

USDA Forest Service

URBAN FOREST CONNECTIONS

webinar series

Second Wednesdays | 1:00 – 2:15 pm ET

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MONITORING URBAN TREES: SURVIVAL, GROWTH, AND ENERGY-SAVING PERFORMANCE



Lara Roman

*Research Ecologist
USDA Forest Service*



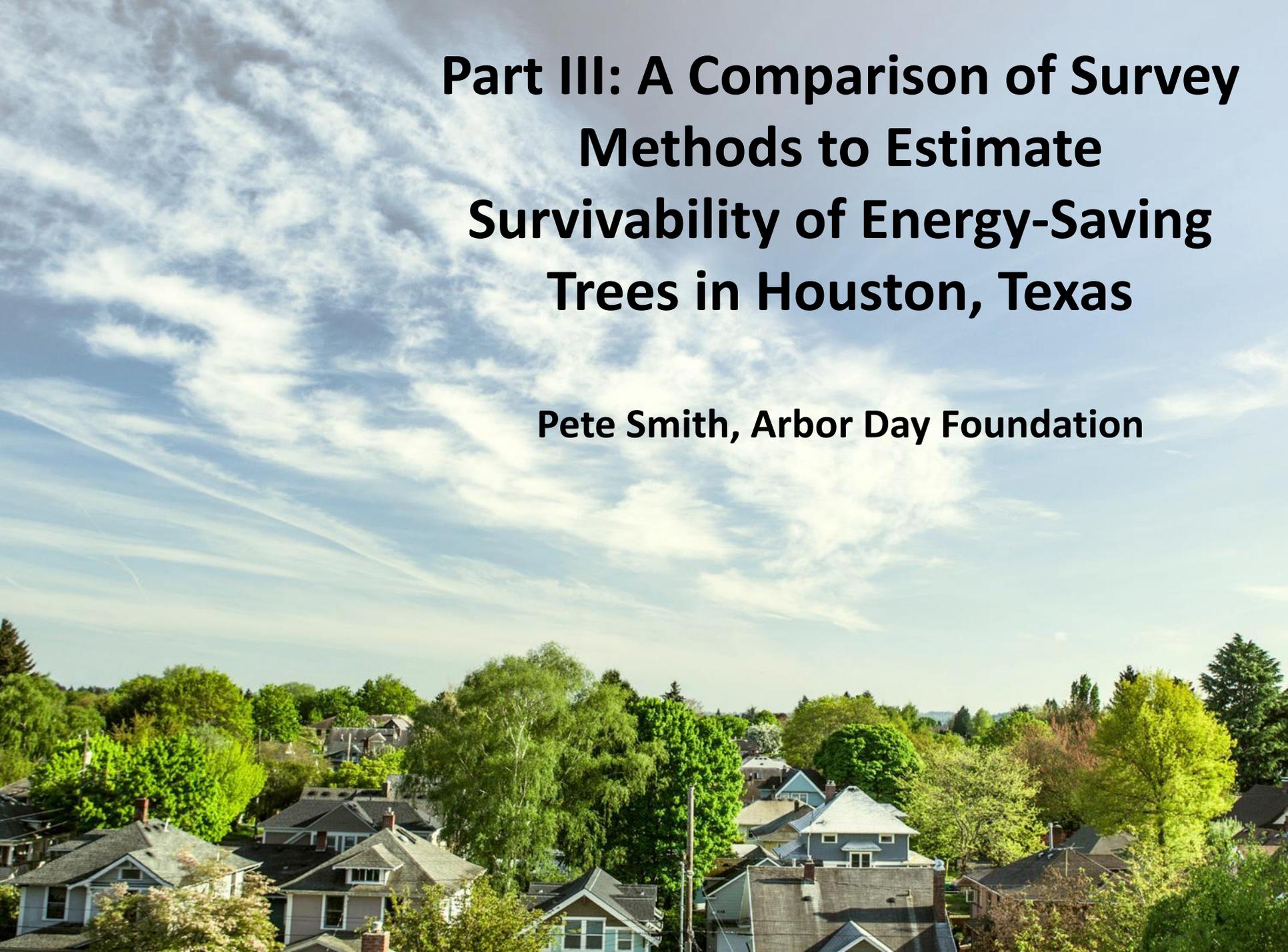
Yekang Ko

*Assistant Professor, Urban
Planning
University of Texas, Arlington*



Pete Smith

*Urban Forestry Program Manager
Arbor Day Foundation*



**Part III: A Comparison of Survey
Methods to Estimate
Survivability of Energy-Saving
Trees in Houston, Texas**

Pete Smith, Arbor Day Foundation

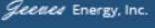


A Strategic Tree Planting Program



Landing Page: Enter Address

File Edit View Favorites Tools Help

presented by:   sponsored by: 

Need help?  855-234-3801  info@arborday.org

Staplehurst Branched

Welcome!

Welcome to Energy-Saving Trees, a unique program designed to help you better understand where to plant trees on your property for maximum energy savings. This program is made possible by the Arbor Day Foundation and JEI.



At JEI, we're committed to a greener, healthier world. Trees around homes will not only help reduce the amount of energy your home requires, but they also add to your property value, reduce your carbon footprint, improve the air quality, and more effectively catch stormwater runoff. It is our intention that the free trees we provide be a gift to you and your community.

