pungens	1	1	0	0	0	0	0	0	0	0	2	0.00
Picea sitchensis	1	0	0	0	1	0	0	0	0	0	2	0.00
Populus balsamifera	0	0	0	2	0	0	0	0	0	0	2	0.00
Prunus americana	1	0	1	0	0	0	0	0	0	0	2	0.00
Quercus falcata	1	0	0	0	0	0	0	1	0	0	2	0.00
Quercus phellos	1	0	1	0	0	0	0	0	0	0	2	0.00
Quercus wislizeni	0	0	1	1	0	0	0	0	0	0	2	0.00
Ricinus communis	1	1	0	0	0	0	0	0	0	0	2	0.00
Sabal mexicana	0	0	1	1	0	0	0	0	0	0	2	0.00
Cistus ladanifer	1	0	1	0	0	0	0	0	0	0	2	0.00
Magnifera indica	2	0	0	0	0	0	0	0	0	0	2	0.00
Aronia arbutifolia	2	0	0	0	0	0	0	0	0	0	2	0.00
Tilia cordata 'Greenspire'	2	0	0	0	0	0	0	0	0	0	2	0.00
Ulmus davidiana	2	0	0	0	0	0	0	0	0	0	2	0.00
Ziziphus	1	1	0	0	0	0	0	0	0	0	2	0.00
Acer shirasawanum	1	0	0	0	0	0	0	0	0	0	1	0.00
Acer truncatum	1	0	0	0	0	0	0	0	0	0	1	0.00
Amelanchier	1	0	0	0	0	0	0	0	0	0	1	0.00
Annona squamosa	1	0	0	0	0	0	0	0	0	0	1	0.00
Arctostaphylos	0	0	1	0	0	0	0	0	0	0	1	0.00
Azara dentata	0	1	0	0	0	0	0	0	0	0	1	0.00
Bauhinia galpinii	0	1	0	0	0	0	0	0	0	0	1	0.00
Brachychiton acerifolius	1	0	0	0	0	0	0	0	0	0	1	0.00
Brachychiton rupestris	0	0	0	1	0	0	0	0	0	0	1	0.00
Brahea armata	0	0	0	0	0	1	0	0	0	0	1	0.00
Buddleja davidii	1	0	0	0	0	0	0	0	0	0	1	0.00
Catalpa	0	1	0	0	0	0	0	0	0	0	1	0.00
Celtis reticulata	0	0	1	0	0	0	0	0	0	0	1	0.00
Cercidium praecox	1	0	0	0	0	0	0	0	0	0	1	0.00
Cercis reniformis	1	0	0	0	0	0	0	0	0	0	1	0.00
Chamaecyparis nootkatensis	0	0	1	0	0	0	0	0	0	0	1	0.00
Chionanthus virginicus	0	1	0	0	0	0	0	0	0	0	1	0.00
Cinnamomum	0	1	0	0	0	0	0	0	0	0	1	0.00
Combretum apiculatum	1	0	0	0	0	0	0	0	0	0	1	0.00
Conocarpus erectus	1	0	0	0	0	0	0	0	0	0	1	0.00
Coprosma repens	1	0	0	0	0	0	0	0	0	0	1	0.00
Crataegus douglasii	0	0	1	0	0	0	0	0	0	0	1	0.00
Crataegus viridis	0	0	1	0	0	0	0	0	0	0	1	0.00
Cussonia spicata	1	0	0	0	0	0	0	0	0	0	1	0.00
Dichotomanthes tristaniiicarpa	1	0	0	0	0	0	0	0	0	0	1	0.00
Dicksonia sellowiana	0	1	0	0	0	0	0	0	0	0	1	0.00

Species	DBH Class (inches)										Number of Trees	% of Pop.
	0 - 3	3 - 6	6 - 12	12 - 18	18 - 24	24 - 30	30 - 36	36 - 42	42 - 48	48+		
Elaeagnus	0	0	1	0	0	0	0	0	0	0	1	0.00
Elaeagnus umbellata	0	1	0	0	0	0	0	0	0	0	1	0.00
Erythrina caffra	0	0	1	0	0	0	0	0	0	0	1	0.00
Erythrina crista-galli	0	0	1	0	0	0	0	0	0	0	1	0.00
Eucalyptus cornuta	0	0	0	0	0	0	1	0	0	0	1	0.00
Eucalyptus erythrocorys	0	0	0	0	1	0	0	0	0	0	1	0.00
Eucalyptus grandis	0	0	0	0	0	0	0	0	1	0	1	0.00
Euphorbia tirucalli	0	1	0	0	0	0	0	0	0	0	1	0.00
Fraxinus ornus	0	1	0	0	0	0	0	0	0	0	1	0.00
Fuchsia	0	1	0	0	0	0	0	0	0	0	1	0.00
Gleditsia triacanthos v. inermis 'Imperial'	0	0	1	0	0	0	0	0	0	0	1	0.00
Grevillea	1	0	0	0	0	0	0	0	0	0	1	0.00
Grevillea banksii	0	1	0	0	0	0	0	0	0	0	1	0.00
Grewia	1	0	0	0	0	0	0	0	0	0	1	0.00
Griselinia littoralis	1	0	0	0	0	0	0	0	0	0	1	0.00
Hakea salicifolia	0	0	0	1	0	0	0	0	0	0	1	0.00
Hakea suaveolens	1	0	0	0	0	0	0	0	0	0	1	0.00
Halesia carolina	1	0	0	0	0	0	0	0	0	0	1	0.00
Hydrangea	1	0	0	0	0	0	0	0	0	0	1	0.00
Hyophorbe lagenicaulis	0	0	1	0	0	0	0	0	0	0	1	0.00
Ilex cassine	1	0	0	0	0	0	0	0	0	0	1	0.00
Ilex opaca	1	0	0	0	0	0	0	0	0	0	1	0.00
Iochroma coccinea	1	0	0	0	0	0	0	0	0	0	1	0.00
Koelreuteria elegans	0	0	1	0	0	0	0	0	0	0	1	0.00
Leucospermum	1	0	0	0	0	0	0	0	0	0	1	0.00
Ligustrum ovalifolium	0	1	0	0	0	0	0	0	0	0	1	0.00
Livistona decipiens	0	0	0	1	0	0	0	0	0	0	1	0.00
Lonicera	1	0	0	0	0	0	0	0	0	0	1	0.00
Loropetalum chinense	1	0	0	0	0	0	0	0	0	0	1	0.00
Macadamia ternifolia	0	1	0	0	0	0	0	0	0	0	1	0.00
Magnolia kobus	1	0	0	0	0	0	0	0	0	0	1	0.00
Magnolia tripetala	0	1	0	0	0	0	0	0	0	0	1	0.00
Berberis bealei	1	0	0	0	0	0	0	0	0	0	1	0.00
Malus pumila	1	0	0	0	0	0	0	0	0	0	1	0.00
Melaleuca armillaris	0	0	1	0	0	0	0	0	0	0	1	0.00
Neolitsea sericea	0	0	1	0	0	0	0	0	0	0	1	0.00
Nyssa aquatica	0	0	1	0	0	0	0	0	0	0	1	0.00
Parkinsonia florida	1	0	0	0	0	0	0	0	0	0	1	Pop.
Peumus boldus	0	1	0	0	0	0	0	0	0	0	1	0.00
Picea	1	0	0	0	0	0	0	0	0	0	1	0.00
Picea abies	0	0	1	0	0	0	0	0	0	0	1	0.00
Picea mariana	0	0	1	0	0	0	0	0	0	0	1	0.00
Pinus brutia	0	0	0	0	1	0	0	0	0	0	1	0.00
Pinus coulteri	0	0	0	0	1	0	0	0	0	0	1	0.00
Pistacia vera	1	0	0	0	0	0	0	0	0	0	1	0.00
Pittosporum viridiflorum	1	0	0	0	0	0	0	0	0	0	1	0.00
Podocarpus henkelii	0	0	0	1	0	0	0	0	0	0	1	0.00
Polygala myrtifolia	1	0	0	0	0	0	0	0	0	0	1	0.00
Prosopis chilensis	1	0	0	0	0	0	0	0	0	0	1	0.00
Prosopis glandulosa	0	1	0	0	0	0	0	0	0	0	1	0.00
Prunus angustifolia	1	0	0	0	0	0	0	0	0	0	1	0.00
Prunus serrulata 'Shirotae'	0	1	0	0	0	0	0	0	0	0	1	0.00
Prunus subhirtella	1	0	0	0	0	0	0	0	0	0	1	0.00
Quercus acutissima	0	1	0	0	0	0	0	0	0	0	1	0.00
Quercus bicolor	0	0	1	0	0	0	0	0	0	0	1	0.00

Species	DBH Class (inches)										Number of Trees	% of Pop.
	0 - 3	3 - 6	6 - 12	12 - 18	18 - 24	24 - 30	30 - 36	36 - 42	42 - 48	48+		
Quercus chrysolepis	0	1	0	0	0	0	0	0	0	0	1	0.00
Quercus ellipsoidalis	1	0	0	0	0	0	0	0	0	0	1	0.00
Quercus imbricaria	0	0	1	0	0	0	0	0	0	0	1	0.00
Quercus kelloggii	0	1	0	0	0	0	0	0	0	0	1	0.00
Quercus stellata	1	0	0	0	0	0	0	0	0	0	1	0.00
Rhopalostylis sapida	0	0	1	0	0	0	0	0	0	0	1	0.00
Rhus typhina	1	0	0	0	0	0	0	0	0	0	1	0.00
Ribes sanguineum	1	0	0	0	0	0	0	0	0	0	1	0.00
Robinia x *ambigua*	0	1	0	0	0	0	0	0	0	0	1	0.00
Roystonea regia	0	1	0	0	0	0	0	0	0	0	1	0.00
Salix caprea	0	1	0	0	0	0	0	0	0	0	1	0.00
Sapindus saponaria ssp. *Drummondii*	0	1	0	0	0	0	0	0	0	0	1	0.00
Senna lindheimeriana	1	0	0	0	0	0	0	0	0	0	1	0.00
Senna siamea	0	1	0	0	0	0	0	0	0	0	1	0.00
Sideroxylon lanuginosum	1	0	0	0	0	0	0	0	0	0	1	0.00
Solanum aviculare	0	1	0	0	0	0	0	0	0	0	1	0.00
Sorbus aucuparia	1	0	0	0	0	0	0	0	0	0	1	0.00
Taxodium distichum	0	0	0	0	1	0	0	0	0	0	1	0.00
Tipuana tipu	0	0	0	0	1	0	0	0	0	0	1	0.00
Tsuga heterophylla	0	0	0	0	1	0	0	0	0	0	1	0.00
Ulmus thomasii	0	0	1	0	0	0	0	0	0	0	1	0.00
Vernonia amygdalina	1	0	0	0	0	0	0	0	0	0	1	0.00
Viburnum	1	0	0	0	0	0	0	0	0	0	1	0.00
Yucca recurvifolia	0	1	0	0	0	0	0	0	0	0	1	0.00
all other species	6,959	4,736	6,346	4,140	2,256	1,257	708	333	173	113	27,021	39.35
all species total	14,376	13,618	18,229	10,912	5,756	3,006	1,548	679	316	224	68,664	100%

