Welcome to the 2017 TREE Fund Webinar Series

Municipal Forestry Baseline, Trends, and Dashboard

featuring Dr. Richard Hauer, U. of Wisconsin – Stevens Point

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Free TREE Fund webinar

"Municipal Forestry Baseline, Trends, and Dashboard"

featuring Dr. Richard Hauer, UWSP

September 7 at 12:00 p.m. (Central)

Register or Join Webinar HERE

Pre-registration is recommended. 1 CEU from ISA or SAF.

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1964–2014
50 WAA Wisconsin Arborist Association
YEARS

ACTrees
Tree by Tree • Street by Street
Alliance for Community Trees

ISA
International Society of Arboriculture

Bloomington Urban Forestry Research Group at CIPEC

OSU
Oregon State University
College of Forestry

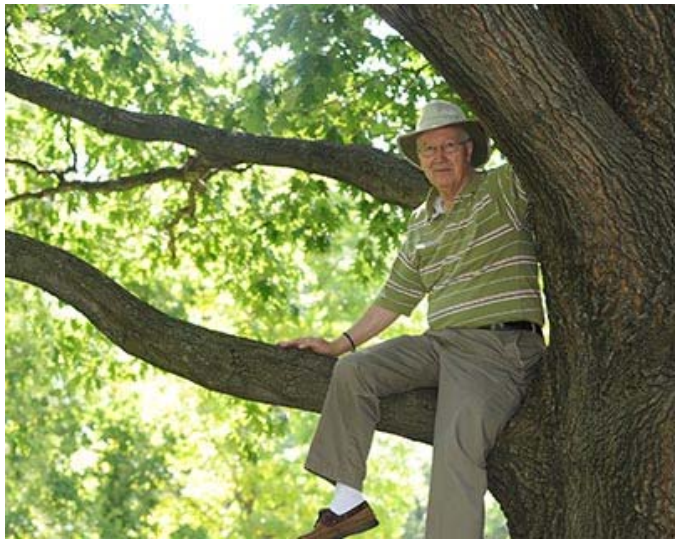
Department of FOREST RESOURCES
University of Minnesota

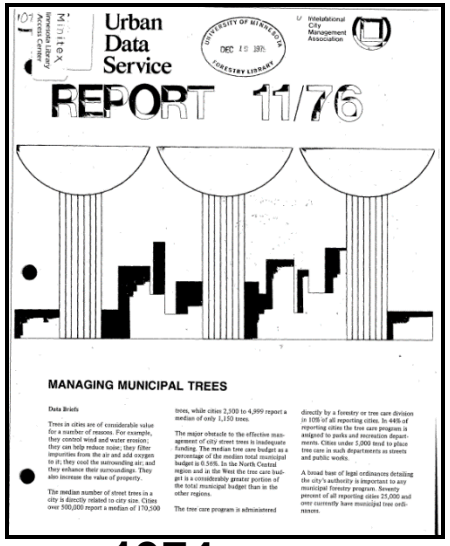
Arbor Day Foundation®

UF | IFAS
UNIVERSITY of FLORIDA

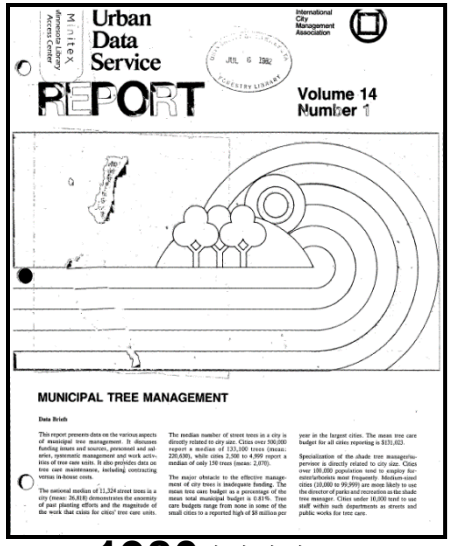
Universities, Non-profits, Government, Industry

Dr. Kielbaso, Ken Ottman, and Colleagues





1974 >>>>



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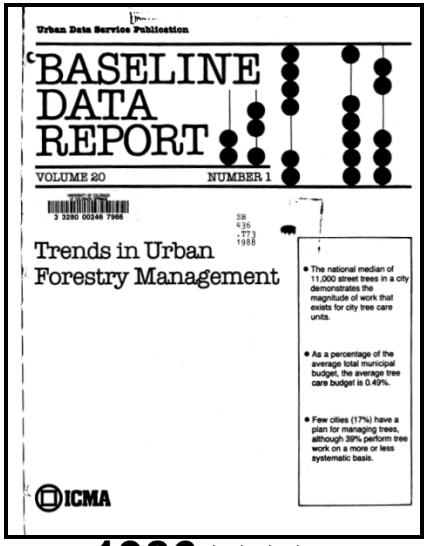
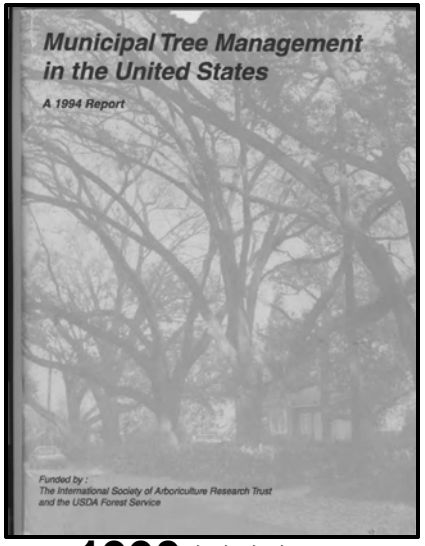


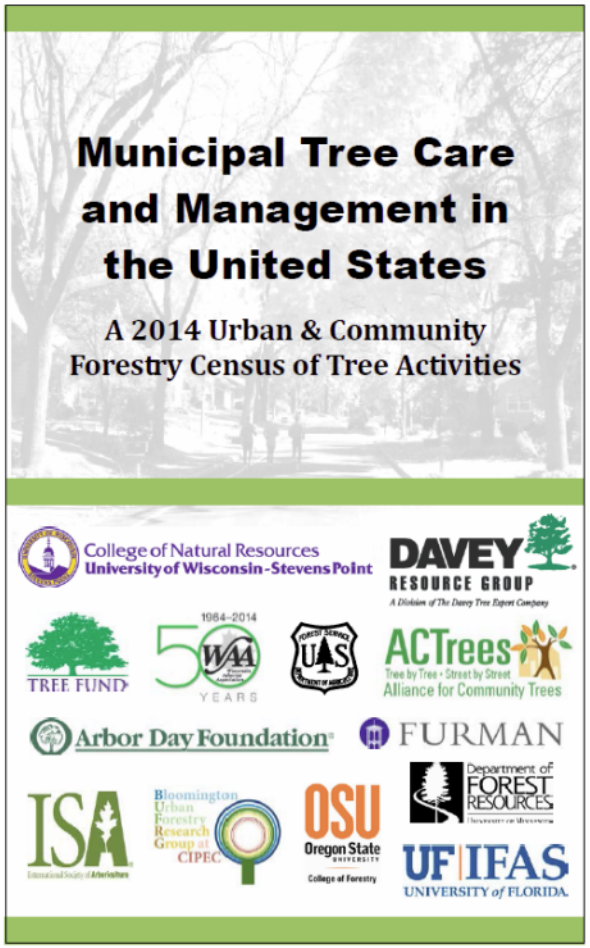
1986 >>>>

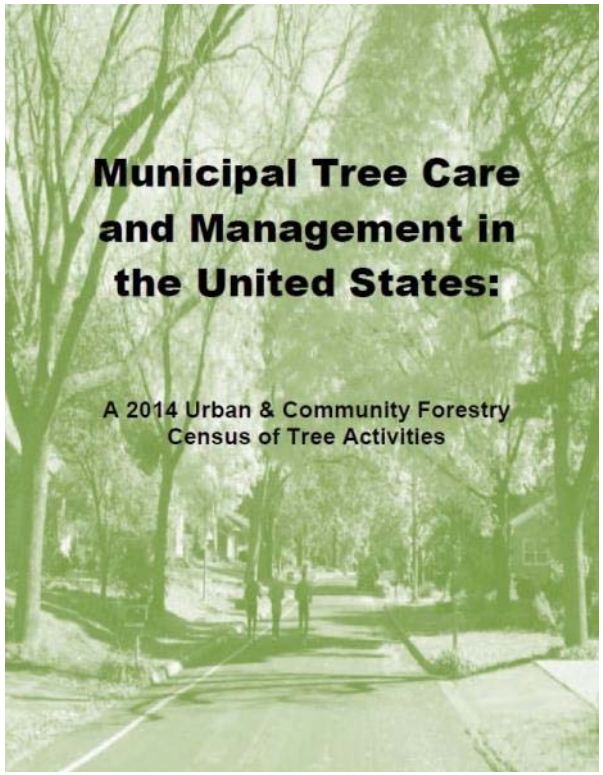


1993 >>>>

Started Collecting Data Since 1974

Municipal Tree Care & Management in the U.S.



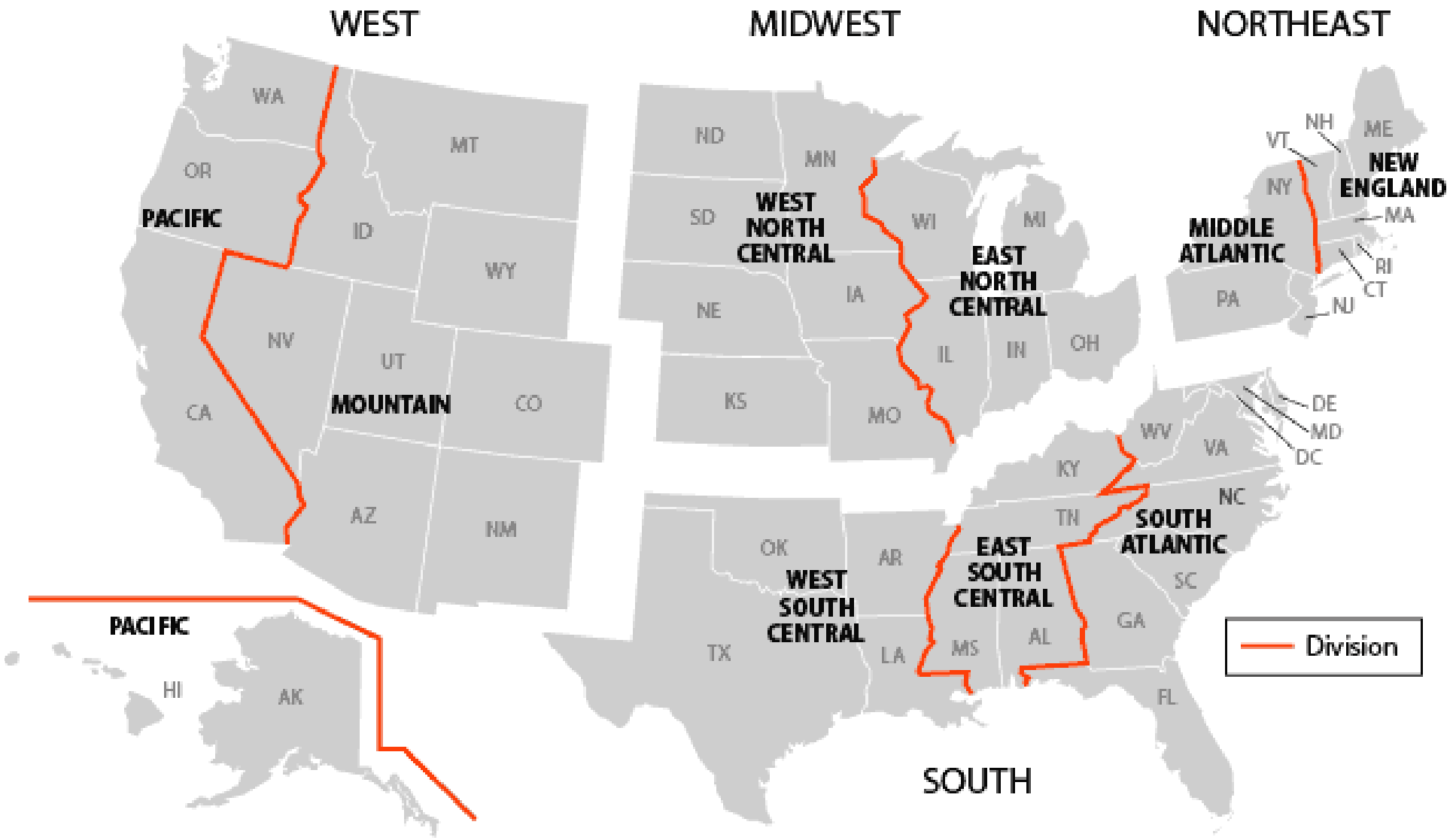


http://bit.ly/MuniTree

109 Questions

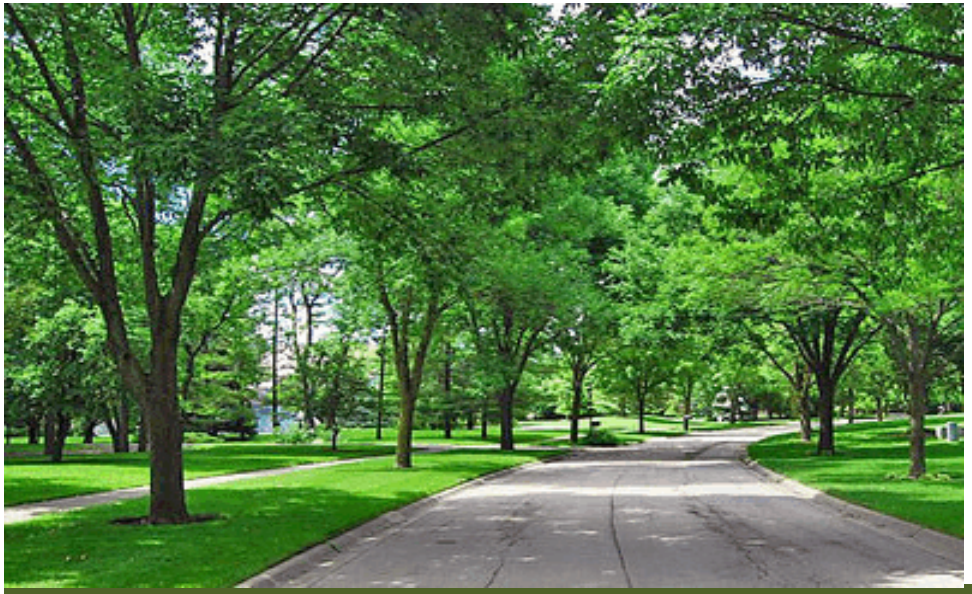
A 2014 U&CF Forestry Census of Tree Activities

United States and Scale (Regional Level)



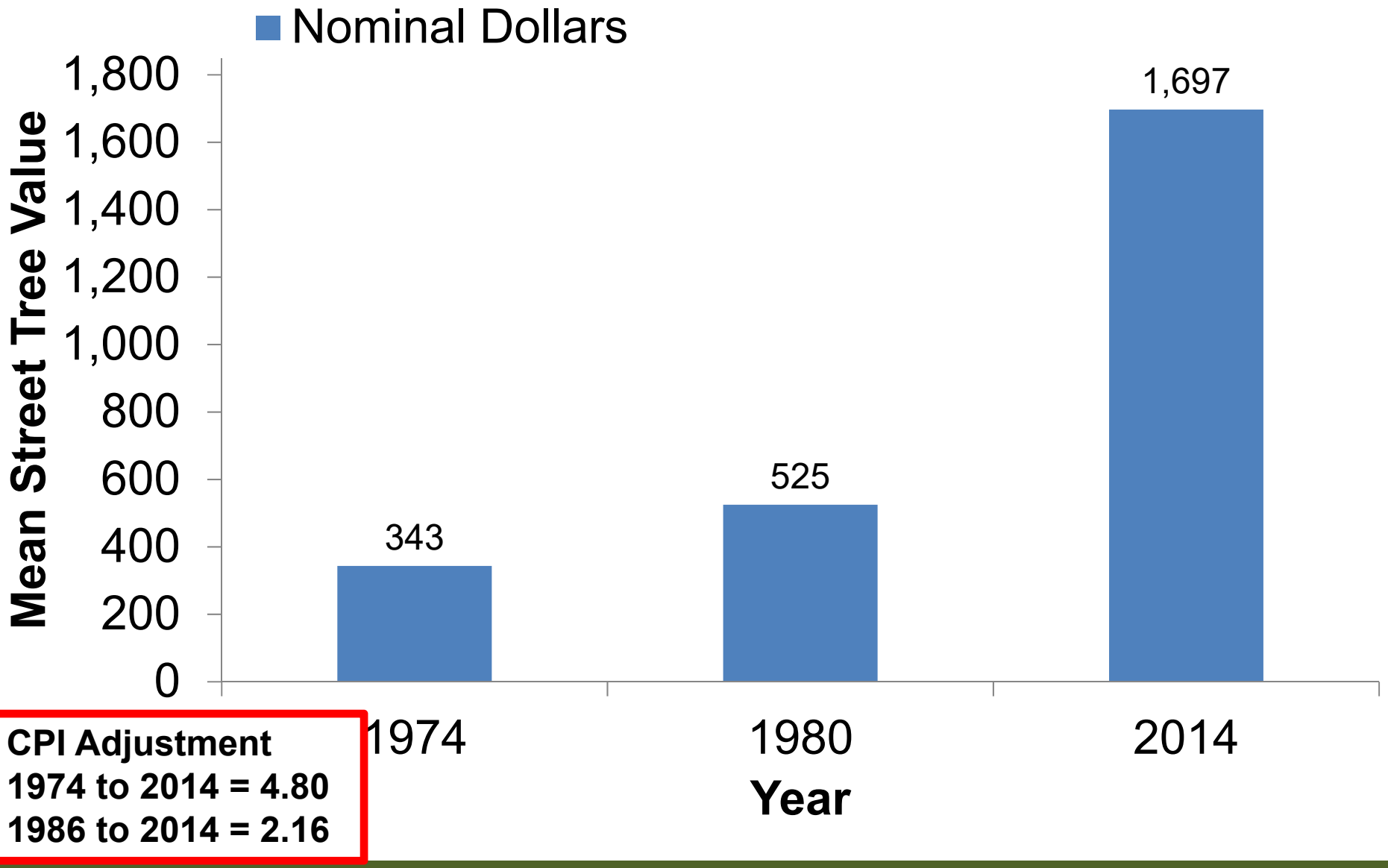
United States Census Bureau Definitions

What's Your Urban Forest Like?



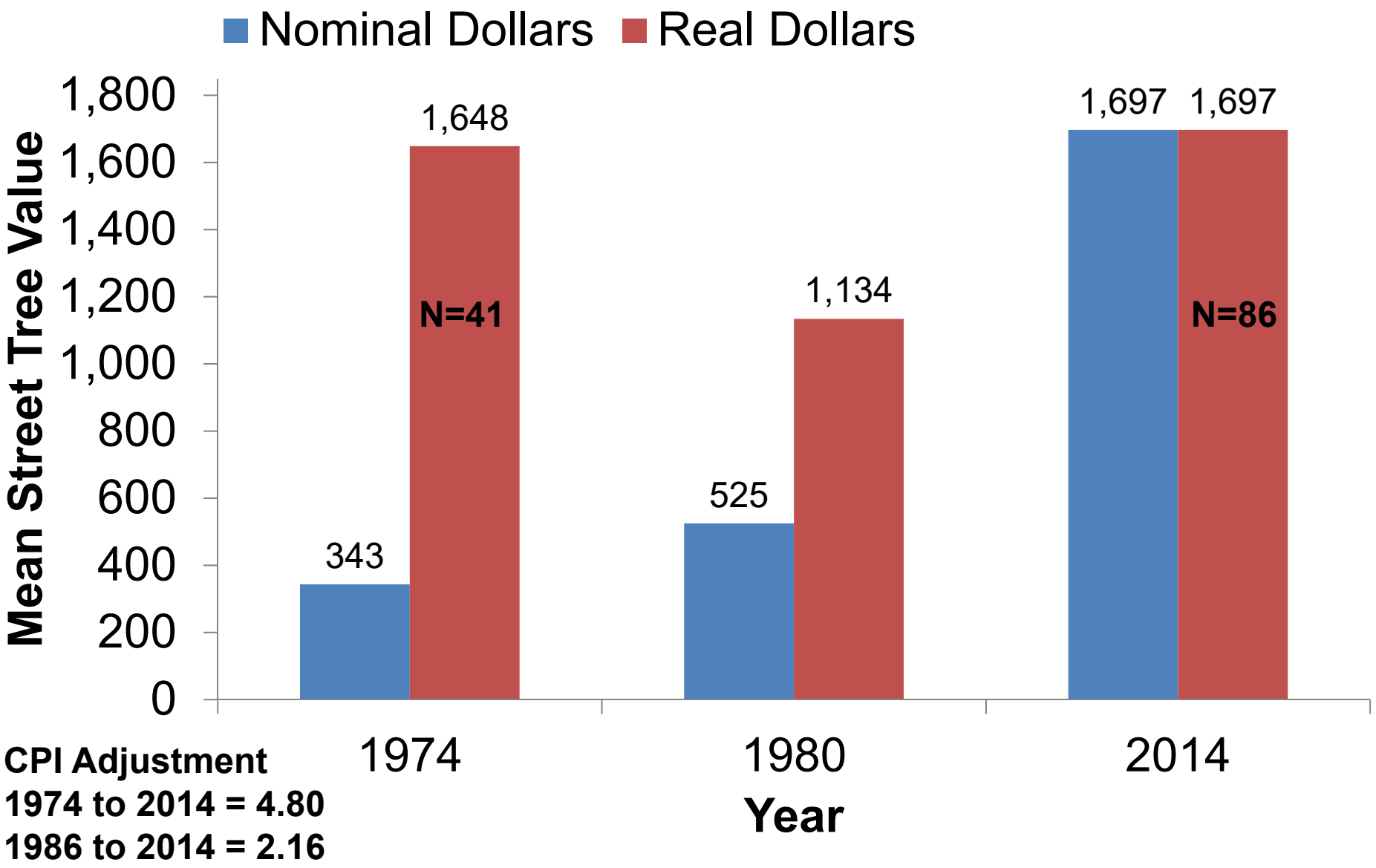
Many Challenges to Growing the Urban Forest

Value of Money



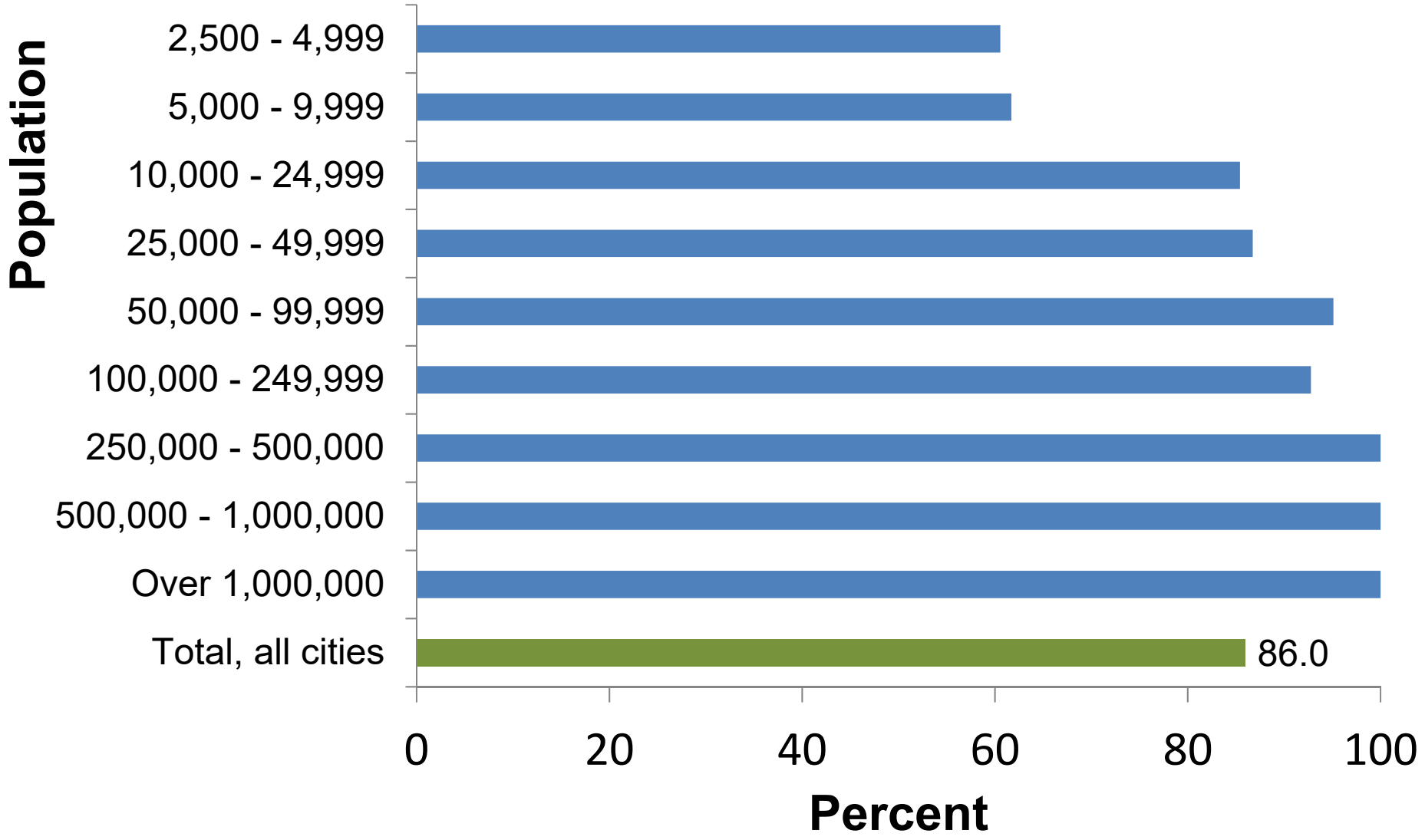
Nominal (historic) and Real (adjusted) Values