JEI is proud to sponsor this program and provide you with up to 2 free trees. In less than ten minutes, you can reserve your free trees. Thanks for participating in this exciting program.

Available trees

Eastern Redbud, Norway Spruce, Red Maple, River Birch

Find your home (Step 1 of 4)

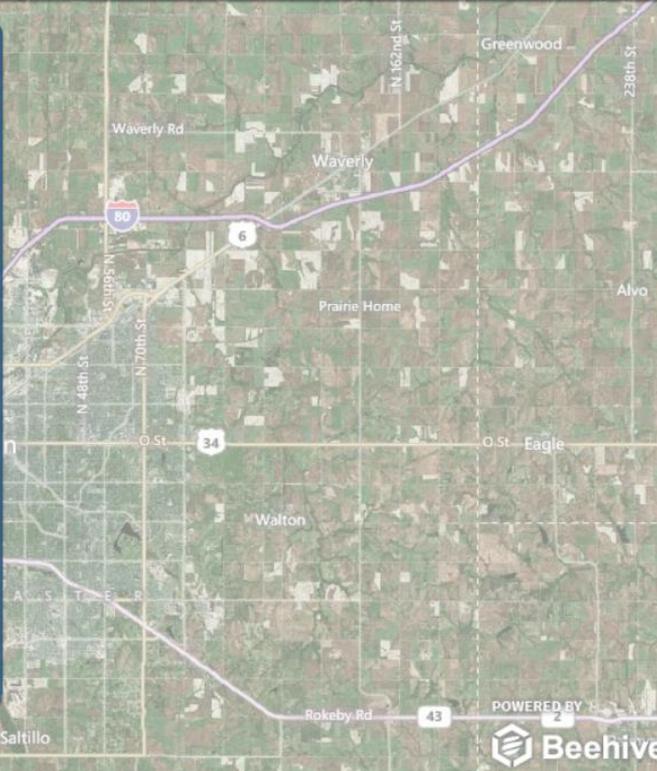
Type in your address below to get started.

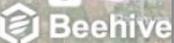
Street address

City, State

ZIP code

[Ordering for multiple homes?](#)



POWERED BY 

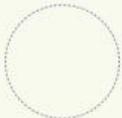
Tree Placement

Place your trees (Step 2 of 3)

Begin placing trees around your home by clicking "Add a tree" button, click "Checkout".

+ Add a tree (40 trees available)

To add a tree, drag the circle below to the desired area near your house. Once you drop the circle, you'll be able to specify the type of tree you'd like to plant. **You can order up to 3 free trees.**



Drag to the map

Placement guide

For higher energy savings, place your tree on the Northwest or North side.



Tree Selection & Energy Savings

The screenshot displays the 'ENERGY-SAVING TREES' website interface. At the top, it is presented by the Arbor Day Foundation and Davey, and sponsored by Geener Energy, Inc. The main area features a satellite map of a residential street labeled 'S 27th St'. A white circle highlights a house with two green tree icons on its roof. Below the map, a 'Checkout' panel (Step 4 of 4) lists the selected trees: Norway Spruce (Picea abies) with an estimated savings of \$24.72/yr, and River Birch (Betula nigra) with an estimated savings of \$16.20/yr. A combined savings of \$40.92/yr is shown for the house. On the left, a 'Place your trees' panel (Step 3 of 4) shows the selection process. It lists 'Norway Spruce' (Picea abies) with an estimated savings of \$24.72/yr and 'River Birch' (Betula nigra) with an estimated savings of \$16.20/yr. A progress bar indicates the quality of the selection, with 'IDEAL' highlighted. Below the main selection, 'Eastern Redbud' and 'Red Maple' are also visible. The bottom right corner of the interface is powered by Beehive.

File Edit View Favorites Tools Help

presented by: Arbor Day Foundation® DAVEY

sponsored by: Geener Energy, Inc.

Need help? 855-234-3801 info@arborday.org

Place your trees (Step 3 of 4) [Back](#) [Checkout](#)

1 **Norway Spruce**
Picea abies

Est. savings **\$24.72 /yr**

POOR | GOOD | IDEAL

Eastern Redbud Norway Spruce

2 **River Birch**
Betula nigra

Est. savings **\$16.20 /yr**

POOR | GOOD | IDEAL

Red Maple River Birch

+ Add a tree (You've reached your limit of 2 trees)

Checkout (Step 4 of 4)

Mapping address
3400 S 27th St
Lincoln, NE 68502

Your trees (Savings shown are in year 20)

Norway Spruce
Estimated savings: \$24.72 /yr
kWh benefits: 88.57 kWh /yr
Thermal benefits: 22.64 Therm /yr

River Birch
Estimated savings: \$16.20 /yr
kWh benefits: 65.64 kWh /yr
Thermal benefits: 14.09 Therm /yr

