Jacksonville Tree Commission

Thursday, February 22, 2018 – 12:00 PM

117 West Duval Street, Third Floor, Conference Room C

Commissioners:	John Crescimbeni, Chair	**Advisors:**	Sondra Fetner
	Curtis Hart, Vice Chair		Richard Leon
	Jeremy Cooper		Kathleen McGovern
	Aaron Glick		
	John Pappas		
	Rhodes Robinson	**Staff:**	Cindy Chism

AGENDA

Order of Agenda is Subject to Change

A. Call to Order/ Verification of Quorum

1. Roll Call
2. Submittal of Speaker's Cards
3. Approval of minutes from February 8, 2018 meeting
4. Fund balance and encumbrance report for 15(F) and 15(N)
5. Final Bylaws signature, Sondra Fetner, Office of General Counsel

B. New Business

1. Tree Commission Website, Cindy Chism, Staff
2. Life Expectancy Specifications, Richard Leon, Urban Forestry Manager
3. FEMA Replanting Reimbursement, John Pappas, Director Public Works
4. plan-it GEO Objective Criteria Process, John November, Public Trust
5. Pending Tree Projects – Kathleen McGovern, Urban Forestry Manage
6. Proposed Project Application Process, Sondra Fetner, Office of General Counsel

- Discussion about who can apply
- Discussion about how Commission recommendation becomes legislation

7. General Project Application, Sondra Fetner, Office of General Counsel

C. Public Comment

D. Information

- Tallahassee House Bill 574 and Senate Bill 521, Sondra Fetner, Office of General Counsel

E. Adjournment

Jacksonville Tree Commission
Meeting Minutes February 22, 2018
Approved on March 8, 2018

Commissioners:	John Crescimbeni, Chair	**Public:**	John November
Present:	Curtis Hart, Vice Chair		Joseph Anderson
	Jeremy Cooper		Tracey Arpen
	Aaron Glick		Anna Dooley
	John Pappas		Alicia Grant
Advisors	Sondra Fetner	**Staff:**	Cindy Chism
Present:	Richard Leon		
	Kathleen McGovern		
	Joel Provenza		

A. Meeting was called to order by Chair at 12:00. (Action items are listed in green)

1. All present introduced themselves. There is a quorum.

2. Submittal of Speaker's Cards.

3. Approval of minutes from February 8, 2018: Questions included:

a. CM Crescimbeni has several scrivener errors and will meet with Ms. Chism at a later time to go over those. He recalled not only praising Ms. Fetner for preparation of the Bylaws, which was included in the minutes, not included was his praise of the Secretary for preparation of the minutes. In the future that needs to be included as well.
b. There was also a question regarding the definition of the word "leaders" on Page 5, the 5th bullet points used in regards to the Laurel Oaks in Avondale. Mr. Leon said a leader is a large branch, a branch which would compete with main stem of the tree.
c. Ms. Fetner answer the question regarding Ms. Chism's title, the discussion was on page 3, 2nd bullet, the title was Public Works Staff.
d. Motion made by Mr. Pappas, seconded by Mr. Hart to accept the minutes with changes noted, to include CM Crescimbeni's scrivener corrections. None opposed

4. Fund balance (Attachment A) and Encumbrance report (Attachment B) for 15(F) and 15(N)

a. The Fund Balance for 15(F) and 15(N) of $21,567,036.70 which is difference of $418,585 from last meeting balance of $21,148,451.70. Mr. Hart remarked that somebody paid.
b. Mr. Pappas asked Mr. Provenza about the Forest Street Ash Site (4th item down of Encumbrance Report, Attachment B), the status is project completed, return balance ($5995) to tree fund. What does it take to get the funds returned back? Is it just a

memo, do you need something formal? How does that work? Mr. Provenza replied to move it we would have to do a budget amendment. CM Crescimbeni asked Mr. Provenza if we needed to come up with a mechanism to move this money, this residual from this completed project, back into the tree fund. Mr. Provenza's answer was yes, we do need to design a mechanism to move the money.

c. Mr. Hart asked if there were any other items in the same category; projects which are closed but with residual money 15(F). Mr. Provenza said there were and he would provide a better report for what you are asking about. He further said we deduct appropriated balance which is the money you are discussing but we also added back the part that is in reserve, we view that as unspoken for, the Council reserve subobject. CM Crescimbeni will schedule a meeting with Theresa Eichner, who speaks Finance and City Council so no interpreter will be required. Ms. Fetner will need to be there as well.
d. Mr. Hart asked if at the end of the budget year if these types of projects would be cleared out? It seems like in a new budget cycle you would want to clear this out. If we wait until next year's budget would the money from a project that is completed go back to 15(F) or 15(N) or would they just stay here for an eternity. Mr. Provenza answered that these are all year's funds so they would just keep going forward. CM Crescimbeni reminded the Commission that this is Government and what sometimes seems logical is not necessarily the way it's done but we will fix it. Mr. Provenza was asked why this one is shown and not others you say there are. He replied those are encumbrances that have gone through the purchasing process for specific projects. Others are just residuals in a budget line item; projects are closed with residual dollars. Mr. Provenza will provide a more complete report.

5. Final Bylaws signature. Signed copies were provided to all Commission members. The final copy will be posted to the webpage once it's developed.

B. New Business

1. Tree Commission Website, Cindy Chism, Staff

a. A meeting was held with ITD and several advisors to the Commission to discuss the mechanics of setting up a new webpage for the Tree Commission.
b. We do want to link to our page from the Public Works page, to link back & forth from the tree mitigation page. We also want to link from the City Council Tree Commission page to our page.
c. A plan was generated and a mock-up should be ready by the March 8th Meeting.

2. Life Expectancy Specifications, Richard Leon, Urban Forester Manager

a. Mr. Leon was asked if there should be a Life Expectancy Rule or Policy for any tree used in projects requesting funding from the Commission. He provided several opinions from Foresters around the country as well as an article from the journal of the Society for Conservation Biology (Attachment C). The consensus was not to

make a list of what to plant but a list of what not to plant; diversity in species as well as life span. There are many times when you want to use short-lived trees to promote under canopy using trees which may only live 5-10 years.

b. Last meeting there was a discussion about Bradford Pear trees. They were the hot tree to plant in the 80s with a life expectancy of approximately 15 years in an urban environment. CM Crescimbeni opined that landscape should not be driven by the latest fashion trend. Let's make an investment in our infrastructure which is going to last. We need to be careful we don't make an investment which won't have a real return. We may not have $20 million in 5 years to do this again. Mr. Leon suggested that it would be worthwhile for the Commission to generate a list of trees not to plant. We could include the controversial Date Palms and others which would give real direction.
c. CM Crescimbeni asked if there were lists already by region or state of native trees. Mr. Cooper responded that there are many lists out there which are extensive, for north Florida, Southeastern Georgia region. He further stated there are so many species out there it will be more feasible to list trees not to plant than allowed trees. Mr. Cooper will provide a very encompassing list of species native to our ecosystem.
d. Mr. Leon pointed out that an urban environment isn't native. The closer you get to the urban core, the heat is different there is infrastructure so sometimes a native tree isn't always the best option, this is a man-made environment. A lot of cities use the Gingko tree, which is from Asia, but it has high tolerances for pollution and compacted soil. It has a fan shaped leaf, really good fall color; they get quite large they are also deciduous.
e. Mr. Cooper pointed out that with Mr. Leon had more urban environment knowledge; perhaps we should just list invasive species and not limit it to only native plants. There are non-native trees, Crepe Myrtle and Drake Elms for instance which are everywhere and do well. Mr. Leon went on to say another unique thing we are faced with here in Jacksonville is how far north we are, how close to the water, it's an odd transition where we are not quite sub-tropical but not quite to the level of Savannah. There are a lot of unique factors that Jacksonville faces with our transition in climate and the entire infrastructure.
f. CM Crescimbeni asked Mr. Cooper and Mr. Leon to generate a narrative identifying what we are going to pursue; what we can do and what we can't do i.e., try to plant native species when appropriate, and discourage certain types. Perhaps this can give us some ammo to put the whole Date Palm controversy to rest. For instance, "As a commission we don't believe these trees are the best trees to plant." Mr. Cooper, Mr. Leon and Ms. Anna Dooley will work together to generate a narrative document for selecting trees to include life expectancy, maintenance and native and invasive species.
g. CM Crescimbeni invited comments: do we want to include a life expectancy threshold of 5 years or do we want to take a more macro approach and give more points for longer life expectancy trees when we get into the grading process. We also need to take into account the lower canopy trees. Mr. Pappas agreed that there

needs to be a life expectancy minimum. There is a value in what we are investing and what we're getting out of it. He also agreed with CM Crescimbeni's maintenance comments, which need to be a factor. 15 years sounds like a reasonable number for life expectancy. UNF has great list of trees for urban areas and one of the world renowned arborists on staff. Mr. Leon will bring a sample from the UNF Urban Tree list.

h. Mr. Glick added that from a planning perspective and an urban development standpoint when you are planting a tree you want to plant it for at least a generation. That's how long it takes a neighborhood to mature and grow or if an older neighborhood is under resurgence it takes that long to come back. The bare minimum threshold in an urban environment is 25 years. You won't have enough time to grow a mature canopy in less than that amount of time. A redbud would barely meet that threshold.
i. CM Crescimbeni offered this analogy as an example of a way to score projects: City Council sets list of priority populations for grants. Grant money is set aside, about $2-$3 million, for public service grants. Then we publish our top priority populations we want serviced by these grants: Homelessness, elderly, etc., a percentage is assigned to each. Perhaps we can use this kind of approach for projects. Instead of getting hung up on an outright restriction on anything that won't live past 15-20 years maybe we try to focus or set some policy goals for longer living things but still leave some room for funds to be spent on understory. Mr. Cooper agreed that was a good analogy and good way to try to select projects.