Value of Money



Nominal (historic) and Real (adjusted) Values

Conduct Tree Activities

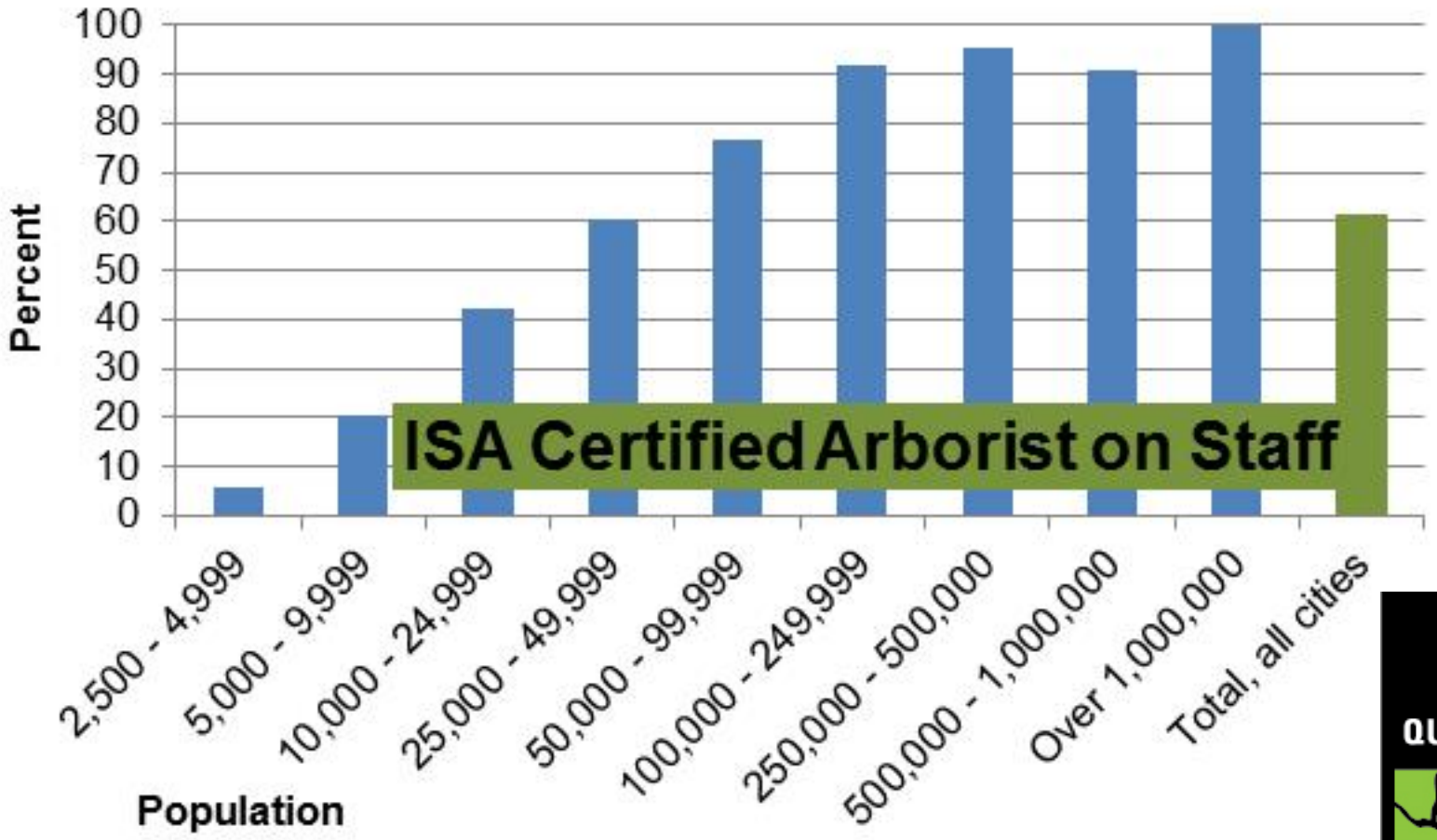


Percentage of Who Said Yes

What's in your Wallet?

Training and Credentials

Baseline Indicator: What's in your Wallet?



ISA QUALIFICATIONS™

Training and Credentials

Community Tree Management Statements

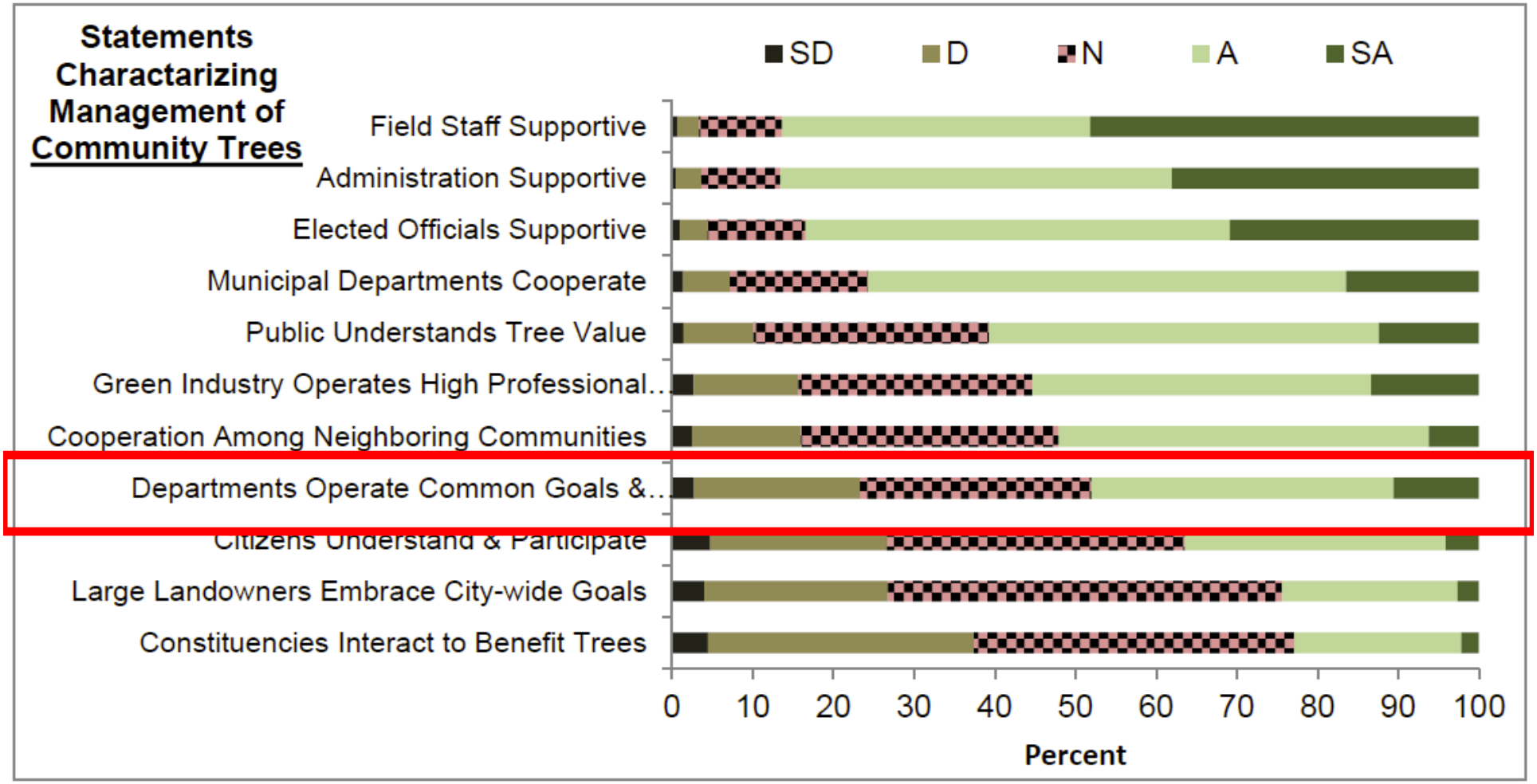
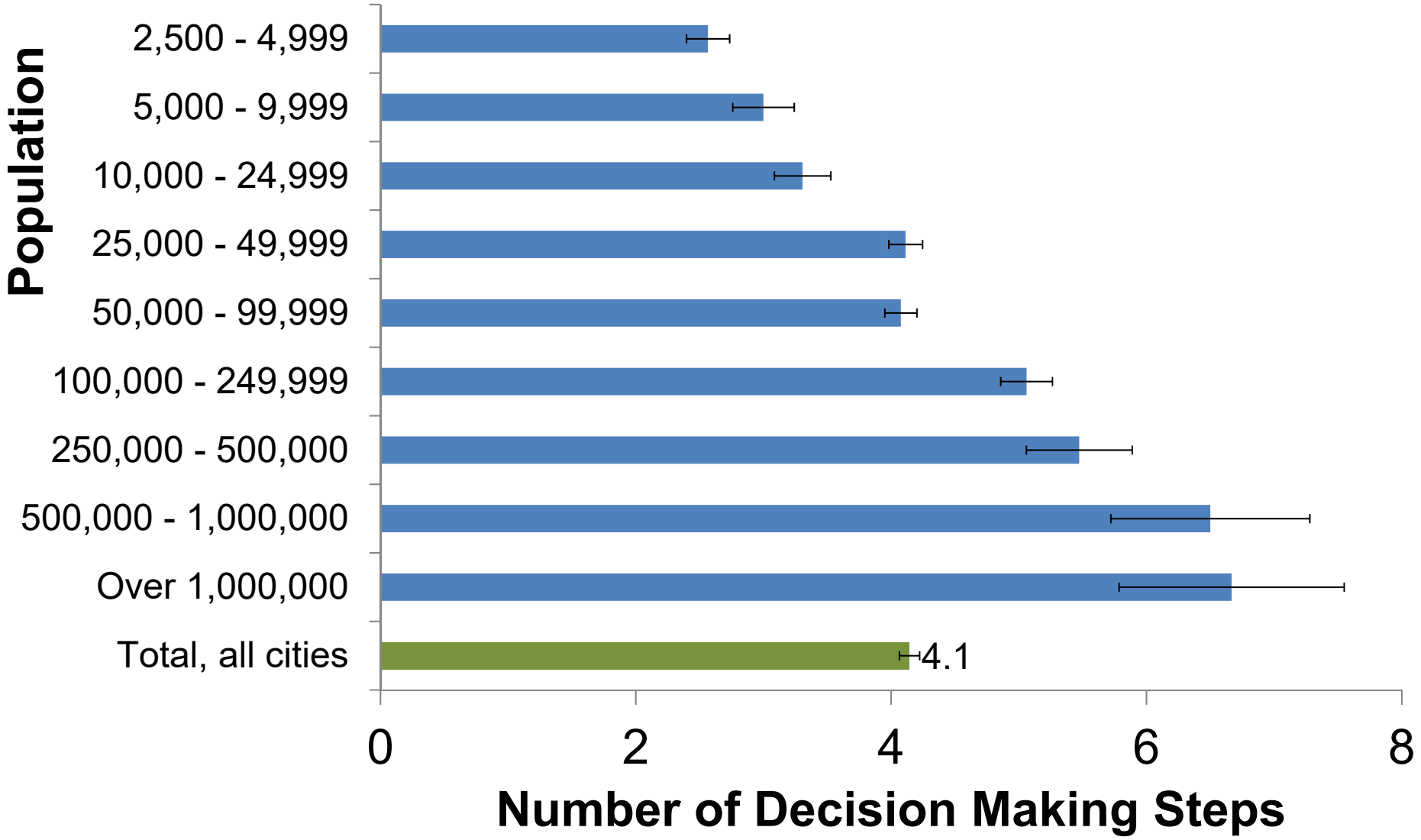


Figure 1-7. How strongly do you agree or disagree with these statements characterizing your community and the management of trees? (n=633 to 641, SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree)

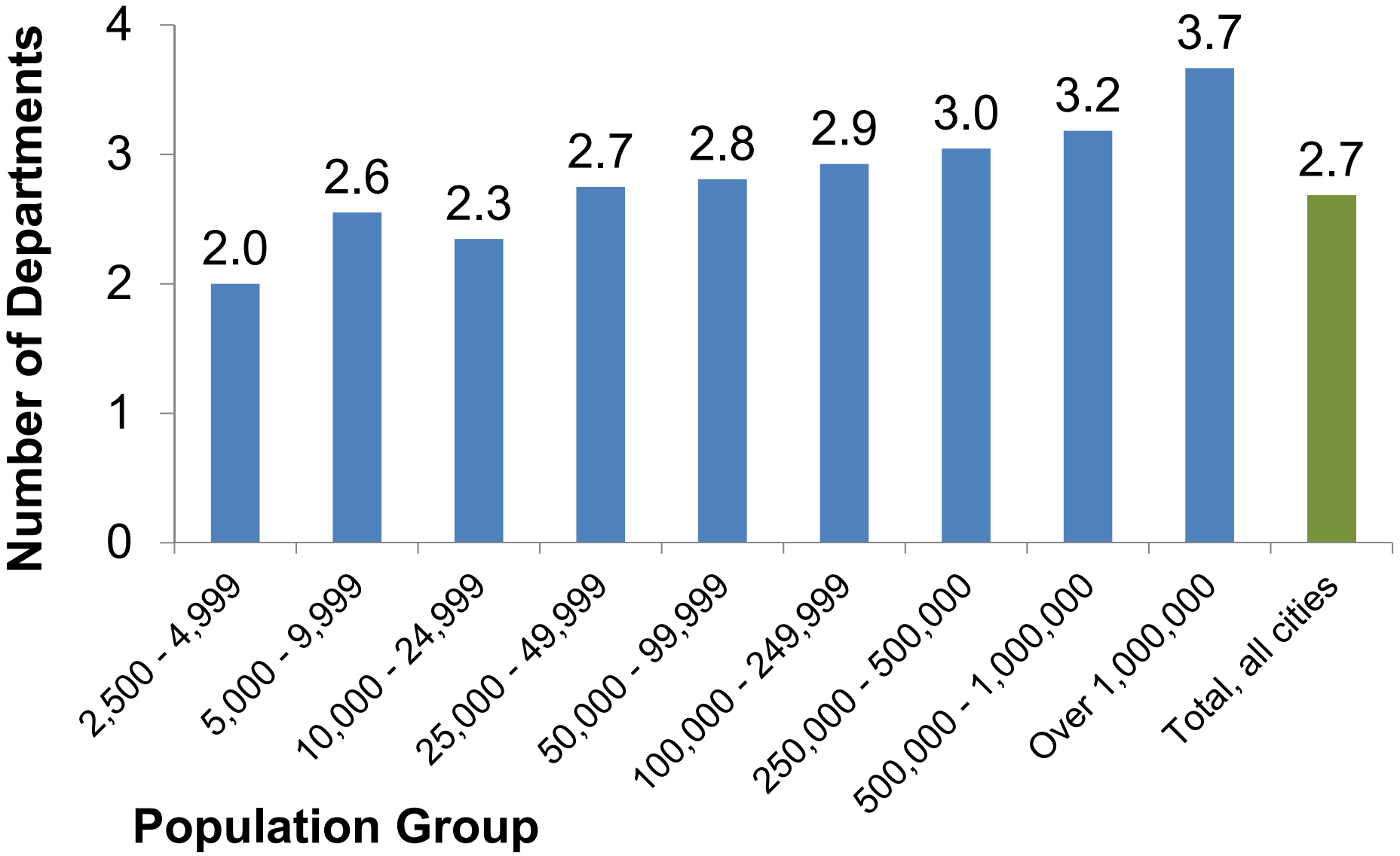
Strength with Agree and Disagree with Statement

How Many Decision Making Levels



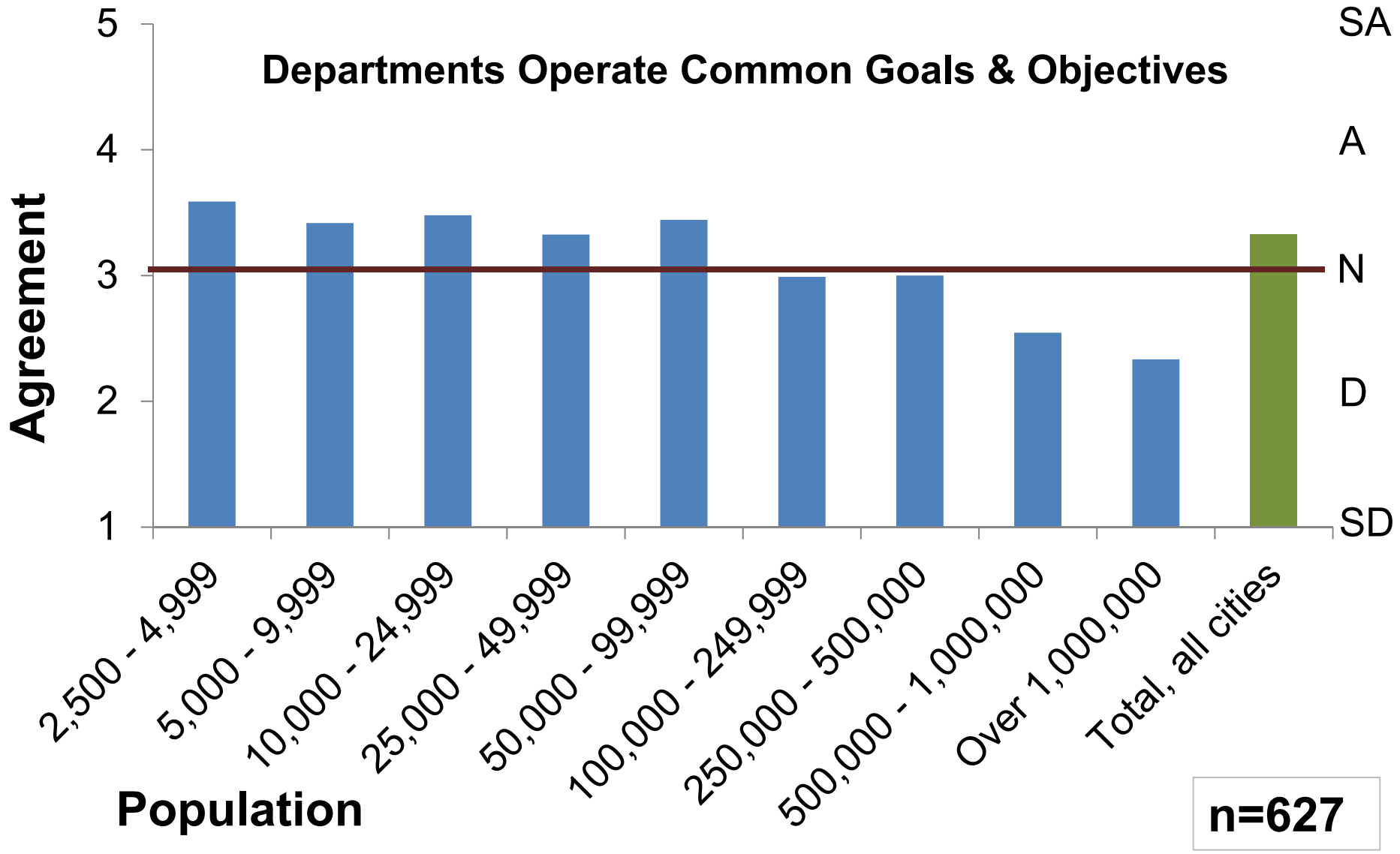
From the Field to the Highest Level

Municipal Department Responsible Public Trees



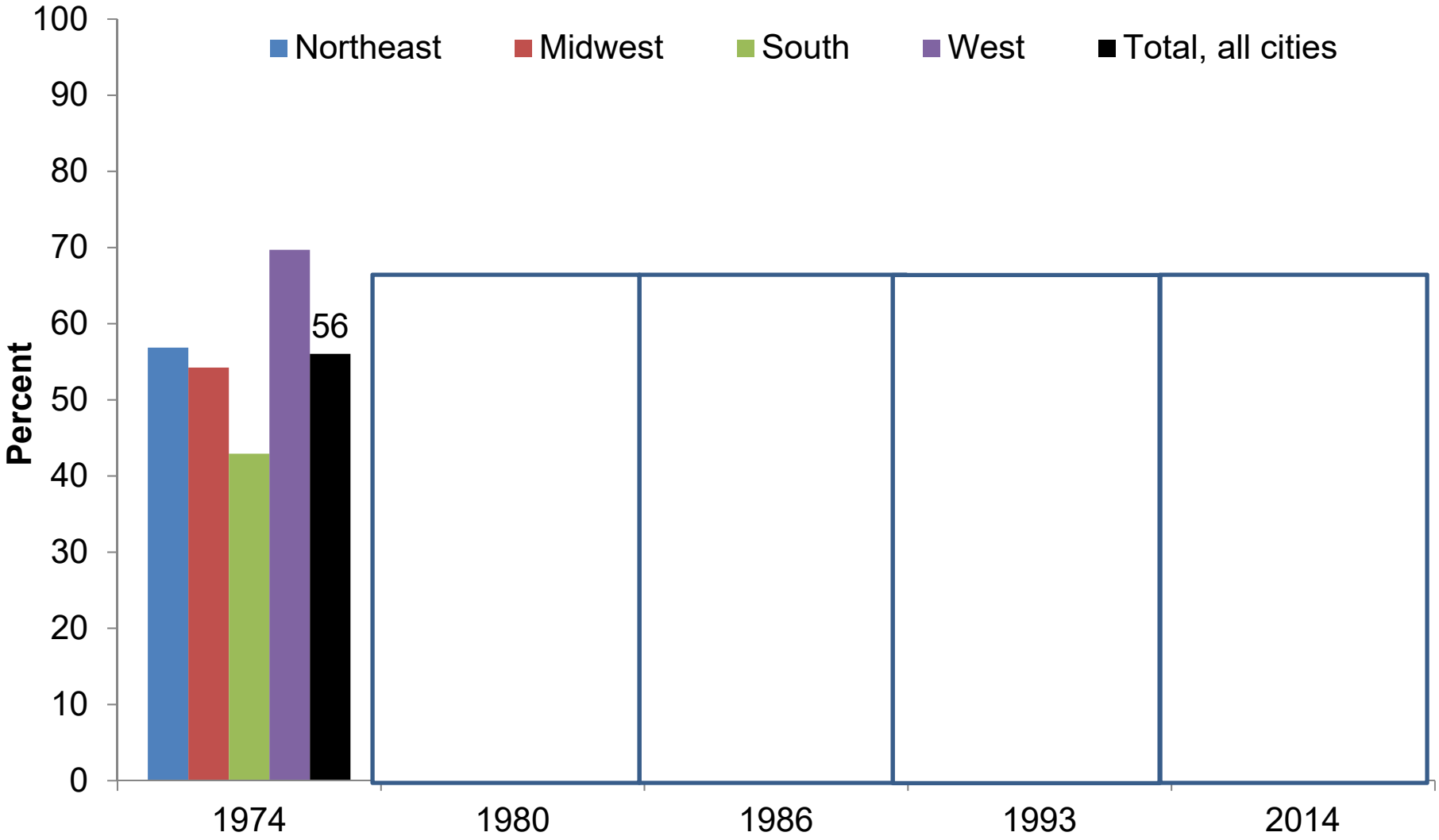
of Departments Associated With Tree Management

