



## *Urban Tree Selection for Sustainability*

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- Founded in 1986, 1000 Friends of Florida is a 501(c)(3) nonprofit membership organization.
- We work to save special places and build better communities.
- We educate, advocate and negotiate to protect Florida's high quality of life.
- Our bipartisan board of directors includes advocates and experts from across the state.
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## Dr. John M. DeGrove Webinar Series



- May 4, 1924 – April 13, 2012
- Icon of comprehensive planning both in Florida and across the nation
- One of the founders of 1000 Friends of Florida
- First Secretary of the Florida Department of Community Affairs
- His accomplishments recognized with the John M. DeGrove Eminent Scholar Chair in Growth Management and Development at Florida Atlantic University
- To find out more, please visit:  
[www.1000friendsofflorida.org/dr-degrove/](http://www.1000friendsofflorida.org/dr-degrove/)



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## This webinar has been approved for:

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- 2 CLE for Florida attorneys (#1803457N)
- .150 CEUs for Florida Environmental Health Professionals

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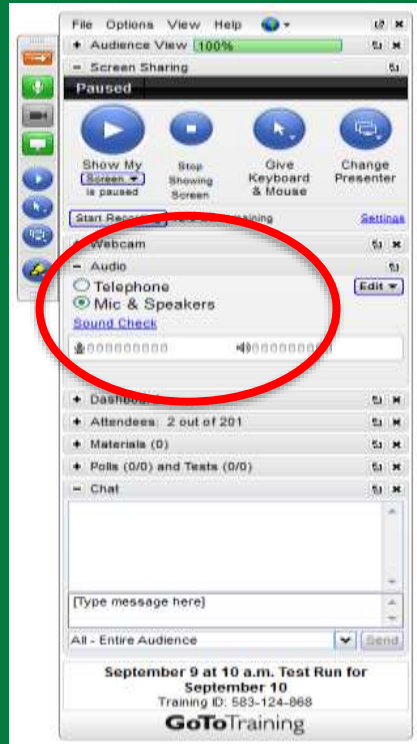
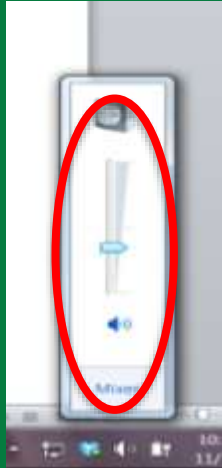


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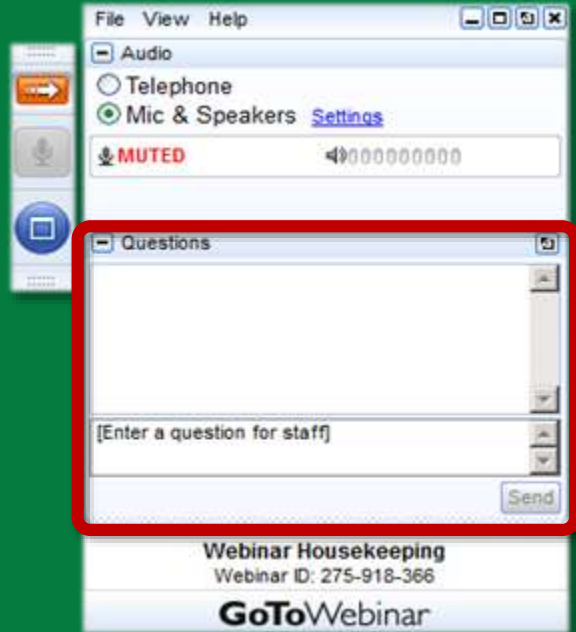


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- Please refer to the slide number and/or speaker when you post your question
- Please keep your questions succinct!
- Staff will ask the presenters questions, as time permits

# Presenters



# Timothee Sallin



- Actively involved in water conservation, sustainable landscaping and responsible agriculture in Florida over the past 15 years through role as President of Cherrylake.
- Cherrylake is a vertically integrated landscape company providing commercial landscape and irrigation construction and maintenance services and is the largest grower of ornamental trees, palms and shrubs in the State of Florida.
- Cherrylake and sister company IMG Citrus manage over 6,000 acres of land in Florida and have a long track record of sustainable land management and stewardship.
- Passionate about connecting people to plants and promoting healthy ecosystems within our urban environments.
- Actively involved in promoting environmental best practices across diverse industries through collaboration with industry associations such as ULI, ASLA and FNGLA as well as through research and development partnerships with UF IFAS and the SJRWMD.
- A graduate of New College in Sarasota Florida earning a degree in Economics and International Studies.
- Lives in Clermont with wife Ellen and daughter Aria; son Tristan is an undergraduate student at Georgia Institute of Technology.



# Urban Tree Selection for Sustainability

Timothee Sallin  
President, Cherrylake







# PROMOTING SUSTAINABLE URBAN FORESTS

Timothee Sallin

**How Many Trees Are There?**

## MAPPING TREE DENSITY AT A GLOBAL SCALE

3,040,000,000



# nature

THE INTERNATIONAL WEEKLY JOURNAL OF SCIENCE

## THREE TRILLION AND COUNTING

Mapping tree density at a global scale PAGES 170 & 201

ARCHAEOLOGY

### LOST WET WORLD

Deep search for evidence of a pre-Columbian culture  
PAGE 170

INEQUALITY

### CLOSING THE GENDER GAP

Why women get fitter share of social-sciences funding  
PAGE 181

BOOKS

### GENES AND THE MAN

Reflections on Darwin's latest discovery  
PAGE 184

NATURE COMMUNITY

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9 780550 103099

[https://www.researchgate.net/publication/281532511\\_Mapping\\_tree\\_density\\_at\\_a\\_global\\_scale](https://www.researchgate.net/publication/281532511_Mapping_tree_density_at_a_global_scale)

## MAPPING TREE DENSITY AT A GLOBAL SCALE

# 15 Billion

Trees Cut Down Annually



# MAPPING TREE DENSITY AT A GLOBAL SCALE

422

Trees Per Person On Earth

# MAPPING TREE DENSITY AT A GLOBAL SCALE

1.4

Fewer Trees Per Person Per Year

What is the value of a tree?



i-Tree is a state-of-the-art, peer-reviewed software suite from the USDA Forest Service that provides urban and rural forestry analysis and benefits assessment tools. The i-Tree tools can help strengthen forest management and advocacy efforts by quantifying forest structure and the environmental benefits that trees provide.