3. FEMA Replanting Reimbursement, John Pappas, Director Public Works

a. The question before the Commission was if FEMA will reimburse the City for replanting trees destroyed by natural disasters. Mr. Pappas provided the Commission with an excerpt from the Public Assistance Program and Policy guide (FP-104-009-2) which stated that they were not eligible for reimbursement. (Attachment D, highlighted portion)

4. jaxdigstrees ~~plan it GEO~~ Objective Criteria Process, John November, Public Trust

a. Mr. November provided a process suggestion to help the Commission determine criteria for new project submission using the layers from the jaxdigstrees tool to score projects. (Attachment E.)
b. This is a suggestion on how to use the jaxdigstrees webtool to evaluate, make recommendations and score projects based on the criteria included in the tool. It is a work in progress, we need to be flexible and will need a lot of input for decisions. As this is the beginning hopefully we will take an adaptive attitude. Working with the technology for the last 6 months or so, there are some unique insights that may allow us to use it to create prioritization criteria. Perhaps prioritization is not as important to the City as actually getting trees in the ground right now because money comes in and money must go out.

c. This presentation is only related to jaxdigstrees ~~plan-it GEO,~~ it does not include other factors the Commission may be considering such as reviewing proposed budget, administrative design and community engagement, potential proposals from public groups and City Council members, also making determinations about the viability and feasibility of the project will be a threshold issue that will need to be approved by staff before we can even consider ranking it.
d. All Commission members please bring a list of items for possible inclusion on new project submissions such as maintenance requirements, life expectancy, and/or shade coverage.

5. Pending Tree Projects – Kathleen McGovern, City Arborist (Attachment F)

a. 2018-007 – Has been approved and is now in progress. Harts Road and Dunn Ave will be first then the streetscape replacements on Riverside.
b. 2018-043 – Pending legislation.
c. King Street –Prepared and should be submitted in approximately 2 weeks. Several questions regarding Bald Cypress trees being planted in the median on King Street; the concern was if the trees put out knees which would disrupt the surrounding area. Mr. Leon mentioned that he has seen several instances in Texas where there are many Cypress trees planted in tree cutouts with no disruption of the hardscape.
d. Avondale Tree Planting – Preparing to submit.
e. San Jose Blvd – Beginning preparation
f. Ms. McGovern will revise this report to a more standardized format next meeting.

6. **Postponed** - Proposed Project Application Process, Sondra Fetner, Office of General Counsel

- Discussion about who can apply
- Discussion about how Commission recommendation becomes legislation

7. **Postponed** - General Project Application, Sondra Fetner, Office of General Counsel -

C. Public Comment

John November, Public Trust – CM Crescimbeni at the last meeting you mentioned to me that if people were interested in being on a subcommittee to look at the ordinance and you would want them to appear here today; in order to make that appointment I invited some folks to be here today, I was hoping that you would move forward with that item in respect to those folks which showed up today. It may make sense to get FDOT involved or communicate with us since they will be so integral in some of our upcoming projects. I was also hoping that you might provide direction to staff to work with myself or any other stakeholders on the bigger picture related to the public private application process in preparation for the next meeting. Finally, I've talked to each of the Tree Commissioners and one thing that is really special about each of them is they have such diverse and unique expertise. As we take these next steps, I know there is a lot of important stuff on the front end to get our situation moving but, for

example, Rhodes knows about environmental restoration, he's so excited about looking at all the preserves and figuring out where we can make a big splash in the preserves. I just want to make sure the Commissioner's each feel empowered to take a particular project by the horns and move it forward.

Joseph Anderson, JEA – Provided a poster which has recommendations for native Florida trees (Attachment G) but it is not all encompassing.

Tracey Arpen, Greenscape – He reiterated that the Senate bill is going to be very important for the City with regards to the restoration of power costs, especially if it's not JEA. That could be a big price tag down the road. Regarding the location of trees to be planted and your plant or don't plant list. There are some trees which are appropriate to plant as under story trees or in a park setting but are not appropriate in a median, such as Holly trees. There are so few opportunities to plant canopy trees in Jacksonville. Perhaps we should make it a priority to plant trees in the ROW between the sidewalk and the street or in the medians to plant canopy trees. People always say this is a beautifully tree canopied street.

Anna Dooley, Greenscape – As Arbor Day and the festival tree give away approaches, would capturing the zip codes of those people who get a free tree be helpful? John November answered that the jaxdigstrees tool would not be able to capture the data in as fine a detail as we would need.

Alicia Grant, President, Scenic Jacksonville Inc. – We have gotten an agreement with FDOT that they will no longer be planting the Medjool palm trees when they are redoing the landscape on the roadways. One of our major initiatives is undergrounding. We are trying to get 3000 miles of overhead utilities, JEA, AT&T and Comcast utilities, in the ground over the next 30 years. We hope to have a plan to introduce to City Council soon.

Chris Flagg was invited to introduce himself to the Commission as the seventh serving member of the Commission.

D. Information

1. Tallahassee Bill 574 and Bill 521, Sondra Fetner, Office of General Counsel

Ms. Fetner provided the updated version of Bill 524 (Attachment H) as well as a Bill Analysis (Attachment H) to the Commission. She did point out that one of the amendments to Bill 574 is if a local government keeps a tree in an area that is blocking an electrical utility and the electrical utility has asked to have it removed and it has not been done, the local government can be held liable for any outage costs and for restoration activities. Also amended during a State of Emergency the City's ability to regulate the tree trimming & maintenance will be waived during that state of Emergency only application to signal family homes in residentially zoned areas.

2. **Shade Tree Subcommittee**

   There is an ordinance regarding Shade Trees. What is the swap ratio to replace a shade tree? It is three cabbage palms or you can plant 3 trees that get a 15 foot spread at maturity in lieu of a shade tree. CM Crescimbeni would like a member or 2 of the Commission to work with some citizens. Mr. Glick and Mr. Hart were nominated and Ms. Alicia Grant and Mr. Tracey Arpen volunteered to meet and see if it's feasible to submit a revision to the provision in the ordinance code.

E. Adjournment

TREE MITIGATION
CITY OF JACKSONVILLE

TREE REMOVAL PERMIT INFORMATION

Click here to search detailed information on Site Clearing and Tree Removal Permits. In reviewing tree removal information on a specific permit, for "E" permits click on the Spec 2 tab, for "L" permits click on the Tree Mitigation tab

TREE FUND CITY PLANTING PROJECTS

Click here to search detailed information about City Tree Fund Planting Projects.

AVAILABLE FOR APPROPRIATION

15F (Ordinance): $17,881,492.01
15N (Charter): $3,685,544.69
Total: $21,567,036.70

FILE AN ISSUE

Click here to report site clearing or tree removal without a permit, or to request tree maintenance on public property. In the CARE System, select "Tree Remove or Landscape Violation" from the dropdown.