POWERED BY Beehive



Models of Tree Delivery

Direct Delivery



Arbor Day Foundation

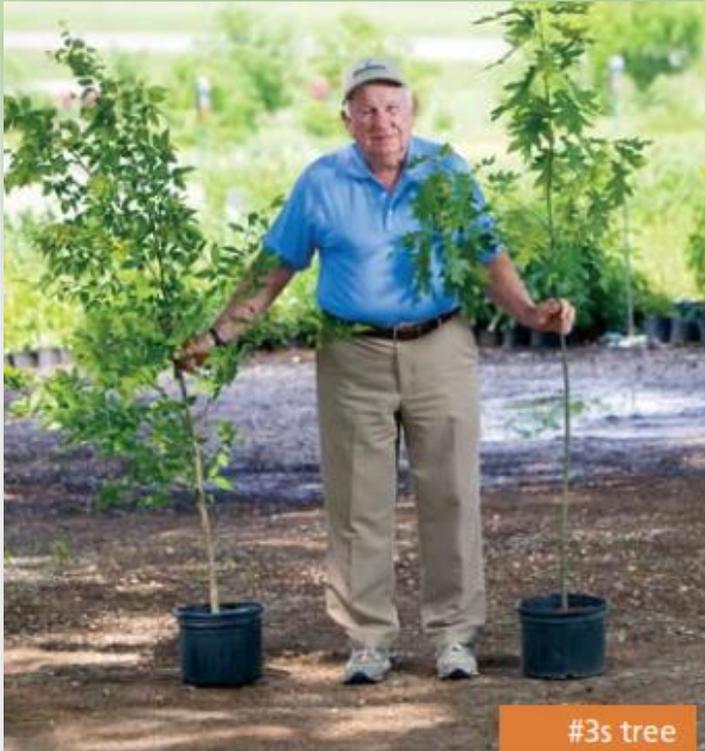


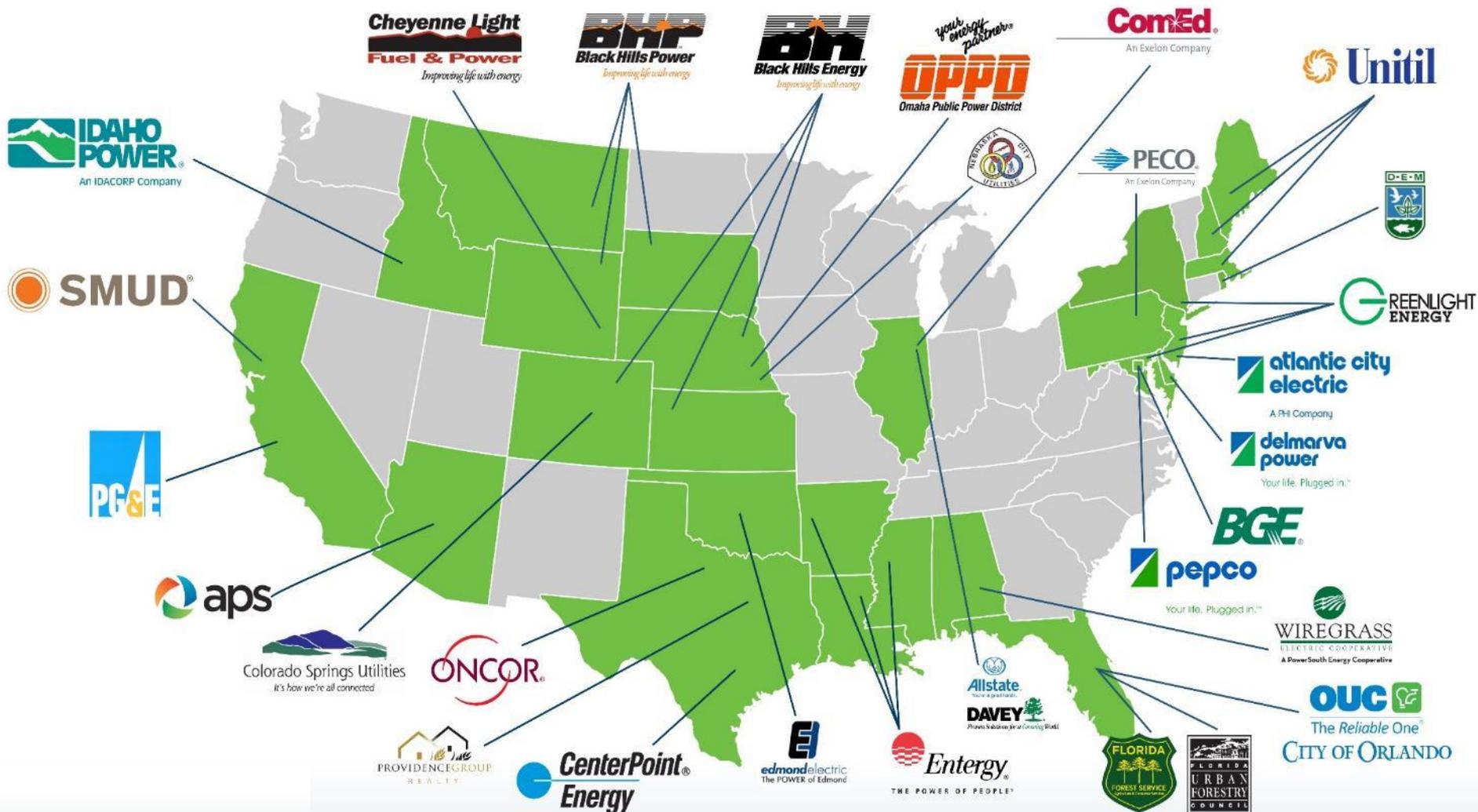
Proven Solutions for a Growing World



Models of Tree Delivery

Local Pick-Up





**ENERGY-SAVING
TREES**

 **Arbor Day Foundation** &  **DAVEY**
Proven Solutions for a Growing World

**TOTAL
TREES
PLANTED**

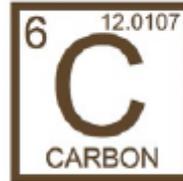


THROUGH THE ENERGY-
SAVING TREES PROGRAM:

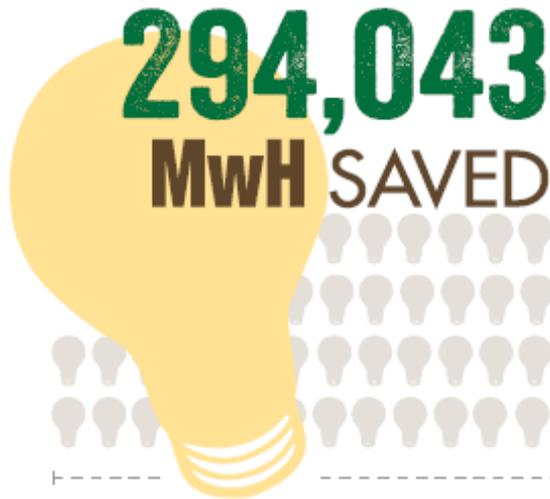
135,168



**TOTAL HOMEOWNERS
ENGAGED: 76,032**



298,150 METRIC TONS
CARBON SEQUESTERED/AVOIDED



294,043
MwH SAVED

3,833,418 THERMS
SAVED 

\$87 MILLION IN COMBINED
ENERGY
AND COMMUNITY BENEFITS

 **\$3.2** MILLION
LEVERAGED
BY OUR PARTNERS

** Projected 20 year cumulative values*



Arbor Day Foundation®

&



Where are we going?



SurveyMonkey

We are assessing the survival and care of trees distributed in spring 2015 as part of the Energy-Saving Trees program, a partnership between the Arbor Day Foundation and CenterPoint Energy. Please answer the following questions about your tree or trees. Your responses will help us improve the program for future tree distributions!



* 1. Please enter your order number (provided in the email you received to access this survey):

* 2. How many trees did you receive? Did you plant your tree(s) after you brought them home?

- I received only one tree and planted it when I brought it home
- I received only one tree, but never got around to planting it in the ground
- I received two trees and planted them both
- I received two trees, but only planted one of them
- I didn't plant either of the trees I received

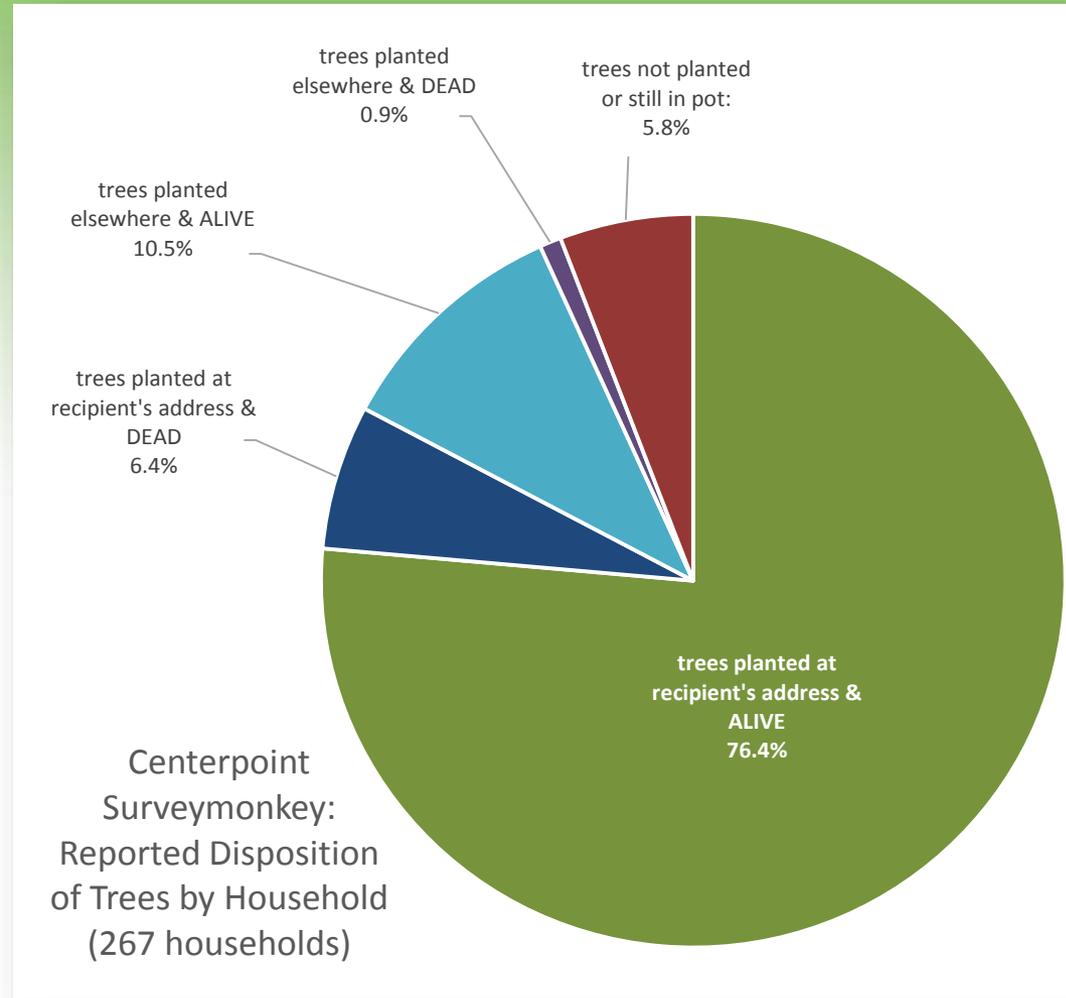
- Survey sent to 848 customers, accounting for all 1,591 trees
- 267 surveys completed, 31.5% response rate!