Table 16: Importance Value (IV) for All Tree Species

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Platanus x *hybrida*	8.83	14.61	23.45
Liquidambar styraciflua	6.10	0.70	6.79
Quercus agrifolia	5.19	2.67	7.86
Sequoia sempervirens	4.80	8.46	13.26
Pyrus calleryana	4.77	7.79	12.56
Lagerstroemia indica	4.15	1.06	5.22
Eucalyptus globulus	3.90	8.08	11.97
Fraxinus angustifolia	3.05	0.52	3.58
Pinus radiata	2.85	2.31	5.16
Prunus cerasifera	2.46	3.59	6.05
Magnolia grandiflora	2.39	0.64	3.03
Pistacia chinensis	1.97	3.50	5.47
Acacia melanoxylon	1.74	0.54	2.29
Pyrus kawakamii	1.65	0.48	2.12
Tristaniopsis conferta	1.56	1.80	3.36

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Ginkgo biloba	1.53	0.48	2.01
Acer rubrum	1.28	0.15	1.43
Cinnamomum camphora	1.27	1.37	2.64
Acer buergerianum	1.14	0.25	1.39
Quercus rubra	0.83	1.09	1.92
Eucalyptus camaldulensis	0.82	5.65	6.47
Fraxinus uhdei	0.81	1.01	1.83
Podocarpus gracilior	0.78	0.36	1.14
Cercis canadensis	0.76	0.08	0.84
Tristaniopsis laurina	0.76	1.30	2.07
Ulmus parvifolia	0.69	0.14	0.83
Celtis sinensis	0.64	0.39	1.02
Melaleuca linariifolia	0.62	0.11	0.73
Cedrus deodara	0.62	0.37	0.99
Phoenix canariensis	0.61	0.57	1.18
Jacaranda mimosifolia	0.59	0.74	1.33
Pinus pinea	0.58	1.27	1.85
Cupressus macrocarpa	0.56	0.19	0.75
Robinia pseudoacacia	0.55	0.07	0.61
Olea europaea	0.50	0.81	1.31
Eucalyptus nicholii	0.49	0.24	0.72
Acer palmatum	0.48	0.18	0.66
Prunus	0.47	0.81	1.28
Populus nigra v. italica	0.46	0.32	0.78
Ligustrum lucidum	0.45	0.32	0.77
Washingtonia robusta	0.43	0.09	0.51
Arbutus unedo	0.42	0.05	0.47
Calocedrus decurrens	0.41	0.13	0.54
Eucalyptus sideroxylon	0.40	0.03	0.43
Arecastrum romanzoffianum	0.39	0.31	0.70
Platanus x acerifolia 'Bloodgood'	0.39	0.14	0.53
Cupressus sempervirens	0.38	0.64	1.03
Schinus terebinthifolia	0.38	0.04	0.42
Umbellularia californica	0.38	0.76	1.14
Fraxinus excelsior	0.37	0.08	0.46
Corymbia ficifolia	0.35	0.25	0.60
Pinus canariensis	0.33	0.37	0.70
Platanus occidentalis	0.31	0.42	0.73
Fraxinus oxycarpa	0.31	0.06	0.37
Pittosporum undulatum	0.31	0.35	0.66
Quercus ilex	0.30	0.98	1.29
Syzygium paniculatum	0.29	0.08	0.37
Prunus serrulata	0.29	0.03	0.32

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Betula pendula	0.29	0.38	0.67
Quercus suber	0.28	1.60	1.88
Celtis occidentalis	0.28	0.06	0.35
Platanus racemosa	0.27	0.09	0.36
Gleditsia triacanthos	0.27	0.41	0.68
Eucalyptus polyanthemos	0.26	0.54	0.80
Triadica sebifera	0.25	0.02	0.27
Melaleuca ericifolia	0.24	0.20	0.45
Yucca gloriosa	0.24	0.07	0.32
Ceratonia siliqua	0.24	0.13	0.37
Metrosideros excelsus	0.24	0.17	0.41
Cordyline australis	0.24	0.49	0.72
Liriodendron tulipifera	0.23	0.05	0.28
Melaleuca styphelioides	0.23	0.27	0.50
Melaleuca quinquenervia	0.23	0.45	0.68
Nyssa sylvatica	0.23	0.08	0.31
Acacia dealbata	0.22	0.16	0.38
Grevillea robusta	0.22	0.40	0.62
Populus fremontii	0.22	0.08	0.30
Crataegus phaenopyrum	0.22	0.34	0.55
Eriobotrya japonica	0.21	0.38	0.60
Alnus rhombifolia	0.21	0.16	0.37
Schinus molle	0.21	0.16	0.36
Callistemon citrinus	0.20	0.30	0.51
Ulmus	0.20	0.02	0.22
Albizia julibrissin	0.20	0.08	0.28
Rhus lancea	0.20	0.00	0.20
Koelreuteria paniculata	0.19	0.14	0.34
Eucalyptus	0.19	0.05	0.24
Geijera parviflora	0.19	0.25	0.44
Leptospermum laevigata	0.19	0.04	0.23
Fraxinus velutina 'Modesto'	0.18	0.02	0.21
Ficus microcarpa	0.17	0.29	0.46
Laurus nobilis	0.17	0.29	0.46
Ulmus americana	0.17	0.27	0.44
Styphnolobium japonicum	0.16	0.39	0.55
Prunus blieriana	0.16	0.15	0.31
Acer x *freemanii*	0.16	0.26	0.41
Washingtonia filifera	0.16	0.53	0.69
Aesculus californica	0.16	0.06	0.21
Aesculus x *carnea*	0.15	0.01	0.17
Fraxinus pennsylvanica	0.15	0.01	0.17
Fraxinus	0.15	0.20	0.35

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Callistemon viminalis	0.15	0.14	0.29
Maytenus boaria	0.15	0.79	0.94
Acacia baileyana	0.14	0.02	0.16
Citrus	0.13	0.04	0.17
Quercus palustris	0.13	0.01	0.14
Quercus shumardii	0.13	0.08	0.21
Juniperus chinensis	0.13	0.12	0.24
Tilia tomentosa	0.13	0.33	0.46
Cedrus atlantica	0.13	0.04	0.17
Prunus domestica	0.13	0.06	0.19
Acer negundo	0.12	0.03	0.15
Malus	0.12	0.21	0.33
Morus alba	0.12	0.10	0.22
Pinus halepensis	0.12	0.18	0.30
Pyrus calleryana 'Bradford'	0.12	0.57	0.68
Juglans hindsii	0.12	0.14	0.25
Trachycarpus fortunei	0.11	0.19	0.30
Acer saccharinum	0.11	0.01	0.12
Magnoliopsida	0.11	0.25	0.36
Liquidambar formosana	0.11	0.06	0.17
Alnus cordata	0.11	0.02	0.13
Pseudotsuga menziesii	0.10	0.08	0.19
Zelkova serrata	0.10	0.03	0.13
Pinus resinosa	0.10	0.01	0.11
Salix	0.10	0.13	0.23
Quercus lobata	0.10	0.43	0.53
Platanus x *hispanica*	0.10	0.63	0.73
Cupressus arizonica	0.10	0.01	0.11
Quercus robur	0.10	0.07	0.16
Prunus cerasifera 'Thundercloud'	0.10	0.09	0.19
Malus floribunda	0.10	0.09	0.19
Nerium oleander	0.10	0.03	0.12
Fraxinus americana	0.09	0.01	0.10
Koelreuteria bipinnata	0.09	0.10	0.19
Quercus muehlenbergii	0.09	0.05	0.14
Crataegus laevigata	0.09	0.02	0.12
Celtis	0.09	0.10	0.19
Arbutus 'Marina'	0.09	0.11	0.20
Tilia americana	0.09	0.17	0.26
Metasequoia glyptostroboides	0.09	0.02	0.11
Fraxinus velutina	0.09	0.01	0.10
Dracaena draco	0.08	0.02	0.10
Ligustrum japonicum	0.08	0.01	0.09

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Eucalyptus viminalis	0.08	0.03	0.11
Prunus laurocerasus	0.08	0.08	0.15
Fagus sylvatica	0.08	0.02	0.10
Crataegus	0.08	0.07	0.15
Acer macrophyllum	0.08	0.03	0.10
Tilia cordata	0.08	0.03	0.11
Eucalyptus robusta	0.08	0.01	0.08
Prunus persica	0.08	0.01	0.09
Persea americana	0.08	0.10	0.17
Prunus avium	0.07	0.44	0.52
Carpinus betulus	0.07	0.04	0.11
Eucalyptus citriodora	0.07	0.14	0.21
Sequoiadendron giganteum	0.07	0.07	0.14
Platycladus orientalis	0.07	0.14	0.21
Araucaria heterophylla	0.07	0.02	0.09
Fraxinus latifolia	0.07	0.01	0.07
Carpinus caroliniana	0.06	0.01	0.08
Ficus carica	0.06	0.06	0.13
Salix matsudana	0.06	0.04	0.11
Cupressus leylandii	0.06	0.00	0.07
Prunus ilicifolia ssp. lyonii	0.06	0.05	0.11
Rhaphiolepis	0.06	0.01	0.08
Phoenix dactylifera	0.06	0.00	0.06
Juglans regia	0.06	0.31	0.36
Cycas revoluta	0.06	0.01	0.07
Crataegus x lavallei	0.06	0.01	0.07
Ulmus pumila	0.05	0.04	0.10
Photinia x fraseri	0.05	0.05	0.10
Salix babylonica	0.05	0.01	0.06
Pinus	0.05	0.14	0.20
Ilex aquifolium	0.05	0.01	0.06
Acer pseudoplatanus	0.05	0.00	0.05
Magnolia x soulangeana	0.05	0.00	0.05
Juniperus virginiana	0.05	0.02	0.07
Acer campestre	0.05	0.00	0.05
Eucalyptus leucoxylon	0.05	0.00	0.05
Podocarpus macrophyllus	0.05	0.06	0.11
Eriobotrya deflexa	0.05	0.02	0.06
Cercis occidentalis	0.05	0.01	0.05
Celtis australis	0.04	0.01	0.05
Prunus ilicifolia	0.04	0.13	0.18
Eucalyptus rudis	0.04	0.01	0.05
Lagerstroemia	0.04	0.01	0.05