Disclaimer: The AVAILABLE FOR APPROPRIATION information shown on this page is updated nightly from the City's financial records, but does not include any pending appropriations, or other financial transactions of the funds which have not been completed

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As of February 22, 2018

Attachment A

SUBFUND 15F & 15N ENCUMBERANCES AS OF 2/8/18

DOC_NO	VENDOR_NAME	PROJECT	BAL MO 13	INDEX_CODE	PROJECT STATUS
CTPW07000014	JACKSONVILLE ZOOLOGICAL SOCIETY	Tree & Understory Planting @ Jax Zoo for New Themed Exhibits	$ 1,135,063	PWOD15FZLAE	Ongiong
CTPW16000066	GREENSCAPE OF JACKSONVILLE INC	One Tree per School Project w/ DCSB	$ 124,216	PWOD15FDCS	Ongoing Maintenance during Plant Establishment Period ending Spring 2018
PO3019740001	THE DAVEY TREE EXPERT COMPANY	County Wide Tree Planting	$ 36,678	PWOD15FROW	Ongoing - Includes pending invoices for maintenance, with balance available for additional planting within Ash site boundaries
PO3019740003	THE DAVEY TREE EXPERT COMPANY	Forest Street Ash Site Tree Planting	$ 5,995	PWOD15FFSAS	Prj completed. Return balance to Tree Fund.
PO3019740004	THE DAVEY TREE EXPERT COMPANY	Browns Dump Ash Site Tree Planting	$ 22,370	PWOD15FBDAS	Balance available for additional tree planting within Ash site boundaries.
PO3019740005	THE DAVEY TREE EXPERT COMPANY	5th St & Cleveland St Ash Site Tree Planting	$ 117,423	PWOD15FFCAS	Ongoing - Includes pending invoices for maintenance, with balance available for additional planting
PO5005770020	LEWIS TREE SERVICE, INC.	25% of Hazardous Tree Services budgeted for FY15/16 paid by Tree Fund	$ 1,539	PWML15F	FY 15/16 PO Closed - deobligated balance of $590.32
PO5005770042	LEWIS TREE SERVICE, INC.	25% of Hazardous Tree Services budgeted for FY16/17 paid by Tree Fund	$ 33	PWML15F	PO Balance will be deobligated once invoice payments are complete under Blanket PO.
PO7A02942003	THE DAVEY TREE EXPERT COMPANY	Alden Rd/ Sam Hardwick Blvd/John Prom Blvd Median Trees	$ 1,380	PWOD15FARATP	Open - pending invoices for establishment period maintenance
PO7A02942004	THE DAVEY TREE EXPERT COMPANY	Sothside Blvd (Beach Bv and Atlantic Bv) Tree Replacement	$ 4,205	PWOD15FIBCL	Open - pending invoices for establishment periid maintenance
PO7A02942006	THE DAVEY TREE EXPERT COMPANY	North Main Street (3rd St to 8th St) Tree Replacement	$ 22,057	PWOD15FNMS	Open -Prj on hold pending road work scheduled by FDOT
PO7A02942007	THE DAVEY TREE EXPERT COMPANY	Bakersfield Dr Tree Planting	$ 1,661	PWOD15NBDTP	Open - pending invoices for establishment periid maintenance
PO7A02942008	THE DAVEY TREE EXPERT COMPANY	Tree Planting - Various Sites	$ 1,039	PWOD15FIBCL	Open - pending invoices for establishment periid maintenance
PO7A02942010	THE DAVEY TREE EXPERT COMPANY	Mayport Rd Medians	$ 1,076	PWOD15FIBCL	Open - pending invoices for establishment periid maintenance
PO7A02942012	THE DAVEY TREE EXPERT COMPANY	Rio Lindo Dr Tree Planting	$ 2,265	PWOD15FIBCL	Open - pending invoices for establishment periid maintenance
PO7A02942015	THE DAVEY TREE EXPERT COMPANY	Rogero Rd Plant Replacement	$ 8,660	PWOD15FIBCL	Open - pending invoices for establishment periid maintenance
PO7A02942016	THE DAVEY TREE EXPERT COMPANY	Hurricane Irma Tree Straighting	$ 9,742	PWOD15FIBCL	Open - pending invoices for establishment periid maintenance
PO8A01798005	LEWIS TREE SERVICE, INC.	25% of FY17/18 Budget for Hazardous Tree Removal & Pruning paid bt Tree Fund	$ 358,344	PWML15F	FY18 PO Active thru 10.26.2018
		TOTAL BALANCE	$ 1,853,744		

Attachment B

Conservation Letters
A journal of the Society for Conservation Biology
Open Access

Attachment C

POLICY PERSPECTIVE

From Management to Stewardship: Viewing Forests As Complex Adaptive Systems in an Uncertain World

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Keywords
Complex adaptive systems; resilience; sustainable forest management; global change; socioecological systems.

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Received
11 April 2014
Accepted
17 November 2014

Editor
Lauren Persha

doi: 10.1111/conl.12156

Abstract

The world's forests and forestry sector are facing unprecedented biological, political, social, and climatic challenges. The development of appropriate, novel forest management and restoration approaches that adequately consider uncertainty and adaptability are hampered by a continuing focus on production of a few goods or objectives, strong control of forest structure and composition, and most importantly the absence of a global scientific framework and long-term vision. Ecosystem-based approaches represent a step in the right direction, but are limited in their ability to deal with the rapid pace of social, climatic, and environmental changes. We argue here that viewing forest ecosystems as complex adaptive system provides a better alternative for both production- and conservation-oriented forests and forestry. We propose a set of broad principles and changes to increase the adaptive capacity of forests in the face of future uncertainties. These span from expanding the sustained-yield, single-good paradigm to developing policy incentives and interventions that promote self-organization and integrated social-ecological adaptation.

Introduction

Today's forests cover about 30% of the global land area and provide essential ecosystem goods and services. Globally, forests face unprecedented biological, political, social and, climatic challenges (Table 1). Although forest management and restoration approaches have had a long history of responding to changing ecological and social conditions (Figure 1), they are increasingly failing to adapt to these unprecedented challenges (Puettmann *et al.* 2009; Messier *et al.* 2013). Recognizing that destructive harvesting practices would not sustain wood production, forestry developed as a scientific and management field in the 18th century in central Europe. Inspired by trends in philosophy, economics, and agriculture, newly developed rules and principles of forestry focused on improving timber or game production efficiency, mostly through homogenization and regulation. This

Table 1 Current and novel unprecedented biological, political, social, climatic global scale challenges facing forest management worldwide

Challenges	Examples
Current challenges stemming from past land uses and forestry practices	
Integration of divergent needs and interests of forest stakeholders in management planning. Greater public scrutiny of forest management practices	• Legal challenges to U.S. Forest Service management plans and practices • Open debate between conservation interests demanding strict forest protection and local forest users demanding access to forest resources worldwide
Environmental concerns resulting from conversion of land use to monospecific plantations and short rotation crops.	• Expansion of oil palm plantations on previously forested land in the tropics will reduce habitat for native species • Loss of species and genetic diversity in many regions, especially in Scandinavia, will lead to reduced resilience and adaptive capacity
Novel challenges emerging from globalization of trade and markets and rapidly changing climate and ownership patterns	
Developments in foreign countries influence local management due to globalization of markets and trade.	• Energy policies of the European Union influence forestry practices in the southeastern United States and other places by providing a new, attractive market for pellets • The Chinese economy impacts forest harvesting trends in the western United States, Canada, and Europe
Alteration of composition, function, and ecosystem services by invasive species.	• Spread of invasive emerald ash borer, woolly adelgid, gypsy moth, and many other exotic insects in North America from Asia and Europe due to increasing trading has led to changes in forest composition and carbon cycles • North American beaver in Southern Patagonia has resulted in deforestation and hydrological changes • Cogongrass inhibits pine regeneration in the Southeastern United States
Large-scale mortality due to unprecedented severe natural disturbances, including windstorms, fires, and native insect outbreaks due to climate change.	• Large windthrows in central Europe in the 1990s • Recent extensive bark beetle outbreaks in Western North America • Increased frequency of high severity forest fires in southwestern North America, southern Europe, Indonesia, and Amazonia • Expected increased wildfire risk in the Mediterranean area.
Climate change impacts on various components (flora, fauna, pests) of forest ecosystems	• Shift in the phenology of plants, herbivorous insects, and insectivorous bird • Decoupling host–prey and host–herbivore interactions
High investment costs and long term, uncertain incomes because of unpredictable markets result in land abandonment by forest owners	• Abandonment of timber plantations in Japan • Frequent turnover of ownership in United States • Lack of management interest and large scale changes in forest practices by small woodland owners in Europe
Increasing concentration of forest ownership and insecure land tenure	• Concentration to large ownerships by Real Estate Investment Trusts as timber companies divest themselves of their forestlands in the United States • Land grabs and land scarcity in developing countries

narrow single-good or objective, command-and-control approach has strongly influenced forest management practices on a global scale. They form the basis of a highly productive and efficient wood industry that is still prevalent in many parts of the world, especially, but not only, on the 30% of global forests which have "commodity production" as their primary designation (FAO 2010).