<https://www.itreetools.org/>





# i-Tree

Tools for Assessing and Managing  
Forests & Community Trees

## Structural values:

- Compensatory value
- Carbon storage

## Annual functional values:

- Carbon sequestration
- Stormwater Capture
- Air Pollution removal
- Water Pollution Removal
- Lower energy costs
- Reduced carbon emissions





## AVERAGE ANNUAL VALUE OF URBAN FOREST TO MEGA-CITIES

\$505 Million

## AVERAGE ANNUAL VALUE OF URBAN FOREST TO MEGA-CITIES

# \$1.2 Million

Per Square Kilometer of Trees

# AVERAGE ANNUAL VALUE OF URBAN FOREST TO MEGA-CITIES

\$35

Per Resident



What is the life expectancy of an urban tree?

# MEAN LIFE EXPECTANCY OF AN URBAN TREE:

# 7-13 YEARS

*Gary Moll, "The state of our urban forest," American Forests 95 (1989): 61-64.*

*Bob Skiera and Gary Moll, "The sad state of city trees," American Forests (1992): 61-64.*

MEAN LIFE EXPECTANCY OF AN URBAN TREE:

19-28 YEARS

*Street tree survival rates: Meta-analysis of previous studies and application to a field survey in Philadelphia, PA, USA Lara A. Romana,\*, Frederick N. Scatena b; 2011*



# POPULATION HALF LIFE OF AN URBAN TREE:

# 13-20 YEARS

*Street tree survival rates: Meta-analysis of previous studies and application to a field survey in Philadelphia, PA, USA Lara A. Romana,\*, Frederick N. Scatena b; 2011*

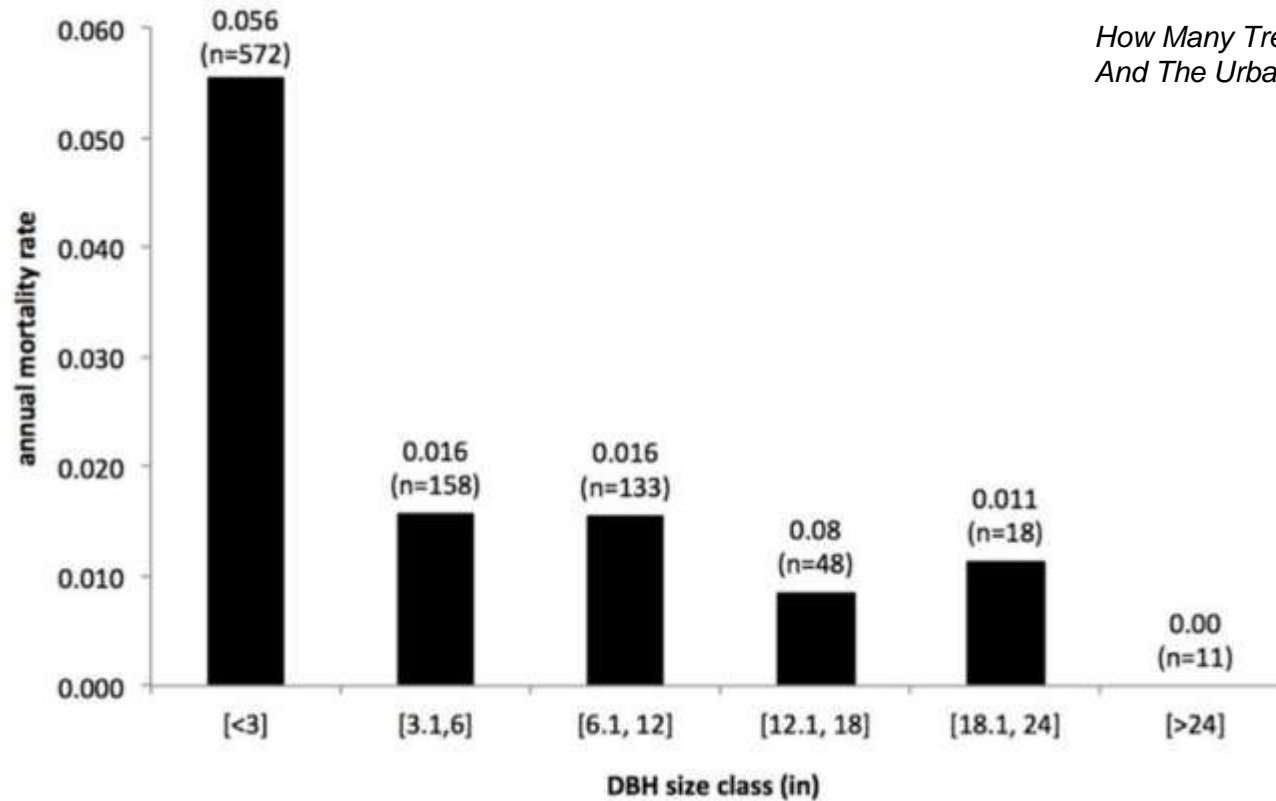


Figure 5. Size-class mortality curve for West Oakland street trees. Total  $n = 940$ .  
Adapted from Roman et. al. (in press) [28].



# BIOPHYSICAL FACTORS

FACTOR	TOTAL STUDIES CITING FACTOR	STUDIES FINDING FACTOR SIGNIFICANT
Taxa ( <i>genus, species, cultivar</i> )	13	11
Planting Space Characteristics	13	9
Tree Characteristics ( <i>size, age, condition</i> )	13	11
Planting Season	4	4
Nursery ( <i>source, stock, type size</i> )	3	2

# HUMAN FACTORS

FACTOR	TOTAL STUDIES CITING FACTOR	STUDIES FINDING FACTOR SIGNIFICANT
Stewardship & Maintenance	13	4
Land Use	7	7
Socioeconomic Measures	6	6
Unstable Homeownership	5	3
Construction and Redevelopment Activity	5	5
Traffic and Transportation	4	4
Group Characteristics ( <i>city, town, neighborhood</i> )	2	1
Landscaping Norms and Behavior	2	0