SurveyMonkey

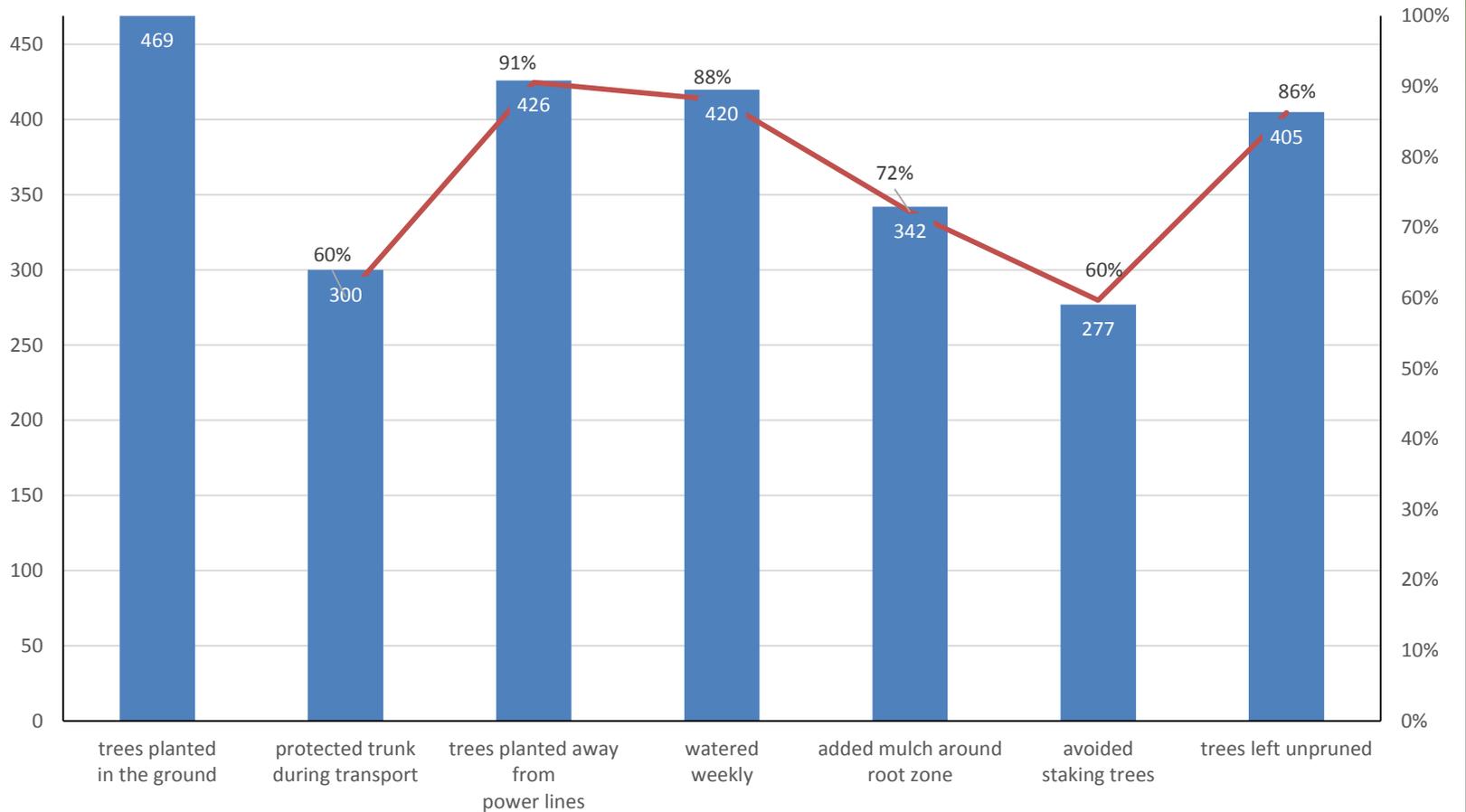
Results

- High 'survivability' for the intended address
- 11% of trees distributed planted elsewhere
- 6% of trees 'not planted'



SurveyMonkey

Centerpoint EST SurveyMonkey: Reported Stewardship



Field Audit



Mapping address

2507 Wind Hawk Ct
Katy, TX 77494

Trees ordered



Shumard Oak

Estimated savings: \$24.05 / yr
kWh benefits: 185.93 kWh / yr
Thermal benefits: 1.31 Therm / yr
Latitude: 29.754400
Longitude: -95.854229