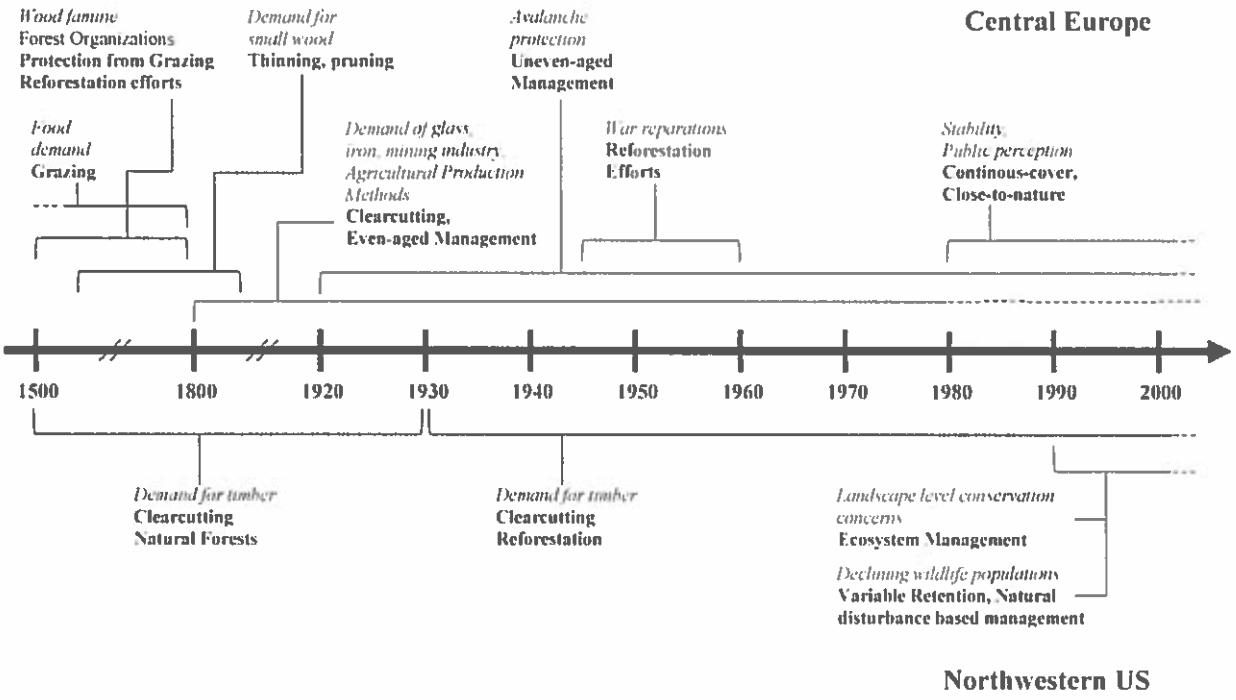

Figure 1 Diagram highlighting the major factors (in italics) influencing forestry and the associated development of management approaches and practices (in bold) in Central Europe (above) and North America (below). The figure is not a complete historical description, only major trends are listed. For a more detailed description of the historical development of forestry as related to social and economic factors, see Puettmann *et al.* (2009). Note that the *x*-axis is not to scale.

This top-down, centralized, one-size-fits-all approach reduces the range of variation and self-organization (i.e., process by which some form of global order or emergent properties arise out of local strong interactions) needed for the environmental, social, or economic system to adapt rapidly and efficiently to novel conditions (Holling & Meffe 1996; Messier *et al.* 2013). New forest management and conservation approaches have emerged in several places around the world to address local concerns and controversies (Figure 2). For example, early work on ecosystem management arose from a need to assess large-scale, landscape-level conservation goals. Uneven-aged management (Matthews 1989) and the more recent close-to-nature (Jacobson 2001) and continuous-cover forestry approaches (Pommering & Murphy 2004) put a heavy emphasis on optimizing the growth and value of individual trees (vs. stands) and maintaining the continuity of forest cover and ecosystem processes (Schütz 2001). Variable retention forestry in Canada, United States, northern Europe, Argentina, Chile, and Australia emphasizes the value of carrying diverse structural legacies such as live and dead standing trees and small patches of intact forest into postharvest, future stands and/or maintaining certain habitat characteristics to support selected species (Gustafsson *et al.* 2012). Natural-disturbance-based forest management in many northern countries (Harvey *et al.* 2002) and reduced-impact logging in the tropics (Putz *et al.* 2008) have similar goals; they design management practices that mimic their respective local natural disturbance patterns. Multispecies forest plantations (Paquette & Messier 2010) and restoration of degraded forests (Rodrigues *et al.* 2009) have also been used to bolster existing forest fragments as reservoirs for biodiversity and provide urgently needed ecosystem services.

These ecosystem-based approaches represent a step in the right direction, as they acknowledge the importance of biodiversity and the interactions of neighborhood-, stand-, and landscape-level processes. Reflecting local concerns and controversies about traditional management approaches, they also focus on a broader set of management goals (Messier *et al.* 2013; Figure 2; Table 2). Like traditional preindustrial and timber-production management approaches, however, these new approaches are not designed to handle the emerging challenges stemming from the increased uncertainty and rapid pace of social, climatic, and environmental changes (see Table 14.1 in Messier *et al.* 2013; Mori *et al.* 2013). First, they were initiated as a response to local problems

3

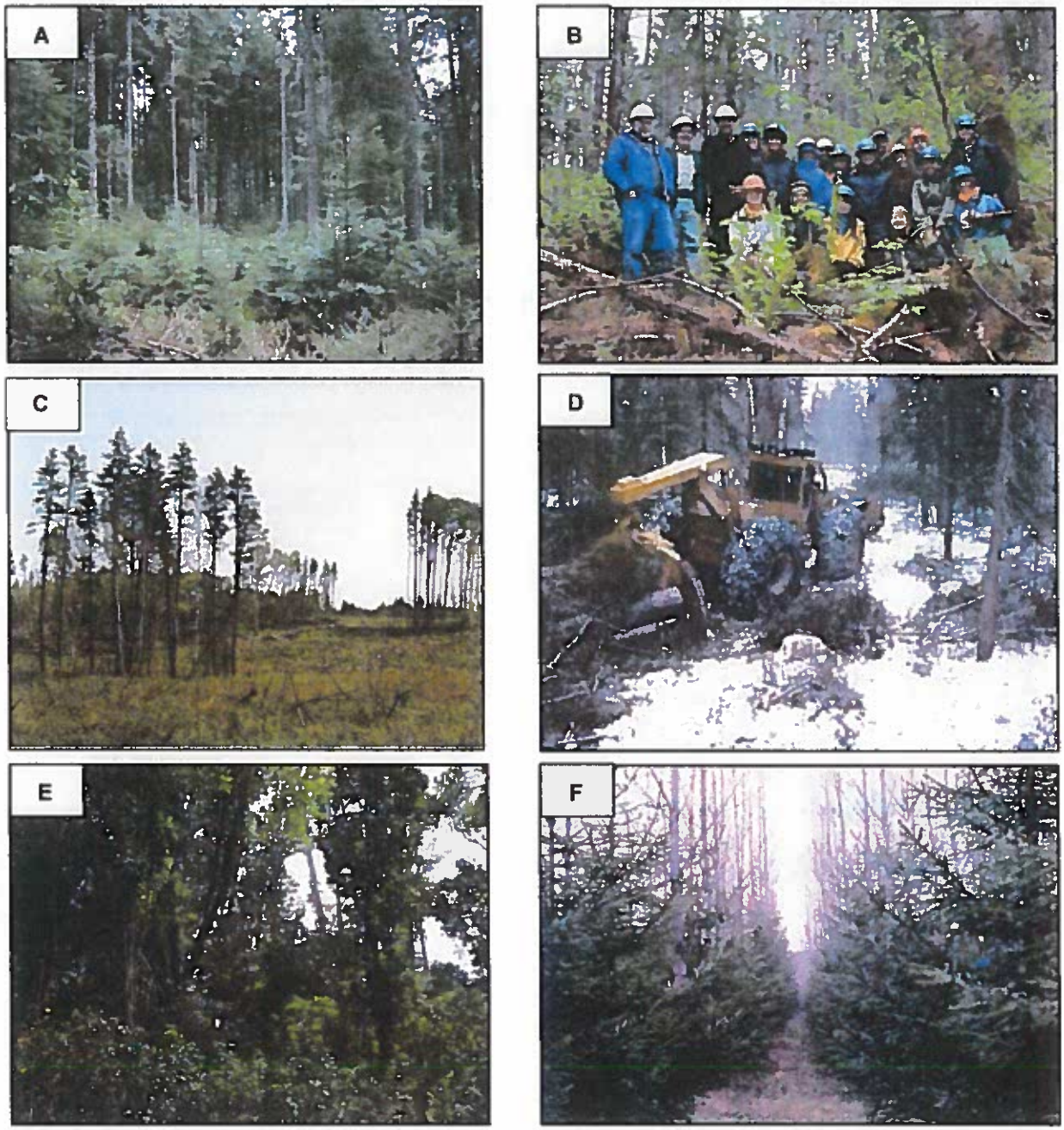

Figure 2 Examples of emerging ecosystem-based silvicultural approaches used in different parts of the world. (a) Close-to-nature forestry in Germany, which focuses on reduced human intervention through single tree management, (b) Thinning even-aged Douglas-fir stands in Oregon, United States, to increase small-scale spatial variability; (c) Variable retention forestry in the boreal forest of Canada to ensure life boating of sensitive species, (d) Partial cutting in a mixed-wood boreal forest of Canada designed to reflect natural disturbance-based forest management, (e) Natural regeneration of native species in the understory of a *Eucalyptus* plantation in Brazil as a way of restoring Atlantic Forest, and (f) Multispecies forest plantation of poplar and spruce in Canada to encourage both structural and compositional diversity (for a more detailed assessment of emerging management trends, see Messier *et al.* 2013)