Municipal Department Responsible Public Trees



of Departments Associated With Tree Management

Systematic Management



% of Communities Rated as Systematic

Baseline Indicators: Pruning Cycle

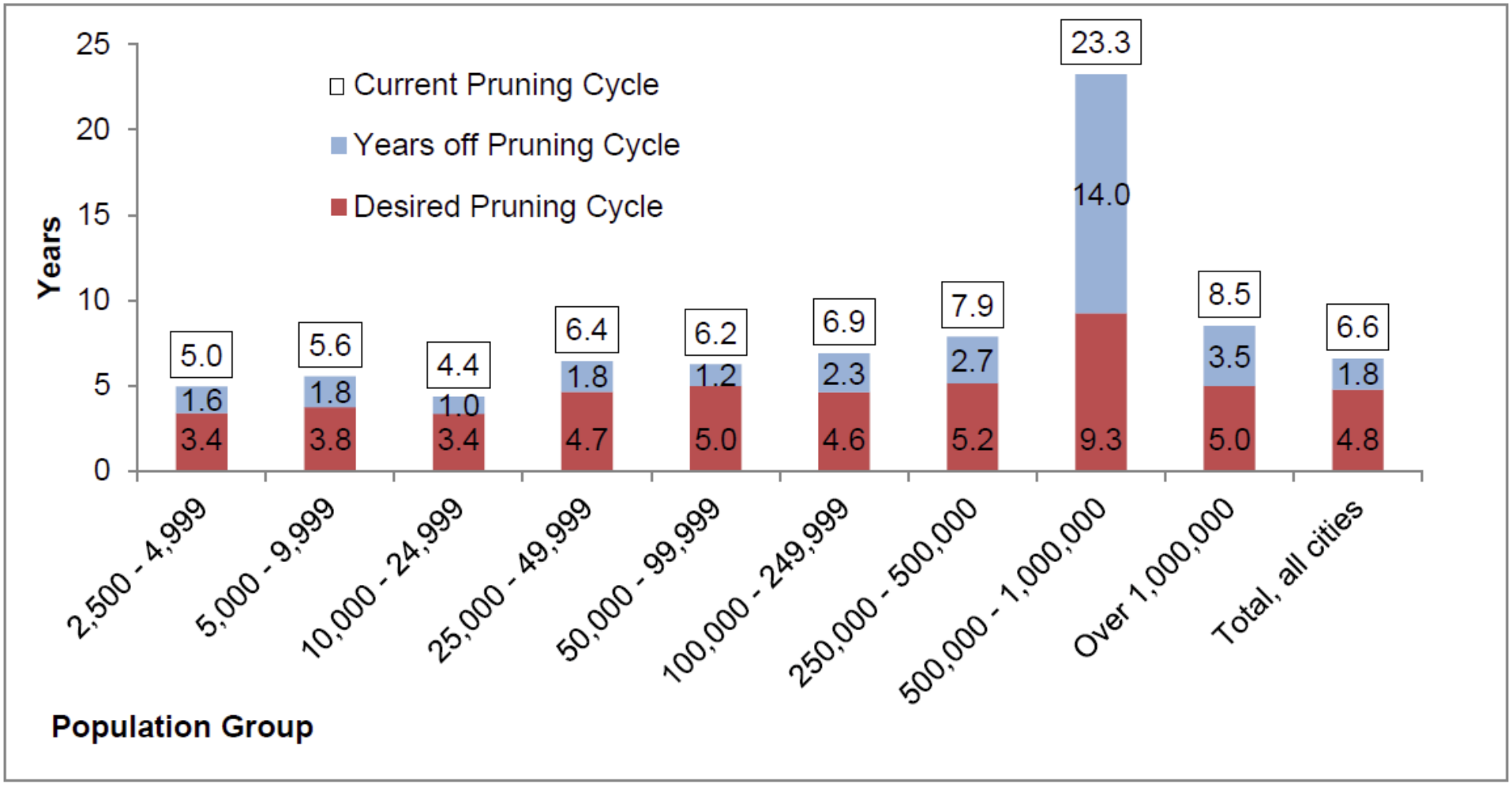


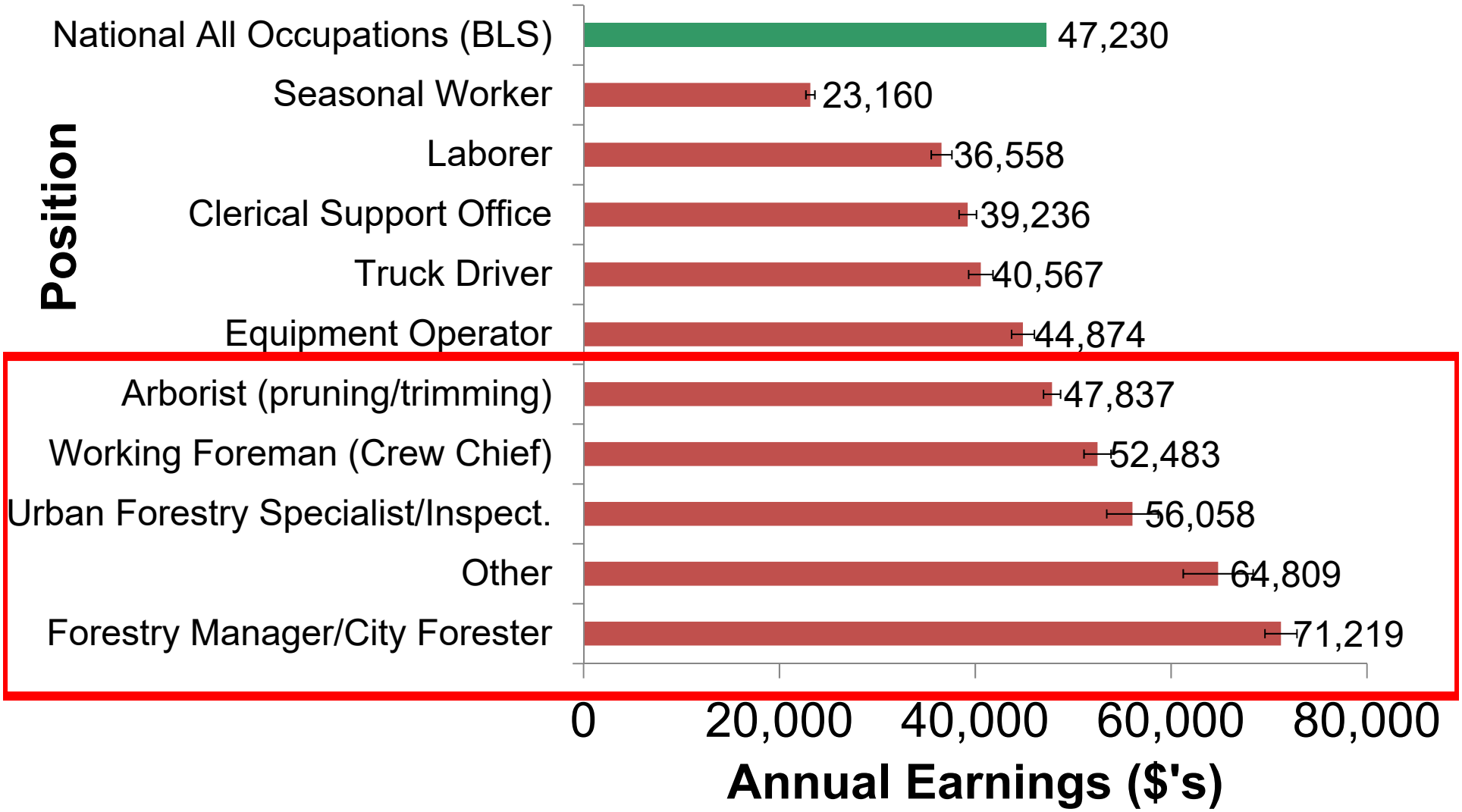
Figure 7-3. What is your current pruning cycle, your desired cycle, and years of the current pruning cycle? (current cycle n=227, desired cycle n=146)

Current, Desired, & Time Off Cycle

Just What are You Worth?

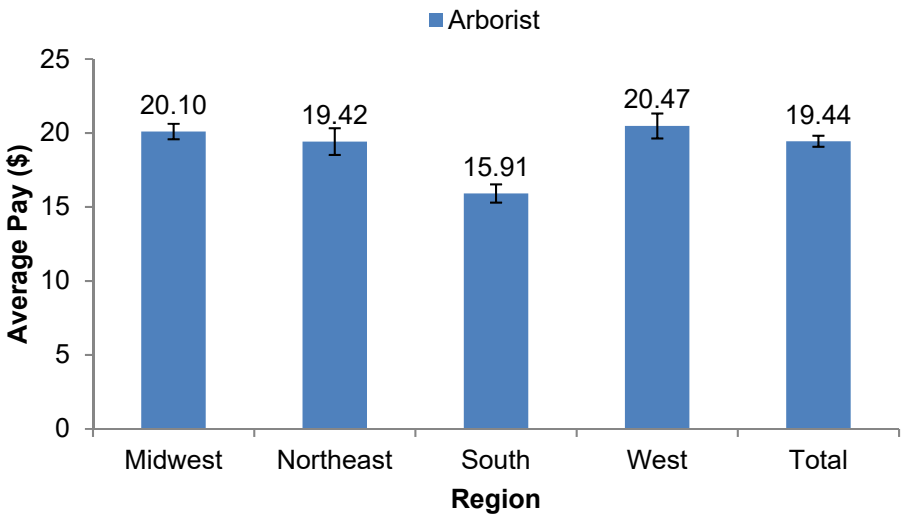
Compensation is Part of This Answer

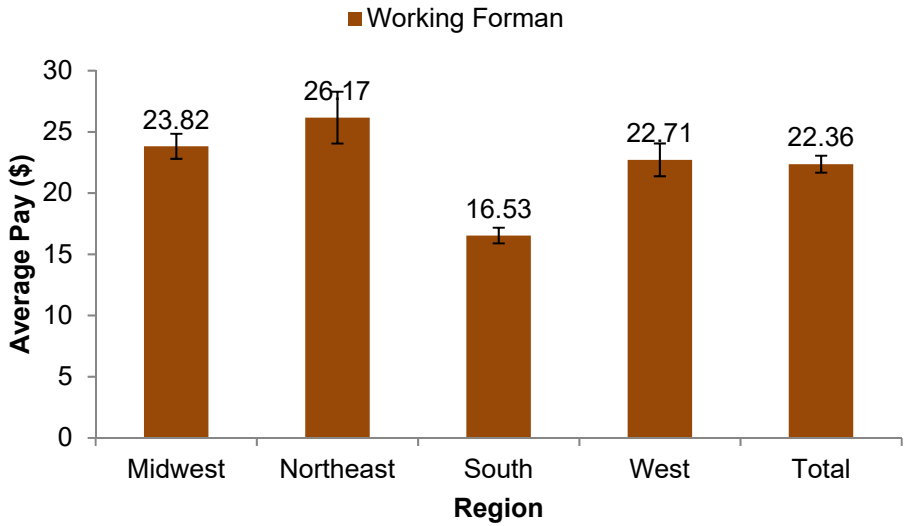
Positions and Pay (Annual Earnings $'s)

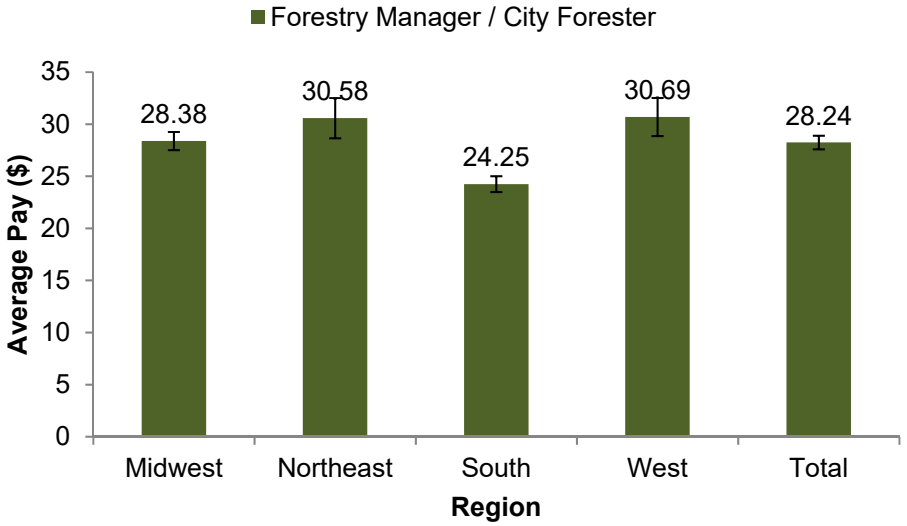


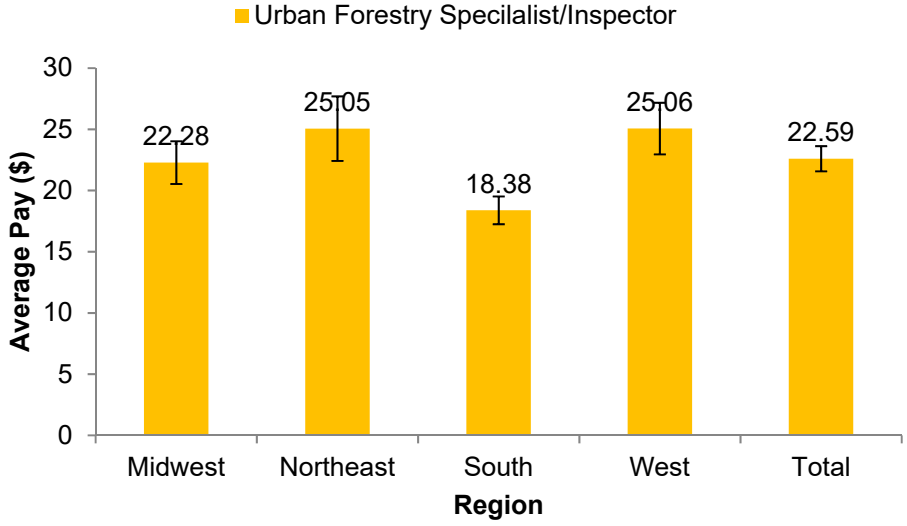
What is the National Mean for All Occupations?

Positions and Starting Pay (Annual Base $'s)









Some Region Examples?

Just How Many Municipal Forestry Jobs

32,588 (± 5,864) Full-Time Equivalents

49,362 (± 9,675) Total Employees

		Full-Time Equivalents					Total Employees				
Classification	Population (n)	Sampled (n)	Mean	SEM	Total	CI 95%	Sampled (n)	Mean	SEM	Total	CI 95%
Total, all cities	7,478	508	4.36×	2.10	32,588	5,864	614	6.60×	0.66	49,362	9,675
Population Group											
2,500 - 4,999	2,344	47	3.31	0.60	7,756	2,758	65	4.90	0.59	11,486	2,712
5,000 - 9,999	1,883	35	3.10	0.61	5,836	2,253	46	5.10	0.56	9,603	2,068
10,000 - 24,999	1,750	41	4.70	0.76	8,233	2,609	49	7.00	0.81	12,250	2,780
25,000 - 49,999	786	121	5.25	0.50	4,127	771	156	8.30	0.49	6,524	756
50,000 - 99,999	442	146	6.27	0.53	2,770	460	173	9.10	0.63	4,022	547
100,000 - 249,999	200	87	11.78	1.27	2,356	501	91	14.50	1.45	2,900	572
250,000 - 500,000	41	20	18.28	4.23	749	351	21	21.40	4.19	877	347
500,000 - 1,000,000	23	9	18.22	2.10	419	100	10	19.00	2.99	437	143
Over 1,000,000	9	2	38.00	17.0	342	353	3	140.30	97.24	1,263	2,018

First time this has been estimated?

How much **money is needed**?

What's the **best comparison** method?

What's **the context**?

Municipal Budgets

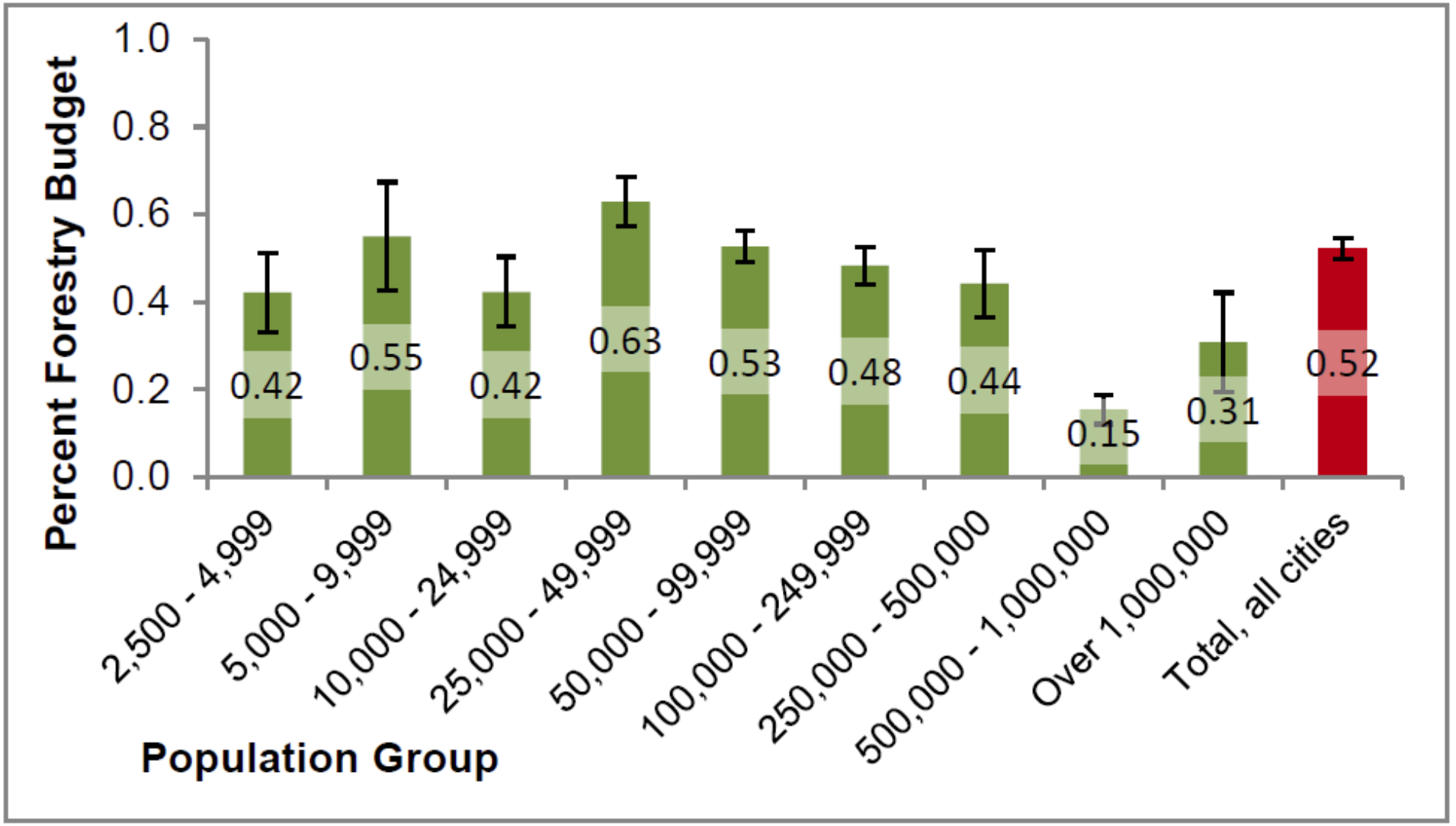


Figure 2-4. Percent forestry budget of the total municipal budget. (n=463)

Percent Tree Budget of Municipal Budget

Municipal Budgets

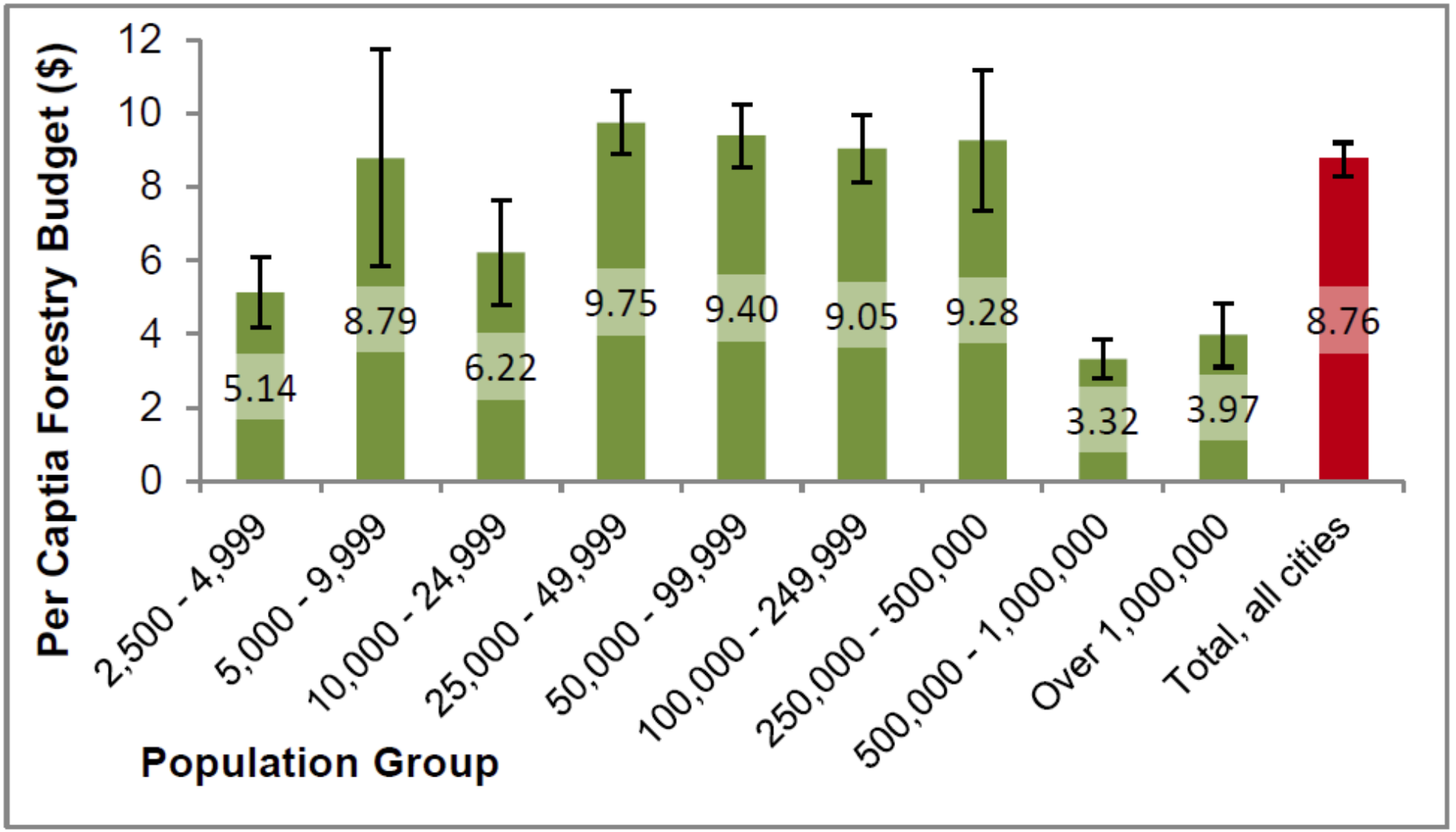
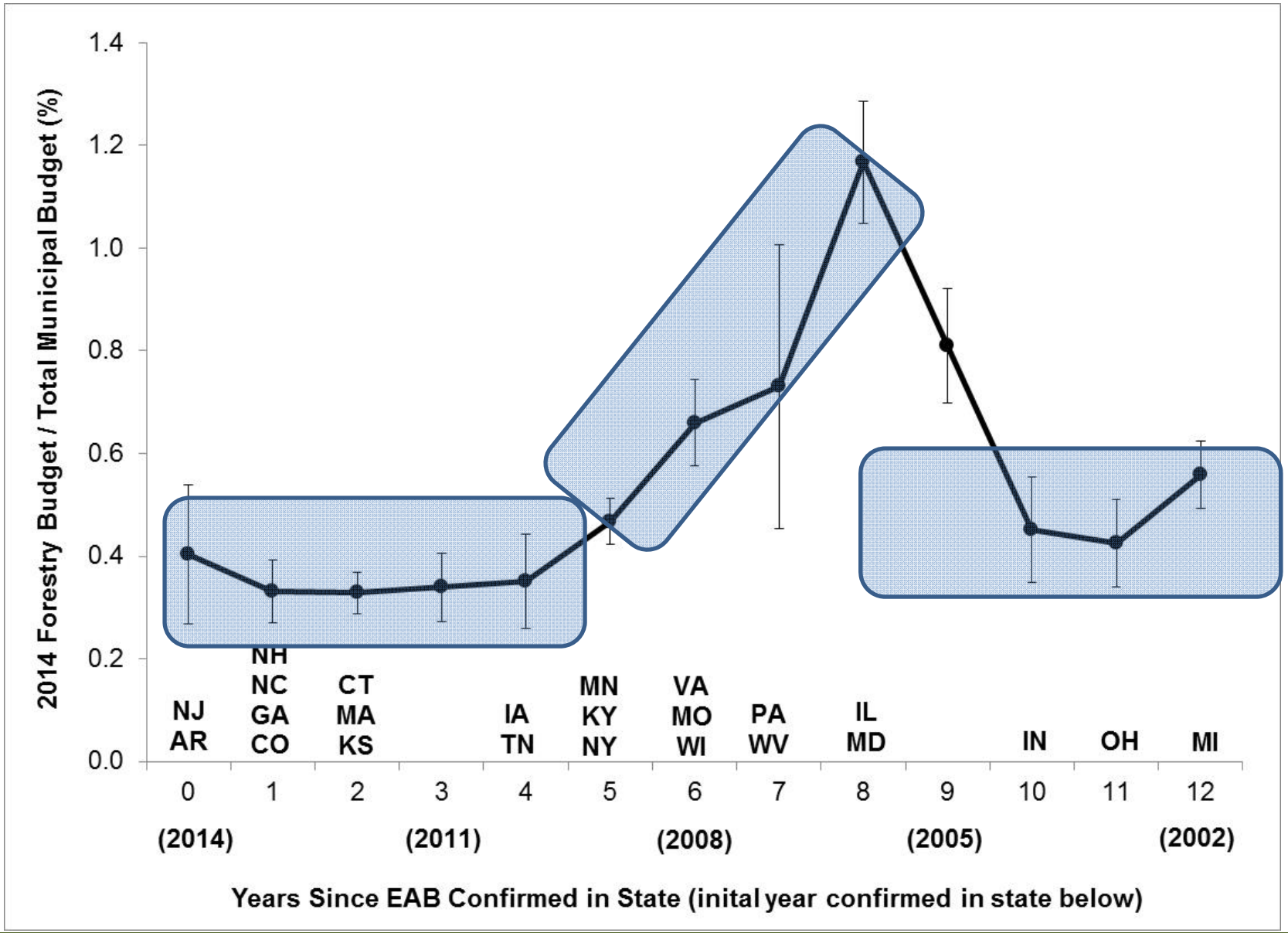