Red Maple

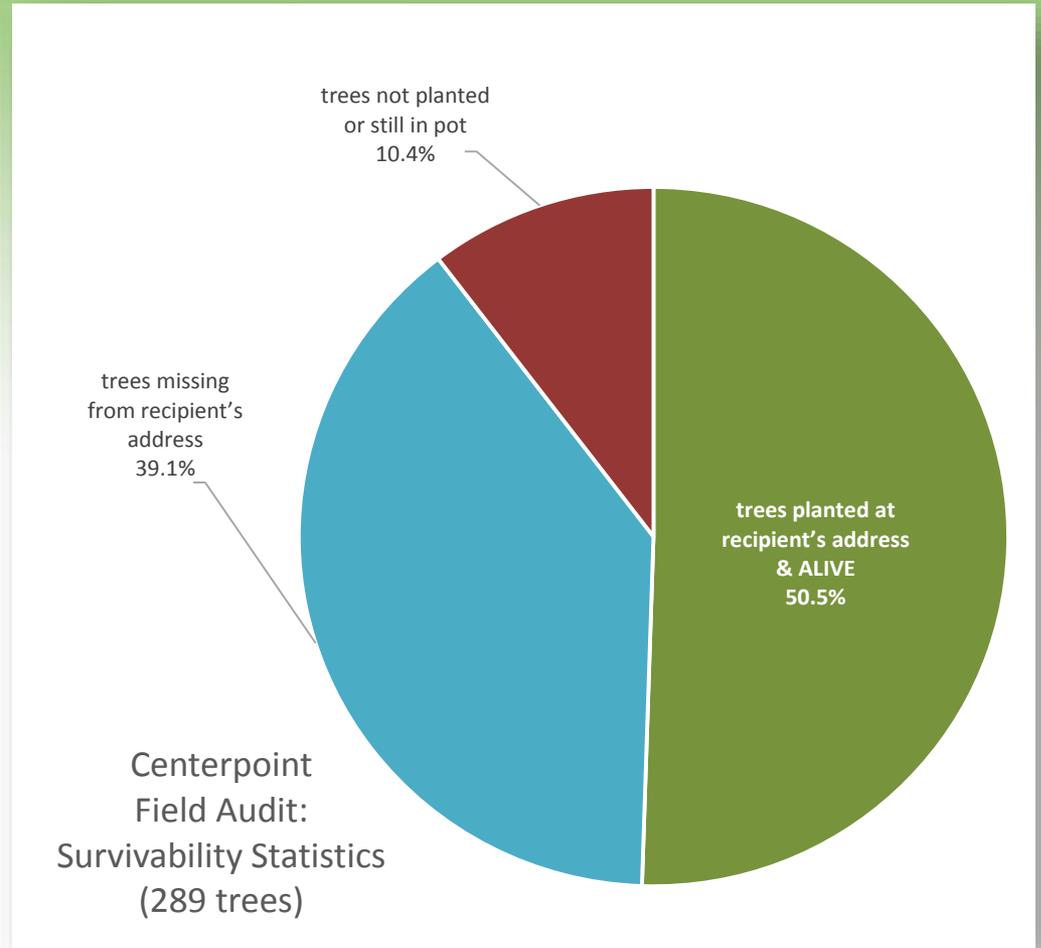
Estimated savings: \$25.77 / yr
kWh benefits: 200.95 kWh / yr
Thermal benefits: 1.14 Therm / yr
Latitude: 29.754386
Longitude: -95.854478