Table 2 Comparison of traditional timber-based forest management, emerging new practices and the advocated new paradigm based on complexity theory. Changes from first to second column are mainly "patches" to traditional management, while changes from second to third column necessitate a paradigm shift where forests are seen as complex systems dynamically changing in response to global change

Traditional timber-based management	Emerging ecosystem-based management	Proposed new management approach based on complex adaptive system
Strong focus on timber	Strong focus on timber with an added concern for biodiversity	Focus on multiple ecosystem services and biodiversity
Sustained yield of a few tree species	Sustained yield of a few tree species and biodiversity	A new paradigm that integrates risk/flexibility/adaptability into scenarios of optimum yield level of various goods and services
Goal is to produce high yields of quality timber by simplifying forest structure and composition	Goal is to produce quality timber and maintain biodiversity by recreating some level of natural or previous conditions	Goal is to maintain the ability of the forest to produce quality timber and maintain biodiversity by favoring the capacity of the forests to adapt to the uncertain future conditions
Predictions about the future based on past conditions	Predictions about the future based on past conditions	Recognition of uncertainty in social, economic, and ecological future conditions and of the need to manage for adaptability
Management mainly at the stand scale	Management at both the stand and landscape scales	Management at multiple spatial and temporal scales that favor strong connection within patches and a mixture of among-patches connectivity and modularity
Management is based on viewing forests as inherently stable	Management recognizes the dynamic nature of forests	Management is based on the known dynamic and nonlinear nature of forests
Interventions to preclude self-organization and adaptation	Some self-organization and adaptation are tolerated	Interventions to promote self-organization and adaptation
Future harvesting projections based on models of timber yield and regeneration	Future harvesting projections based on ecosystem properties and forest regeneration	Future harvesting projections assess uncertainty and conditions leading to alternate steady states

and, as such, are "patches" to traditional management, i.e., they do not fully recognize the inherent uncertainty of the future and the need to promote adaptability instead of predictability. Consequently, they lack an underlying global scientific framework (Puettmann 2011), which makes it hard to coherently update them as new challenges and goals develop. Furthermore, these approaches are still rooted in the past forestry paradigm that sees forests and the goods and services forests provide as inherently stable and consequently focusses on the notion of an "optimal" forest structure and composition. This paradigm cannot be reconciled with the variability and uncertainty of both forest dynamics and the need for ecosystem goods and services such as wood and timber world markets under global change. For example, management practices designed to achieve specific stand structures or species compositions with a focus on specific wildlife habitats or historical disturbance regimes cannot necessarily be expected to improve the ecosystem's ability to adapt to a novel set of environmental conditions (Seastedt *et al.* 2008) or be able to respond to new wood markets and other novel social demands (Messier *et al.* 2013).

However, the "perfect storm" of unprecedented challenges facing both production- and conservation-oriented forestry (Table 1) now requires a new approach for the stewardship of the world forests. We propose that the limitations of traditional timber-based and emergent ecosystem-based forest management practices listed above indicate the need for and provide a unique opportunity to adopt a new, more scientifically coherent approach based on complexity theory (Table 2). Managing forests as complex adaptive systems (CAS) can provide a scientific foundation that not only acknowledges and accommodates uncertainty, but also helps production- and conservation-oriented forest managers and policy makers understand how ecosystems respond to change and how management can influence these responses. This understanding, achieved by viewing forests as CAS, is crucial to managing the novel ecosystems and

responding appropriately to the new needs for good and services arising from global changes.

The CAS approach

The CAS approach views forests as complex systems composed of heterogeneous assemblages of individual agents (e.g., trees, animals, humans) closely interacting through flows involving markets, goods and various other ecosystem services (Figure and Box 1 of Filotas *et al.* 2014). Such systems have been characterized by their level of regularity (a CAS being between totally ordered and totally disordered, *sensu* Parrott 2010), capacity to self-organize following disturbance, and nonlinear behaviors (Levin 2005). CAS thinking has inspired ways for improving ecosystem resilience (defined here as the ability of ecosystems to recover from disturbances) and adaptability (capacity of a system to modify itself following disturbances so they maintain their basic functions; Chapin *et al.* 2006; Parrott & Meyer 2012), but applications to forest stewardship are rare, despite the fact that recent discussions emphasize the need to view natural-resource management issues in the context of social–ecological systems (for review, see Levin *et al.* 2013). For example, Parrot & Meyer (2012) showed how the implementation by marine managers of five key actions arising from complexity science has helped increase the resilience and adaptability of a new national marine park in the St Lawrence estuary in Quebec, Canada.

The main goal of this new approach should be to maintain or increase the adaptive capacity of forest ecosystems, including interactions between the natural and the human components, facing rapidly changing conditions. Adaptive capacity refers to the ability of the system to modify its structure and composition under changing social and ecological conditions without losing its essential functions (Gunderson 2000). In a forest restoration and management context, this may be the ability of forests to respond to changing host–pest interactions and climatic conditions, while at the same time continue to provide essential ecosystem services to society, such as wood in a global changing market, and to support habitats for native biodiversity (Puettmann 2014). The idea of the adaptive capacity of forest ecosystems does not receive adequate attention when the emphasis of environmental policies and "command and control" management is on optimal stand structures and composition or the production of a single good or service (e.g., wood, recreation, or water). In contrast, focusing on maintaining the adaptive capacity of forest ecosystems in the context of rapid and uncertain global socioenvironmental changes provides the best assurance that forests will continue to provide a full set of goods and services in a variable and uncertain future, including timber production, carbon storage, water quality, biodiversity, disease regulation, and maintenance of climate and soil properties.

What are the basic tenets of this new approach and how can it help managers and policy makers improve the overall resilience and adaptability of forest ecosystems facing an uncertain future? A set of general principles based on the various properties of CAS applies across the world's biomes and systems, although the application of these principles may differ significantly among regions, landowners, and even stands depending on local ecological, social, and economic conditions. These principles have in common the added emphasis on maintaining or increasing the adaptive capacity of ecological and social systems in the face of future uncertainties (Chapin III *et al.* 2010).

(1) *Replace the sustained single good or objective-yield paradigm with one that integrates risk/flexibility/adaptability into scenarios of sustained provision of various goods and services.* In most wood-production-oriented forest management plans, wood supply is the only good quantified and simulated and the objective is to maintain a constant flow over a long period of time without acknowledging the high degree of future uncertainty. Similarly, in most conservation-oriented forest management plans, the objective is to maintain or restore the forest to a certain ideal condition, again without acknowledging future uncertainty. This principle thus precedes all of the others and is necessary to allow this new paradigm to move forward. Certain forest jurisdictions in the world have begun to implement this principle. For example, in Flanders (Belgium), the current integrated forest management strategy does not indicate an optimal level of wood production to be maintained over the long term, but instead focuses more on flexibility, diversity, and opportunity in terms of various goods and services provided by the forest (B. Muys, personal communication). In the Mediterranean, managing for timber production alone is often uneconomical so forest managers and policy makers are slowly moving toward a more flexible approach that includes considerations for the provision of various nontimber goods and services, leading to much more flexibility in the forest management scenarios being considered (Messier *et al.* 2013). Although not fully based on the CAS approach, these jurisdictions have made a crucial first step in providing a more flexible long-term view of sustainability. As far as we know, the CAS approach is not being comprehensively applied

anywhere yet, in part because it also requires flexibility and adaptability in terms of human demands and expectations. Human communities that interact closely with forests, often depending on them for their livelihoods, must be able to adapt to variability in timber supply and other goods and services obtained from the forest.