# SPECIES SELECTION FOR SUSTAINABILITY FACTORS

RIGHT TREE, RIGHT PLACE

BIODIVERSITY

NURSERY STOCK QUALITY

NATIVE + FLORIDA FRIENDLY

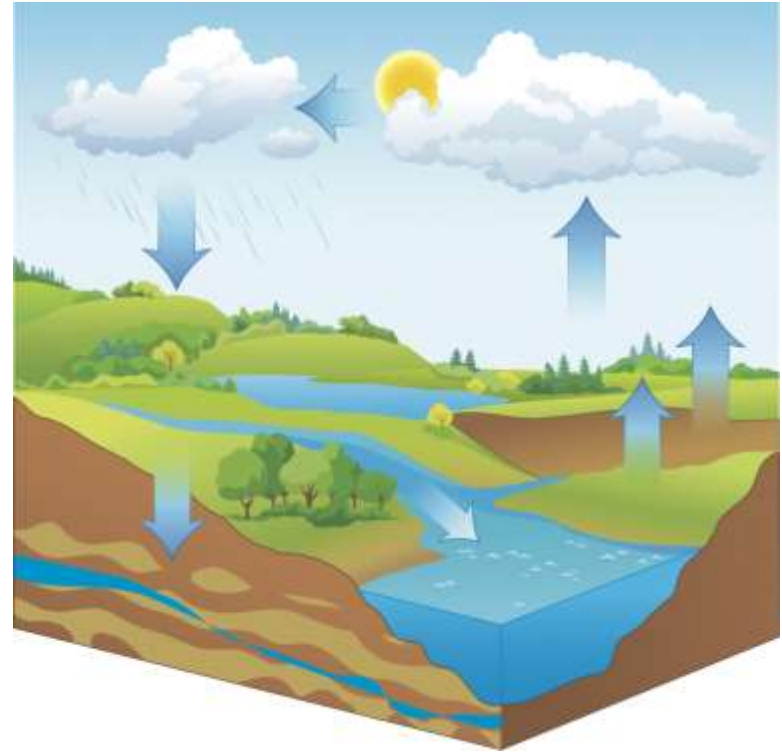
MARKET AVAILABILITY



# SPECIES SELECTION FOR SUSTAINABILITY FACTORS

## RIGHT TREE RIGHT PLACE

- Hardiness
- Hydrology
- Soils
- Environmental Conditions
- Planting Space Characteristics
- Mature Habit





# SPECIES SELECTION FOR SUSTAINABILITY FACTORS

BIODIVERSITY:



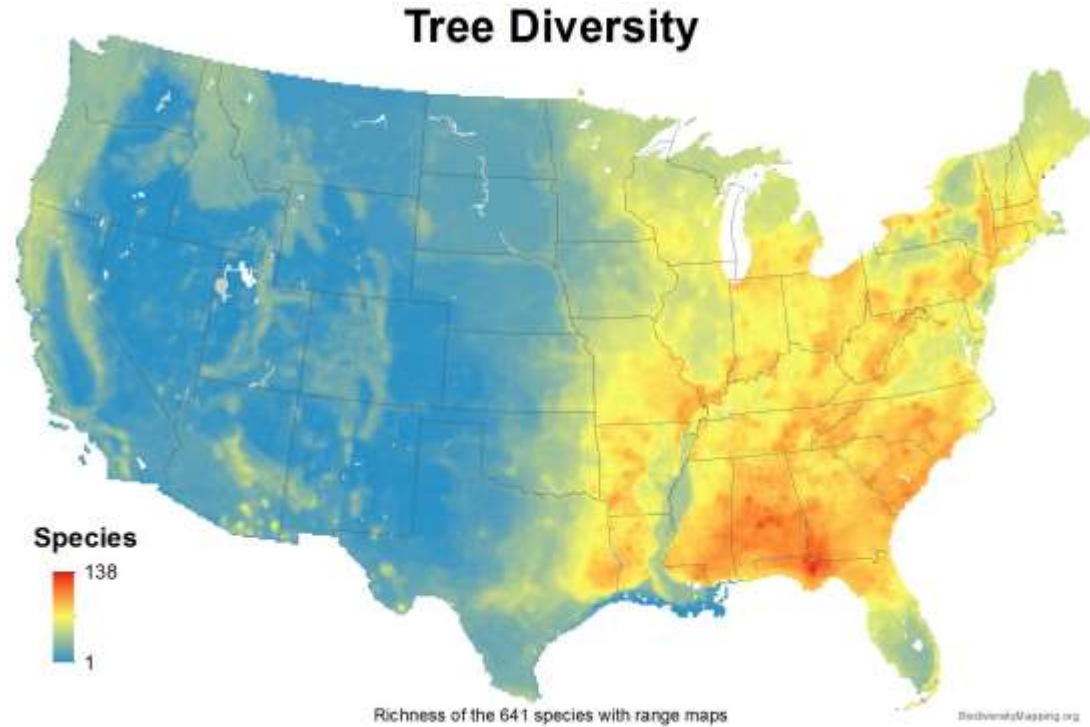
ECOSYSTEMS

SPECIES

GENES

# SPECIES SELECTION FOR SUSTAINABILITY FACTORS

## BIODIVERSITY:



Tree Diversity in the USA, based on data from [U.S. Geological Survey \(1999\) Digital representation of "Atlas of United States Trees" by Elbert L. Little, Jr.](#)

# SPECIES SELECTION FOR SUSTAINABILITY FACTORS

## Florida-friendly Plant Database

Identify the Florida-friendly plants, including Florida native plants, that will work in your yard or landscape design. The database contains a list of recommended trees, palms, shrubs, flowers, groundcovers, grasses and vines developed by University of Florida/IFAS horticulture experts. The plants included in the database are available at nurseries throughout Florida.