Figure 2-5. Per capita forestry budget. (n=477)

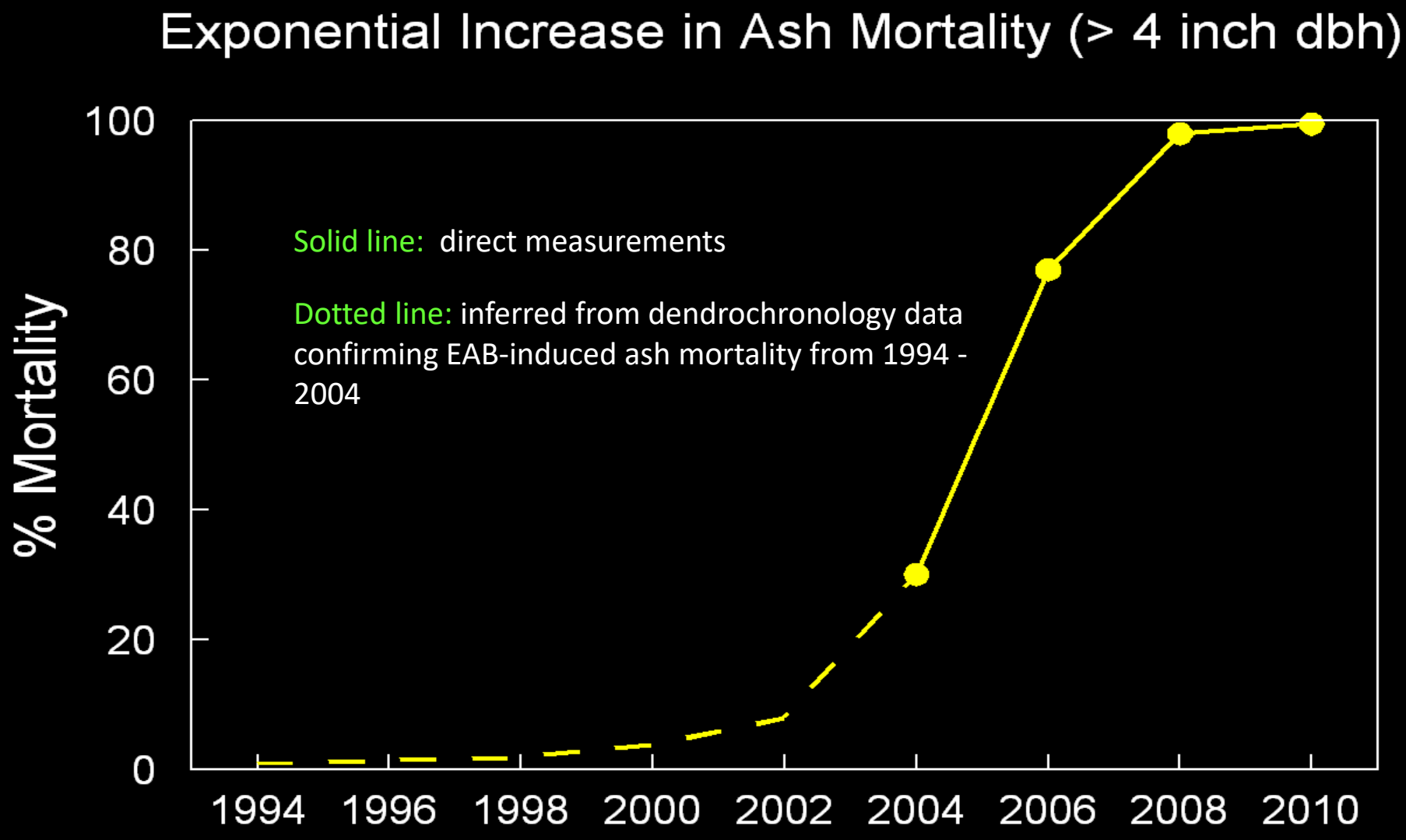
Per Capita Tree Budget

Effect of EAB on Municipal Budgets



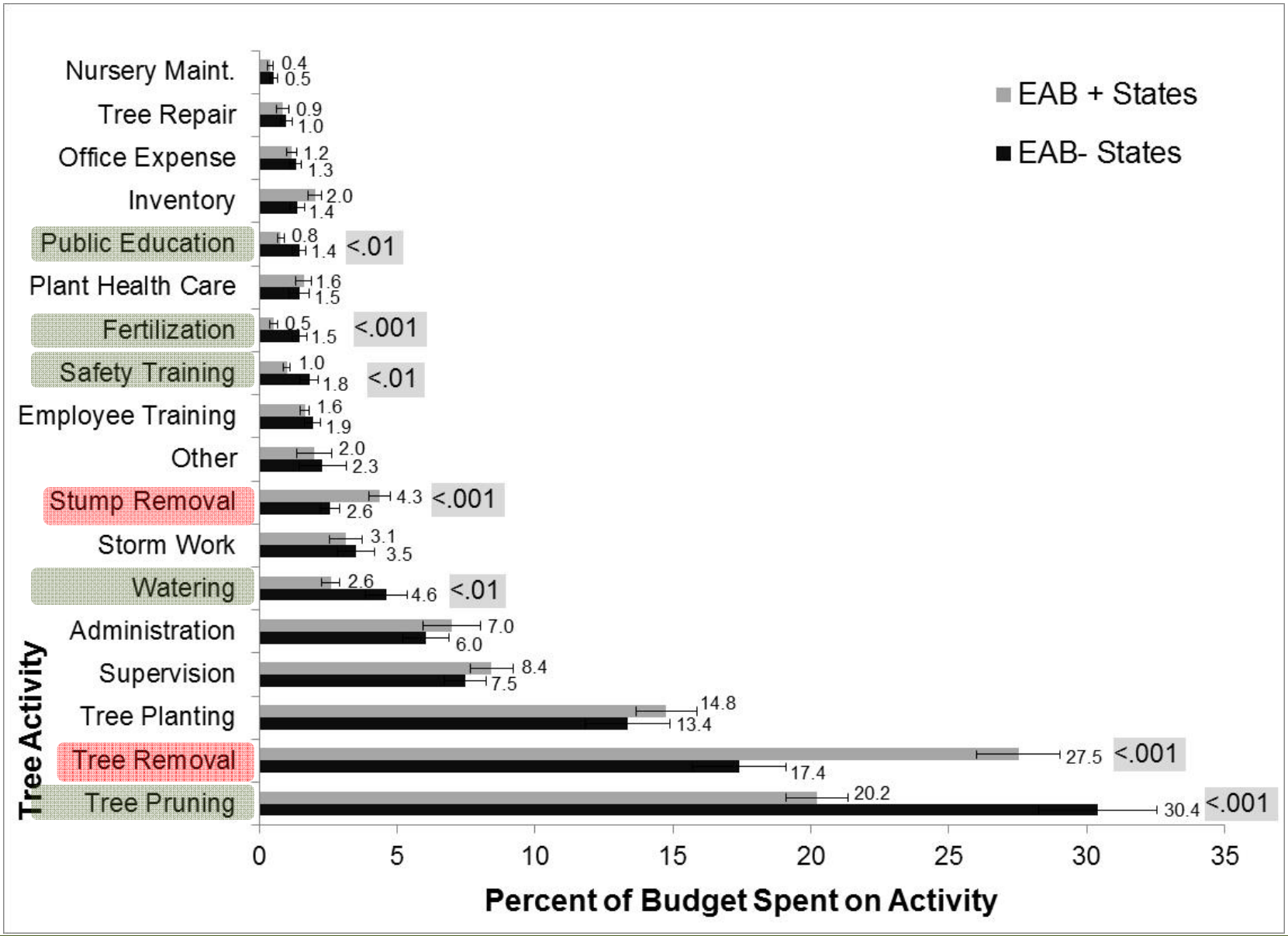
EAB Management Works, Like it or not EAB will costs $

EAB-Induced Ash Mortality SE Michigan



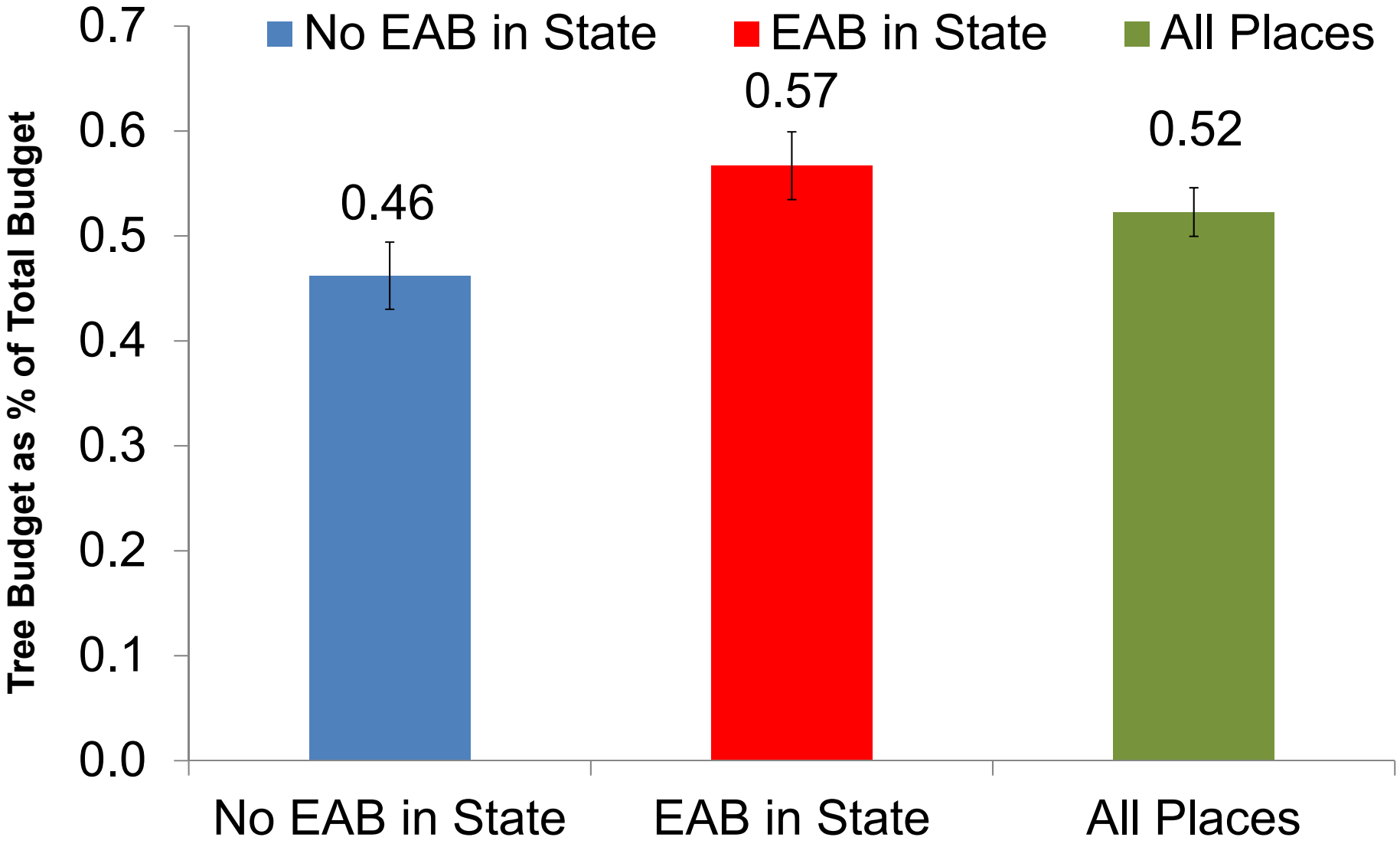
The outcome of doing nothing (Image by Dan Herms)

Net Benefit of EAB Management



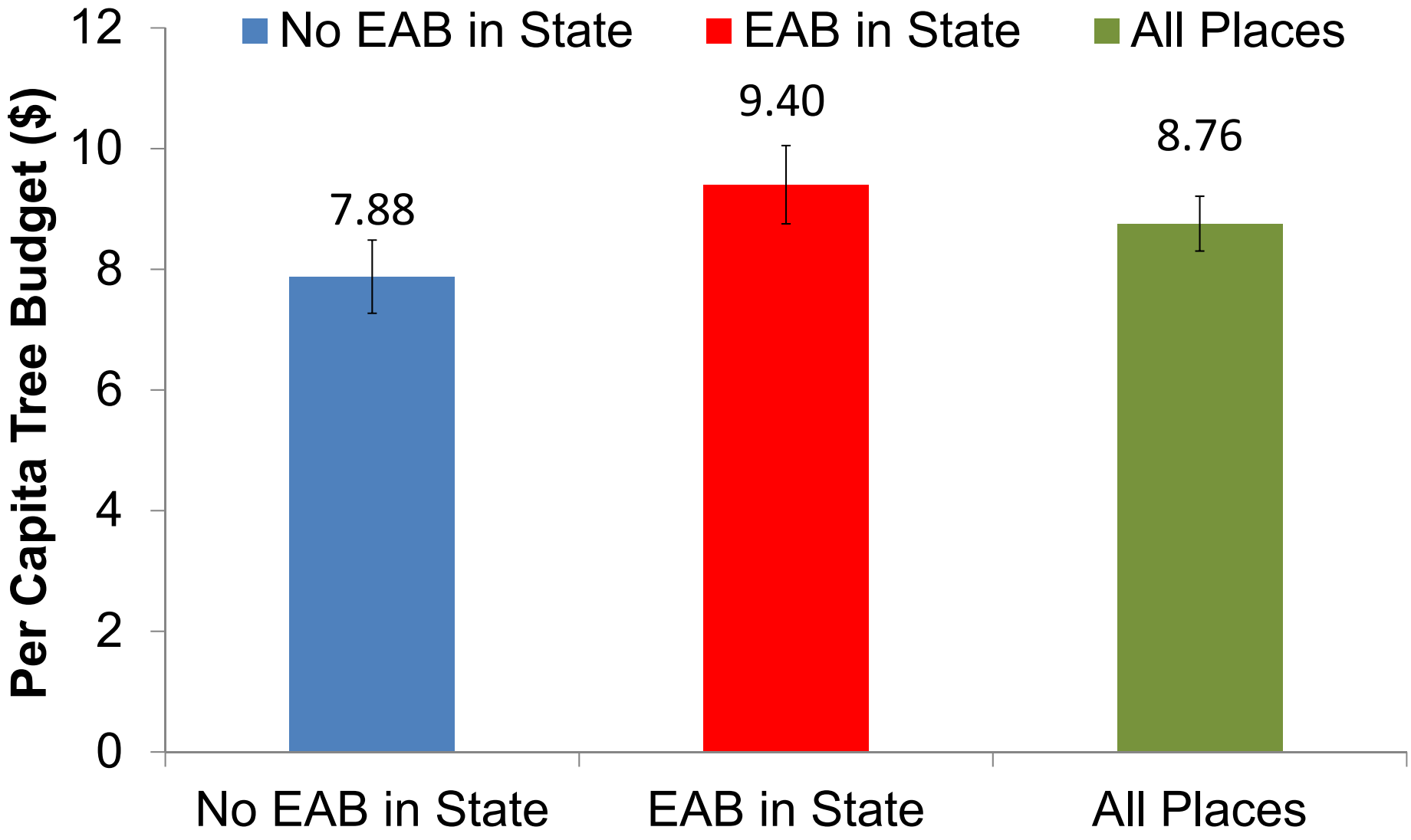
EAB Management Works, If you like it or not EAB will costs $

Municipal Budgets



Effect of EAB on Budget

Municipal Budgets



Effect of EAB

Urban Studies, Vol. 43, No. 9, 1537–1547, August 2006

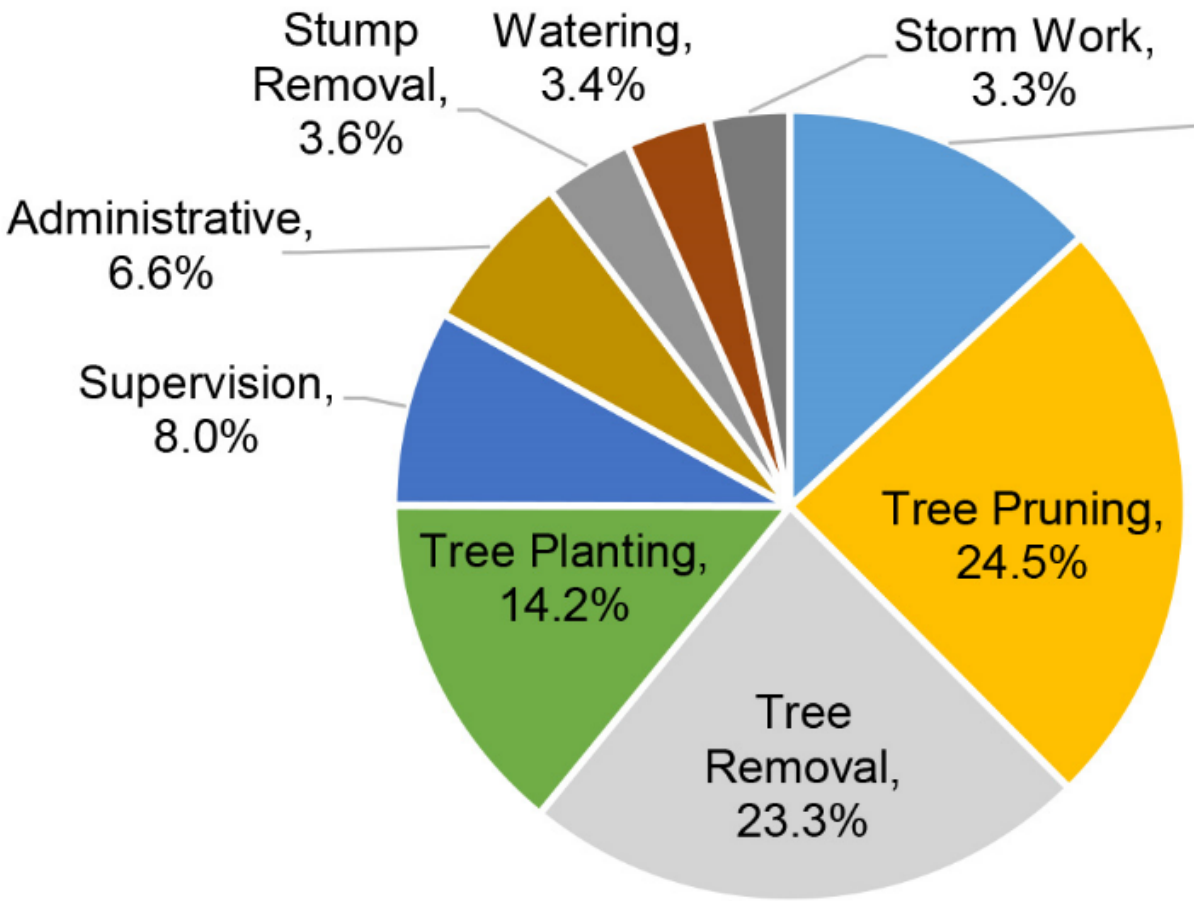
Are Residents Willing to Pay for their Co Forests? Results of a Contingent Valuati in Missouri, USA

Thomas Treiman and Justine Gartner

Table 7. Estimated willingness-to-pay (WTP) as derived from the MLE estimation, including conditional WTP for each categorical variable (community size/location and demographic categories) and overall WTP across all respondents.

Variable	Estimated WTP ($)	Estimate	Standard error
Community			
<5000	7.90	38.9	36.7
5001 to 10 000	8.21	−38.6	36.7
10 001 to 20 000	12.17	−34.7	36.6
20 001 to 50 000	4.07	−42.8	36.7
50 001 to 150 000	11.53	−35.3	36.5
150 001 to 250 000	14.42	−32.4	36.5
St Louis suburbs	14.94	−31.9	36.5
Kansas City suburbs	11.94	−34.9	36.6
St Louis	16.83	−29.9	36.6
Kansas City	15.99	−30.8	36.6
Gender			
Male	10.14	−3.2	2.2
Female	13.37	—	—
Age			
Under 20	22.23	31.0	18.8
20 to 35	14.60	23.4	3.3
36 to 50	12.40	21.2	3.7
51 to 65	11.14	19.9	2.7
Over 65	9.36	18.1	2.9
Education			
Grade school	−5.78	−1.9	36.9
Some high school	5.14	9.0	36.3
High school	4.29	8.2	36.2
Some college	12.74	16.6	36.2
College	13.47	17.4	36.3
Graduate/professional	19.28	23.2	36.4
Income			
under $20 000	1.33	2.6	4.4
$20 000 to $40 000	11.91	13.2	4.3
$40 001 to $60 000	14.20	15.5	4.7
$60 001 to $80 000	18.16	19.4	5.3
$80 001 to $100 000	18.29	19.6	5.9
Income – over $100 000	20.89	22.2	5.9
Overall WTP	11.56	80.9	13.2

Where Does the Money Go?