(2) *Consider the taxonomic and functional diversity (i.e., range of ecological functions that organisms support in communities and ecosystems) of the tree species pool in terms of its ability to maintain a balance between diversity and redundancy and provide desired ecosystem goods and services in an ever-changing biological and social environment.* Focusing on building adaptive capacity shifts the decision matrix and emphasizes the diversity of functions that enable the community to better adapt to rapidly changing conditions. Fostering such a diversity of functions enables forestry operations to adapt to changes in market conditions, such as new manufacturing technologies, building or product standards, and consumer preferences. Functionally diverse, mixed-species stands support species with different biotic and abiotic sensitivities and recovery mechanisms following disturbances, thus ensuring the ability of ecosystems to self-organize, increasing their adaptive capacity. Novel approaches in financial theory and management science can facilitate the integration of such responses into forest growth and yield models (Knoke & Wurm 2006; Knoke *et al.* 2008) and thus facilitate the development of environmental policies and management practices that emphasize adaptive capacity when choosing species mixtures. Higher tree species diversity has also been shown to produce higher levels of ecosystem services (Gamfeldt *et al.* 2013). At the same time, there is growing evidence that diversity of species, management approaches, and products can promote the long-term sustainability of socioecological systems by increasing their resilience and adaptability (Chapin III *et al.* 2009).

(3) *Promote an optimal balance among modularity (i.e., the extent to which a system can be divided into independent units) and connectivity at multiple scales.* Ecosystems respond to changes at the full range of organizational levels, from somatic, epigenetic and genetic, to population, community, and landscape levels. Moreover, responses at each level interact with those at other levels, illustrative of the cross-scale hierarchical interactions typical of complex systems. Viewing management effects at different organizational levels and recognizing interactions among them will provide insight into potential positive or negative effects on self-organization pathways. Such an approach has been instrumental in bringing about changes to management strategies in the Bois-Francs region in southern Quebec (Canada) (Craven *et al.*, in preparation). For this region, a group of researchers used a CAS approach to evaluate (1) possible future socioenvironmental threats, (2) the main current and future ecosystem services, (3) the spatial distribution and functional diversity of all tree species and their possible responses to anticipated threats, and (4) the connectivity and modularity (i.e., organized subunits that interact to influence system behavior) of the forest landscape. The forest management plan produced under this new paradigm focuses on key interventions to preserve functionally diverse and connected forest patches, thus increasing adaptive capacity, reducing the likelihood that the ecosystem will shift to an undesirable state in the future due to unprecedented socioenvironmental conditions.

(4) *Plan and assess interventions across a range of spatial and temporal scales, e.g., from plant neighborhoods to landscapes.* Adopting multiscale assessment procedures reduces the emphasis on an "optimal" stand structures and thus allows for a wider variety of acceptable stand structures, which in turn allows plant neighborhoods, stands, or groups of stands to act as independent interacting objects facilitating a CAS approach. A holistic multiscale assessment enables a deeper understanding of how a variety of organizations—human and biological—operating at different spatial and temporal scales may contribute to more effective managements. For example, a comparative study on the mixed outcomes of forest governance among local governments in Latin America found that localities that were well-connected to governance organizations at multiple spatial scales (provincial, regional, national) performed significantly better than systems without such cross-scale linkages (Andersson & Ostrom 2008).

(5) *Plan and develop long-term scenarios using new analytical tools and models that specifically acknowledge the prevalence of highly uncertain social, economic, climatic, and ecological conditions.* Incorporating uncertainty into management will require new models and tools, such as scenario analysis (Peterson *et al.* 2003), real options (Dixit & Pindyck 1994), and sensitivity analyses (i.e., planning, economic, and assessment approaches that incorporate uncertainty of future conditions, respectively). We know that social, economic, climatic, and ecological conditions 100 years from now will be unlike current or past conditions. Changing conditions must be anticipated rather than simply acknowledged as they occur because a reactive approach may be ineffective or detrimental

when dealing with long-lived organisms such as trees. This is probably the most pressing issue facing forest managers and policy makers today. Some cases will likely require conscious interventions to create a future forest structure and composition that increases resilience and adaptability to novel conditions such as a changing climate and invading exotic pests (Levin 2003; Hobbs *et al.* 2006).

(6) *Increase involvement of local communities and other stakeholders to ensure that future forests are better aligned with the needs and preferences of local people.* Recent developments in land trusts and community forests highlight the benefits of local involvement in forest management decisions. Advantages of such involvement include a broader base of policy support and enhanced forest benefits to local communities. Such efforts are becoming more common and are now acknowledged under the label "community forestry." Successful examples (e.g., the Kalso & District Community Forests in British Columbia, Canada) have even used community involvement to understand and integrate uncertainty into management plans through scenario analysis (see above). When local forest users actively participate in forest governance, the likelihood of achieving both biodiversity conservation and improved livelihoods is increased significantly (Persha *et al.* 2011). Furthermore, the involvement of local people who interact directly with forest resources increases the number of feedback linkages between human and natural systems and the speed of such feedbacks, which are essential components of adaptive management (Holling 1978) and sustainable resource use (Ostrom 2009).

(7) *Allow social–environmental systems to self-organize and adapt to novel biological, environmental, and social conditions.* Chapin *et al.* (2006) suggest four elements to achieve self-organization and adaptation in social–environmental systems: (1) foster human adaptability through learning and innovation, (2) enhance resilience by strengthening negative feedbacks that buffer the system against change, (3) reduce vulnerability by reducing negative anthropogenic impacts, and (4) facilitate transformation when current conditions can no longer be maintained. These replace the timber-based management paradigm in forestry (Holling & Meffe 1996) with an approach where interventions are minimized and aimed at facilitating bottom–up developments, inherent to complex systems, to maintain adaptive capacity while providing desired goods and services.

We recognize that many powerful forest management interests do not acknowledge an urgent need to change operating premises as they have profited well from current and past practices. Given the array of new challenges faced by forest managers (Table 1), these profits will likely not be sustained in the future without recognition of the features that enable forest ecosystems and the forestry sector to persist and adapt to rapidly changing conditions. Complex systems thinking views forests and their social–environmental systems as dynamic, nonlinear, self-organizing, open systems that are constantly changing and adapting. This approach appears to be our best option to ensure future sustainable provision of ecosystem goods and services through the creation of diverse, heterogeneous, resilient, and adaptable forest ecosystems.

Implementing these changes will not be easy; they require policy changes and interventions in the economic, political, and social arena. In this article, we discussed the following: (1) modifying current regulations and laws to redefine the concept of the sustainability of forest goods and services in light of uncertain and rapidly changing future conditions; (2) broadening the stakeholder base in decision making so that a more varied portfolio of good and services is considered and modelled; (3) monitoring a broader set of ecosystem services and promoting markets for these as financial incentives; (4) modernizing economic approaches to better reflect risks and diversifying forest products to reduce reliance on single species; and (5) integrating risk and uncertainty into management prescriptions, e.g., through scenario analysis exercises. Such policy changes would result in altered silvicultural treatments and management approaches. For example, recommendations number 4 and 5 would result in focusing reforestation efforts for restoration or production on tree species that are functionally complementary and redundant to those already present in the region to increase the resilience and adaptability of the forest to future uncertain conditions. These recommendations also highlight that a CAS view of forests, including the forestry sector, can be applied to forest management in a variety of settings. Changes in environmental policies and associated economic assessments that acknowledge future variability and uncertainty can result in economic and other incentives to landowners or forest managers seeking to apply approaches like those described here. We view it as critical that policy makers and production- and conservation-oriented forest managers work toward developing these initiatives.

Acknowledgments

We are grateful for the feedback and comments of many graduate students and colleagues (Fernando Valladares,

Madhur Anand, Tim Work, Frédéric Raulier, Patrick James, and Isabelle Aubin) of the Forest Complexity Modelling (FCM) program funded by the Natural Sciences and Engineering Research Council of Canada (NSERC). This research was supported by the Marie Curie IRSES Newforests Project (EU-FP7–612645).

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Hello Richard (aka Ricky),

Yes, the issue about what to tree species to plant is one that is ripe for opinions and judgments to rule the day. The absolute truth that we deal with as foresters and natural resource managers is the truth that comes from nature. In nature, we find that diversity is the key to a well-functioning system. In fact, several papers demonstrate that ecosystem services increase with increased diversity. I've attached a paper for you to consider on this topic. The paper addresses resilient forested systems and proposes that the best we can do for forest integrity is to promote species diversity. One line that sticks out to me is: 'this top-down, centralized, one-size fits all approach reduces the range of variation and self-organization needed for the environmental, social, or economic system to adapt rapidly and efficiently to novel conditions.'

If more information is needed, I would be happy to provide it. However, the academic journals are teeming with information that supports the same bottom line: diversity is key for well-functioning forests.