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Magnolia acuminata	0.04	0.03	0.07
Agave attenuata	0.04	0.12	0.16
Xylosma congestum	0.04	0.01	0.05
Quercus virginiana	0.04	0.10	0.14
Betula nigra	0.04	0.00	0.04
Gymnocladus dioicus	0.04	0.00	0.04
Arbutus menziesii	0.04	0.01	0.05
Burretiokentia hapala	0.04	0.00	0.04
Acer rubrum 'October Glory'	0.04	0.02	0.06
Liquidambar orientalis	0.04	0.01	0.05
Lyonothamnus floribundus	0.04	0.05	0.09
Quercus	0.04	0.05	0.09
Prunus caroliniana	0.04	0.04	0.08
Pittosporum eugenioides	0.04	0.02	0.06
Myoporum laetum	0.04	0.09	0.13
Acer platanoides	0.04	0.00	0.04
Araucaria bidwillii	0.04	0.02	0.06
Chitalpa	0.04	0.00	0.04
Pittosporum tobira	0.04	0.01	0.05
Ficus benjamina	0.04	0.00	0.04
Cotinus coggygria	0.04	0.02	0.06
Dodonaea viscosa	0.04	0.00	0.04
Citrus limon	0.04	0.06	0.10
Eucalyptus cinerea	0.03	0.00	0.04
Diospyros virginiana	0.03	0.00	0.04
Magnolia	0.03	0.00	0.04
Prunus dulcis	0.03	0.02	0.05
Photinia serrulata	0.03	0.08	0.11
Catalpa bignonioides	0.03	0.04	0.07
Acacia longifolia	0.03	0.00	0.04
Pyracantha coccinea	0.03	0.00	0.03
Phoenix roebelenii	0.03	0.00	0.03
Agonis flexuosa	0.03	0.00	0.03
Lagerstroemia indica x *fauriei* 'Zuni'	0.03	0.00	0.03
Thuja plicata	0.03	0.00	0.03
Prunus serotina	0.03	0.00	0.03
Eucalyptus lehmannii	0.03	0.01	0.03
Sambucus nigra	0.03	0.00	0.03
Prunus armeniaca	0.03	0.01	0.04
Acer saccharum	0.03	0.01	0.04
Punica granatum	0.03	0.01	0.04
Juniperus occidentalis	0.03	0.01	0.04
Chamaecyparis lawsoniana	0.03	0.00	0.03

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Heteromeles arbutifolia	0.03	0.00	0.03
Pittosporum tenuifolium	0.03	0.00	0.03
Chamaerops humilis	0.03	0.03	0.06
Aesculus pavia	0.03	0.01	0.03
Brugmansia suaveolens	0.02	0.00	0.03
Juniperus communis	0.02	0.09	0.11
Malus sylvestris	0.02	0.02	0.04
Paulownia tomentosa	0.02	0.00	0.03
Citrus aurantifolia	0.02	0.01	0.03
Populus nigra	0.02	0.01	0.03
Casuarina cunninghamiana	0.02	0.00	0.03
Feijoa sellowiana	0.02	0.00	0.02
Cryptomeria japonica	0.02	0.05	0.07
Acca sellowiana	0.02	0.01	0.03
Cotoneaster buxifolius	0.02	0.00	0.02
Parrotia persica	0.02	0.00	0.02
Ficus retusa	0.02	0.02	0.04
Buxus sempervirens	0.02	0.00	0.02
Acer	0.02	0.00	0.02
Butia capitata	0.02	0.00	0.02
Citrus sinensis	0.02	0.00	0.02
Pyrus communis	0.02	0.11	0.13
Myrtus communis	0.02	0.01	0.03
Gleditsia triacanthos v. *inermis*	0.02	0.01	0.03
Carpinus betulus 'Fastigiata'	0.02	0.00	0.02
Melia azedarach	0.02	0.01	0.02
Magnolia macrophylla	0.02	0.01	0.03
Tilia platyphyllos	0.02	0.00	0.02
Vitex agnus-castus	0.02	0.01	0.02
Juniperus	0.02	0.01	0.03
Cornus kousa	0.02	0.01	0.03
Populus alba	0.02	0.00	0.02
Pyrus calleryana 'Aristocrat'	0.02	0.03	0.04
Lycianthes rantonnetii	0.02	0.03	0.04
Pyrus	0.02	0.00	0.02
Prunus x *yedoensis*	0.02	0.02	0.03
Ficus	0.02	0.01	0.02
Alnus	0.02	0.02	0.03
Juglans nigra	0.02	0.00	0.02
Thuja occidentalis	0.02	0.00	0.02
Eucalyptus grandis	0.01	0.00	0.01
Betula papyrifera	0.01	0.03	0.04
Washingtonia	0.01	0.00	0.02

Appendix C: Tables

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Ulmus alata	0.01	0.01	0.02
Leptospermum scoparium	0.01	0.01	0.03
Aesculus hippocastanum	0.01	0.00	0.01
Musa acuminata	0.01	0.00	0.02
Chamaecyparis obtusa	0.01	0.01	0.02
Acer palmatum v. *dissectum*	0.01	0.01	0.02
Pinus thunbergiana	0.01	0.00	0.01
Cupaniopsis anacardioides	0.01	0.01	0.03
Ravenala madagascariensis	0.01	0.00	0.01
Araucaria araucana	0.01	0.01	0.02
Tibouchina granulosa	0.01	0.01	0.02
Lagunaria patersonii	0.01	0.04	0.05
Betula	0.01	0.00	0.01
Ficus macrophylla	0.01	0.04	0.05
Ceiba speciosa	0.01	0.00	0.02
Psidium guajava	0.01	0.01	0.02
Ulmus procera	0.01	0.00	0.01
Thuja	0.01	0.00	0.01
Taxus brevifolia	0.01	0.01	0.02
Cornus florida	0.01	0.02	0.03
Archontophoenix cunninghamiana	0.01	0.01	0.02
Ceanothus thyrsiflorus	0.01	0.03	0.04
Euonymus	0.01	0.11	0.12
Fraxinus nigra	0.01	0.01	0.02
Pinus ponderosa	0.01	0.00	0.01
Persea borbonia	0.01	0.01	0.02
Ligustrum	0.01	0.01	0.02
Pinus patula	0.01	0.00	0.01
Ficus elastica	0.01	0.00	0.01
Acer nigrum	0.01	0.00	0.01
Acer rubrum 'Armstrong'	0.01	0.01	0.02
Magnolia stellata	0.01	0.00	0.01
Fremontodendron californicum	0.01	0.00	0.01
Acer platanoides 'Crimson King'	0.01	0.02	0.03
Pinus banksiana	0.01	0.01	0.02
Tilia	0.01	0.00	0.01
Quercus douglasii	0.01	0.00	0.01
Castanopsis cuspidate	0.01	0.01	0.02
Acer griseum	0.01	0.00	0.01
Ceanothus	0.01	0.00	0.01
Pittosporum rhombifolium	0.01	0.00	0.01
Sabal palmetto	0.01	0.00	0.01
Eucalyptus cornuta	0.01	0.00	0.01

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Acacia stenophylla	0.01	0.00	0.01
Picea glauca	0.01	0.00	0.01
Abies grandis	0.01	0.00	0.01
Photinia	0.01	0.01	0.02
Rhamnus cathartica	0.01	0.00	0.01
Alnus rubra	0.01	0.00	0.01
Pittosporum crassifolium	0.01	0.00	0.01
Pinus contorta	0.01	0.00	0.01
Ailanthus altissima	0.01	0.00	0.01
Camellia japonica	0.01	0.00	0.01
Populus	0.01	0.00	0.01
Corylus avellana	0.01	0.07	0.08
Quercus velutina	0.01	0.01	0.02
Radermachera sinica	0.01	0.00	0.01
Acacia	0.01	0.00	0.01
Hymenosporum flavum	0.01	0.01	0.01
Chionanthus retusus	0.01	0.00	0.01
Fagus	0.01	0.00	0.01
Quercus macrocarpa	0.01	0.00	0.01
Morella californica	0.01	0.00	0.01
Leucaena leucocephala	0.01	0.00	0.01
Araucaria columnaris	0.01	0.00	0.01
Diospyros kaki	0.01	0.00	0.01
Campsis radicans	0.01	0.00	0.01
Livistona chinensis	0.01	0.00	0.01
Phoenix reclinata	0.01	0.00	0.01
Brachychiton populneus	0.01	0.00	0.01
Griselinia lucida	0.01	0.00	0.01
Pinus strobus	0.01	0.00	0.01
Populus balsamifera	0.01	0.00	0.01
Citrus x paradisi	0.01	0.00	0.01
Chamaecyparis pisifera	0.01	0.00	0.01
Quercus falcata	0.01	0.00	0.01
Ulmus rubra	0.01	0.00	0.01
Maclura pomifera	0.01	0.00	0.01
Cornus	0.01	0.00	0.01
Morus	0.01	0.01	0.02
Tecoma stans	0.01	0.00	0.01
Ilex	0.01	0.01	0.01
Duranta erecta	0.01	0.00	0.01
Callistemon	0.01	0.00	0.01
Pinus mugo	0.01	0.00	0.01
Carya glabra	0.00	0.02	0.02

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Michelia champaca	0.00	0.00	0.00
Chilopsis linearis	0.00	0.00	0.00
Picea sitchensis	0.00	0.00	0.00
Chrysolepis chrysophylla	0.00	0.00	0.01
Cornus capitata	0.00	0.00	0.01
Aesculus parviflora	0.00	0.01	0.01
Populus deltoides	0.00	0.00	0.01
Quercus alba	0.00	0.00	0.01
Elaeocarpus decipiens	0.00	0.00	0.00
Quercus coccinea	0.00	0.00	0.00
Aloe arborescens	0.00	0.00	0.00
Chamaecyparis	0.00	0.00	0.01
Hamamelis virginiana	0.00	0.00	0.01
Acer ginnala	0.00	0.00	0.01
Juglans cinerea	0.00	0.00	0.00
Morus nigra	0.00	0.00	0.01
Pinus coulteri	0.00	0.00	0.01
Salix nigra	0.00	0.00	0.01
Eucalyptus erythrocorys	0.00	0.00	0.01
Syringa vulgaris	0.00	0.00	0.01
Elaeagnus angustifolia	0.00	0.00	0.01
Rhus glabra	0.00	0.00	0.00
Quercus wislizeni	0.00	0.00	0.00
Carya illinoinensis	0.00	0.00	0.01
Ficus rubiginosa	0.00	0.01	0.01
Phoenix rupicola	0.00	0.00	0.00
Livistona australis	0.00	0.00	0.01
Taxus	0.00	0.00	0.00
Juniperus scopulorum	0.00	0.00	0.01
Brahea edulis	0.00	0.01	0.01
Taxodium distichum	0.00	0.00	0.00
Pinus brutia	0.00	0.00	0.00
Arctostaphylos glauca	0.00	0.00	0.00
Tsuga heterophylla	0.00	0.00	0.00
Cercidiphyllum japonicum	0.00	0.00	0.00
Rhododendron	0.00	0.00	0.00
Bauhinia purpurea	0.00	0.00	0.00
Quercus phellos	0.00	0.01	0.01
Lagerstroemia speciosa	0.00	0.00	0.00
Schefflera actinophylla	0.00	0.00	0.01
Prunus serrulata 'Shirofugen'	0.00	0.00	0.00
Podocarpus henkelii	0.00	0.00	0.00
Cydonia oblonga	0.00	0.00	0.00