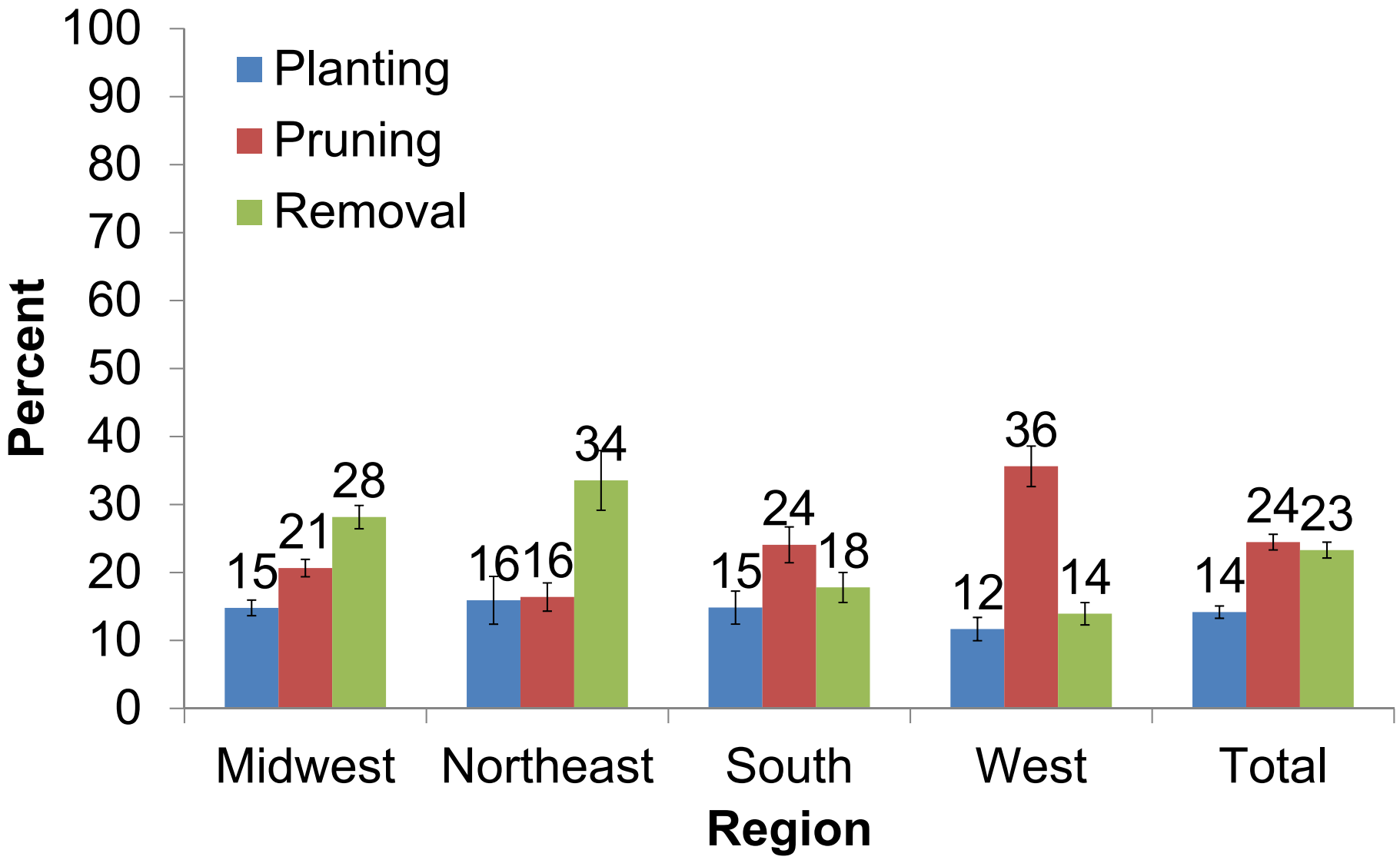


Other	2.1
Employee Training	1.8
Inventory & Analysis	1.8
Plant Health Care	1.5
Safety Training	1.3
Office Expenses	1.2
Public Education	1.1
Fertilization	0.9
Tree Repair	0.9
Nursery Maintenance	0.5
Total of Other < 3%	**13.1**

Figure 5. Percent allocation of tree care budget by activity area. (n=268)

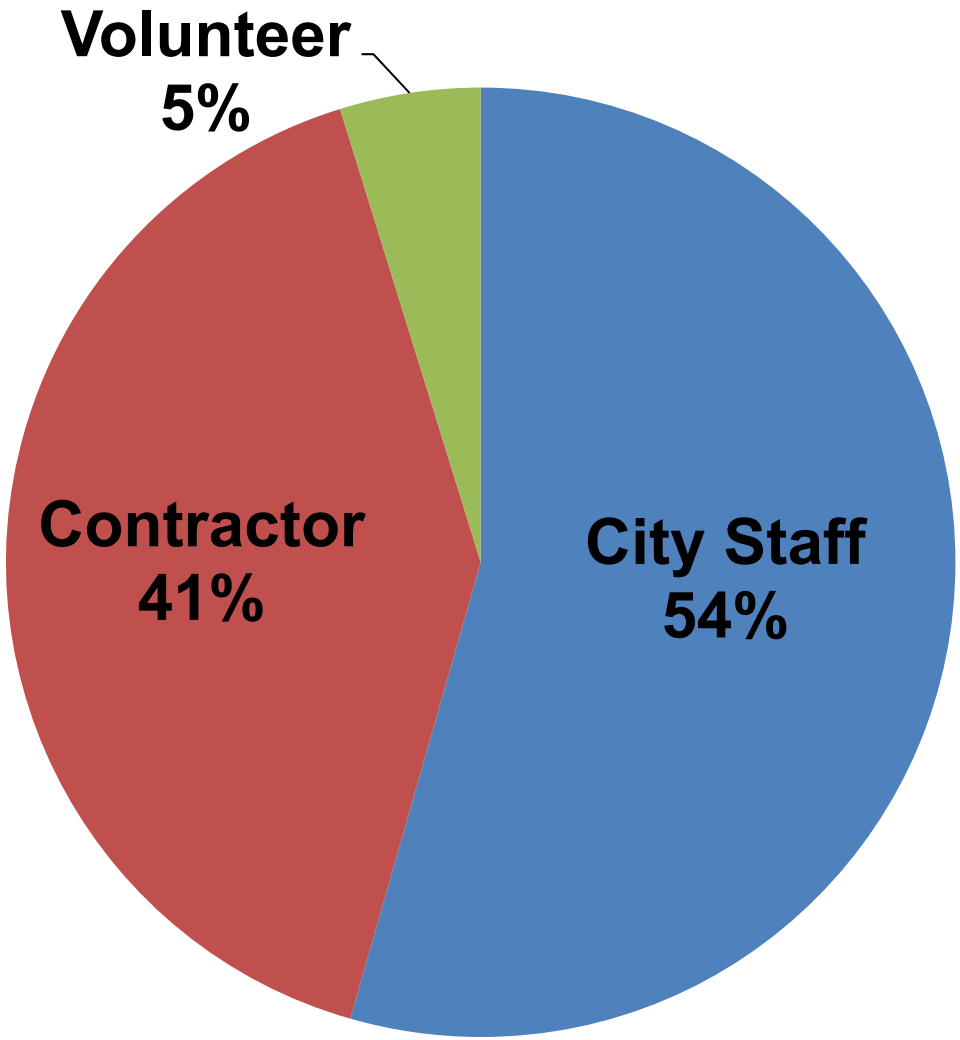
The Big Three (Planting, Pruning, Removal) & More

Where Does the Money Go?



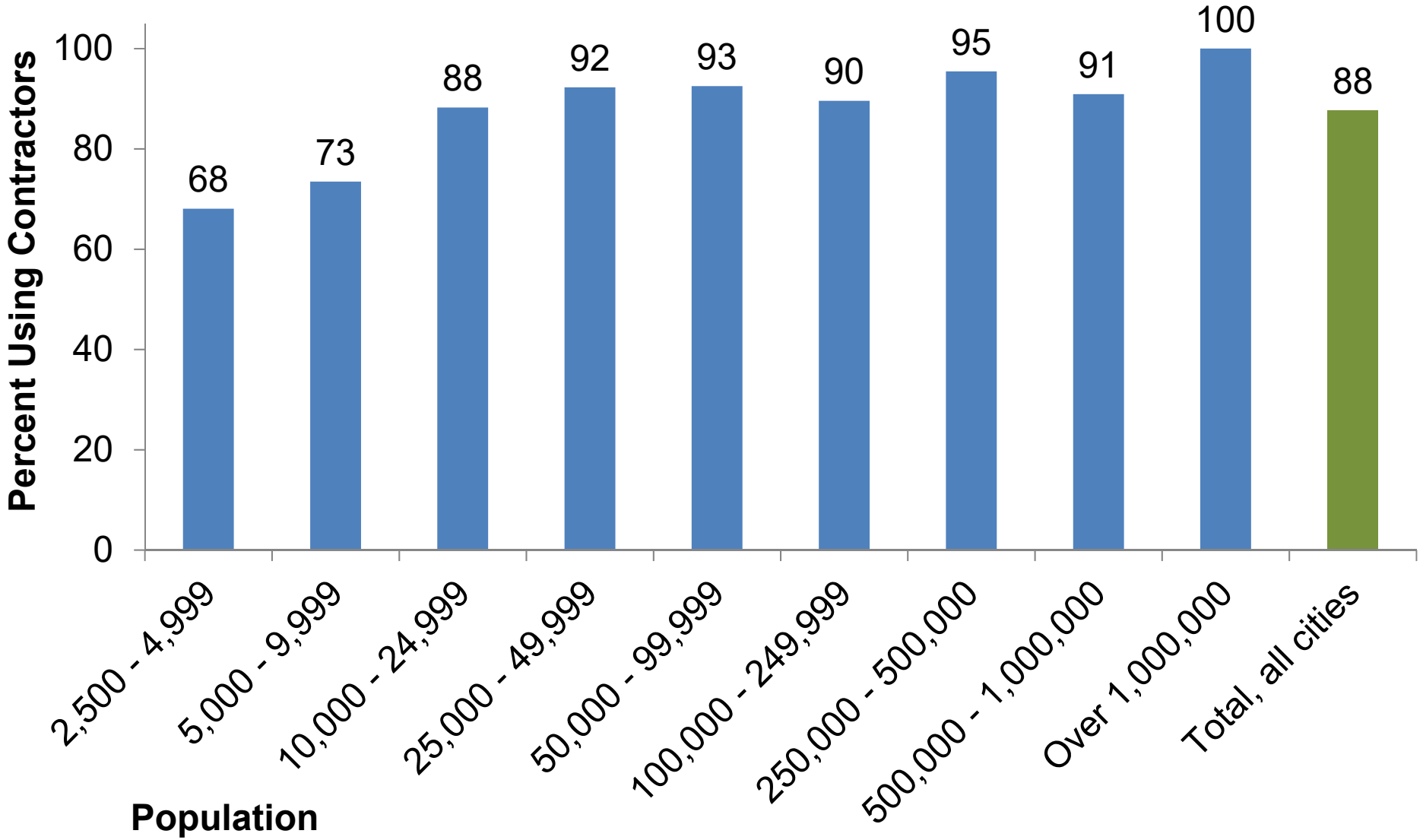
The Big Three (Planting, Pruning, Removal) by Region

Who Does the Work?



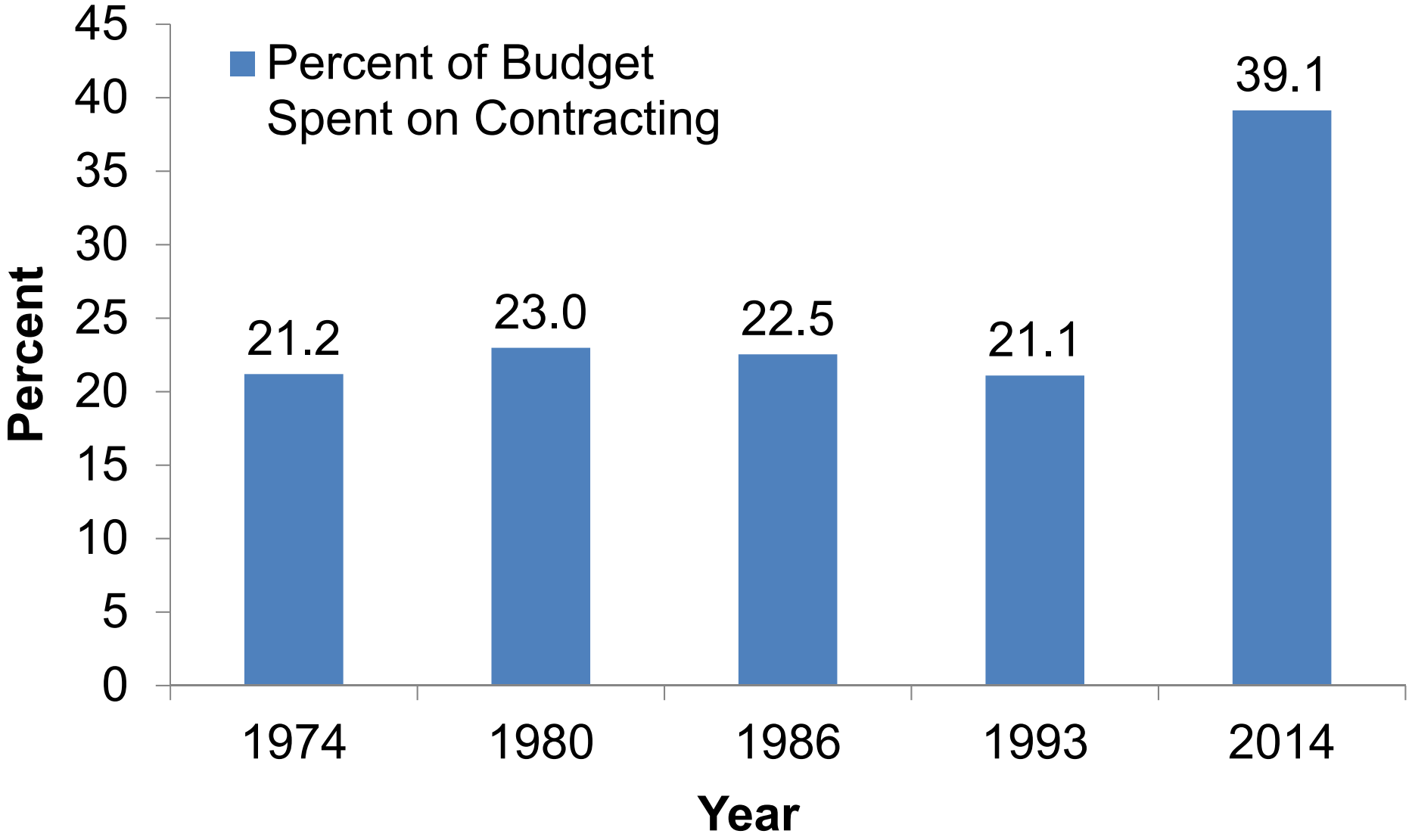
Allocation percentage total work

Who Does the Work?

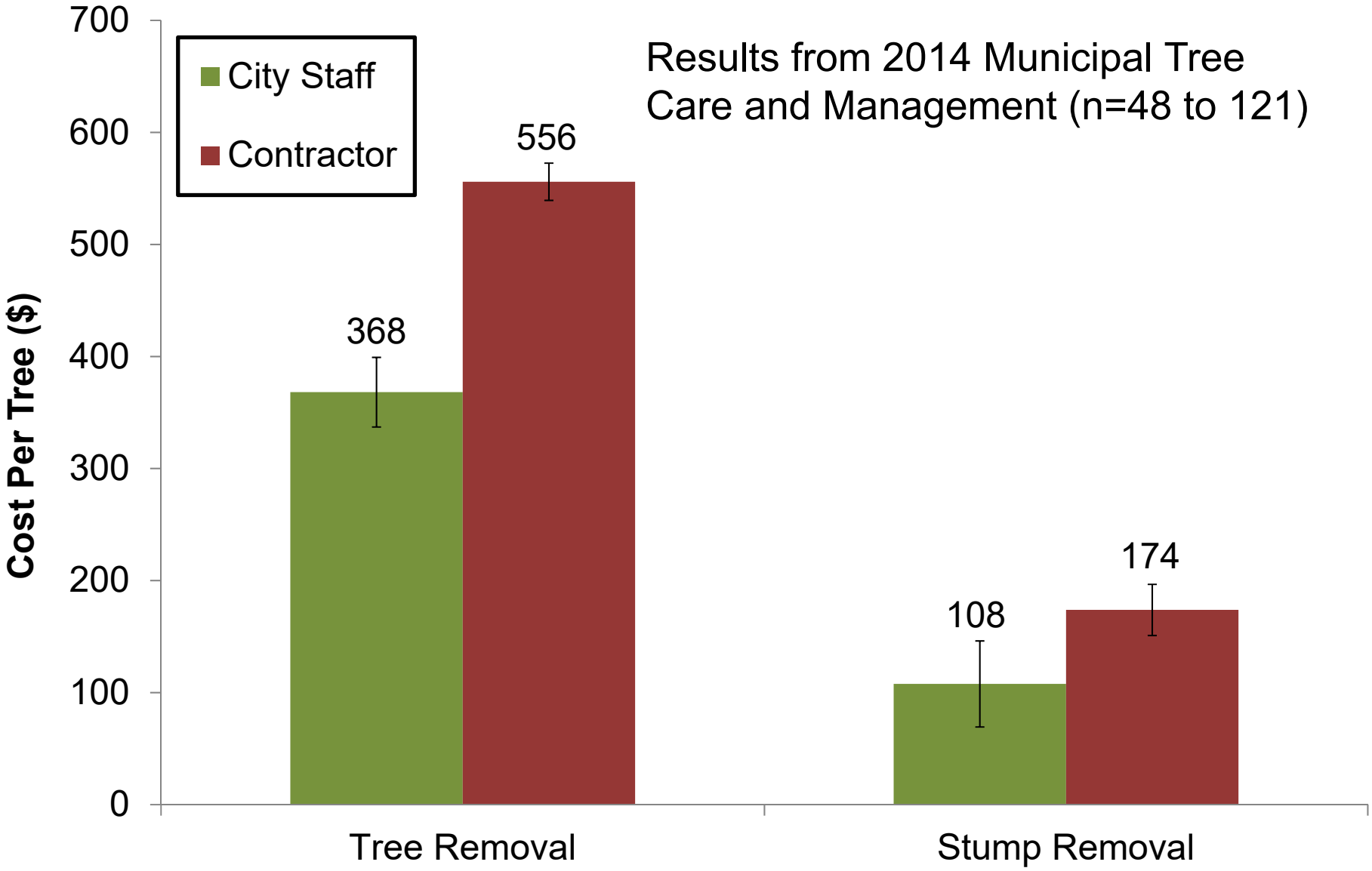


How Common are Contractors Hired?

Who Does the Work?