## FLORIDA FRIENDLY LANDSCAPING “The Smart Way to Grow”

### Build Your Plant List Now

**Step 1:** Start by selecting a Florida region and a plant category you would like to search.

**Florida Region** (select one)

- ☐ North Florida
- ☐ Central Florida
- ☐ South Florida



[I'm looking for a specific plant](#)

**Plant Type** (select one)

- ☐  Flowers (Annuals & Perennials)
- ☐  Shrubs
- ☐  Trees
- ☐  Palms/Palm-like
- ☐  Groundcovers
- ☐  Vines
- ☐  Grasses



HELP

+ NEXT







# SPECIES SELECTION FOR SUSTAINABILITY FACTORS

## NURSERY STOCK QUALITY



# THE FLORIDA GRADES AND STANDARDS

- The Florida Grades and Standards was developed for more accurate communication between buyers and sellers.
- It is an excellent resource for growers, clients, homeowners and extension agents to agree on what constitutes quality in trees.
- The quality or grade of a tree at planting can have a large impact on longevity in the landscape.
- Higher grades require less pruning after planting and are likely to establish more

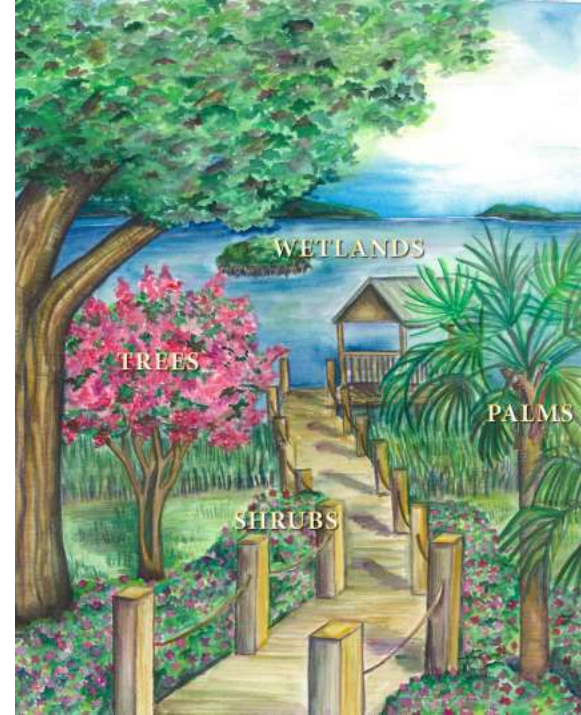
quickly



Florida Department of Agriculture and Consumer Services  
Adam H. Putnam, Commissioner

# 4 GRADES FOR FOR NURSERY PLANTS IN FLORIDA

- Florida Fancy
- Florida #1
- Florida #2
- Cull





# 7 STEPS FOR DETERMINING GRADE OF TREE

## Step 1. Choose the appropriate tree matrix type.

(Matrix 1 – p. 13; Matrix 2 – p. 14;  
Matrix 3 – p. 15.)

Appropriate matrix type: \_\_\_\_\_

a) For multi-trunked small maturing trees such as crape-myrtle and wax privet (Index of Small-Maturing Trees, p. 26), measure the container size or root ball diameter of the tree you are grading and ignore the caliper. For standard small maturing trees, measure the caliper of the tree. For all small maturing trees, skip Step 2.

b) For all other trees, measure the caliper of the tree.

Caliper: \_\_\_\_\_

**Step 2.** Grade the tree according to trunk structure (see Fig. 1, p. 10). Trees with one dominant trunk are graded Florida Fancy. Those with double or multiple trunks are given a lesser grade depending on the size and location of the defect. Circle the appropriate grade below based on trunk structure only. This step is skipped if grading a small-maturing tree (Index of Small-Maturing Trees, p. 26).

Florida	Florida	Florida	Cull
Fancy	No. 1	No. 2	

**Step 3.** Grade the tree according to crown uniformity (see Fig. 2, p. 11). Circle the appropriate grade below based on crown uniformity only.

**Note:** For crown uniformity there is no Florida No. 1 or cull grade.

Florida	Florida
Fancy	No. 2

**Step 4.** Record the lowest grade determined in Step 2 or 3.

**Grade:** \_\_\_\_\_

# 7 STEPS FOR DETERMINING GRADE OF TREE

**Step 5.** If one of the following statements is true, reduce the grade determined in Step 4 by one. If two or more are true, reduce the grade by two. Reference tree caliper and appropriate matrix for 5a, 5b, and 5d. For multi-trunked small-maturing trees, use container size or root ball diameter (not caliper) for 5b and skip 5a and 5d.

T F

- ☐ ☐ a) Tree does not meet height requirement.
- ☐ ☐ b) Crown does not meet diameter requirement.
- ☐ ☐ c) Root ball is not secure enough to successfully transplant.
- ☐ ☐ d) Root ball or container is undersized. If two or more sizes, reduce grade by two.
- ☐ ☐ e) Tree with a trunk caliper larger than two inches requires a stake to hold the trunk erect. For multi-trunked trees, this applies to each trunk individually.

**Grade:** \_\_\_\_\_

**Step 6.** If two of the following statements are true, reduce the grade determined in Step 5 by one. If three or more of the statements are true, reduce the grade by two. It takes only one true statement to reduce Florida Fancy to Florida No. 1.

T F

- ☐ ☐ a) Flush cuts were made when pruning branches from the trunk (Fig. 3, p. 12).
- ☐ ☐ b) Branch stubs were left beyond the collar (Fig. 3, p. 12). A branch stub can be removed and not reduce the grade.
- ☐ ☐ c) Open trunk wounds are evident. Wounds are considered open when they are greater than 10% of trunk circumference and/or more than two inches tall. Open or closed proper pruning cuts, surface abrasions or scratches to the bark should not be downgraded. See Glossary: **Trunk wound**.
- ☐ ☐ d) More than 10% of the crown exhibits necrosis, chlorosis or damage from pests, diseases or tip dieback.
- ☐ ☐ e) The crown is thin and sparsely foliated. Some species are thin and sparsely foliated in fall through early spring. Recently harvested field grown trees might also be thin and should not be downgraded.
- ☐ ☐ f) There is included bark between the trunk and a major lateral branch or between main trunks (Appendix B, p. 37).
- ☐ ☐ g) Trunks and/or major branches are touching.

**Step 7.** The tree is a Cull if one of the following conditions is true:

- a) The top-most structural root (roots among largest on the tree) emerges from trunk (root collar) more than two inches below the top of the root ball surface. Soil, substrate and/or roots can be removed from the top 1/3 of the root ball to conform to this depth requirement. For example, see Appendix A, Part 2, p. 30-31.
- b) One or more roots greater than 1/10 the trunk caliper, circle more than 1/2 of trunk in the top 1/2 of the root ball. All three conditions (> 1/10 trunk caliper, 1/2 around, top 1/2 of the root ball) must be true to grade as a Cull. One or more circling roots less than 1/2 the trunk diameter can be cut at the point just inside where they begin to circle. For multi-trunked trees, caliper equals the sum of the three largest trunks. Following cutting, the tree is no longer a Cull. For example, see Appendix A, Part 2, p. 30-31).