Thank you,

Mark A. Kroeze, CF, CA |Community Forester
Texas A&M Forest Service |15110 Jones Maltsberger |San Antonio, TX 78247
C: 210-859-9253 O: 210-494-4771 mkroeze@tfs.tamu.edu

TEXAS A&M FOREST SERVICE

Helping communities develop sustainable programs that provide Texans with healthy trees and forests.

Hello Richard,

Balance plays an important role in nature. Urban environments are highly managed, but it's important for humans to remember to mimic nature to the best of their abilities. One important concept that we follow in urban forestry is biodiversity. One guideline is the 30-20-10 rule, no more than 30% of a family of trees, no more than 20% of a genus of trees, and no more than 10% of a species of trees. This concept of biodiversity should be spread out to tree size and age as well. Every city should have mature trees that are small (less than 20 feet tall, which can be planted underneath power lines), medium size trees (20-40 feet), and large trees (40+ feet tall). This creates a great diversity in structure. Another important concept is tree age. Some trees, like pears and redbuds, typically have a shorter life span (20-40 years) than other trees, but their small stature allows them to be planted in smaller spaces. A pro-active city should have an urban forestry master and/or management plan that addresses these issues. Again, biodiversity is an important concept that expands from species, to size, to age, that is a vital concept to a healthy urban forest.

Thank You,

Brad Hamel

Central Texas Regional Urban Forester
Texas A&M Forest Service
6330 Hwy 290 E., Suite 115
Austin, TX 78723

" Helping communities develop sustainable programs that provide Texans with healthy trees and forests."

Joe and Richard, I agree wholeheartedly with Joe's comments. I would hate to see the Redbud be dropped from use on City property or in use. I think this is being driven by one person's personal felling toward a specie. It is native and in the right site can be a spectacular specimen. The biggest problem as you all know is trying to fit it in locations that are not the best.

I am always concerned when we start limiting the pallet of species to choose or at the other end of the spectrum, try to fit one specie in every location. When the City limits a specie choice, that drives down the biodiversity of our tree canopy. Folks must realize AND accept that not all trees live long years. Some species are pioneers and must be removed at the point of decline. That will promote the biodiversity we need with the urban forest.

I think that is one of the issues that came up with listing species in the Charter amendment. By limiting the choice of specie to a set of personal preferred species, it rejects ALL other choices. Those preferred choices, may or may not be available from commercial nurseries. I think we should accept any specie as long as they are not invasive. Even then one can argue as to what Invasive list is used. An example is Bottlebrush (*Melaluca* sp.) or Tree-form Ligustrum (*Ligustrum lucidum*) . Both can be found on an Invasive list but neither are invasive here in North Florida. Another quick example is Carolina Laurel Cherry (*Prunus caroliniana*), it is completely invasive but does pioneer a site with a fast growing evergreen.

Okay, that's my two cents from the "old man with the history lesson".

Thanks to both of you,
Mike Robinson

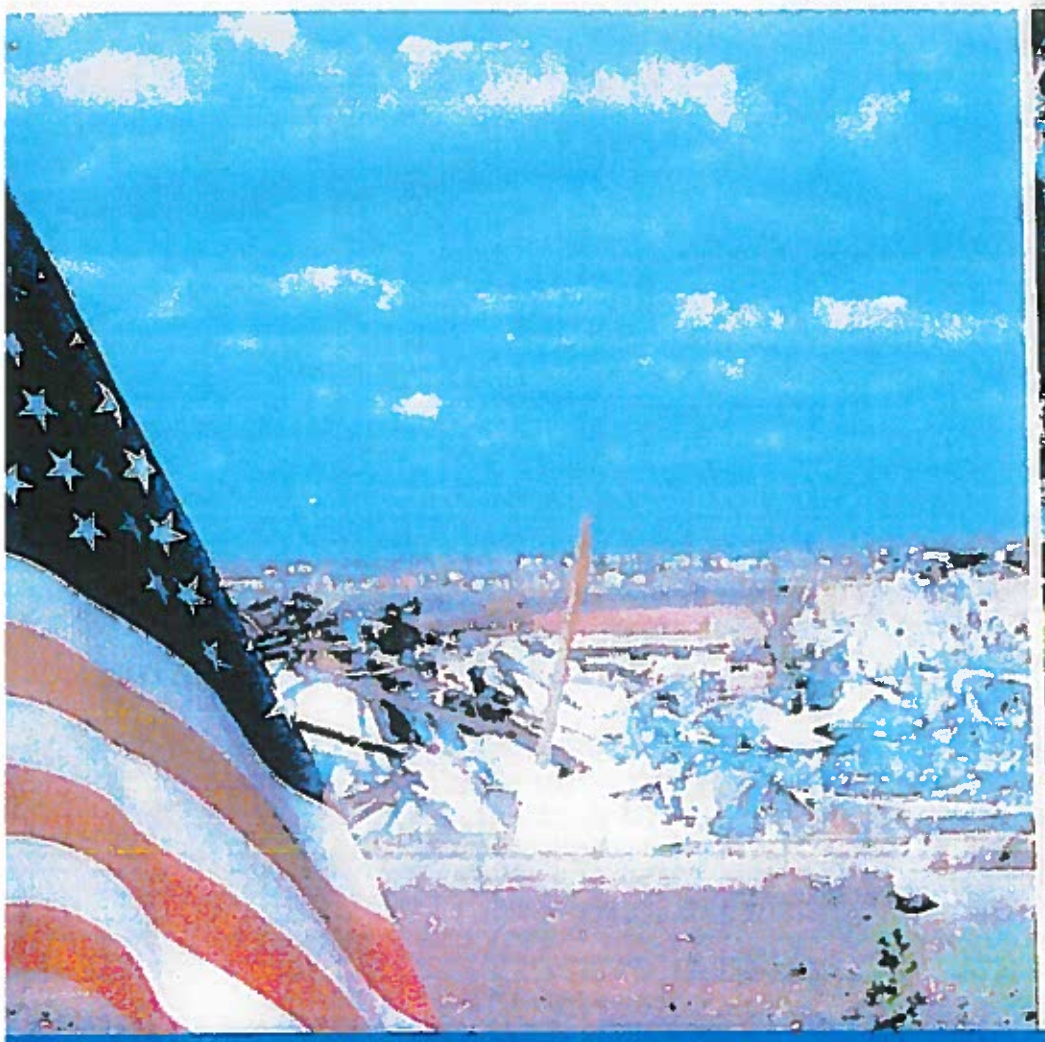
Hello Richard,

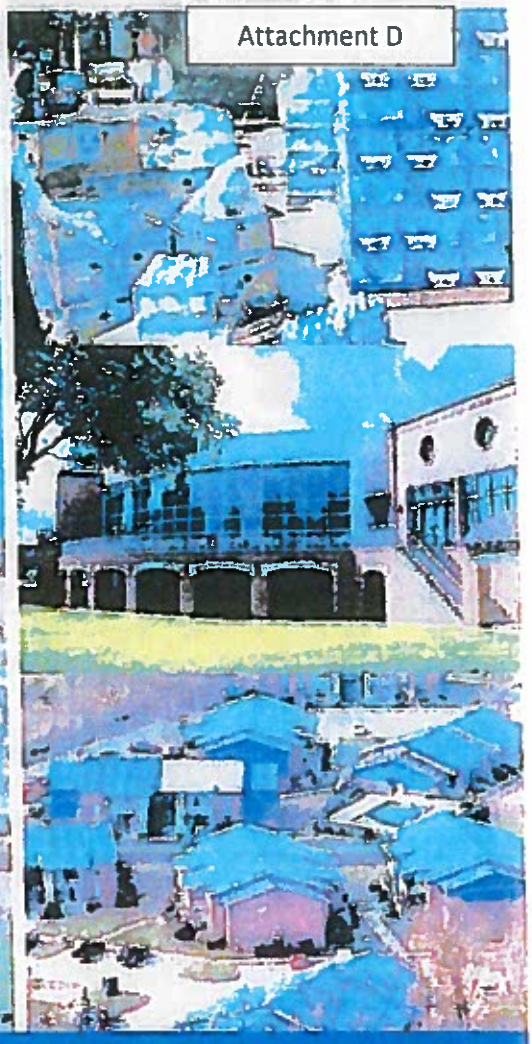
John Crescimbeni's concerns about the COJ's ROI when planting trees with shorter life spans may have merits in general and in regards to economics, but I would hate for COJ to adopt a policy that would reject the Eastern redbud (Cercis canadensis), for example, from adorning our municipal right-of-ways. The redbuds will start their showy blooms in the next few weeks. Without a doubt, they can speak for themselves, but when incorporated into municipal plantings with larger, longer-lived trees, the smaller, understory trees can be a real "value added" to investment costs. In our urban streets and byways, sometimes, a smaller, short-lived tree is the best option.