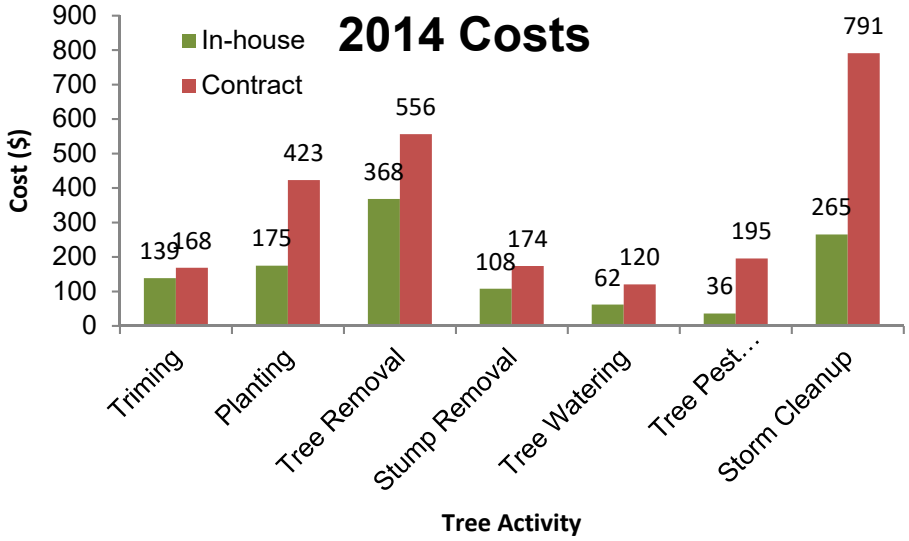


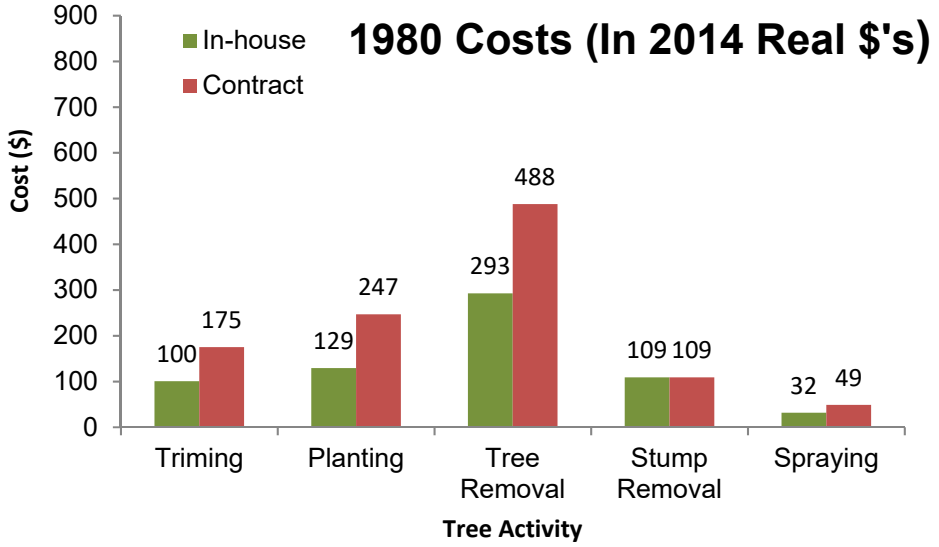
Cost to Remove Urban Trees and Stumps

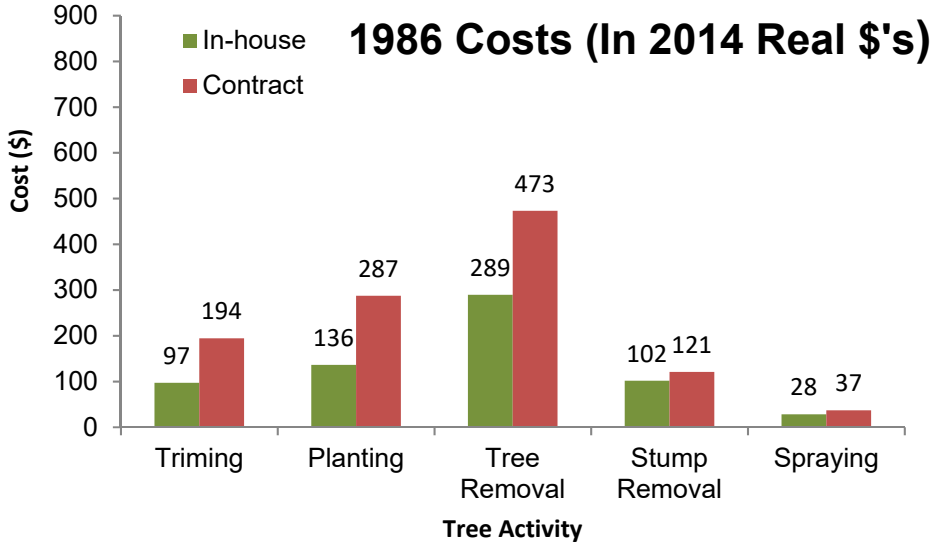


Cost for Activity Per Tree

Should I Contract or Should I In-house

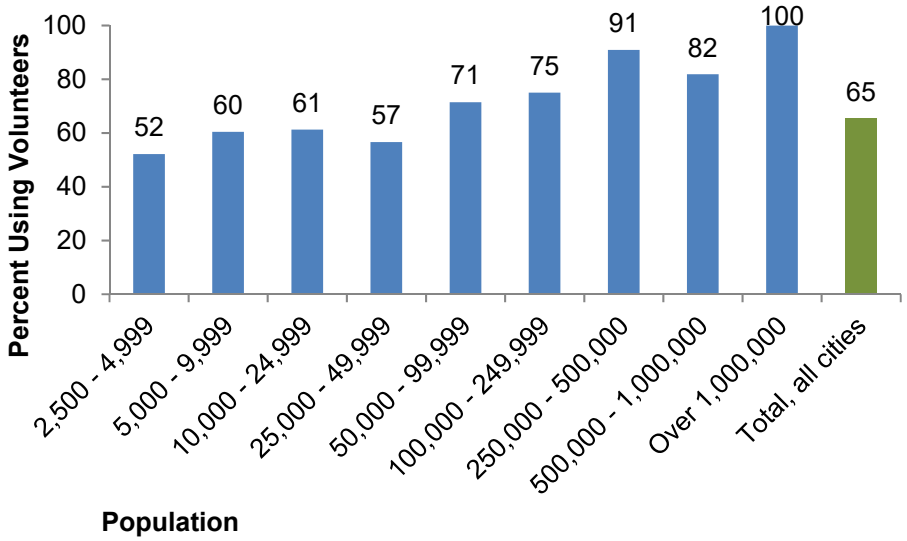


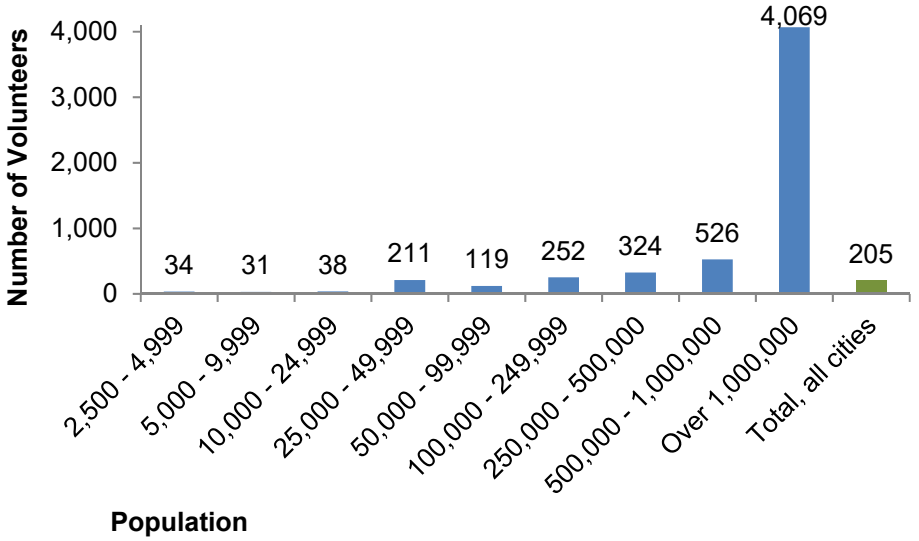


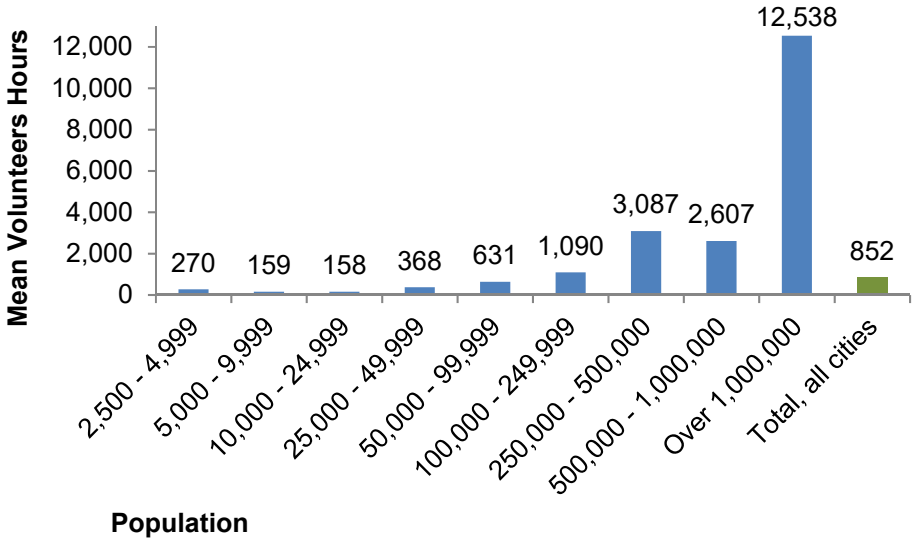


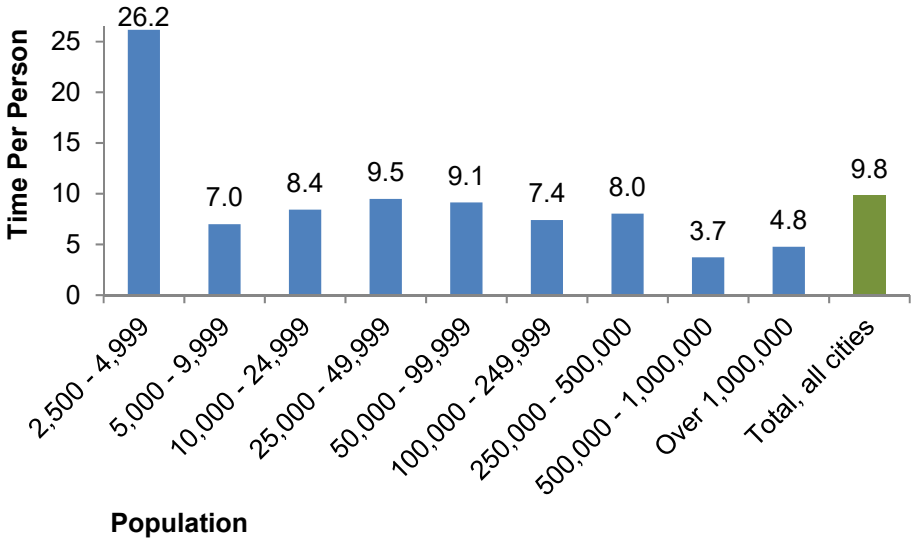
Yup, Depends, What's Your Question

Who Does the Work?









A Volunteer Story

Who Does the Work?

- 345,466 (195,754 SEM) people volunteered
- 1,484,204 (665,460) hours with tree activities
- 714 (320 SEM) FTE's (2080 hour base year)
- $35 million volunteer impact ($23.56 per hour)

A Volunteer Story

Likely Reason Volunteers Included

Variable	Estimate	P value	Odds Ratio
Tree Board	0.6492	0.045	1.91
Outreach	0.7689	0.008	2.16
Strategic Plan	0.5761	0.046	1.78
Total Employment	0.044	0.018	1.04
Adequate Budget	-0.6736	0.016	0.51
Percapita Spending	-1.2482	<0.0001	0.29

A Volunteer Story

Likely Reason Volunteers Included

Table 3. The comparison of community sustainability index scores in locations without volunteer and those with volunteers.

	Without Volunteers	With Volunteers		
Index Score	**Mean (SEM)**	**Mean (SEM)**	**F-statistic**	**P-value**
Resource Management	20.99 (0.44)	21.91 (0.28)	3.364	0.067
Community Framework	14.60 (0.37)	16.35 (0.23)	17.652	0.000
Vegetation Resource	7.13 (0.16)	7.81 (0.13)	6.376	0.012
Composite Score	**42.72 (0.50)**	**46.07 (0.43)**	**13.952**	**0.000**

A Volunteer Story

Arboricultural Journal

The International Journal of Urban Forestry

ISSN: 0307-1375 (Print) 2168-1074 (Online) Journal homepage: http://www.tandfonline.com/loi/tarb20

Municipal tree risk assessment in the United States: Findings from a comprehensive survey of urban forest management

Andrew K. Koeser, Richard J. Hauer, Jason W. Miesbauer & Ward Peterson

Table 3. Final logistic regression model variables.

Variable	Coefficient	Standard error	*p*-value	Odds ratio	95% CI lower	95% CI upper
Intercept	−.981	.204	<.001	–	–	–
ISA certified arborist – yes	.567	.219	.010	1.762	1.146	2.709
Strategic plan – yes	.624	.202	.002	1.866	1.255	2.772
Updated inventory – yes	.820	.215	<.001	2.270	1.492	3.463
Inventory risk data – yes	.642	.226	.004	1.900	1.222	2.971
Past claim – yes	.693	.248	<.001	1.999	1.340	2.992

Notes: Model was simplified to only include factors associated with communities that regularly conduct risk management as part of their urban forestry operations. Data only include long-form respondents ($n = 513$).

Falling Tree Hits Boy Outside School Amid High Winds in Ohio

Witnesses say an 11-year-old boy walking outside an elementary school was hit by a falling tree that apparently was downed by high winds that swept across northern Ohio.

| March 9, 2017, at 6:55 a.m.

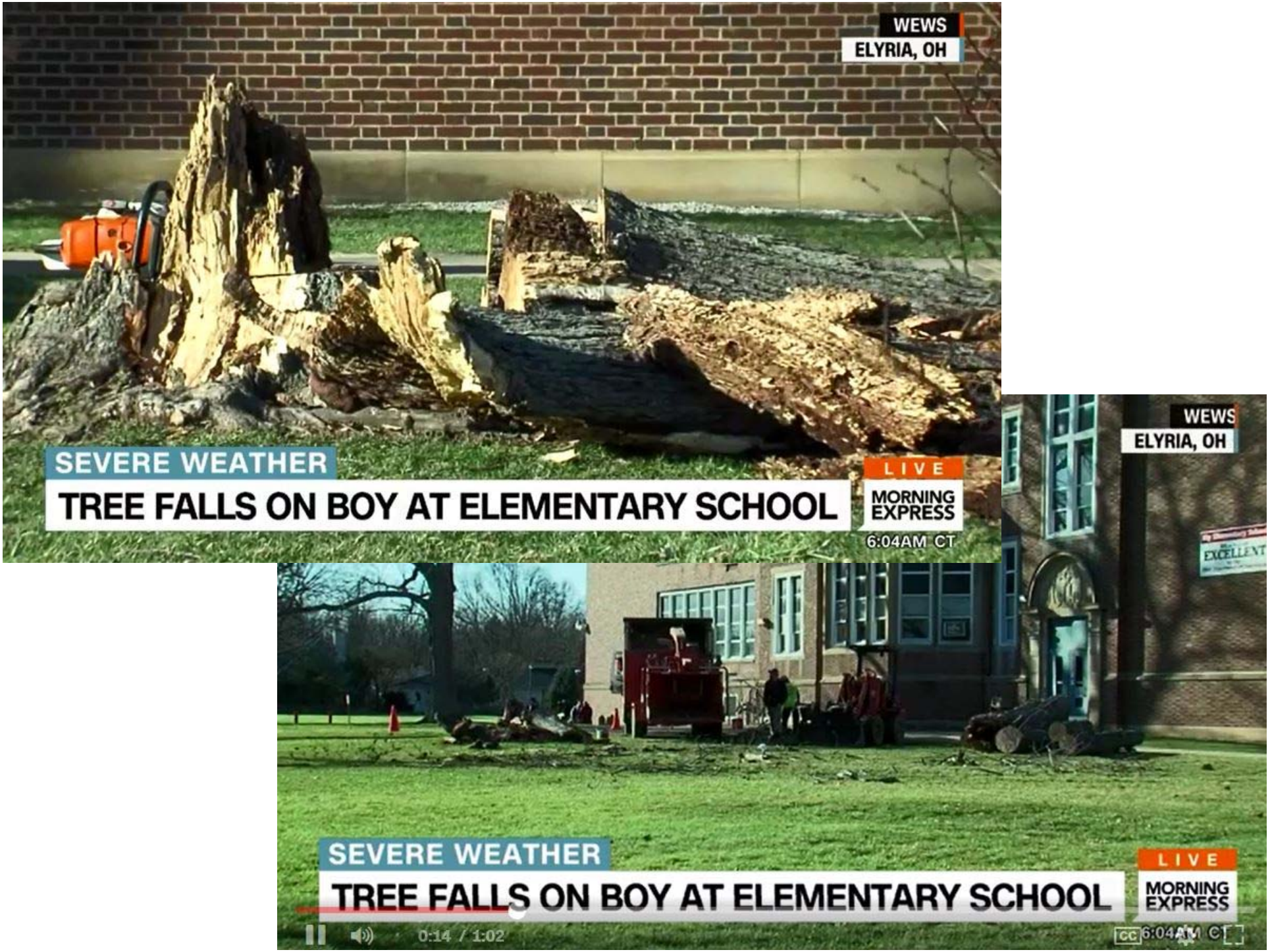
AP

ELYRIA, Ohio (AP) — Witnesses say an 11-year-old boy walking outside an elementary school was hit by a falling tree that apparently was downed by high winds that swept across northern Ohio.

His family tells The Chronicle-Telegram (http://bit.ly/2mmonJ3) in Elyria (eh-LEER'-ee-uh) that he was treated for a concussion after the tree fell Wednesday outside Ely Elementary School.

Students who witnessed the scene reported that there were wind gusts as the tree snapped, and screaming students ran away in different directions. The boy got caught under the tree and was later taken to a hospital.

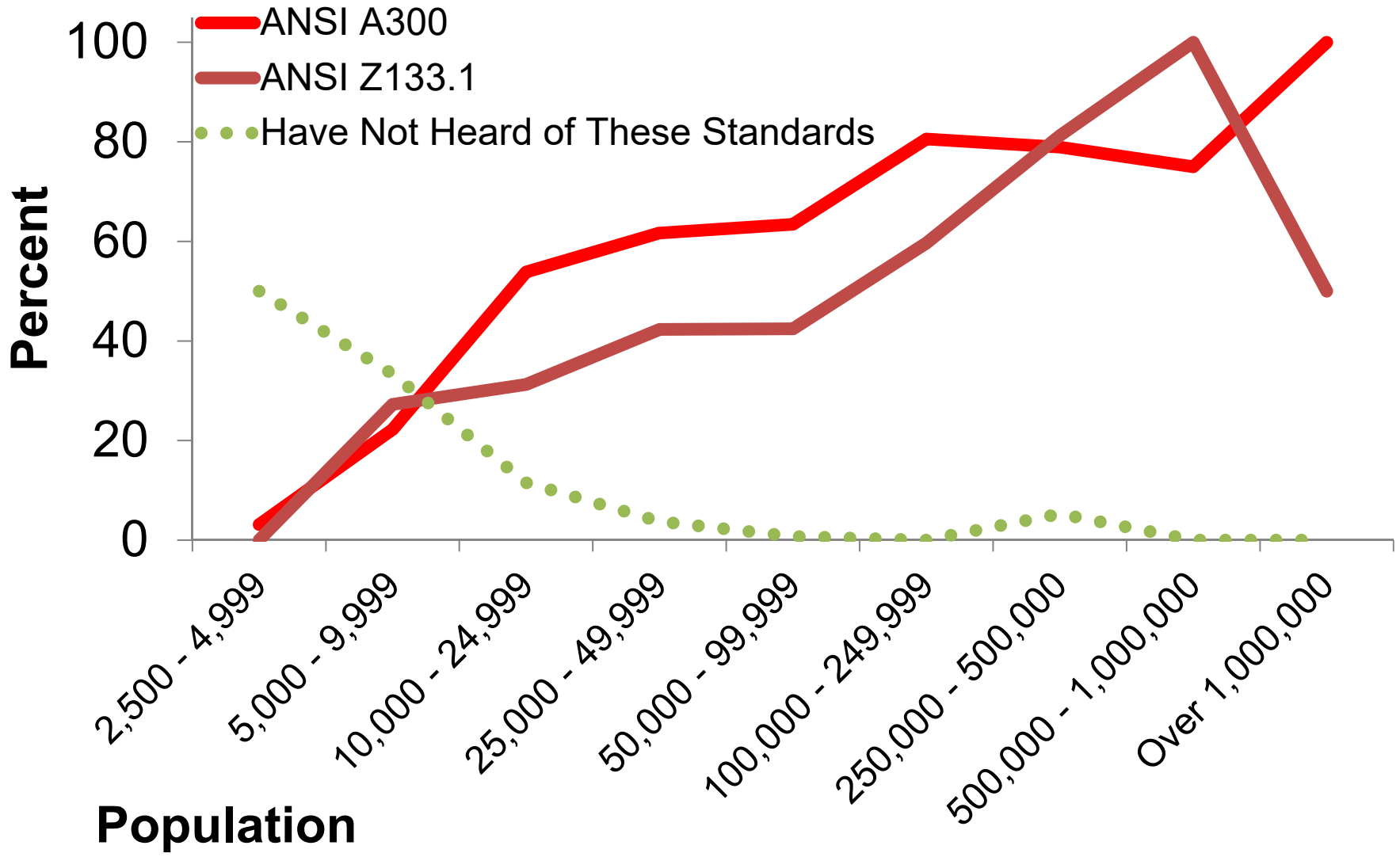
A district spokeswoman says the tree showed no obvious sign of rot or decay and appeared to have been snapped at the trunk by the high winds.


WEWS
ELYRIA, OH
SEVERE WEATHER
TREE FALLS ON BOY AT ELEMENTARY SCHOOL
LIVE
MORNING EXPRESS
6:04AM CT
WEWS
ELYRIA, OH
EXCELLENT
SEVERE WEATHER
TREE FALLS ON BOY AT ELEMENTARY SCHOOL
LIVE
MORNING EXPRESS
0:14 / 1:02
CC
6:04AM CT

Why Do We Write Standards?

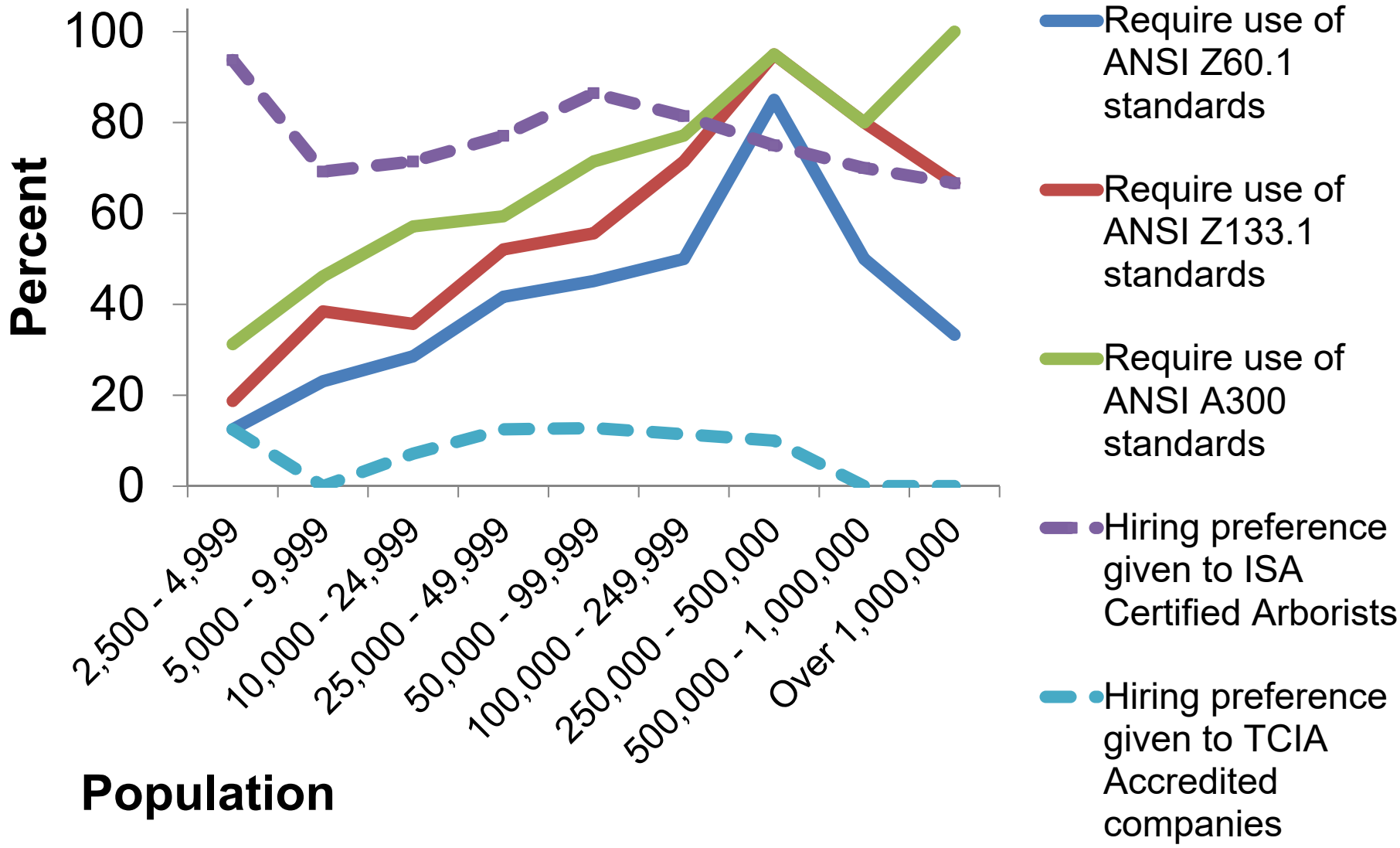
The Concept of Tree Pruning is Complex

Standards of Work and Practice



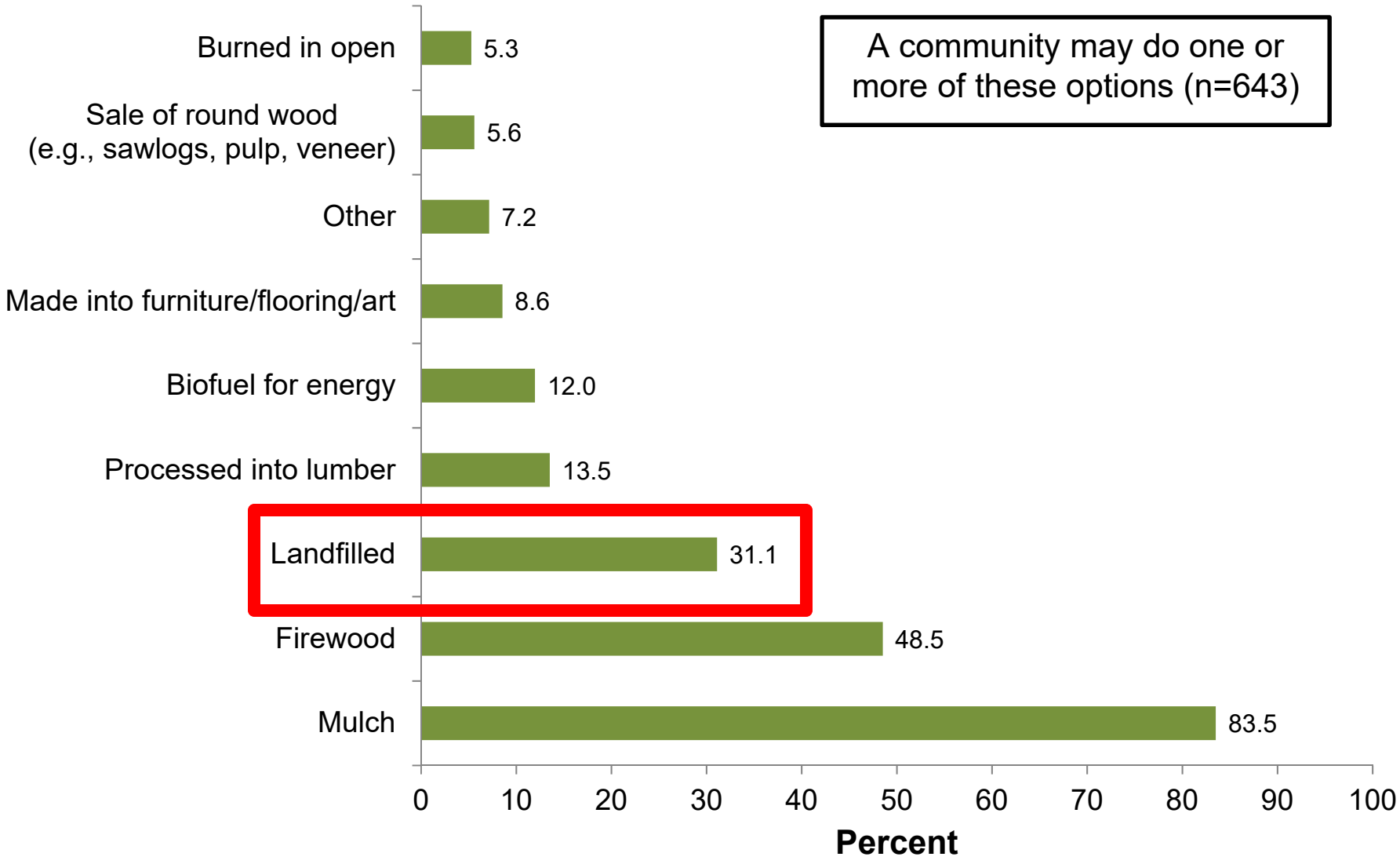
Commonality of Incorporation into Tree Management Procedures

Standards of Work and Practice



Use with Hiring Contractors

Municipal Forestry Disposal of Removed Trees



Results from a 2014 National Survey

Tree Diversity and Scale (Landscape Level)

Landscape Level to Local Level

Tree Diversity and Scale (Landscape Level)

All Regions

Species	% Freq
Acer platanoides	5.3
Fraxinus pennsylvanica	3.2
Gleditsia triacanthos	3.0
Acer saccharinum	2.8
Acer rubrum	2.8
Quercus virginiana	1.2
Acer saccharum	1.2
Pyrus calleryana	0.8
Liquidambar styraciflua	0.7
Tilia cordata	0.7
Platanus x acerifolia	0.7
Celtis occidentalis	0.7
Ulmus pumila	0.6
Lagerstroemia indica	0.6
Quercus palustris	0.5