**Note:** Grades and Standards do not apply to specialty trees like braided stems, poodles, espalier, topiary and bonsai.

**Final Grade:** \_\_\_\_\_

# INNOVATIONS IN THE INDUSTRY



Reason 7 has adopted a series of certified processes to give you the peace of mind that you are purchasing the best possible tree on the market - from the tip of its roots, to the top of its canopy.

**What is essential is  
invisible to the eye**



# INNOVATIONS IN THE INDUSTRY

1

Start with R7  
approved plant



2

Innovative  
container  
technology



3

Root  
shaving



4

Identify  
defects



5

Correct  
defects



6

Proper planting  
depth



7

Audit





# INNOVATIONS IN THE INDUSTRY



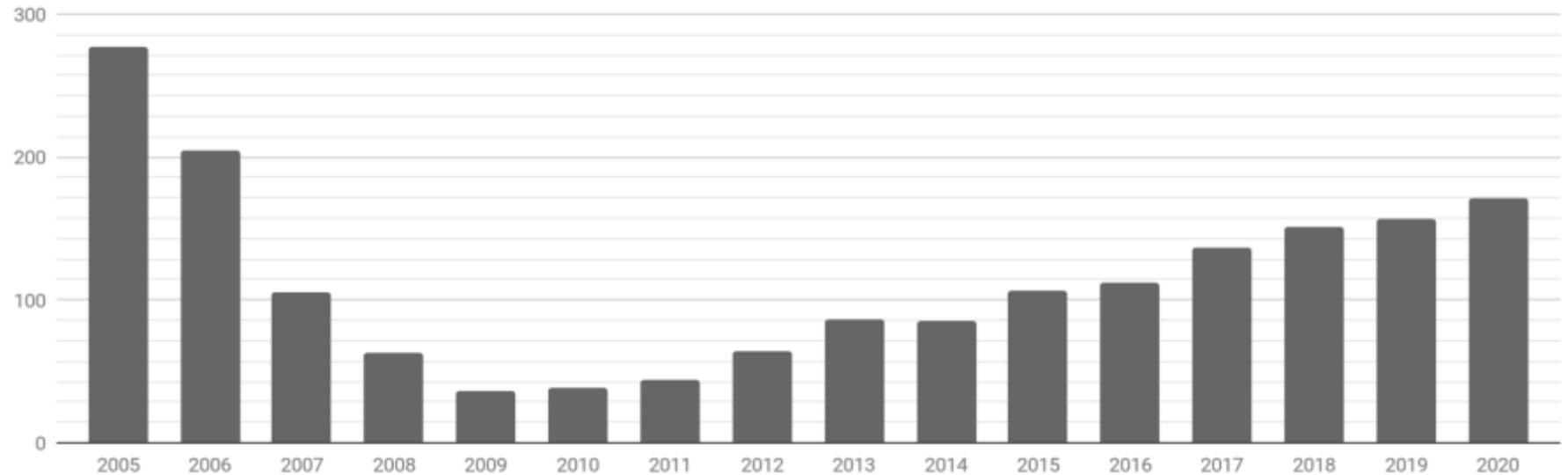




GENERAL SHERMAN

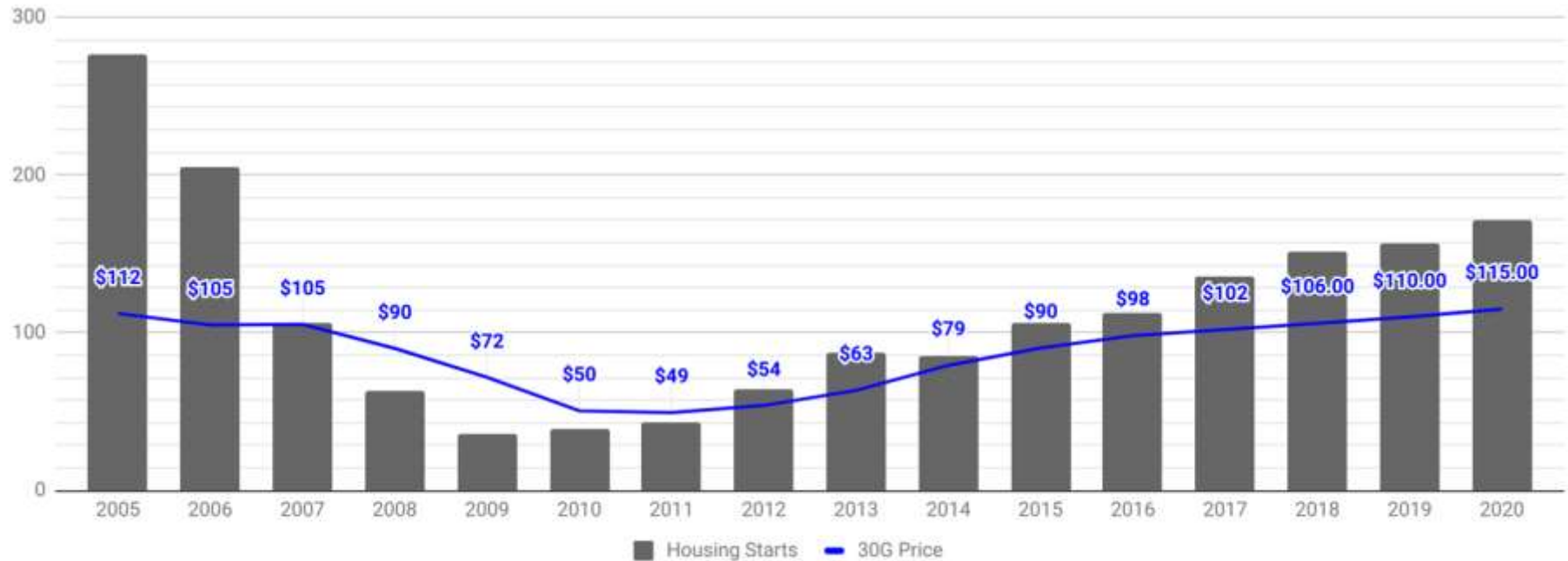