- 320 trees randomly chosen
- 289 tree audits completed = 18.2% sample

Field Audit

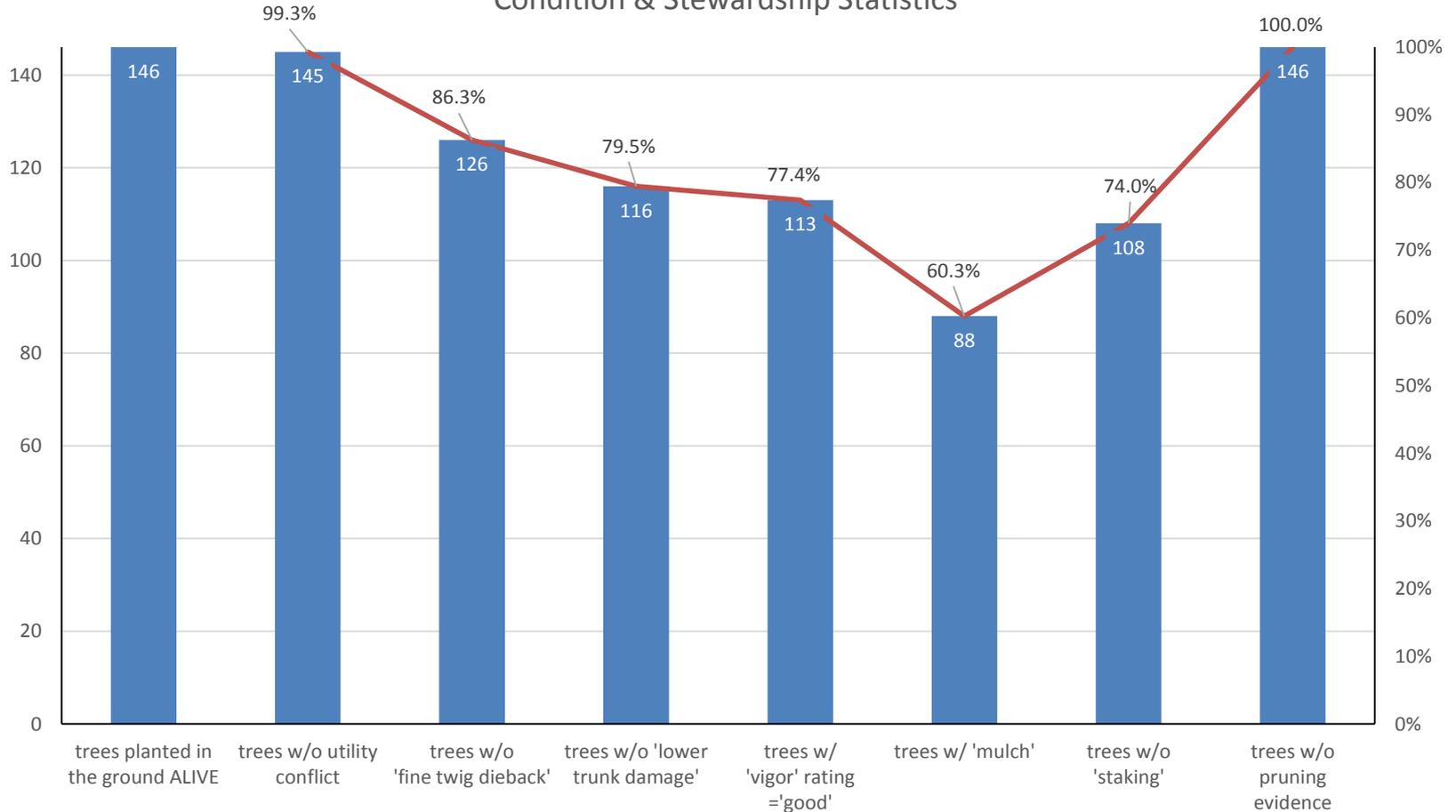
Results

- 50% of trees 'alive' at the registered address
- 10% of trees 'not planted'
- 40% of trees 'missing'

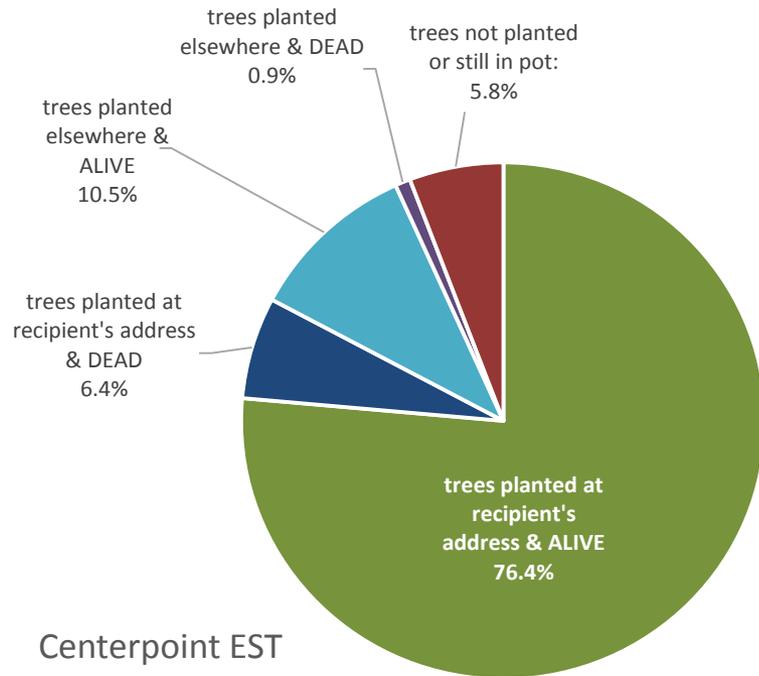


Field Audit

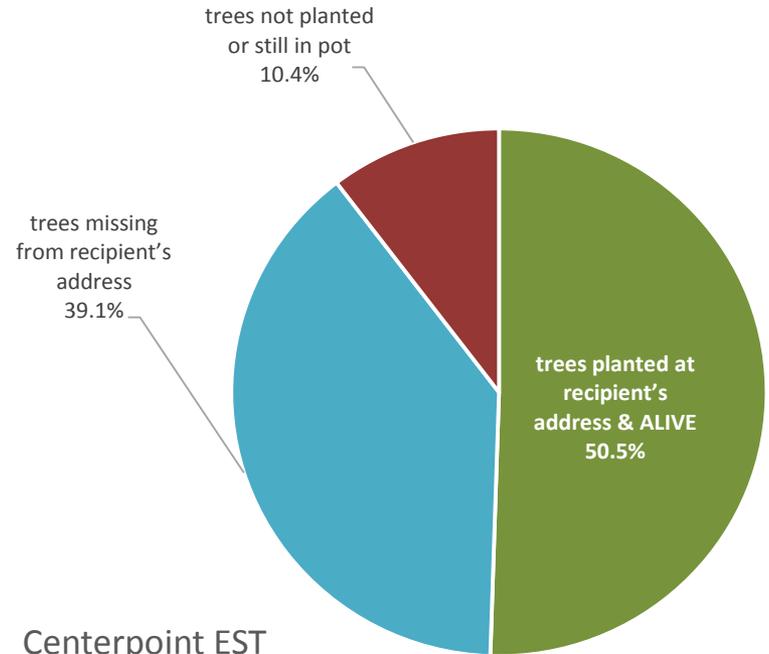
Centerpoint EST Field Audit:
Condition & Stewardship Statistics