115 Species

71 Genera

32 Families

The entire U.S. urban forest is diverse

Tree Diversity and Scale (Regional Level)

Midwest Region

Species	% Freq
Acer platanoides	4.9
Acer saccharinum	4.7
Fraxinus pennsylvanica	4.3
Gleditsia triacanthos	4.2
Acer rubrum	2.5
Acer saccharum	1.1
Tilia cordata	0.7
Celtis occidentalis	0.7
Quercus palustris	0.7
Fraxinus americana	0.6

Northeast Region

Species	% Freq
Acer platanoides	16.5
Gleditsia triacanthos	4.4
Acer rubrum	4.0
Acer saccharum	2.9
Tilia cordata	2.6
Platanus x acerifolia	2.3
Pyrus calleryana	2.1
Quercus rubra	1.4
Fraxinus pennsylvanica	1.4
Acer saccharinum	0.9

West Region

Species	% Freq
Acer platanoides	3.8
Fraxinus pennsylvanica	3.1
Liquidambar styraciflua	2.2
Ulmus pumila	1.9
Acer rubrum	1.9
Platanus x acerifolia	1.9
Pistacia chinensis	1.5
Magnolia grandiflora	1.5
Gleditsia triacanthos	1.3
Lagerstroemia indica	0.9

South Region

Species	% Freq
Quercus virginiana	8.1
Acer rubrum	4.2
Sabal palmetto	3.3
Lagerstroemia indica	2.7
Acer saccharum	2.0
Celtis occidentalis	2.0
Pyrus calleryana	1.7
Ulmus crassifolia	1.7
Quercus phellos	1.3
Acer saccharinum	1.0

Okay maybe a few minor diversity concerns

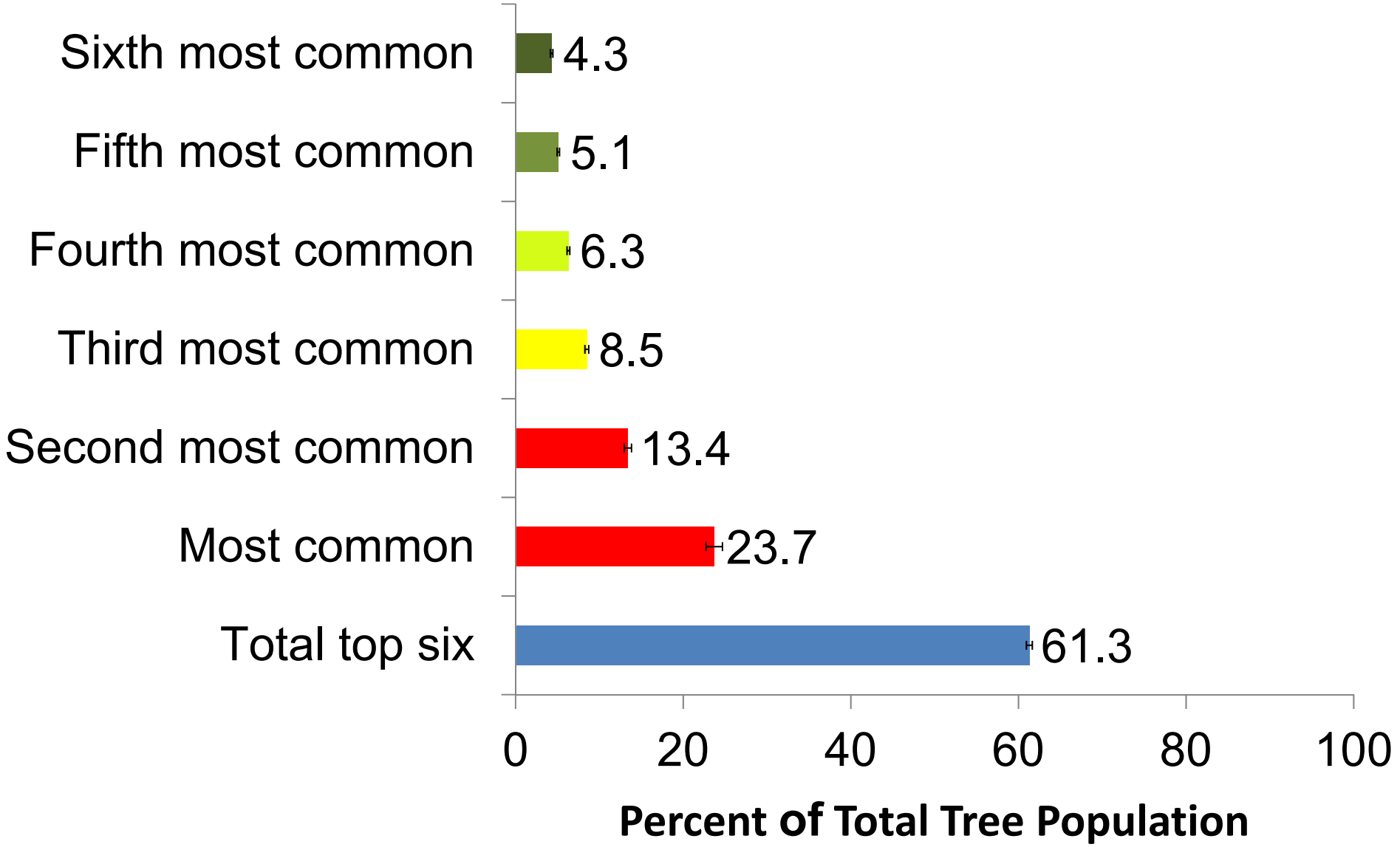
Tree Diversity and Scale (Local Level)

Midwest Region

Species	Places (n)	% Freq	SEM
Acer platanoides	34	14.2	1.6
Fraxinus pennsylvanica	31	13.8	1.6
Acer saccharinum	37	12.6	1.8
Acer rubrum	25	9.8	1.3
Quercus palustris	7	9.3	2.0
Gleditsia triacanthos	48	8.7	0.6
Ulmus americana	7	7.9	2.1
Picea pungens	7	7.9	1.4
Acer x freemanii	7	6.9	1.6
Pyrus calleryana	6	6.7	1.1
Acer saccharum	17	6.6	0.7
Fraxinus americana	9	6.6	0.7
Tilia cordata	11	6.6	1.0
Celtis occidentalis	12	5.6	1.0
Quercus rubra	5	4.2	0.5

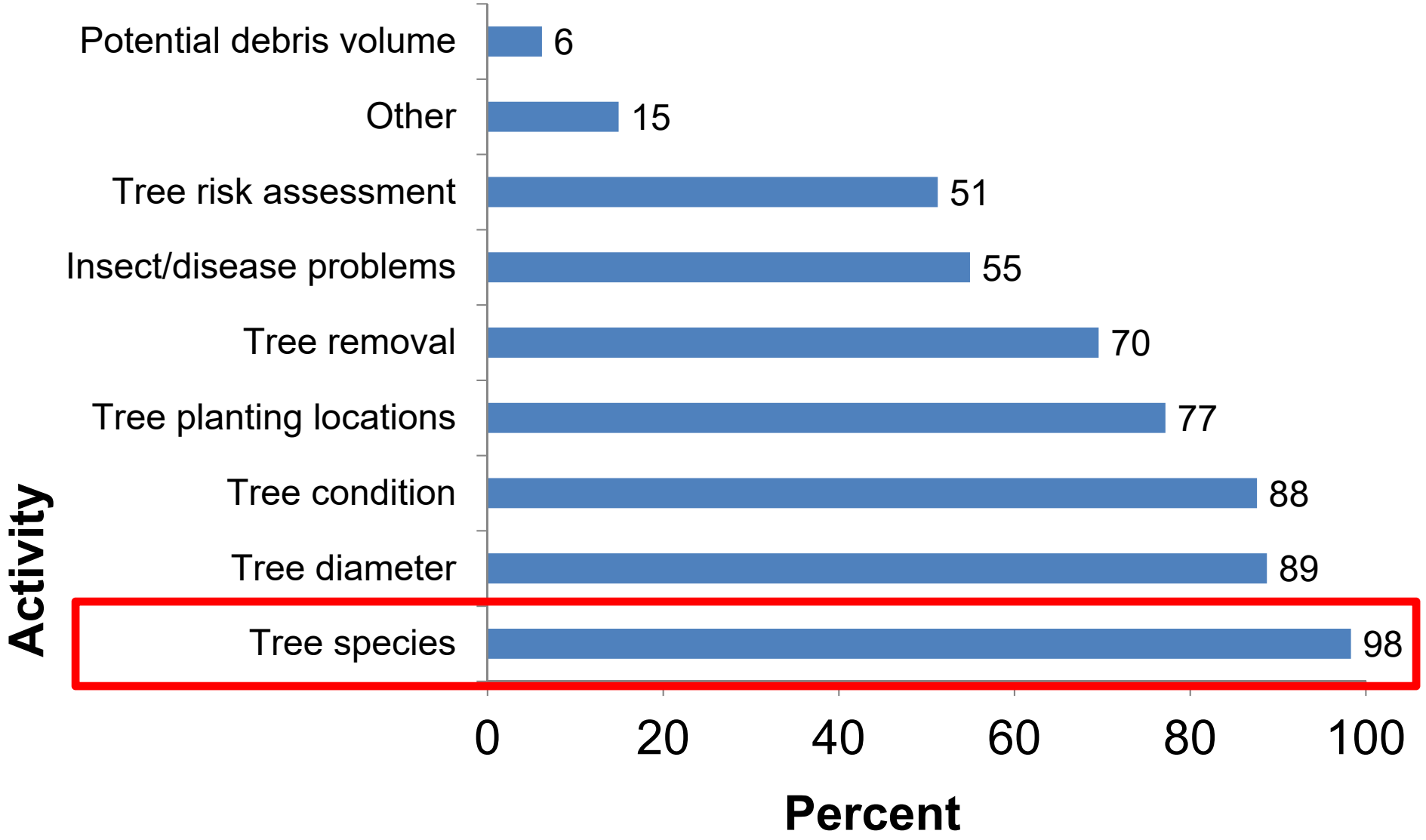
Diversity if a city has this tree species (% of total)

Tree Diversity and Scale (Local Scale)



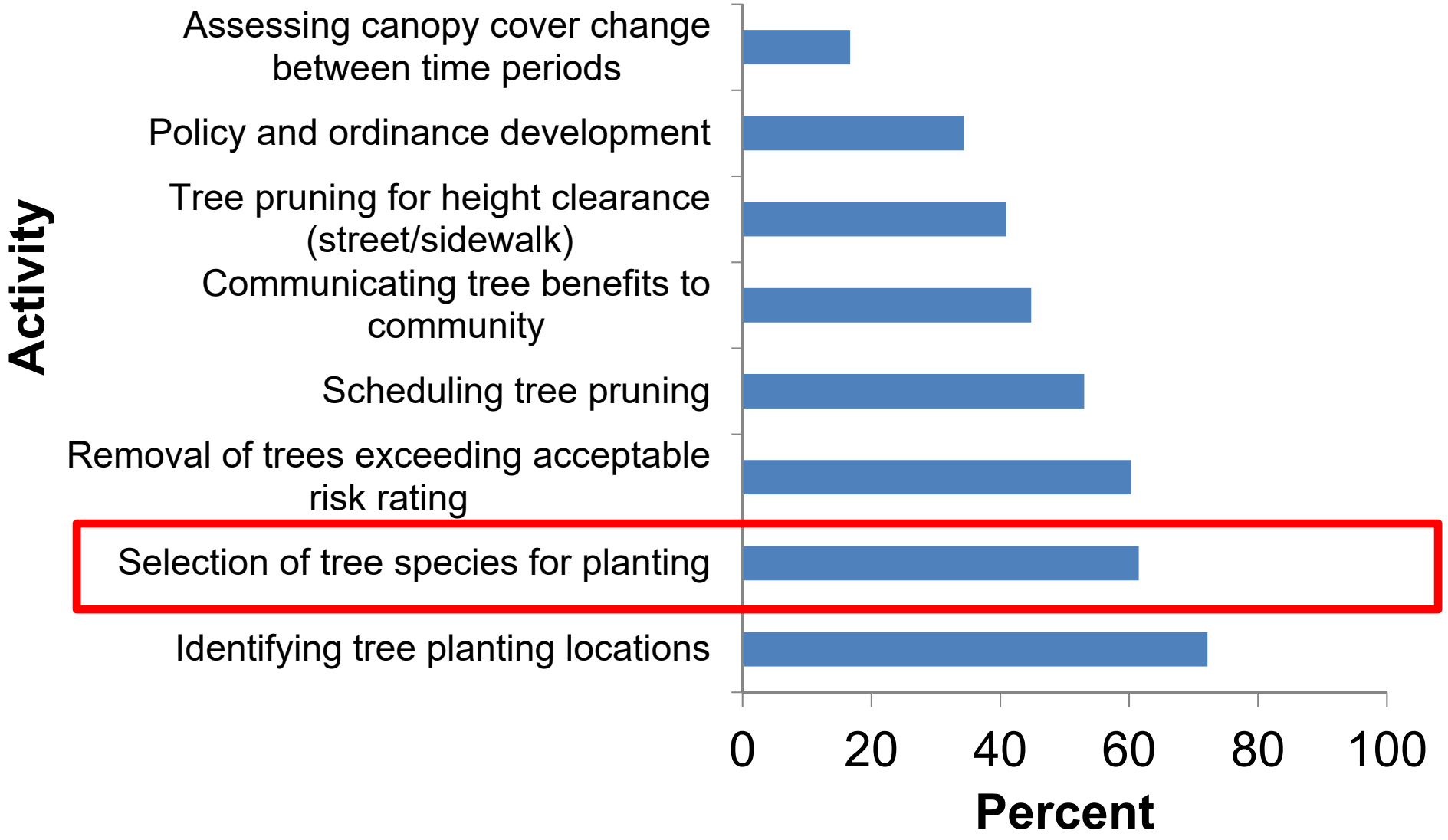
Dominance by the top 6 species in a community

Tree Inventory



What Data is Collected

Tree Inventory



What They are Used For

Urban Forestry Program Models

Tree City USA

USDA-FS CARS

SMA Accredited UF Programs

Clark & Matheny 1997 Model

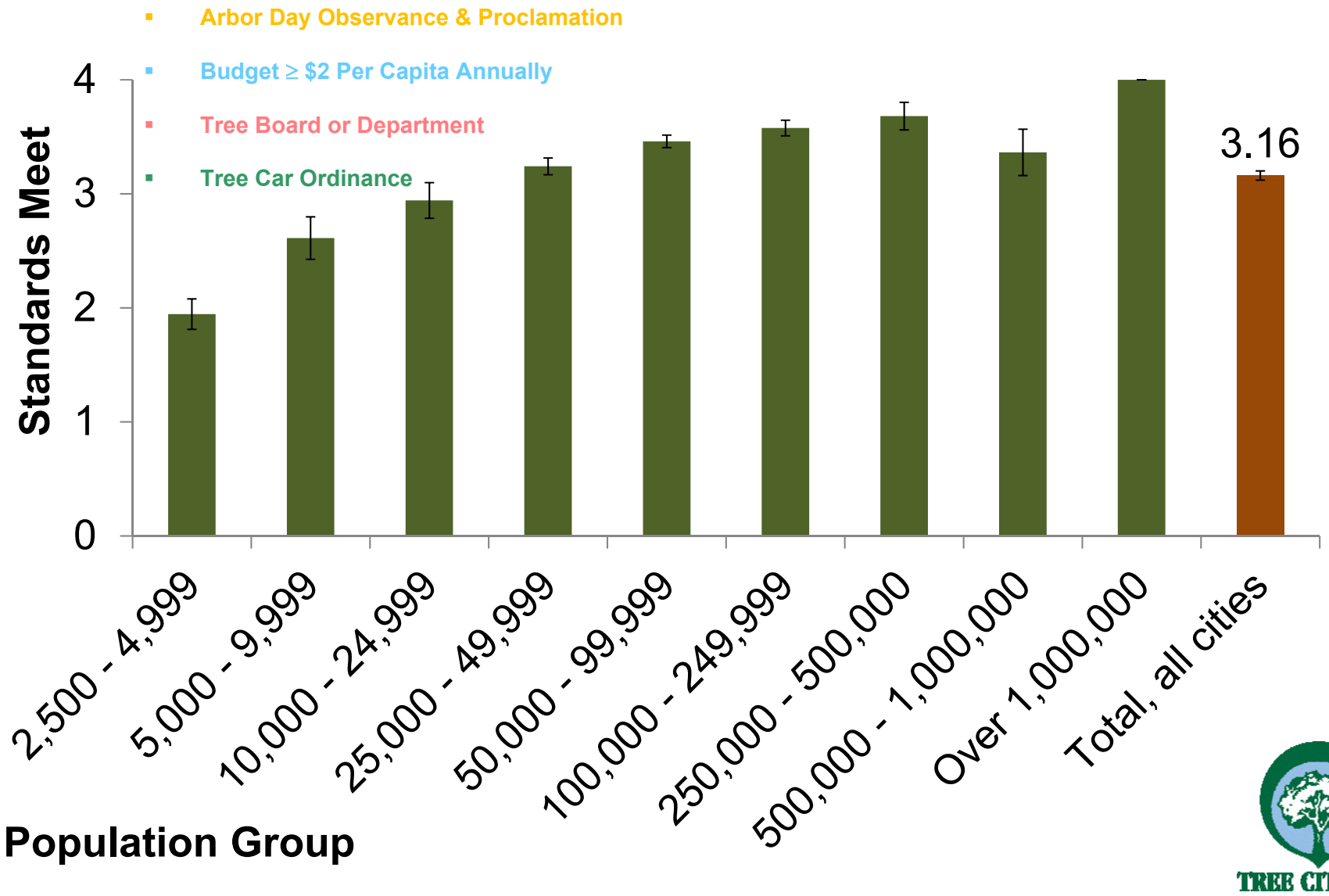
Kenney et al. 2011 Updated Model

Tree City USA Standards

Standard 1	**Tree Board or Department**
Standard 2	**Tree Care Ordinance**
Standard 3	**Budget ≥ $2 Per Capita Annually**
Standard 4	**Arbor Day Observance & Proclamation**

Meet these four Standards and your in

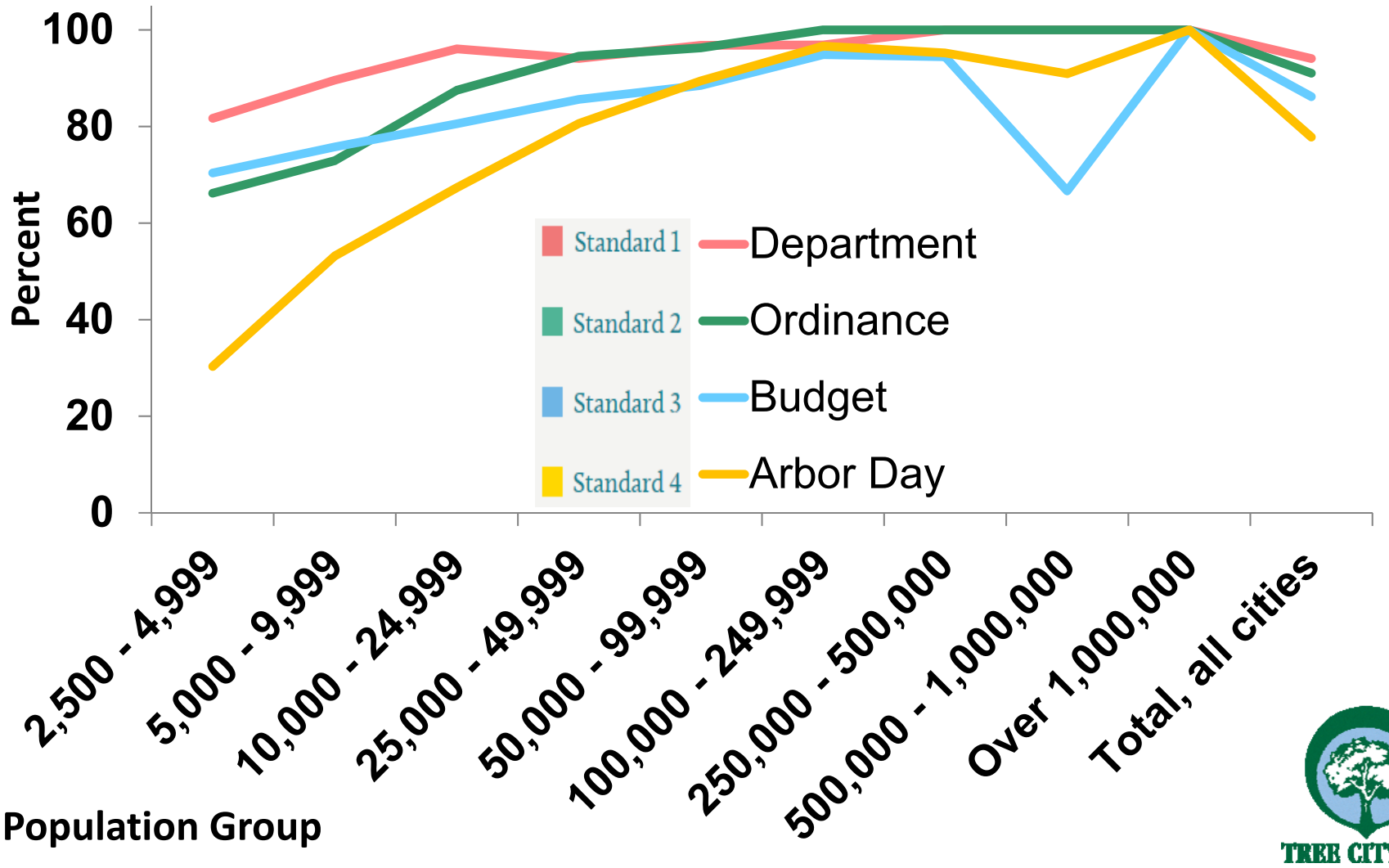
Tree City USA Standards **All Four Standards**



TREE CITY USA

Meet these four Standards and your in

Tree City USA Standards All Four Compared



TREE CITY USA

Meet these four Standards and your in

Community Accomplishment Reporting System (CARS)

CARS

Community Accomplishments Reporting System for Urban & Community Forestry Program

You are here: National

National FY2014 Summary

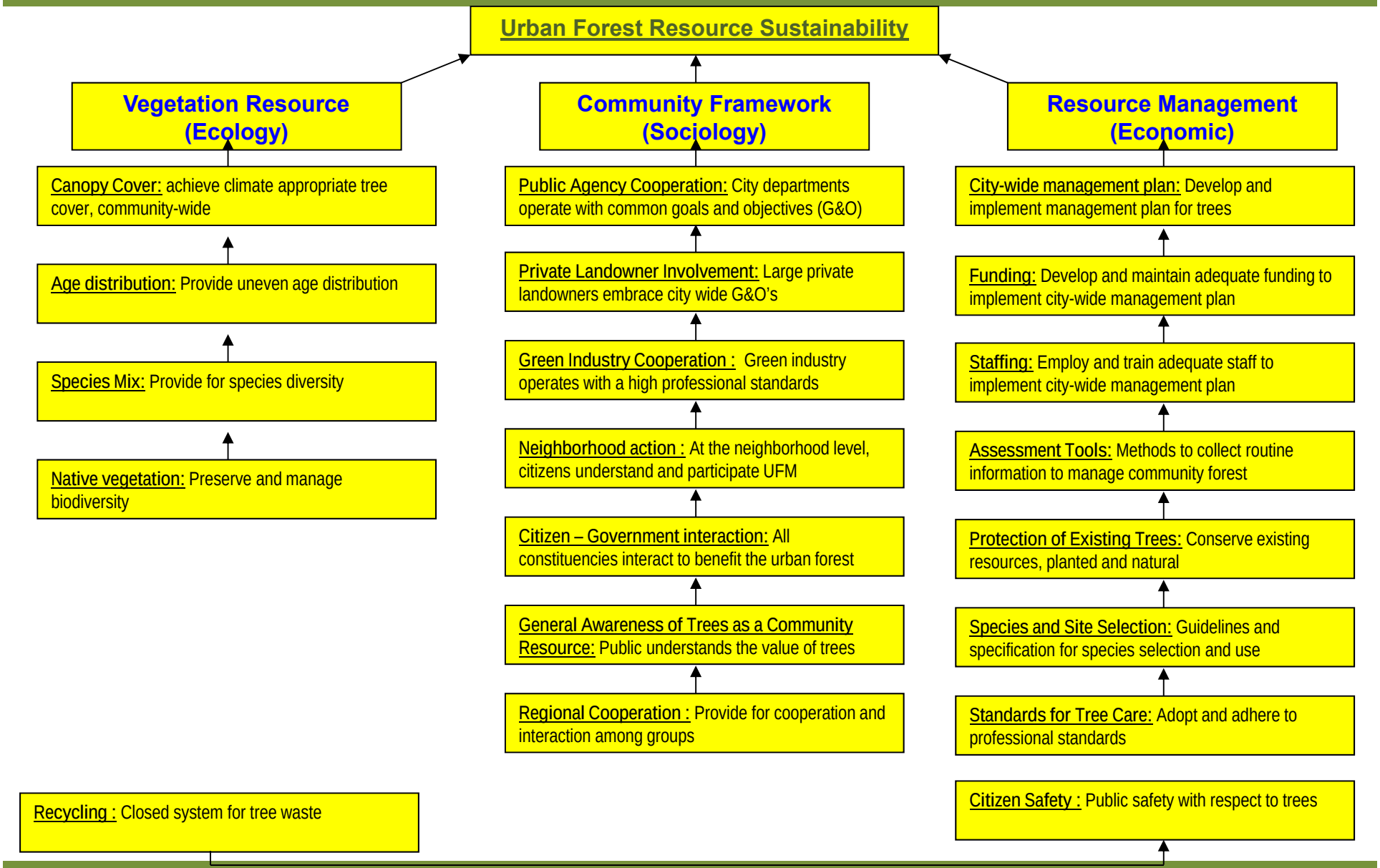
Category	Measure	Result
OUTCOMES		
1.	Percent of population living in communities **managing** programs to plant, protect and maintain their urban and community trees and forests.	47.37%
2.	Percent of population living in communities **developing** programs and/or activities to plant, protect and maintain their urban and community trees and forests.	27.38%