# MARKET CONDITIONS

## Florida Housing Starts



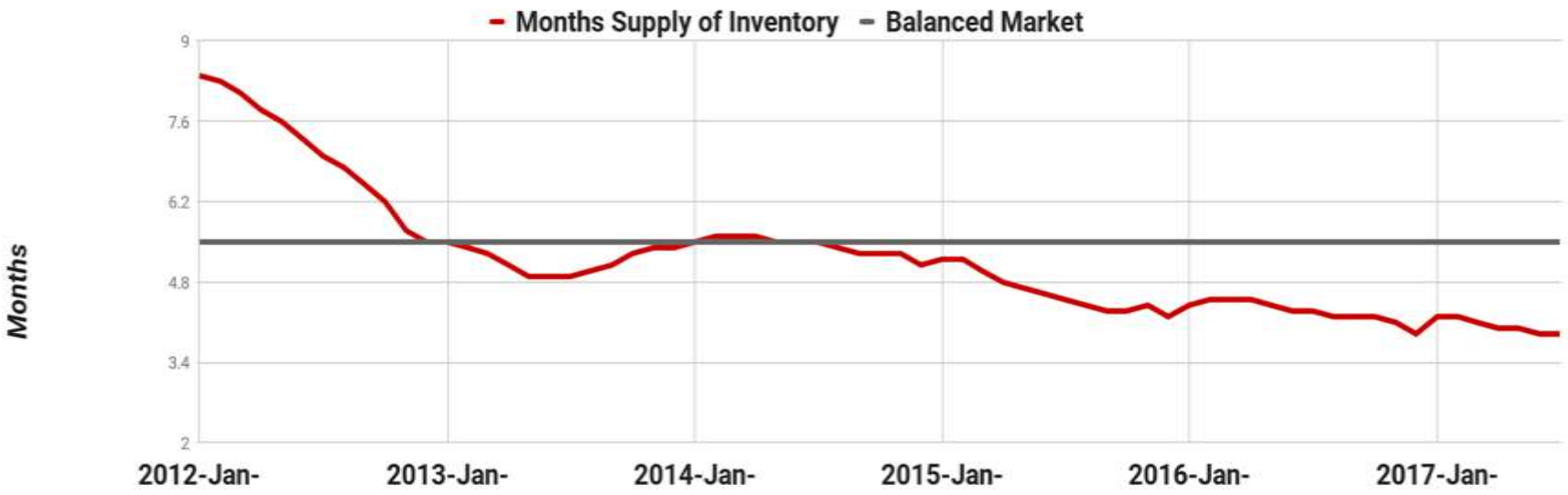


# MARKET CONDITIONS



# MARKET CONDITIONS

Months Supply of Housing Inventory



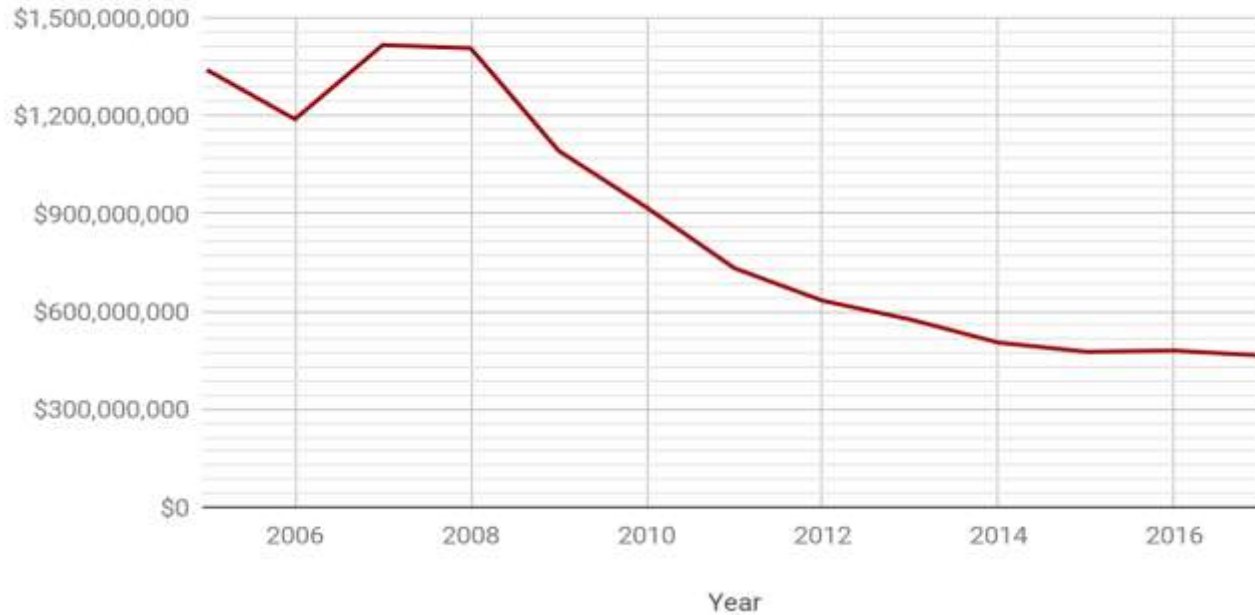
# MARKET CONDITIONS

Monthly Housing Starts VS Housing Inventory



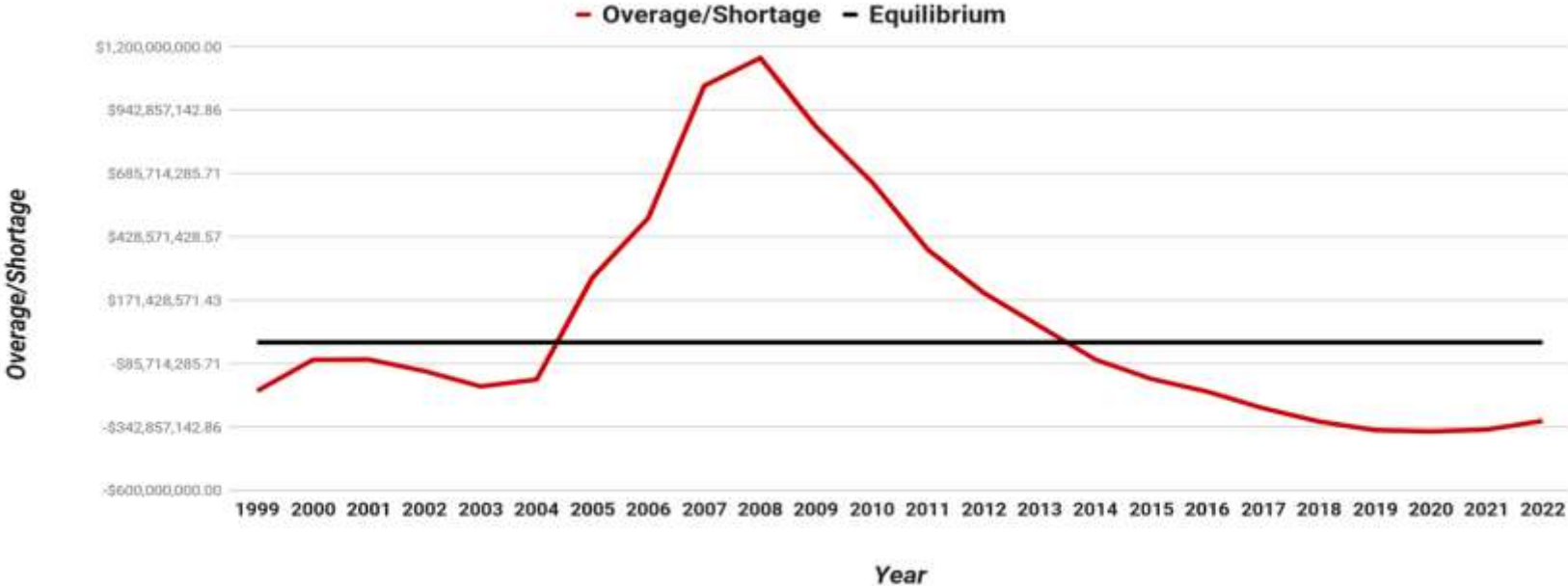
# FEDERAL CROP INSURANCE LIABILITIES

**US Federal Crop Insurance Liabilities**



# MARKET CONDITIONS

Overage / Shortage of Nursery Supply







# RECOMMENDATIONS FOR CODES & ORDINANCES

1. Caliper v. DBH
2. Hedge Material Heights



# RECOMMENDATIONS FOR CODES & ORDINANCES

## **Caliper:**

For trees < 4" Caliper measure 6" from ground;

For trees > 4" measure 12" from ground.

## **DBH:**

Diameter at Breast Height - 54" from ground

Forestry measurement not appropriate for nursery trees.