'Survivability' Comparison



Centerpoint EST
Surveymonkey:
Reported Disposition
of Trees by Household



Centerpoint EST
Field Audit:
Survivability Statistics

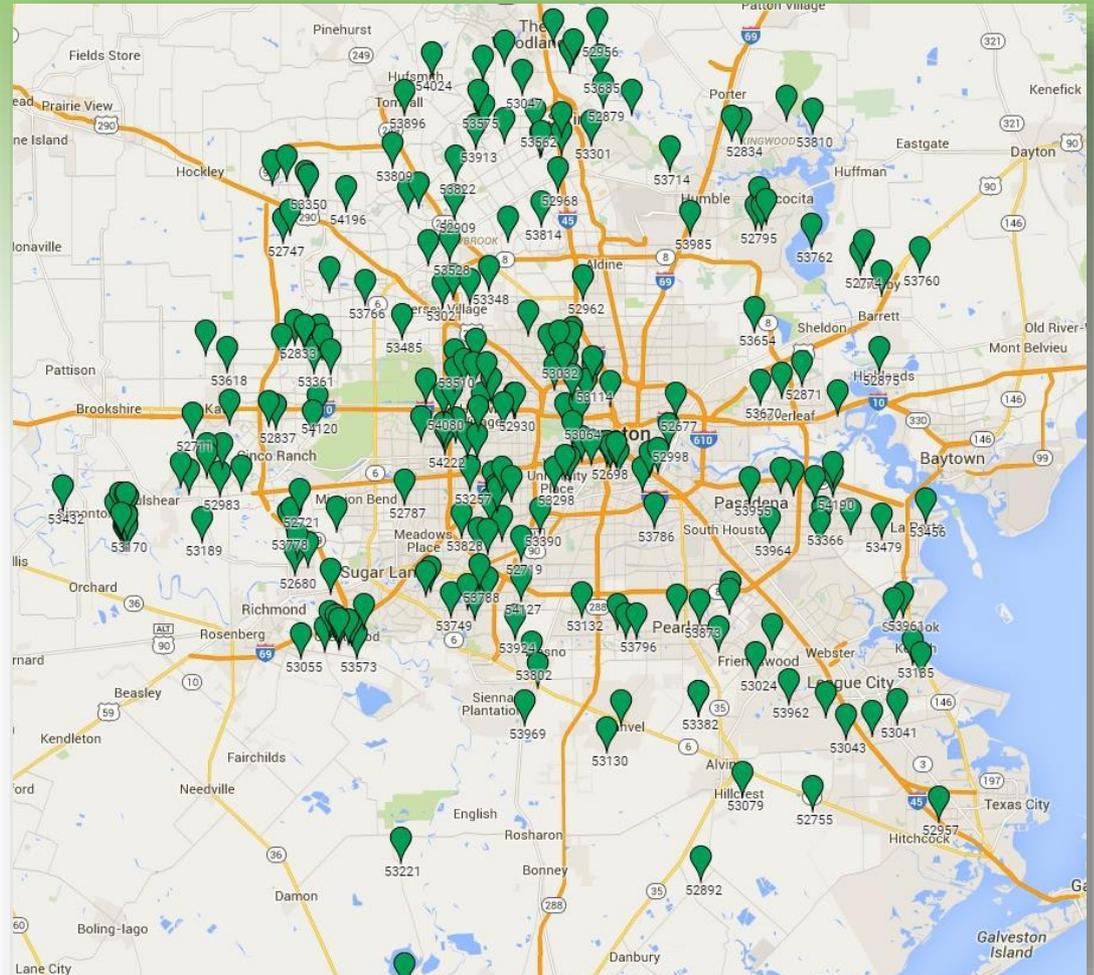
Comparison of Methods

SurveyMonkey

- Quick and easy
- Inexpensive
- Supports good customer relations

Field Audit

- Requires planning, time & \$\$
- Credible third-party
- Requires persistence



What's Next?

- Continue monitoring using both methods



What's Next?

- Continue monitoring using both methods
- Improve systems to improve outcomes



What's Next?

- Continue monitoring using both methods
- Improve systems to improve outcomes
- Evaluate planting location data



What's Next?

- Continue monitoring using both methods
- Improve systems to improve outcomes
- Evaluate planting location data
- Make regulatory case for Energy-Saving Trees





Thanks!

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USFS Northern Research Station

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University of Texas @ Arlington

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The Davey Institute

Erica Smith Fichman

Philadelphia Parks & Recreation

Gretchen Riley & staff

Texas A&M Forest Service