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Stenocarpus sinuatus	0.00	0.00	0.00
Corylus colurna	0.00	0.00	0.01
Prosopis	0.00	0.00	0.00
Borinda	0.00	0.00	0.00
Tipuana tipu	0.00	0.00	0.00
Sabal mexicana	0.00	0.00	0.00
Brachychiton rupestris	0.00	0.00	0.00
Hakea salicifolia	0.00	0.00	0.00
Michelia doltsopa	0.00	0.00	0.00
Caryota gigas	0.00	0.00	0.00
Quercus bicolor	0.00	0.00	0.00
Oxydendrum arboreum	0.00	0.00	0.00
Osmanthus fragrans	0.00	0.00	0.00
Parkinsonia aculeata	0.00	0.00	0.01
Prunus americana	0.00	0.01	0.01
Cistus ladanifer	0.00	0.00	0.00
Picea pungens	0.00	0.00	0.01
Juniperus monosperma	0.00	0.00	0.00
Rhamnus caroliniana	0.00	0.00	0.01
Baccharis pilularis	0.00	0.00	0.00
Leucadendron argenteum	0.00	0.00	0.00
Acer tataricum	0.00	0.00	0.00
Juniperus californica	0.00	0.00	0.00
Brahea armata	0.00	0.00	0.00
Chamaecyparis thyoides	0.00	0.00	0.00
Cercocarpus betuloides	0.00	0.00	0.00
Tilia cordata 'Greenspire'	0.00	0.00	0.00
Ulmus davidiana	0.00	0.00	0.00
Celtis reticulata	0.00	0.00	0.00
Quercus imbricaria	0.00	0.00	0.00
Ricinus communis	0.00	0.00	0.00
Echium candicans	0.00	0.00	0.00
Hibiscus rosa-sinensis	0.00	0.00	0.00
Archontophoenix	0.00	0.00	0.00
Cornus nuttallii	0.00	0.00	0.00
Annona cherimola	0.00	0.00	0.00
Hibiscus syriacus	0.00	0.00	0.00
Magnifera indica	0.00	0.00	0.00
Aronia arbutifolia	0.00	0.00	0.00
Bougainvillea spectabilis	0.00	0.00	0.00
Ziziphus	0.00	0.00	0.00
Philadelphus coronarius	0.00	0.00	0.00
Bauhinia variegata	0.00	0.00	0.00

Appendix C: Tables

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Picea mariana	0.00	0.00	0.00
Elaeagnus	0.00	0.00	0.00
Quercus acutissima	0.00	0.00	0.00
Arctostaphylos	0.00	0.00	0.00
Koelreuteria elegans	0.00	0.00	0.00
Fraxinus ornus	0.00	0.00	0.00
Erythrina caffra	0.00	0.00	0.00
Chamaecyparis nootkatensis	0.00	0.00	0.00
Ulmus thomasii	0.00	0.00	0.00
Nyssa aquatica	0.00	0.00	0.00
Picea abies	0.00	0.00	0.00
Melaleuca armillaris	0.00	0.00	0.00
Neolitsea sericea	0.00	0.00	0.00
Erythrina crista-galli	0.00	0.00	0.00
Crataegus viridis	0.00	0.00	0.00
Livistona decipiens	0.00	0.00	0.00
Peumus boldo	0.00	0.00	0.00
Robinia x *ambigua*	0.00	0.01	0.01
Quercus kelloggii	0.00	0.00	0.01
Gleditsia triacanthos v. *inermis* 'Imperial'	0.00	0.02	0.02
Magnolia tripetala	0.00	0.00	0.00
Ligustrum ovalifolium	0.00	0.00	0.00
Grevillea banksii	0.00	0.00	0.00
Hyophorbe lagenicaulis	0.00	0.00	0.00
Azara dentata	0.00	0.00	0.00
Catalpa	0.00	0.00	0.00
Macadamia ternifolia	0.00	0.00	0.00
Dicksonia sellowiana	0.00	0.00	0.00
Cinnamomum	0.00	0.00	0.00
Sapindus saponaria ssp. *Drummondii*	0.00	0.00	0.00
Acer truncatum	0.00	0.00	0.00
Rhopalostylis sapida	0.00	0.00	0.00
Senna siamea	0.00	0.00	0.00
Yucca recurvifolia	0.00	0.00	0.00
Prunus subhirtella	0.00	0.00	0.00
Cussonia spicata	0.00	0.00	0.00
Fuchsia	0.00	0.00	0.00
Euphorbia tirucalli	0.00	0.00	0.00
Polygala myrtifolia	0.00	0.00	0.00
Malus pumila	0.00	0.00	0.00
Prunus serrulata 'Shirotae'	0.00	0.00	0.00
Chionanthus virginicus	0.00	0.00	0.00

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Solanum aviculare	0.00	0.00	0.00
Coprosma repens	0.00	0.00	0.00
Pistacia vera	0.00	0.00	0.00
Prosopis glandulosa	0.00	0.00	0.00
Elaeagnus umbellata	0.00	0.00	0.00
Crataegus douglasii	0.00	0.00	0.00
Grewia	0.00	0.00	0.00
Hakea suaveolens	0.00	0.00	0.00
Loropetalum chinense	0.00	0.00	0.00
Senna lindheimeriana	0.00	0.00	0.00
Quercus chrysolepis	0.00	0.00	0.00
Iochroma coccinea	0.00	0.00	0.00
Sideroxylon lanuginosum	0.00	0.00	0.01
Bauhinia galpinii	0.00	0.00	0.00
Griselinia littoralis	0.00	0.00	0.00
Buddleja davidii	0.00	0.00	0.00
Magnolia kobus	0.00	0.00	0.00
Salix caprea	0.00	0.00	0.00
Quercus stellata	0.00	0.00	0.00
Ilex cassine	0.00	0.00	0.00
Conocarpus erectus	0.00	0.00	0.00
Roystonea regia	0.00	0.00	0.00
Berberis bealei	0.00	0.00	0.00
Cercis reniformis	0.00	0.00	0.00
Leucospermum cordifolium	0.00	0.00	0.00
Viburnum	0.00	0.00	0.00
Prunus angustifolia	0.00	0.00	0.00
Dichotomanthes tristaniiicarpa	0.00	0.00	0.00
Sorbus aucuparia	0.00	0.00	0.00
Quercus ellipsoidalis	0.00	0.00	0.00
Hydrangea	0.00	0.00	0.00
Parkinsonia florida	0.00	0.00	0.00
Rhus typhina	0.00	0.00	0.00
Picea	0.00	0.00	0.00
Annona squamosa	0.00	0.00	0.00
Combretum apiculatum	0.00	0.00	0.00
Brachychiton acerifolius	0.00	0.00	0.00
Amelanchier	0.00	0.00	0.00
Ilex opaca	0.00	0.00	0.00
Lonicera	0.00	0.00	0.00
Vernonia amygdalina	0.00	0.00	0.00
Pittosporum viridiflorum	0.00	0.00	0.01
Ribes sanguineum	0.00	0.00	0.00

Appendix C: Tables

Species	% of Pop.	% of Leaf Area	Importance Value (IV)
Grevillea	0.00	0.00	0.00
Halesia carolina	0.00	0.00	0.00
Prosopis chilensis	0.00	0.00	0.00
Acer shirasawanum	0.00	0.00	0.00
Cercidium praecox	0.00	0.00	0.00
Total	100%	100%	200

Table 17: Condition and RPI for All Tree Species

Species	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Dead (%)	RPI	Number of Trees	% of Pop.
Platanus x *hybrida*	0.20	17.40	74.20	7.80	0.40	**1.00**	6,066	8.83
Lagerstroemia indica	0.20	33.20	63.10	3.00	0.50	**1.07**	4,187	6.10
Pyrus calleryana	0.00	8.90	82.60	7.70	0.80	**0.97**	3,563	5.19
Liquidambar styraciflua	0.00	5.60	84.90	9.40	0.10	**0.96**	3,297	4.80
Quercus agrifolia	0.00	13.30	81.90	4.40	0.40	**1.00**	3,273	4.77
Prunus cerasifera	0.00	10.60	78.60	10.10	0.80	**0.97**	2,852	4.15
Sequoia sempervirens	0.20	22.00	71.40	4.80	1.60	**1.01**	2,676	3.90
Pistacia chinensis	0.00	18.20	76.10	4.70	1.00	**1.01**	2,095	3.05
Magnolia grandiflora	0.00	27.60	64.30	8.00	0.10	**1.04**	1,958	2.85
Fraxinus angustifolia	0.00	3.60	71.90	24.00	0.50	**0.90**	1,686	2.46
Pyrus kawakamii	0.00	9.00	83.20	7.30	0.60	**0.97**	1,641	2.39
Pinus radiata	0.00	3.80	80.00	9.60	6.50	**0.89**	1,352	1.97
Ginkgo biloba	0.00	28.60	67.10	3.90	0.40	**1.05**	1,196	1.74
Acer rubrum	0.00	33.70	59.40	5.70	1.20	**1.05**	1,132	1.65
Acacia melanoxylon	0.00	9.20	74.40	13.80	2.60	**0.93**	1,074	1.56
Acer buergerianum	0.00	28.70	67.40	3.60	0.30	**1.05**	1,053	1.53
Cercis canadensis	0.00	20.20	71.40	7.10	1.20	**1.00**	882	1.28
Tristaniopsis conferta	0.00	21.00	70.60	7.90	0.50	**1.01**	875	1.27
Tristaniopsis laurina	0.00	37.80	60.40	1.70	0.10	**1.09**	785	1.14
Quercus rubra	0.00	22.80	69.80	6.50	0.90	**1.02**	567	0.83
Eucalyptus globulus	0.00	5.30	92.40	2.10	0.20	**0.98**	563	0.82
Podocarpus gracilior	0.00	18.80	78.20	3.00	0.00	**1.02**	559	0.81
Jacaranda mimosifolia	0.00	9.00	80.20	10.80	0.00	**0.97**	535	0.78
Acer palmatum	0.00	28.70	65.60	5.00	0.80	**1.04**	523	0.76
Cinnamomum camphora	0.00	7.30	67.50	23.90	1.30	**0.91**	523	0.76
Prunus	0.00	13.70	65.80	17.90	2.70	**0.93**	476	0.69
Robinia pseudoacacia	0.00	11.60	76.30	11.00	1.10	**0.96**	438	0.64
Arecastrum romanzoffianum	17.10	63.30	16.80	2.30	0.50	**1.25**	428	0.62
Olea europaea	0.00	17.80	78.00	4.20	0.00	**1.02**	428	0.62
Phoenix canariensis	2.90	59.20	34.60	3.30	0.00	**1.17**	419	0.61
Ulmus parvifolia	0.00	9.20	74.20	16.60	0.00	**0.95**	403	0.59