# RECOMMENDATIONS FOR CODES & ORDINANCES

1. Caliper v. DBH
2. Hedge Material Heights



# TAXODIUM DISTICHUM

## Bald Cypress

**Common Names:** *Southern Cypress, Swamp Cypress, Red Cypress, White Cypress, Gulf Cypress*

**Hardy Range:** *4 to 10 (mature)*

### DESCRIPTION

**Mature Height:** *50 - 70'*

**Mature Spread:** *25'*

**Growth Rate:** *medium*

**Form:** *pyramidal, upright, erect*

**Persistence:** *evergreen*

**Salt tolerance:** *medium*

**Exposure:** *full sun*

**Soil:** *Acidic; drought tolerant; loamy; moist; sandy, well drained soils; wet clay soils*



# ACER RUBRUM 'FLAME'

## Red Flame Maple

**Common Names:** *Autumn Flame, Red Flame*

**Hardy Range:** 6 to 10

### DESCRIPTION

**Mature Height:** 50 - 60'

**Mature Spread:** 25 - 35'

**Growth Rate:** *medium*

**Form:** *upright, oval with age*

**Persistence:** *deciduous*

**Salt tolerance:** *medium*

**Exposure:** *partial to full sun*

**Soil:** *moist sites are best; well-drained if irrigated*



# ILEX CASSINE 'NATIVA' PPAF

## Dahoon Nativia Holly

**Common Names:** *Dahoon Holly, Nativia*

**Hardy Range:** *7A to 11*

### DESCRIPTION

**Mature Height:** *30 - 40'*

**Mature Spread:** *15 - 20'*

**Growth Rate:** *medium*

**Form:** *oval, pyramidal*

**Persistence:** *evergreen*

**Salt tolerance:** *medium*

**Exposure:** *partial to full sun*

**Soil:** *Clay, sand, loam; slightly alkaline, acidic; extended flooding; well-drained*





# COCCOLOBA DIVERSIFOLIA

## Pigeon Plum

**Common Names:** *Pigeon Plum*

**Hardy Range:** *10B to 11*

### DESCRIPTION

**Mature Height:** *15 - 25'*

**Mature Spread:** *20- 30'*

**Growth Rate:** *moderate*

**Form:** *round, upright, vase*

**Persistence:** *evergreen*

**Salt tolerance:** *high*

**Exposure:** *full sun; partial shade*

**Soil:** *clay; loam; sand; acidic; alkaline; well-drained*





# ULMUS ALATA

## Winged Elm

**Common Names:** *Winged Elm*

**Hardy Range:** 6A to 9B

### DESCRIPTION

**Mature Height:** 45 - 70'

**Mature Spread:** 30 - 40'

**Growth Rate:** *fast*

**Form:** *pyramidal, vase, oval, upright/erect*

**Persistence:** *deciduous*

**Salt tolerance:** *moderate*

**Exposure:** *partial to full sun*

**Soil:** *clay; sand; loam; alkaline; acidic; extended flooding; well-drained*







# PINUS ELLIOTTI VAR. DENSA

## Densa Slash Pine

**Common Names:** *South Florida Slash Pine, Yellow Pine, Dade County Pine*

**Hardy Range:** 7A – 11

### DESCRIPTION

**Mature Height:** 75 - 100'

**Mature Spread:** 35 - 50'

**Growth Rate:** *fast*

**Exposure:** *partial to full sun*

**Persistence:** *evergreen*

**Soil:** *wet to moist, well drained, sandy, limestone*



# JUNIPERUS SILICICOLA

## Southern Red Cedar

**Common Names:** *Red Cedar, Eastern Red Cedar, Coast Juniper*

**Hardy Range:** *8A to 10B*

### DESCRIPTION

**Mature Height:** *25 - 40'*

**Mature Spread:** *20 - 30'*

**Growth Rate:** *fast*

**Form:** *pyramidal*

**Persistence:** *evergreen*

**Salt tolerance:** *medium*

**Exposure:** *partial to full sun*

**Soil:** *Well-drained; loamy, sandy or clay*



# ILEX VOMITORIA

## Weeping Yaupon Holly

**Common Names:** *Weeping Yaupon Holly*

**Hardy Range:** *7A to 9B*

### DESCRIPTION

**Mature Height:** *15 - 30'*

**Mature Spread:** *6- 12'*

**Growth Rate:** *moderate*

**Form:** *weeping, upright/erect*

**Persistence:** *evergreen*

**Salt tolerance:** *high*

**Exposure:** *full sun, partial sun or partial shade*

**Soil:** *clay; loam; sand; acidic; alkaline; well-drained, extended flooding*







# BETULA NEGRA 'BNMTF' DURA-HEAT®

Dura-heat River Birch