Our Results: 47.9%

Urban & Community Forestry

Meet these four Elements and your in

Clark & Matheny Model



A total of 20 Indicators to evaluate urban forestry

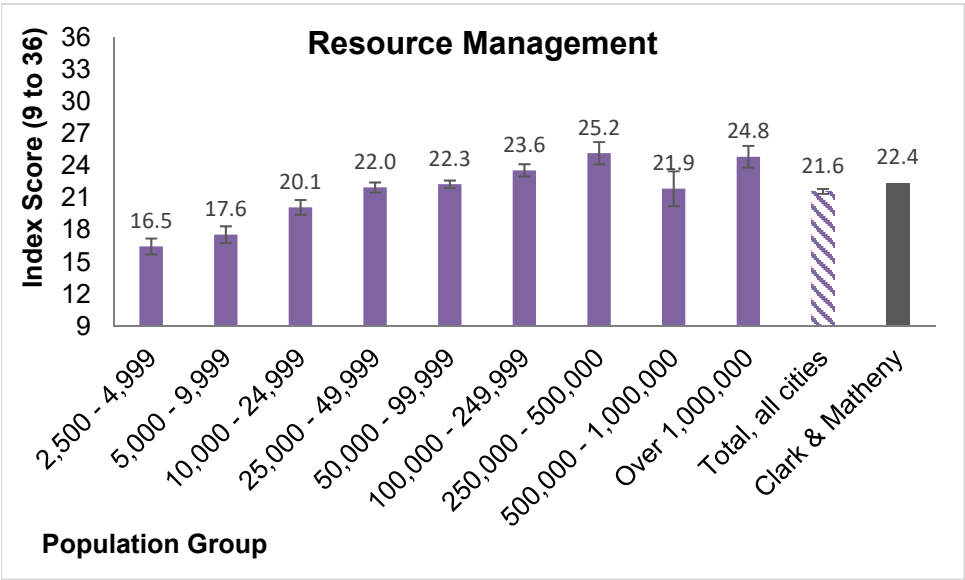
Clark & Matheny Model

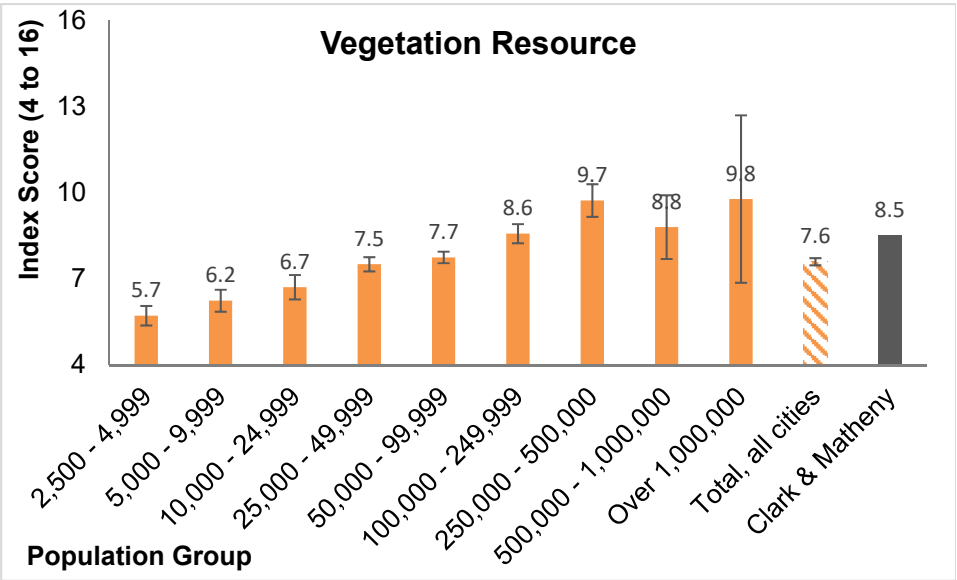
Criteria	Performance indicators				Key Objective
	Low	Moderate	Good	Optimal	
City staffing	No staff	No training	Certified arborists on staff	Professional tree care staff	Employ and train adequate staff to implement city-wide management plan.
Assessment tools	No on-going program of assessment	Partial inventory	Complete inventory	Information on urban forests included in city-wide GIS	Develop methods to collect information about the urban forest on a routine basis.

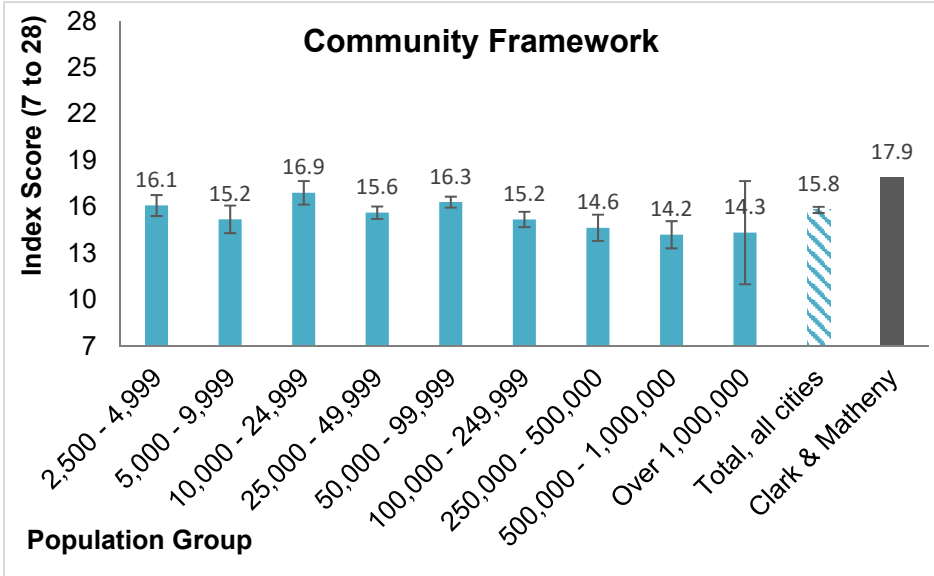
Points >>> 1 2 3 4

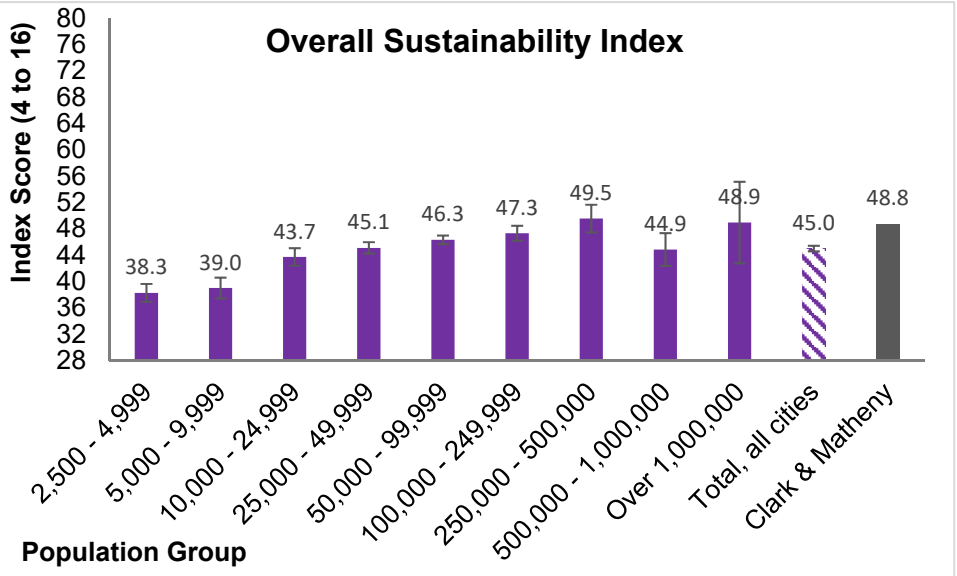
A total of 20 Indicators to evaluate urban forestry

Clark & Matheny Model



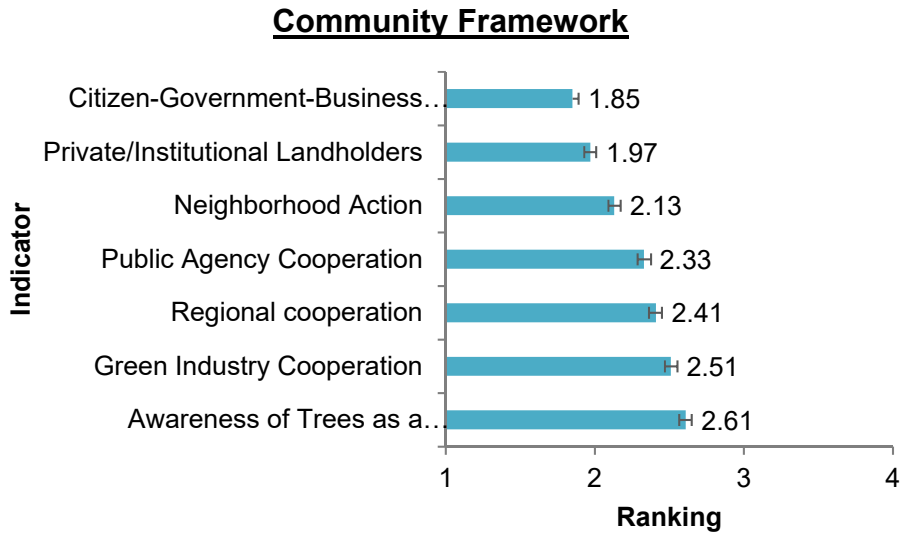


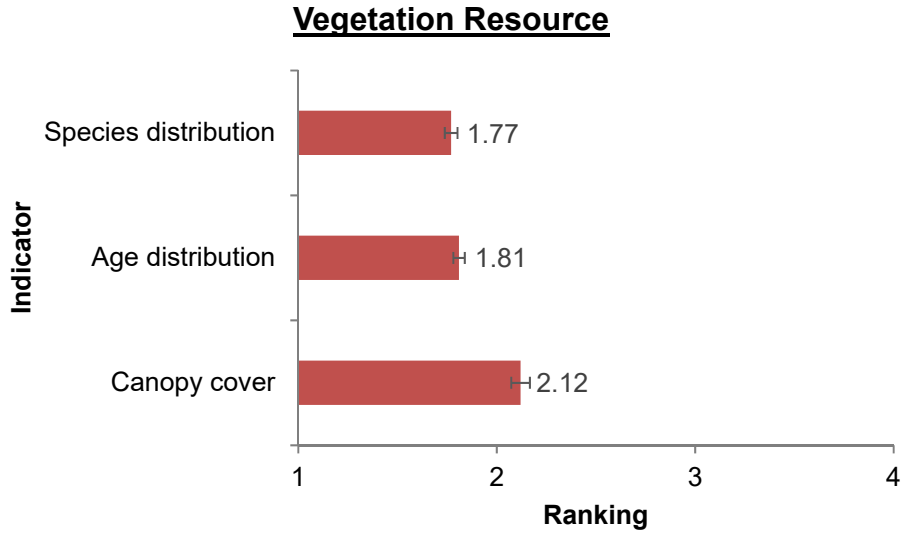




A total of 20 Indicators to evaluate urban forestry

Clark & Matheny Model



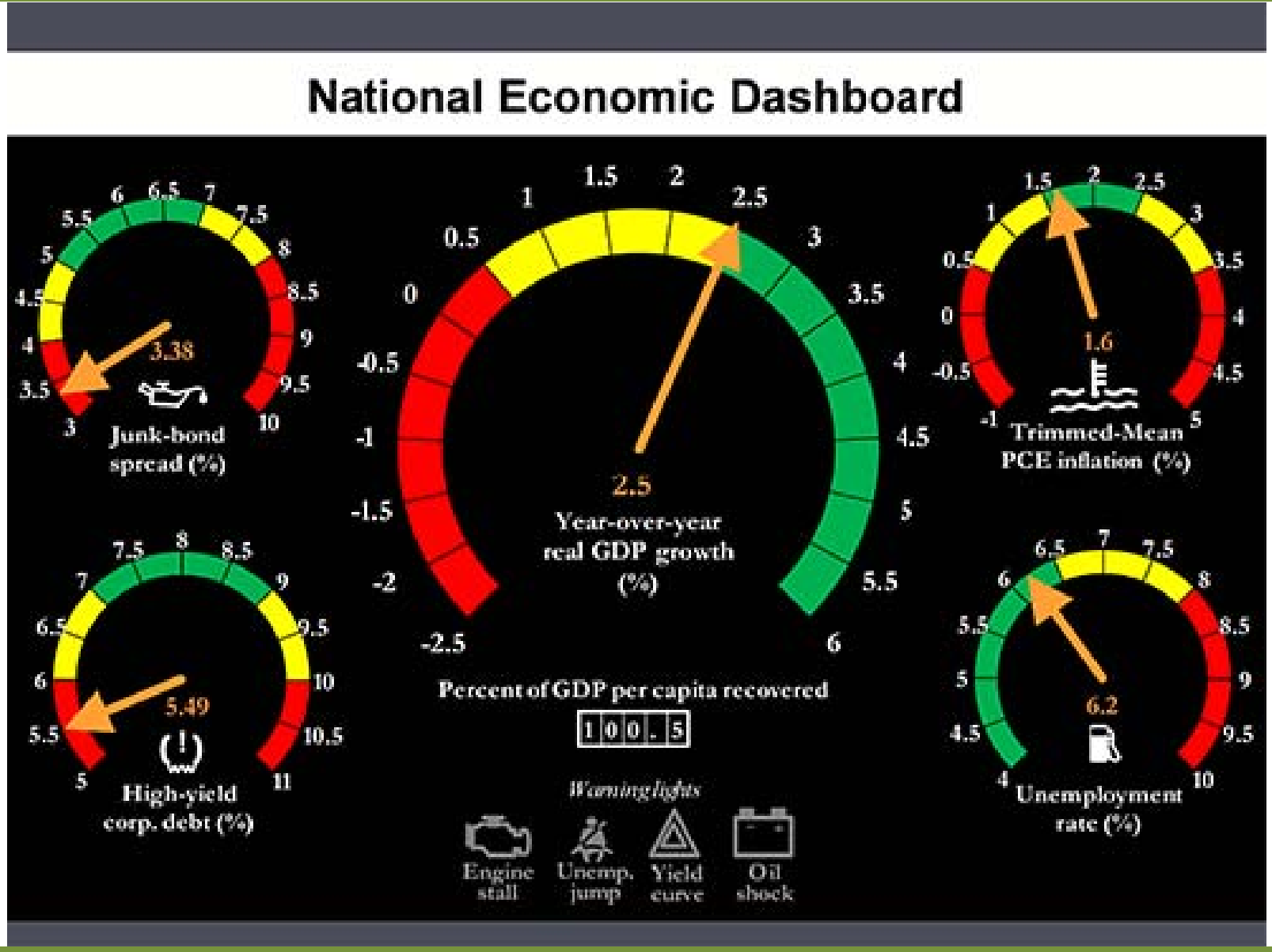


A total of 20 Indicators to evaluate urban forestry

Our Gas Gauge on Sunday

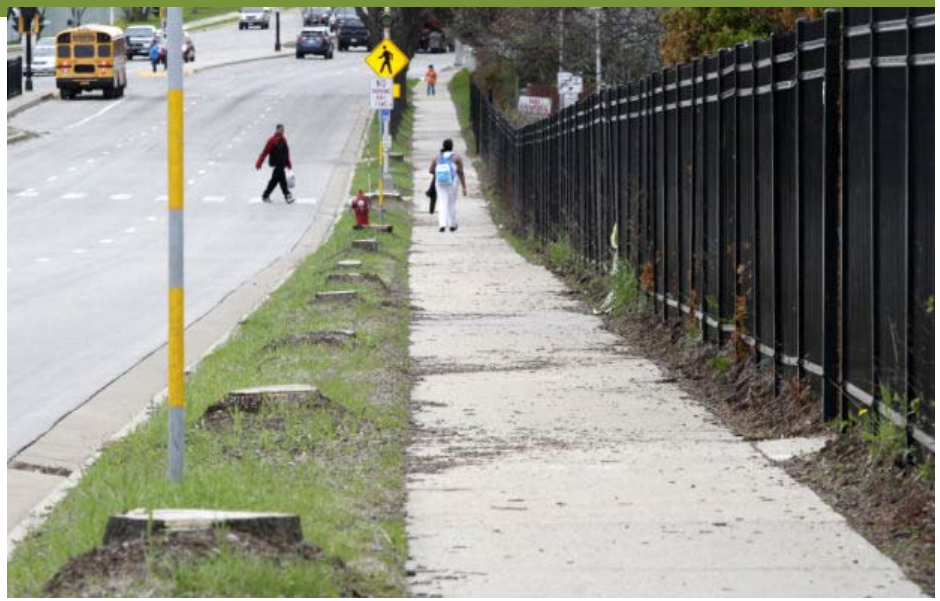
Gary and Rich’s Big Adventure

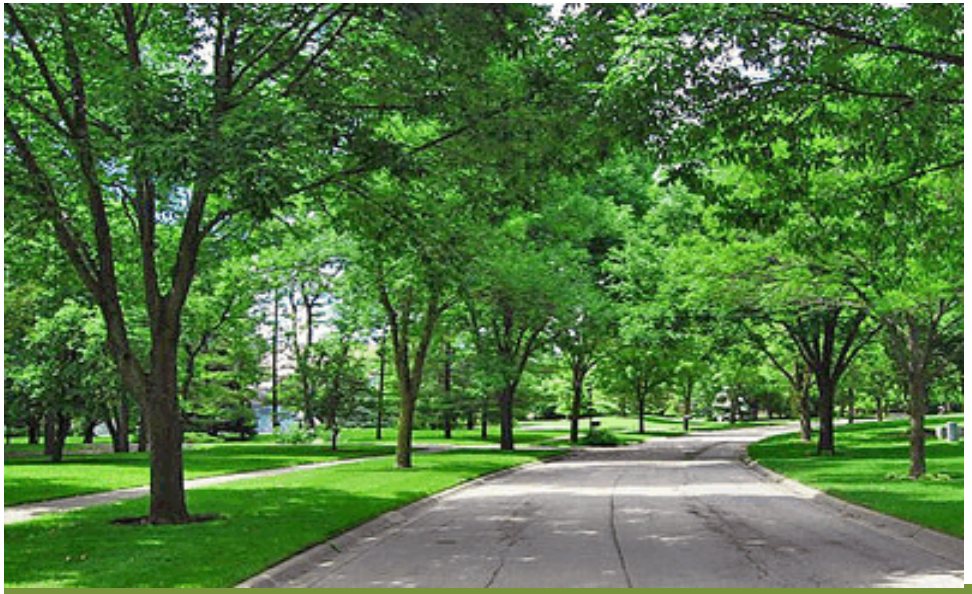
It’s the Economy, Stupid



Whether 1992 or 2016 or the future

What's Your Urban Forest Like?



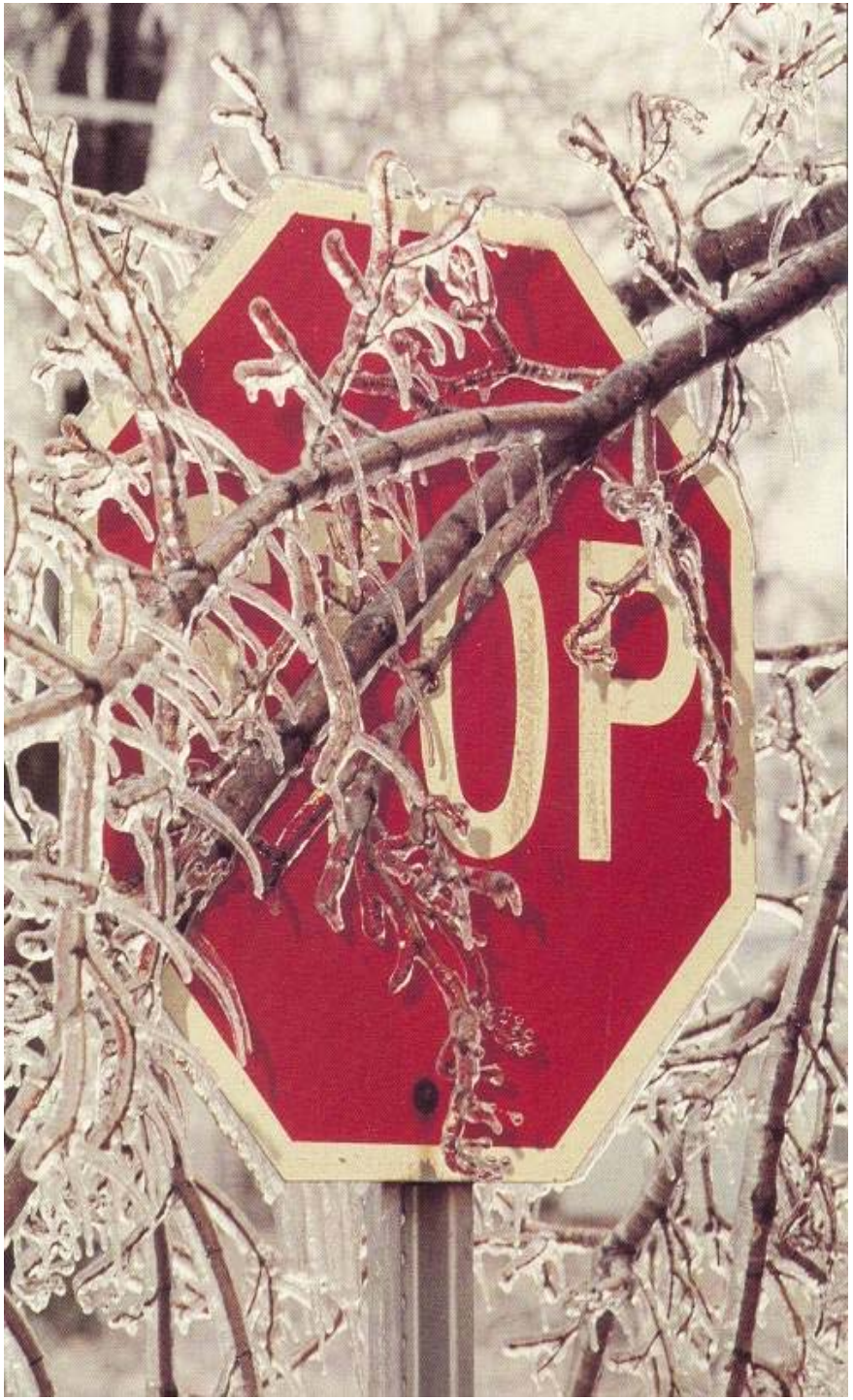


Many Challenges to Growing the Urban Forest

Stop

and Enjoy

the Day



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