Species	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Dead (%)	RPI	Number of Trees	% of Pop.
Fraxinus uhdei	0.00	7.60	83.10	9.30	0.00	**0.97**	397	0.58
Arbutus unedo	0.30	37.30	57.30	4.40	0.80	**1.07**	386	0.56
Prunus serrulata	0.30	13.10	73.30	11.50	1.90	**0.96**	375	0.55
Celtis sinensis	0.00	8.20	85.10	6.70	0.00	**0.98**	343	0.50
Cupressus sempervirens	0.30	62.10	32.80	3.90	0.90	**1.15**	335	0.49
Pittosporum undulatum	0.00	4.30	71.70	20.70	3.30	**0.89**	329	0.48
Cedrus deodara	0.30	22.70	75.50	1.20	0.30	**1.04**	322	0.47
Ligustrum lucidum	0.00	8.90	75.50	15.00	0.60	**0.95**	314	0.46
Washingtonia robusta	4.20	81.20	14.30	0.00	0.30	**1.25**	308	0.45
Yucca gloriosa	4.50	55.80	37.70	2.10	0.00	**1.17**	292	0.43
Cordyline australis	1.40	46.70	39.80	11.40	0.70	**1.09**	289	0.42
Gleditsia triacanthos	0.00	2.50	75.40	21.80	0.40	**0.91**	280	0.41
Crataegus phaenopyrum	0.00	2.90	75.40	20.20	1.50	**0.90**	272	0.40
Schinus terebinthifolia	0.00	11.90	66.70	18.10	3.30	**0.92**	270	0.39
Triadica sebifera	0.00	15.80	80.00	4.20	0.00	**1.01**	265	0.39
Cupressus macrocarpa	0.40	10.30	78.70	8.40	2.30	**0.96**	263	0.38
Eriobotrya japonica	0.00	31.50	65.40	3.10	0.00	**1.07**	260	0.38
Pinus pinea	0.00	15.80	77.70	3.50	3.10	**0.98**	260	0.38
Nyssa sylvatica	0.40	44.40	52.10	1.90	1.20	**1.10**	257	0.37
Betula pendula	0.00	9.90	78.90	9.10	2.10	**0.96**	242	0.35
Umbellularia californica	0.00	1.80	93.40	4.00	0.90	**0.96**	227	0.33
Calocedrus decurrens	0.00	5.60	80.10	12.50	1.90	**0.93**	216	0.31
Rhus lancea	0.00	21.00	69.60	8.90	0.50	**1.01**	214	0.31
Quercus ilex	0.00	9.00	82.50	8.00	0.50	**0.97**	212	0.31
Melaleuca linariifolia	0.00	9.10	89.00	1.90	0.00	**1.00**	209	0.30
Ulmus	0.00	26.00	68.50	4.50	1.00	**1.03**	200	0.29
Prunus blieriana	0.00	3.50	57.30	37.20	2.00	**0.84**	199	0.29
Fraxinus oxycarpa	0.00	5.60	65.80	27.00	1.50	**0.89**	196	0.29
Eucalyptus camaldulensis	0.00	2.10	94.40	3.60	0.00	**0.97**	195	0.28
Laurus nobilis	0.00	44.10	50.30	5.60	0.00	**1.10**	195	0.28
Geijera parviflora	0.00	21.40	68.40	8.60	1.60	**1.00**	187	0.27
Platanus occidentalis	0.00	31.50	53.80	14.70	0.00	**1.03**	184	0.27
Populus nigra v. *italica*	0.00	5.60	82.00	9.60	2.80	**0.93**	178	0.26
Citrus	0.00	22.00	76.30	1.70	0.00	**1.04**	173	0.25
Acacia dealbata	0.00	7.70	70.80	16.70	4.80	**0.90**	168	0.24
Acer x *freemanii*	0.00	29.30	64.70	5.40	0.60	**1.05**	167	0.24
Koelreuteria paniculata	0.00	19.30	64.50	14.50	1.80	**0.97**	166	0.24
Schinus molle	0.00	11.50	77.00	9.70	1.80	**0.96**	165	0.24
Platanus x *acerifolia* 'Bloodgood'	0.00	6.80	91.40	1.90	0.00	**0.99**	162	0.24
Maytenus boaria	0.00	13.80	73.60	10.70	1.90	**0.97**	159	0.23
Metrosideros excelsus	0.00	35.20	60.40	4.40	0.00	**1.07**	159	0.23
Pinus canariensis	0.00	17.90	75.60	5.10	1.30	**1.00**	156	0.23
Washingtonia filifera	18.60	73.70	5.80	1.90	0.00	**1.30**	156	0.23

Species	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Dead (%)	RPI	Number of Trees	% of Pop.
Callistemon citrinus	0.00	12.40	82.40	5.20	0.00	**1.00**	153	0.22
Syzygium paniculatum	0.00	5.30	82.70	12.00	0.00	**0.95**	150	0.22
Aesculus x carnea	0.00	52.30	43.60	4.00	0.00	**1.13**	149	0.22
Celtis occidentalis	0.00	10.10	76.40	12.20	1.40	**0.95**	148	0.22
Quercus suber	1.40	33.80	55.90	7.60	1.40	**1.05**	145	0.21
Albizia julibrissin	0.00	7.60	77.10	15.30	0.00	**0.95**	144	0.21
Leptospermum laevigata	0.00	0.70	85.90	2.80	10.60	**0.86**	142	0.21
Ceratonia siliqua	0.00	2.90	79.10	18.00	0.00	**0.92**	139	0.20
Malus	0.00	9.50	76.60	13.10	0.70	**0.95**	137	0.20
Acacia baileyana	0.00	0.00	88.20	11.80	0.00	**0.94**	136	0.20
Magnoliopsida	0.00	4.50	6.70	0.70	88.10	**0.13**	134	0.20
Ulmus americana	0.00	33.80	60.20	6.00	0.00	**1.06**	133	0.19
Tilia tomentosa	1.50	59.80	32.60	6.10	0.00	**1.16**	132	0.19
Grevillea robusta	0.00	1.50	55.00	43.50	0.00	**0.84**	131	0.19
Prunus domestica	0.00	2.30	93.80	3.90	0.00	**0.97**	129	0.19
Trachycarpus fortunei	0.00	74.80	22.00	1.60	1.60	**1.20**	127	0.18
Liriodendron tulipifera	0.00	9.20	65.00	21.70	4.20	**0.89**	120	0.17
Melaleuca quinquenervia	0.00	24.40	74.80	0.80	0.00	**1.05**	119	0.17
Populus fremontii	0.00	14.80	77.40	5.20	2.60	**0.98**	115	0.17
Platanus racemosa	3.60	43.20	51.40	1.80	0.00	**1.13**	111	0.16
Aesculus californica	0.00	12.70	85.50	1.80	0.00	**1.01**	110	0.16
Alnus rhombifolia	0.00	4.60	86.20	5.50	3.70	**0.93**	109	0.16
Fraxinus excelsior	0.00	1.80	89.90	8.30	0.00	**0.95**	109	0.16
Pyrus calleryana 'Bradford'	0.00	6.50	81.30	12.10	0.00	**0.96**	107	0.16
Nerium oleander	0.00	30.20	62.30	6.60	0.90	**1.04**	106	0.15
Malus floribunda	0.00	14.30	77.10	8.60	0.00	**0.99**	105	0.15
Ficus microcarpa	0.00	20.40	70.90	8.70	0.00	**1.01**	103	0.15
Callistemon viminalis	0.00	25.50	71.60	2.00	1.00	**1.04**	102	0.15
Eucalyptus nicholii	0.00	10.80	79.40	6.90	2.90	**0.96**	102	0.15
Crataegus laevigata	0.00	4.10	43.90	52.00	0.00	**0.82**	98	0.14
Cupressus arizonica	15.20	62.00	20.70	1.10	1.10	**1.23**	92	0.13
Dracaena draco	0.00	69.60	30.40	0.00	0.00	**1.20**	92	0.13
Morus alba	0.00	2.20	69.60	27.20	1.10	**0.88**	92	0.13
Juniperus chinensis	0.00	20.50	78.40	0.00	1.10	**1.03**	88	0.13
Melaleuca styphelioides	0.00	0.00	98.90	1.10	0.00	**0.97**	88	0.13
Prunus cerasifera 'Thundercloud'	0.00	21.60	72.70	5.70	0.00	**1.02**	88	0.13
Salix	0.00	1.10	93.10	4.60	1.10	**0.95**	87	0.13
Arbutus 'Marina'	0.00	69.00	28.60	2.40	0.00	**1.19**	84	0.12
Styphnolobium japonicum	0.00	23.80	75.00	1.20	0.00	**1.05**	84	0.12
Acer negundo	0.00	17.10	63.40	19.50	0.00	**0.97**	82	0.12
Fraxinus	0.00	15.90	75.60	8.50	0.00	**1.00**	82	0.12
Corymbia ficifolia	0.00	6.30	86.30	7.50	0.00	**0.97**	80	0.12
Quercus shumardii	0.00	18.80	78.80	1.30	1.30	**1.02**	80	0.12

Species	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Dead (%)	RPI	Number of Trees	% of Pop.
Fraxinus pennsylvanica	0.00	2.60	94.80	2.60	0.00	**0.97**	77	0.11
Prunus persica	0.00	16.90	77.90	5.20	0.00	**1.01**	77	0.11
Fraxinus velutina 'Modesto'	0.00	4.00	72.00	24.00	0.00	**0.91**	75	0.11
Fraxinus americana	0.00	34.20	46.60	16.40	2.70	**1.00**	73	0.11
Prunus laurocerasus	0.00	31.50	60.30	5.50	2.70	**1.03**	73	0.11
Quercus lobata	0.00	22.50	71.80	5.60	0.00	**1.03**	71	0.10
Crataegus	0.00	1.40	65.20	30.40	2.90	**0.85**	69	0.10
Prunus avium	0.00	0.00	94.20	5.80	0.00	**0.95**	69	0.10
Cedrus atlantica	0.00	36.80	63.20	0.00	0.00	**1.09**	68	0.10
Eucalyptus polyanthemos	0.00	4.40	89.70	5.90	0.00	**0.97**	68	0.10
Eucalyptus sideroxylon	0.00	7.40	86.80	5.90	0.00	**0.98**	68	0.10
Ficus carica	0.00	22.10	75.00	2.90	0.00	**1.04**	68	0.10
Koelreuteria bipinnata	0.00	5.90	85.30	7.40	1.50	**0.95**	68	0.10
Pinus resinosa	0.00	3.00	97.00	0.00	0.00	**0.98**	66	0.10
Pseudotsuga menziesii	0.00	1.50	83.30	1.50	13.60	**0.84**	66	0.10
Tilia cordata	0.00	43.90	50.00	6.10	0.00	**1.10**	66	0.10
Rhaphiolepis	0.00	84.60	13.80	1.50	0.00	**1.24**	65	0.09
Alnus cordata	0.00	17.20	62.50	9.40	10.90	**0.89**	64	0.09
Ligustrum japonicum	0.00	10.90	73.40	15.60	0.00	**0.96**	64	0.09
Persea americana	0.00	28.10	59.40	10.90	1.60	**1.01**	64	0.09
Zelkova serrata	0.00	27.00	65.10	6.30	1.60	**1.02**	63	0.09
Acer saccharinum	0.00	21.00	66.10	11.30	1.60	**0.99**	62	0.09
Platycladus orientalis	0.00	49.20	41.00	8.20	1.60	**1.09**	61	0.09
Quercus palustris	0.00	44.30	49.20	6.60	0.00	**1.10**	61	0.09
Photinia x fraseri	0.00	30.00	46.70	23.30	0.00	**0.99**	60	0.09
Crataegus x lavallei	0.00	0.00	80.40	19.60	0.00	**0.91**	56	0.08
Ilex aquifolium	0.00	1.80	44.60	5.40	48.20	**0.49**	56	0.08
Carpinus betulus	1.90	25.90	59.30	13.00	0.00	**1.02**	54	0.08
Celtis	0.00	1.90	75.90	20.40	1.90	**0.90**	54	0.08
Phoenix dactylifera	0.00	77.80	16.70	3.70	1.90	**1.20**	54	0.08
Tilia americana	0.00	11.10	81.50	7.40	0.00	**0.99**	54	0.08
Prunus ilicifolia ssp. *lyonii*	0.00	0.00	98.10	1.90	0.00	**0.97**	53	0.08
Salix matsudana	0.00	5.70	79.20	13.20	1.90	**0.93**	53	0.08
Juniperus virginiana	0.00	9.60	90.40	0.00	0.00	**1.00**	52	0.08
Magnolia x soulangeana	0.00	38.50	57.70	3.80	0.00	**1.09**	52	0.08
Quercus robur	0.00	7.70	88.50	3.80	0.00	**0.99**	52	0.08
Melaleuca ericifolia	0.00	8.00	84.00	8.00	0.00	**0.97**	50	0.07
Araucaria heterophylla	4.10	49.00	44.90	2.00	0.00	**1.15**	49	0.07
Juglans hindsii	0.00	12.20	83.70	4.10	0.00	**1.00**	49	0.07
Fraxinus velutina	0.00	29.20	62.50	8.30	0.00	**1.04**	48	0.07
Pinus halepensis	0.00	29.20	60.40	6.30	4.20	**1.01**	48	0.07
Acer pseudoplatanus	0.00	21.70	76.10	2.20	0.00	**1.04**	46	0.07
Cercis occidentalis	0.00	55.60	35.60	2.20	6.70	**1.08**	45	0.07