**Common Names:** *Birch, River Birch*

**Hardy Range:** *4 to 9*

## DESCRIPTION

**Mature Height:** *20 - 25'*

**Growth Rate:** *medium*

**Persistence:** *deciduous*

**Mature Spread:** *15 - 20'*

**Exposure:** *partial to full sun*

**Soil:** *acidic, well drained*



# MAGNOLIA GRANDIFLORA 'BLANCHARD'

D.D. Blanchard Magnolia

**Common Names:** *D.D. Blanchard, DD*

**Hardy Range:** *7A to 10B*

## DESCRIPTION

**Mature Height:** *50 - 70'*

**Mature Spread:** *20 - 35'*

**Growth Rate:** *slow*

**Form:** *columnar, oval, upright or erect*

**Persistence:** *evergreen*

**Salt tolerance:** *high*

**Exposure:** *partial to full sun*

**Soil:** *rich; loamy; moist soils*





# MAGNOLIA GRANDIFLORA 'BRACKEN'S BROWN BEAUTY'

## Bracken's Brown Beauty Magnolia

**Common Names:** *Bracken, Bracken's Brown Beauty*

**Hardy Range:** *5B to 10A*

### DESCRIPTION

**Mature Height:** *30 - 50'*

**Mature Spread:** *15 - 30'*

**Growth Rate:** *medium*

**Form:** *slightly pyramidal, upright oval*

**Persistence:** *evergreen*

**Salt tolerance:** *medium*

**Exposure:** *partial to full sun*

**Soil:** *well-drained, slightly acidic*



# QUERCUS VIRGINIANA

## Southern Shade Live Oak

**Common Names:** *Live oak, Virginia oak, southern live oak, sand live oak, scrub live oak, Texas live oak, seedling*

**Hardy Range:** *7B to 10B*

### DESCRIPTION

**Mature Height:** *50 - 75'*

**Mature Spread:** *60 - 100'*

**Growth Rate:** *medium*

**Form:** *rounded, spreading*

**Persistence:** *semi-evergreen*

**Salt tolerance:** *medium*

**Exposure:** *partial to full sun*

**Soil:** *clay, sand, loam, alkaline, acidic, well-drained, occasionally wet*



# TABEBUIA IMPETIGINOSA

## Purple Tabebuia

**Common Names:** *Purple Tabebuia*

**Hardy Range:** *10 to 11*

### DESCRIPTION

**Mature Height:** *12 - 18'*

**Mature Spread:** *10- 15'*

**Growth Rate:** *moderate*

**Form:** *round*

**Persistence:** *deciduous*

**Salt tolerance:** *moderate*

**Exposure:** *full sun*

**Soil:** *clay; loam; sand; acidic; alkaline; well-drained*





# ELAEOCARPUS DECIPIENS

## Japanese Blueberry

**Common Names:** *Japanese Blueberry, Elaeocarpus*

**Hardy Range:** 9A to 11

### DESCRIPTION

**Mature Height:** 25 - 35'

**Mature Spread:** 30 - 40'

**Growth Rate:** *medium*

**Form:** *rounded*

**Persistence:** *evergreen*

**Exposure:** *partial to full sun*

**Soil:** *sandy, loamy, clay, acidic, neutral and basic alkaline soils*



# JUNIPERUS CHINENSIS

## 'SPARTAN'

### Spartan Juniper

**Common Names:** *Chinese juniper, Spartan*

**Hardy Range:** 4A to 10A

#### DESCRIPTION

**Mature Height:** 15 - 20'

**Mature Spread:** 4 - 6'

**Growth Rate:** *medium*

**Form:** *columnar, upright, erect*

**Persistence:** *evergreen*

**Salt tolerance:** *medium*

**Exposure:** *partial to full sun*

**Soil:** *well-drained; loamy, sandy or clay*





# LAGERSTOEMIA (INDICA x FAURIEI) 'MUSKOGEE'

Muskogee Crape Myrtle

**Common Names:** *'Muskogee' Crape Myrtle*

**Hardy Range:** 7A to 10A

## DESCRIPTION

**Mature Height:** 25 - 35'

**Mature Spread:** 15 - 25'

**Growth Rate:** *medium*

**Form:** *vase shaped, standard or multi-trunk*

**Persistence:** *deciduous*

**Salt tolerance:** *medium*

**Exposure:** *full sun*

**Soil:** *sand, loam, clay; acidic, alkaline; well-drained*



# THANK YOU

Timothee Sallin

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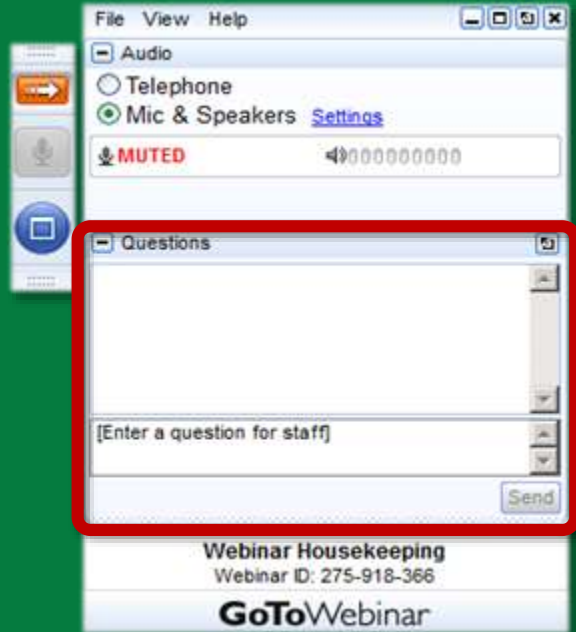
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# Check out our Legislative Webpage!



Available at:

[www.1000friendsofflorida.org/2018-florida-legislative-session-custom/](http://www.1000friendsofflorida.org/2018-florida-legislative-session-custom/)

This site is:

- Includes what passed and failed
- Includes Growth Management, Transportation and Conservation Legislation
- Includes links to the bills



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