Species	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Dead (%)	RPI	Number of Trees	% of Pop.
Eriobotrya deflexa	0.00	25.00	70.50	4.50	0.00	**1.04**	44	0.06
Acer macrophyllum	0.00	4.70	79.10	11.60	4.70	**0.91**	43	0.06
Cupressus leylandii	0.00	7.00	79.10	11.60	2.30	**0.94**	43	0.06
Lagerstroemia	0.00	20.90	74.40	4.70	0.00	**1.03**	43	0.06
Carpinus caroliniana	0.00	0.00	100.00	0.00	0.00	**0.97**	42	0.06
Podocarpus macrophyllus	0.00	26.20	64.30	9.50	0.00	**1.03**	42	0.06
Acer rubrum 'October Glory'	0.00	51.30	46.20	2.60	0.00	**1.13**	39	0.06
Eucalyptus	0.00	10.30	89.70	0.00	0.00	**1.01**	39	0.06
Xylosma congestum	0.00	2.60	97.40	0.00	0.00	**0.98**	39	0.06
Agave attenuata	0.00	66.70	20.50	12.80	0.00	**1.15**	39	0.06
Cycas revoluta	16.20	75.70	8.10	0.00	0.00	**1.30**	37	0.05
Juglans regia	0.00	35.10	40.50	21.60	2.70	**0.99**	37	0.05
Lyonothamnus floribundus	2.70	48.60	40.50	5.40	2.70	**1.10**	37	0.05
Liquidambar formosana	0.00	17.10	74.30	8.60	0.00	**1.00**	35	0.05
Arbutus menziesii	0.00	18.20	66.70	6.10	9.10	**0.92**	33	0.05
Chitalpa	0.00	72.70	27.30	0.00	0.00	**1.21**	33	0.05
Cotinus coggygria	0.00	21.20	72.70	0.00	6.10	**0.98**	33	0.05
Magnolia acuminata	0.00	15.20	84.80	0.00	0.00	**1.02**	33	0.05
Citrus limon	0.00	40.60	50.00	9.40	0.00	**1.07**	32	0.05
Dodonaea viscosa	0.00	37.50	56.30	6.30	0.00	**1.07**	32	0.05
Fraxinus latifolia	0.00	0.00	83.90	6.50	9.70	**0.86**	31	0.05
Gymnocladus dioicus	0.00	45.20	48.40	6.50	0.00	**1.10**	31	0.05
Pittosporum eugenioides	0.00	3.20	61.30	29.00	6.50	**0.83**	31	0.05
Pittosporum tobira	0.00	3.30	93.30	3.30	0.00	**0.97**	30	0.04
Platanus x *hispanica*	0.00	3.30	96.70	0.00	0.00	**0.98**	30	0.04
Acer platanoides	0.00	10.30	75.90	13.80	0.00	**0.96**	29	0.04
Ficus benjamina	0.00	31.00	51.70	17.20	0.00	**1.02**	29	0.04
Prunus ilicifolia	0.00	13.80	79.30	6.90	0.00	**1.00**	29	0.04
Quercus muehlenbergii	0.00	0.00	100.00	0.00	0.00	**0.97**	29	0.04
Magnolia	0.00	14.30	78.60	0.00	7.10	**0.95**	28	0.04
Metasequoia glyptostroboides	0.00	10.70	89.30	0.00	0.00	**1.01**	28	0.04
Phoenix roebelenii	0.00	53.60	46.40	0.00	0.00	**1.15**	28	0.04
Photinia serrulata	0.00	32.10	60.70	7.10	0.00	**1.05**	28	0.04
Prunus caroliniana	0.00	32.10	67.90	0.00	0.00	**1.08**	28	0.04
Pyracantha coccinea	0.00	10.70	78.60	10.70	0.00	**0.97**	28	0.04
Quercus virginiana	0.00	50.00	46.40	3.60	0.00	**1.12**	28	0.04
Diospyros virginiana	0.00	33.30	66.70	0.00	0.00	**1.08**	27	0.04
Pinus	0.00	33.30	63.00	0.00	3.70	**1.05**	27	0.04
Salix babylonica	0.00	18.50	63.00	18.50	0.00	**0.97**	27	0.04
Acer campestre	0.00	7.70	92.30	0.00	0.00	**1.00**	26	0.04
Betula nigra	0.00	61.50	34.60	3.80	0.00	**1.16**	26	0.04
Fagus sylvatica	0.00	7.70	76.90	11.50	3.80	**0.92**	26	0.04

Species	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Dead (%)	RPI	Number of Trees	% of Pop.
Lagerstroemia indica x *fauriei* 'Zuni'	0.00	57.70	42.30	0.00	0.00	**1.16**	26	0.04
Burretiokentia hapala	0.00	96.20	3.80	0.00	0.00	**1.29**	26	0.04
Acer saccharum	0.00	4.00	96.00	0.00	0.00	**0.99**	25	0.04
Prunus dulcis	0.00	8.00	60.00	28.00	4.00	**0.87**	25	0.04
Punica granatum	0.00	16.00	84.00	0.00	0.00	**1.03**	25	0.04
Quercus	0.00	52.00	40.00	8.00	0.00	**1.12**	25	0.04
Sambucus nigra	0.00	4.00	88.00	8.00	0.00	**0.96**	25	0.04
Ulmus pumila	0.00	0.00	76.00	24.00	0.00	**0.90**	25	0.04
Prunus armeniaca	0.00	25.00	66.70	4.20	4.20	**1.00**	24	0.03
Brugmansia suaveolens	0.00	21.70	73.90	4.30	0.00	**1.03**	23	0.03
Heteromeles arbutifolia	0.00	21.70	56.50	17.40	4.30	**0.95**	23	0.03
Myoporum laetum	0.00	4.30	73.90	21.70	0.00	**0.92**	23	0.03
Sequoiadendron giganteum	0.00	8.70	60.90	30.40	0.00	**0.90**	23	0.03
Celtis australis	0.00	9.10	86.40	4.50	0.00	**0.99**	22	0.03
Chamaerops humilis	0.00	86.40	13.60	0.00	0.00	**1.25**	22	0.03
Citrus aurantifolia	0.00	18.20	81.80	0.00	0.00	**1.03**	22	0.03
Malus sylvestris	0.00	27.30	63.60	9.10	0.00	**1.03**	22	0.03
Acca sellowiana	0.00	4.80	95.20	0.00	0.00	**0.99**	21	0.03
Feijoa sellowiana	0.00	19.00	76.20	4.80	0.00	**1.02**	21	0.03
Buxus sempervirens	0.00	0.00	100.00	0.00	0.00	**0.97**	20	0.03
Cotoneaster buxifolius	0.00	0.00	100.00	0.00	0.00	**0.97**	20	0.03
Juniperus communis	0.00	20.00	75.00	5.00	0.00	**1.02**	20	0.03
Parrotia persica	0.00	70.00	30.00	0.00	0.00	**1.20**	20	0.03
Pittosporum tenuifolium	0.00	0.00	90.00	10.00	0.00	**0.94**	20	0.03
Prunus serotina	0.00	15.00	80.00	5.00	0.00	**1.01**	20	0.03
Aesculus pavia	0.00	0.00	100.00	0.00	0.00	**0.97**	19	0.03
Juniperus occidentalis	0.00	31.60	57.90	10.50	0.00	**1.04**	19	0.03
Pyrus communis	0.00	31.60	52.60	5.30	10.50	**0.96**	19	0.03
Carpinus betulus 'Fastigiata'	0.00	27.80	66.70	0.00	5.60	**1.01**	18	0.03
Citrus sinensis	0.00	27.80	72.20	0.00	0.00	**1.06**	18	0.03
Liquidambar orientalis	0.00	5.60	83.30	11.10	0.00	**0.96**	18	0.03
Paulownia tomentosa	0.00	0.00	77.80	22.20	0.00	**0.90**	18	0.03
Cornus kousa	0.00	5.90	94.10	0.00	0.00	**0.99**	17	0.02
Eucalyptus citriodora	0.00	0.00	100.00	0.00	0.00	**0.97**	17	0.02
Thuja plicata	0.00	17.60	47.10	17.60	17.60	**0.80**	17	0.02
Vitex agnus-castus	0.00	5.90	94.10	0.00	0.00	**0.99**	17	0.02
Acer	0.00	18.80	37.50	18.80	25.00	**0.73**	16	0.02
Casuarina cunninghamiana	0.00	6.30	68.80	25.00	0.00	**0.91**	16	0.02
Lycianthes rantonnetii	0.00	12.50	81.30	6.30	0.00	**0.99**	16	0.02
Pyrus	0.00	12.50	81.30	6.30	0.00	**0.99**	16	0.02
Eucalyptus rudis	0.00	0.00	100.00	0.00	0.00	**0.97**	15	0.02
Myrtus communis	0.00	13.30	80.00	6.70	0.00	**0.99**	15	0.02

Species	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Dead (%)	RPI	Number of Trees	% of Pop.
Prunus x yedoensis	0.00	13.30	86.70	0.00	0.00	1.02	15	0.02
Thuja occidentalis	0.00	20.00	73.30	6.70	0.00	1.02	15	0.02
Chamaecyparis lawsoniana	0.00	0.00	92.90	7.10	0.00	0.95	14	0.02
Leptospermum scoparium	0.00	14.30	64.30	21.40	0.00	0.95	14	0.02
Musa acuminata	0.00	14.30	78.60	7.10	0.00	1.00	14	0.02
Washingtonia	0.00	64.30	35.70	0.00	0.00	1.18	14	0.02
Acer palmatum v. dissectum	0.00	23.10	61.50	15.40	0.00	1.00	13	0.02
Eucalyptus viminalis	0.00	0.00	100.00	0.00	0.00	0.97	13	0.02
Gleditsia triacanthos v. inermis	0.00	7.70	76.90	7.70	7.70	0.90	13	0.02
Pyrus calleryana 'Aristocrat'	0.00	30.80	61.50	7.70	0.00	1.05	13	0.02
Tibouchina granulosa	0.00	7.70	92.30	0.00	0.00	1.00	13	0.02
Betula papyrifera	0.00	16.70	83.30	0.00	0.00	1.03	12	0.02
Butia capitata	0.00	83.30	16.70	0.00	0.00	1.24	12	0.02
Cornus florida	0.00	58.30	41.70	0.00	0.00	1.16	12	0.02
Ficus	0.00	33.30	66.70	0.00	0.00	1.08	12	0.02
Juniperus	0.00	25.00	66.70	0.00	8.30	0.97	12	0.02
Magnolia macrophylla	0.00	50.00	41.70	8.30	0.00	1.11	12	0.02
Psidium guajava	0.00	16.70	83.30	0.00	0.00	1.03	12	0.02
Acacia longifolia	0.00	0.00	100.00	0.00	0.00	0.97	11	0.02
Agonis flexuosa	0.00	27.30	54.50	18.20	0.00	1.00	11	0.02
Ceanothus thyrsiflorus	0.00	36.40	54.50	9.10	0.00	1.06	11	0.02
Ficus retusa	0.00	0.00	100.00	0.00	0.00	0.97	11	0.02
Pinus thunbergiana	0.00	0.00	72.70	18.20	9.10	0.83	11	0.02
Populus nigra	0.00	0.00	54.50	27.30	18.20	0.71	11	0.02
Ravenala madagascariensis	0.00	81.80	18.20	0.00	0.00	1.24	11	0.02
Thuja	0.00	54.50	45.50	0.00	0.00	1.15	11	0.02
Acer nigrum	0.00	30.00	60.00	10.00	0.00	1.04	10	0.01
Catalpa bignonioides	0.00	0.00	70.00	30.00	0.00	0.88	10	0.01
Ficus elastica	0.00	20.00	70.00	10.00	0.00	1.01	10	0.01
Juglans nigra	0.00	10.00	30.00	40.00	20.00	0.68	10	0.01
Melia azedarach	0.00	0.00	80.00	20.00	0.00	0.91	10	0.01
Acer rubrum 'Armstrong'	0.00	100.00	0.00	0.00	0.00	1.30	9	0.01
Archontophoenix cunninghamiana	0.00	88.90	11.10	0.00	0.00	1.26	9	0.01
Betula	0.00	0.00	77.80	22.20	0.00	0.90	9	0.01
Lagunaria patersonii	0.00	44.40	55.60	0.00	0.00	1.12	9	0.01
Magnolia stellata	0.00	0.00	100.00	0.00	0.00	0.97	9	0.01
Populus alba	0.00	0.00	77.80	11.10	11.10	0.83	9	0.01
Acer griseum	0.00	12.50	50.00	25.00	12.50	0.81	8	0.01
Aesculus hippocastanum	0.00	75.00	12.50	0.00	12.50	1.09	8	0.01
Alnus	0.00	0.00	100.00	0.00	0.00	0.97	8	0.01
Araucaria bidwillii	0.00	0.00	87.50	12.50	0.00	0.93	8	0.01
Ceanothus	0.00	25.00	62.50	12.50	0.00	1.01	8	0.01

Species	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Dead (%)	RPI	Number of Trees	% of Pop.
Eucalyptus cinerea	0.00	25.00	75.00	0.00	0.00	1.05	8	0.01
Ligustrum	0.00	12.50	87.50	0.00	0.00	1.01	8	0.01
Taxus brevifolia	0.00	0.00	100.00	0.00	0.00	0.97	8	0.01
Acer platanoides 'Crimson King'	0.00	0.00	71.40	28.60	0.00	0.88	7	0.01
Camellia japonica	0.00	57.10	42.90	0.00	0.00	1.16	7	0.01
Ceiba speciosa	0.00	42.90	57.10	0.00	0.00	1.11	7	0.01
Cryptomeria japonica	0.00	0.00	100.00	0.00	0.00	0.97	7	0.01
Cupaniopsis anacardioides	0.00	14.30	85.70	0.00	0.00	1.02	7	0.01
Eucalyptus lehmannii	0.00	0.00	100.00	0.00	0.00	0.97	7	0.01
Eucalyptus robusta	0.00	0.00	85.70	14.30	0.00	0.93	7	0.01
Euonymus	0.00	0.00	100.00	0.00	0.00	0.97	7	0.01
Fraxinus nigra	0.00	0.00	100.00	0.00	0.00	0.97	7	0.01
Fremontodendron californicum	0.00	42.90	28.60	28.60	0.00	1.02	7	0.01
Persea borbonia	0.00	0.00	57.10	42.90	0.00	0.83	7	0.01
Photinia	0.00	42.90	57.10	0.00	0.00	1.11	7	0.01
Picea glauca	0.00	14.30	57.10	28.60	0.00	0.93	7	0.01
Pinus contorta	0.00	57.10	42.90	0.00	0.00	1.16	7	0.01
Pinus patula	0.00	0.00	85.70	14.30	0.00	0.93	7	0.01
Rhamnus cathartica	0.00	14.30	71.40	0.00	14.30	0.88	7	0.01
Tilia	0.00	14.30	71.40	14.30	0.00	0.97	7	0.01
Tilia platyphyllos	0.00	0.00	57.10	42.90	0.00	0.83	7	0.01
Ulmus alata	0.00	0.00	71.40	14.30	14.30	0.79	7	0.01
Acacia	0.00	33.30	66.70	0.00	0.00	1.08	6	0.01
Ailanthus altissima	0.00	0.00	50.00	33.30	16.70	0.70	6	0.01
Chamaecyparis obtusa	0.00	33.30	50.00	16.70	0.00	1.03	6	0.01
Chionanthus retusus	0.00	66.70	33.30	0.00	0.00	1.19	6	0.01
Diospyros kaki	0.00	50.00	33.30	16.70	0.00	1.08	6	0.01
Hymenosporum flavum	0.00	100.00	0.00	0.00	0.00	1.30	6	0.01
Leucaena leucocephala	0.00	33.30	66.70	0.00	0.00	1.08	6	0.01
Morella californica	0.00	0.00	100.00	0.00	0.00	0.97	6	0.01
Pittosporum crassifolium	0.00	0.00	100.00	0.00	0.00	0.97	6	0.01
Pittosporum rhombifolium	0.00	0.00	100.00	0.00	0.00	0.97	6	0.01
Sabal palmetto	0.00	100.00	0.00	0.00	0.00	1.30	6	0.01
Ulmus procera	0.00	0.00	83.30	16.70	0.00	0.92	6	0.01
Campsis radicans	0.00	0.00	83.30	0.00	16.70	0.81	6	0.01
Acacia stenophylla	0.00	0.00	100.00	0.00	0.00	0.97	5	0.01
Alnus rubra	0.00	60.00	40.00	0.00	0.00	1.17	5	0.01
Citrus x paradisi	0.00	0.00	100.00	0.00	0.00	0.97	5	0.01
Cornus	0.00	0.00	100.00	0.00	0.00	0.97	5	0.01
Corylus avellana	0.00	100.00	0.00	0.00	0.00	1.30	5	0.01
Duranta erecta	0.00	0.00	100.00	0.00	0.00	0.97	5	0.01
Eucalyptus leucoxylon	0.00	60.00	40.00	0.00	0.00	1.17	5	0.01
Ficus macrophylla	0.00	20.00	80.00	0.00	0.00	1.04	5	0.01

Species	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Dead (%)	RPI	Number of Trees	% of Pop.
Livistona chinensis	0.00	100.00	0.00	0.00	0.00	1.30	5	0.01
Phoenix reclinata	0.00	100.00	0.00	0.00	0.00	1.30	5	0.01
Pinus banksiana	0.00	20.00	80.00	0.00	0.00	1.04	5	0.01
Populus	0.00	80.00	20.00	0.00	0.00	1.23	5	0.01
Quercus macrocarpa	0.00	60.00	20.00	20.00	0.00	1.10	5	0.01
Tecoma stans	0.00	20.00	80.00	0.00	0.00	1.04	5	0.01
Ulmus rubra	0.00	80.00	20.00	0.00	0.00	1.23	5	0.01
Acer ginnala	0.00	25.00	75.00	0.00	0.00	1.05	4	0.01
Aesculus parviflora	0.00	100.00	0.00	0.00	0.00	1.30	4	0.01
Aloe arborescens	0.00	100.00	0.00	0.00	0.00	1.30	4	0.01
Araucaria columnaris	0.00	50.00	50.00	0.00	0.00	1.14	4	0.01
Chamaecyparis	0.00	0.00	25.00	0.00	75.00	0.24	4	0.01
Chamaecyparis pisifera	0.00	100.00	0.00	0.00	0.00	1.30	4	0.01
Chilopsis linearis	0.00	0.00	100.00	0.00	0.00	0.97	4	0.01
Cornus capitata	0.00	25.00	75.00	0.00	0.00	1.05	4	0.01
Fagus	0.00	0.00	75.00	25.00	0.00	0.89	4	0.01
Griselinia lucida	0.00	0.00	75.00	25.00	0.00	0.89	4	0.01
Hamamelis virginiana	0.00	50.00	50.00	0.00	0.00	1.14	4	0.01
Ilex	0.00	25.00	75.00	0.00	0.00	1.05	4	0.01
Juglans cinerea	0.00	0.00	25.00	50.00	25.00	0.57	4	0.01
Maclura pomifera	0.00	0.00	100.00	0.00	0.00	0.97	4	0.01
Michelia champaca	0.00	50.00	50.00	0.00	0.00	1.14	4	0.01
Pinus mugo	0.00	50.00	25.00	25.00	0.00	1.05	4	0.01
Pinus ponderosa	0.00	25.00	50.00	25.00	0.00	0.97	4	0.01
Quercus coccinea	0.00	50.00	50.00	0.00	0.00	1.14	4	0.01
Quercus douglasii	0.00	25.00	75.00	0.00	0.00	1.05	4	0.01
Radermachera sinica	0.00	50.00	25.00	25.00	0.00	1.05	4	0.01
Rhus glabra	0.00	0.00	100.00	0.00	0.00	0.97	4	0.01
Syringa vulgaris	0.00	0.00	100.00	0.00	0.00	0.97	4	0.01
Araucaria araucana	0.00	66.70	33.30	0.00	0.00	1.19	3	0.00
Arctostaphylos glauca	0.00	66.70	33.30	0.00	0.00	1.19	3	0.00
Borinda	0.00	0.00	66.70	33.30	0.00	0.87	3	0.00
Brahea edulis	0.00	0.00	100.00	0.00	0.00	0.97	3	0.00
Callistemon	0.00	33.30	66.70	0.00	0.00	1.08	3	0.00
Carya illinoinensis	0.00	0.00	100.00	0.00	0.00	0.97	3	0.00
Castanopsis cuspidate	0.00	0.00	100.00	0.00	0.00	0.97	3	0.00
Cercidiphyllum japonicum	0.00	0.00	66.70	33.30	0.00	0.87	3	0.00
Chrysolepis chrysophylla	0.00	0.00	100.00	0.00	0.00	0.97	3	0.00
Corylus colurna	0.00	0.00	100.00	0.00	0.00	0.97	3	0.00
Cydonia oblonga	0.00	0.00	100.00	0.00	0.00	0.97	3	0.00
Elaeagnus angustifolia	0.00	33.30	66.70	0.00	0.00	1.08	3	0.00
Elaeocarpus decipiens	0.00	0.00	100.00	0.00	0.00	0.97	3	0.00
Juniperus scopulorum	0.00	100.00	0.00	0.00	0.00	1.30	3	0.00

Species	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Dead (%)	RPI	Number of Trees	% of Pop.
Lagerstroemia speciosa	0.00	33.30	66.70	0.00	0.00	**1.08**	3	0.00
Livistona australis	0.00	100.00	0.00	0.00	0.00	**1.30**	3	0.00
Morus	0.00	0.00	66.70	33.30	0.00	**0.87**	3	0.00
Morus nigra	0.00	0.00	100.00	0.00	0.00	**0.97**	3	0.00
Phoenix rupicola	0.00	100.00	0.00	0.00	0.00	**1.30**	3	0.00
Pinus strobus	0.00	66.70	33.30	0.00	0.00	**1.19**	3	0.00
Populus deltoides	0.00	0.00	100.00	0.00	0.00	**0.97**	3	0.00
Prosopis	0.00	66.70	33.30	0.00	0.00	**1.19**	3	0.00
Prunus serrulata 'Shirofugen'	0.00	0.00	0.00	100.00	0.00	**0.65**	3	0.00
Quercus alba	0.00	66.70	33.30	0.00	0.00	**1.19**	3	0.00
Quercus velutina	0.00	0.00	100.00	0.00	0.00	**0.97**	3	0.00
Rhododendron	0.00	0.00	100.00	0.00	0.00	**0.97**	3	0.00
Salix nigra	0.00	0.00	66.70	33.30	0.00	**0.87**	3	0.00
Schefflera actinophylla	0.00	66.70	33.30	0.00	0.00	**1.19**	3	0.00
Stenocarpus sinuatus	0.00	33.30	66.70	0.00	0.00	**1.08**	3	0.00
Taxus	0.00	0.00	33.30	66.70	0.00	**0.76**	3	0.00
Abies grandis	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Acer tataricum	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Annona cherimola	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Archontophoenix	0.00	100.00	0.00	0.00	0.00	**1.30**	2	0.00
Baccharis pilularis	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Bauhinia purpurea	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Bauhinia variegata	0.00	50.00	50.00	0.00	0.00	**1.14**	2	0.00
Bougainvillea spectabilis	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Brachychiton populneus	0.00	50.00	0.00	50.00	0.00	**0.97**	2	0.00
Carya glabra	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Caryota gigas	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Cercocarpus betuloides	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Chamaecyparis thyoides	0.00	0.00	50.00	50.00	0.00	**0.81**	2	0.00
Cornus nuttallii	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Echium candicans	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Ficus rubiginosa	0.00	50.00	50.00	0.00	0.00	**1.14**	2	0.00
Rhamnus caroliniana	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Hibiscus rosa-sinensis	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Hibiscus syriacus	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Juniperus californica	0.00	100.00	0.00	0.00	0.00	**1.30**	2	0.00
Juniperus monosperma	0.00	100.00	0.00	0.00	0.00	**1.30**	2	0.00
Leucadendron argenteum	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Michelia doltsopa	0.00	100.00	0.00	0.00	0.00	**1.30**	2	0.00
Osmanthus fragrans	0.00	50.00	50.00	0.00	0.00	**1.14**	2	0.00
Oxydendrum arboreum	0.00	100.00	0.00	0.00	0.00	**1.30**	2	0.00
Parkinsonia aculeata	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00
Philadelphus coronarius	0.00	0.00	100.00	0.00	0.00	**0.97**	2	0.00

Appendix C: Tables

Species	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Dead (%)	RPI	Number of Trees	% of Pop.
Picea pungens	0.00	50.00	50.00	0.00	0.00	1.14	2	0.00
Picea sitchensis	0.00	0.00	100.00	0.00	0.00	0.97	2	0.00
Populus balsamifera	0.00	0.00	50.00	50.00	0.00	0.81	2	0.00
Prunus americana	0.00	0.00	0.00	100.00	0.00	0.65	2	0.00
Quercus falcata	0.00	0.00	100.00	0.00	0.00	0.97	2	0.00
Quercus phellos	0.00	100.00	0.00	0.00	0.00	1.30	2	0.00
Quercus wislizeni	0.00	0.00	100.00	0.00	0.00	0.97	2	0.00
Ricinus communis	0.00	0.00	100.00	0.00	0.00	0.97	2	0.00
Sabal mexicana	0.00	100.00	0.00	0.00	0.00	1.30	2	0.00
Cistus ladanifer	0.00	50.00	50.00	0.00	0.00	1.14	2	0.00
Magnifera indica	0.00	0.00	100.00	0.00	0.00	0.97	2	0.00
Aronia arbutifolia	0.00	50.00	50.00	0.00	0.00	1.14	2	0.00
Tilia cordata 'Greenspire'	0.00	0.00	100.00	0.00	0.00	0.97	2	0.00
Ulmus davidiana	0.00	100.00	0.00	0.00	0.00	1.30	2	0.00
Ziziphus	0.00	50.00	0.00	50.00	0.00	0.97	2	0.00
Acer shirasawanum	0.00	0.00	0.00	100.00	0.00	0.65	1	0.00
Acer truncatum	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Amelanchier	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Annona squamosa	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Arctostaphylos	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Azara dentata	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Bauhinia galpinii	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Brachychiton acerifolius	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Brachychiton rupestris	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Brahea armata	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Buddleja davidii	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Catalpa	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Celtis reticulata	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Cercidium praecox	0.00	0.00	0.00	0.00	####	0.00	1	0.00
Cercis reniformis	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Chamaecyparis nootkatensis	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Chionanthus virginicus	0.00	0.00	0.00	100.00	0.00	0.65	1	0.00
Cinnamomum	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Combretum apiculatum	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Conocarpus erectus	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Coprosma repens	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Crataegus douglasii	0.00	0.00	0.00	100.00	0.00	0.65	1	0.00
Crataegus viridis	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Cussonia spicata	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Dichotomanthes tristaniiicarpa	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Dicksonia sellowiana	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Elaeagnus	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Elaeagnus umbellata	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00

Species	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Dead (%)	RPI	Number of Trees	% of Pop.
Erythrina caffra	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Erythrina crista-galli	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Eucalyptus cornuta	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Eucalyptus erythrocorys	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Eucalyptus grandis	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Euphorbia tirucalli	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Fraxinus ornus	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Fuchsia	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Gleditsia triacanthos v. inermis 'Imperial'	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Grevillea	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Grevillea banksii	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Grewia	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Griselinia littoralis	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Hakea salicifolia	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Hakea suaveolens	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Halesia carolina	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Hydrangea	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Hyophorbe lagenicaulis	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Ilex cassine	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Ilex opaca	0.00	0.00	0.00	100.00	0.00	0.65	1	0.00
Iochroma coccinea	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Koelreuteria elegans	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Leucospermum cordifolium	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Ligustrum ovalifolium	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Livistona decipiens	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Lonicera	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Loropetalum chinense	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Macadamia ternifolia	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Magnolia kobus	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Magnolia tripetala	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Berberis bealei	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Malus pumila	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Melaleuca armillaris	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Neolitsea sericea	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Nyssa aquatica	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Parkinsonia florida	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Peumus boldo	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Picea	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Picea abies	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Picea mariana	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00
Pinus brutia	0.00	0.00	100.00	0.00	0.00	0.97	1	0.00
Pinus coulteri	0.00	100.00	0.00	0.00	0.00	1.30	1	0.00

Appendix C: Tables

Species	Very Good (%)	Good (%)	Fair (%)	Poor (%)	Dead (%)	RPI	Number of Trees	% of Pop.
Pistacia vera	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Pittosporum viridiflorum	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Podocarpus henkelii	0.00	100.00	0.00	0.00	0.00	**1.30**	1	0.00
Polygala myrtifolia	0.00	100.00	0.00	0.00	0.00	**1.30**	1	0.00
Prosopis chilensis	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Prosopis glandulosa	0.00	100.00	0.00	0.00	0.00	**1.30**	1	0.00
Prunus angustifolia	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Prunus serrulata 'Shirotae'	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Prunus subhirtella	0.00	100.00	0.00	0.00	0.00	**1.30**	1	0.00
Quercus acutissima	0.00	100.00	0.00	0.00	0.00	**1.30**	1	0.00
Quercus bicolor	0.00	100.00	0.00	0.00	0.00	**1.30**	1	0.00
Quercus chrysolepis	0.00	0.00	0.00	100.00	0.00	**0.65**	1	0.00
Quercus ellipsoidalis	0.00	100.00	0.00	0.00	0.00	**1.30**	1	0.00
Quercus imbricaria	0.00	100.00	0.00	0.00	0.00	**1.30**	1	0.00
Quercus kelloggii	0.00	100.00	0.00	0.00	0.00	**1.30**	1	0.00
Quercus stellata	0.00	100.00	0.00	0.00	0.00	**1.30**	1	0.00
Rhopalostylis sapida	0.00	100.00	0.00	0.00	0.00	**1.30**	1	0.00
Rhus typhina	0.00	100.00	0.00	0.00	0.00	**1.30**	1	0.00
Ribes sanguineum	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Robinia x *ambigua*	0.00	100.00	0.00	0.00	0.00	**1.30**	1	0.00
Roystonea regia	0.00	100.00	0.00	0.00	0.00	**1.30**	1	0.00
Salix caprea	0.00	0.00	0.00	100.00	0.00	**0.65**	1	0.00
Sapindus saponaria ssp. *Drummondii*	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Senna lindheimeriana	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Senna siamea	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Sideroxylon lanuginosum	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Solanum aviculare	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Sorbus aucuparia	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Taxodium distichum	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Tipuana tipu	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Tsuga heterophylla	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Ulmus thomasii	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Vernonia amygdalina	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Viburnum	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
Yucca recurvifolia	0.00	0.00	100.00	0.00	0.00	**0.97**	1	0.00
all other species	0.01	0.22	0.67	0.09	0.02	**0.01**	27,021	39.35
Total	**0.30**	**19.10**	**71.60**	**7.90**	**1.10**	**1.00**	**68,664**	**100%**