As an aside, with regards to old men like myself, I'll be lucky if I have the life span of a redbud left in me; therefore, sometimes, when planting a redbud (relatively short-lived) you'll be planting a tree for a lifetime – or perhaps a remaining lifetime.

Power On,
Joe Anderson – JEA Forester

Attachment D





Public Assistance Program and Policy Guide -

FP-104-009-2 / January 2018

FEMA

(c) Alternative Procedures Project

If FEMA approves an Alternative Procedures Project for a facility for which it also approved temporary relocation of the services to a temporary facility, continued PA funding for the temporary facility is dependent upon the SOW of the Alternative Procedures Project.

6. Disposition of Original Facility

For Alternate and Alternative Procedures Projects, if the Applicant does not repair, replace, or sell the damaged facility for which the capped project funding was based, and that facility is unsafe if not repaired, the Applicant must render the facility safe and secure (e.g., by restricting access, locking doors and windows, constructing a fence around the property) or demolish it.

If the Applicant receives funds for salvaged components of the facility, FEMA adjusts the capped project by the value or anticipated fair market value of salvaged materials less the estimated costs necessary to demolish the facility, grade the site, or make the facility safe and secure.

For any action at the original site, such as demolition, that is completed using PA funds, FEMA must conduct an EHP review. However, if the Applicant completes the work at the original site using non-PA funds, a FEMA EHP review is not required.

If the Applicant opts to keep a damaged facility for a later use, the facility may be eligible for PA funding in future incidents, provided the Applicant repaired the facility in accordance with current codes and standards, and completed any mitigation measures that FEMA included in the original SOW prior to the incident.

H. Eligibility Considerations by Facility

This section details the types of facilities captured within each category of work along with specific eligibility criteria related to one or more of the facilities within each category. See Appendix K: Work Eligibility Considerations by Type of Facility, for a summary of eligibility by facility type.

1. Roads and Bridges (Category C)

Roads may be paved, gravel, or dirt. Road components include, but may not be limited to:

- Surfaces
- Bases
- Shoulders
- Ditches
- Drainage structures, such as culverts
- Low water crossings
- Associated facilities, such as lighting, sidewalks, guardrails, and signs

Bridge components include, but may not be limited to:

- Decking
- Guardrails
- Girders
- Pavement
- Abutments

- Piers
- Slope protection
- Approaches
- Associated facilities, such as lighting, sidewalks, and signs

Permanent Work to restore roads and bridges is eligible unless restoration is under the specific authority of another Federal Agency such as FHWA. However, for Tribal Governments specifically, although BIA or FHWA may have authority to provide permanent restoration of public Tribal roads, such roads may be eligible for PA funding provided the Tribal Government does not receive funding from BIA or FHWA for the same work.

FHWA has authority to restore public roads under the Emergency Relief (ER) Program[288]. Roads that are eligible for ER assistance are identified as Federal-aid routes, which include highways on the Federal-aid highway system and all other public roads not classified as local roads or rural minor collectors. The ER Program is activated separately from Presidential declarations under the Stafford Act and may not be activated for all incidents. Federal-aid routes are not eligible for Permanent Work even if the ER Program is not activated or if the program is activated but FHWA does not provide funding for the work. FHWA also has authority to assist with restoration of transportation facilities under the Emergency Relief for Federally Owned Roads Program (ERFO).[289]

Private roads, including homeowners' association roads, are not eligible. However, roads owned by a Tribal Government may be eligible even if they are not open to the general public.

Work to repair scour or erosion damage to a channel or stream bank is eligible if the repair is necessary to restore the structural integrity of an eligible road, culvert, or bridge. Earthwork in a channel or stream embankment that is not related to restoring the structural integrity of an eligible facility is not eligible.

Maintenance

The incident may cause minor damage to roads that result in damage similar to that which may occur over time from other causes, such as the age of the road, traffic flow, and frequent rain. Therefore, distinguishing between pre-existing damage and damage caused by the incident is often difficult. For the repair of this type of damage to be eligible, the Applicant must demonstrate that the damage was directly caused by the incident.

When evaluating eligibility of reported road damage, in addition to evaluating how the incident caused the damage, FEMA reviews maintenance records or documentation establishing that the Applicant has a routine maintenance program. In the absence of maintenance records, FEMA reviews material purchase invoices and activity logs and inspects other sections of the Applicant's road system to confirm the performance of normal maintenance activities.

Normal maintenance is not eligible. Work to repair potholes or fatigue cracking is generally ineligible as this type of damage is rarely caused directly by one incident.

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[288] http://www.fhwa.dot.gov/programadmin/erelief.cfm.

[289] http://flh.fhwa.dot.gov/programs/erfo/.

2. Water Control Facilities (Category D)

Water control facilities are those facilities built for the following purposes:

- Channel alignment
- Recreation
- Navigation
- Land reclamation
- Irrigation
- Maintenance of fish and wildlife habitat
- Interior drainage
- Erosion prevention
- Flood control
- Storm water management

They include:

- Dams and reservoirs
- Levees and floodwalls
- Lined and unlined engineered drainage channels
- Canals
- Aqueducts
- Sediment and debris basins
- Storm water retention and detention basins
- Coastal shoreline protective devices
- Irrigation facilities
- Pumping facilities
- Navigational waterways and shipping channels

(a) Restoring the Capacity of Channels, Basins, and Reservoirs

Restoring the pre-disaster carrying or storage capacity of engineered channels, debris and sediment basins, storm water detention and retention basins, and reservoirs may be eligible, but only if the Applicant provides documentation to establish:

- The pre-disaster capacity of the facility; and
- That the Applicant maintains the facility on a regular schedule.

If the Applicant chooses to remove non-incident-related material along with that deposited as a result of the incident, the project is considered an Improved Project.

Documentation Supporting Pre-disaster Capacity

Survey data that is either *recent* or covers a multi-year period such that FEMA is able to determine the amount of new material reasonably attributable to the incident.

Documentation Supporting Regular Maintenance

Written maintenance plan and/or activity logs documenting regular intervals of activity. Applicant logs documenting clearance of blockages in response to resident complaints are not sufficient to substantiate a regular maintenance schedule.

(b) Flood Control Works

Flood control works are those structures such as levees, flood walls, flood control channels, and water control structures designed and constructed to have appreciable effects in preventing damage by irregular and unusual rises in water levels.

Generally, flood control works are under the authority of USACE or NRCS and restoration of damaged flood control works under the authority of another Federal agency is not eligible.

Secondary levees riverward of a primary levee are ineligible, unless the secondary levee protects human life.

3. Buildings and Equipment (Category E)

Buildings, including:

- All structural and non-structural components, including mechanical, electrical, and plumbing systems
- Contents and equipment within the building
- Furnishings

Equipment includes:

- Vehicles
- Construction equipment

Repair or replacement of buildings and equipment is eligible.

(a) Buildings

For buildings and building systems, distinguishing between damage caused by the incident and pre-existing damage may be difficult. Before making an eligibility determination, FEMA considers each of the following:

- The age of the building and building systems
- Evidence of regular maintenance or pre-existing issues, such as water damage from a leaky roof
- The severity and impacts of the incident

Mold remediation and removal of mud, silt, or other accumulated debris is eligible as Permanent Work when conducted in conjunction with restoration of the facility.

Earthquake Damage to Welded Steel Moment Frame Buildings

FEMA has specific eligibility criteria for evaluating and repairing earthquake damage to buildings constructed with welded steel moment frames. FEMA bases the eligibility criteria on *Recommended Post Earthquake Evaluation and Repair Criteria for Welded Steel Moment Frame Buildings* (FEMA 352).[290]

The repair of the damaged frame connections to pre-earthquake design in accordance with FEMA 352, Chapter 6, is eligible, but only if FEMA approves a specific SOW for the repairs

[290] http://www.fema.gov/media-library/assets/documents/747.

prior to the Applicant performing the work. Repair of the architectural finishes and fire retardants removed in the area of the damage are also eligible.

(b) Equipment and Supplies

Repairing damaged—or replacing destroyed—equipment and supplies with the same number of equivalent items is eligible.[291] Equivalent items are similar in age, condition, and capacity.

The Applicant may replace equipment or supplies with different items used for the same general purpose. However, FEMA caps the eligible cost at the estimated amount for items equivalent to those damaged.

When equipment is not repairable, FEMA uses "blue book" values or similar price guides to estimate the eligible cost.

When a used item is not reasonably available (within a reasonable cost, time, or distance) or does not meet applicable national consensus standards, the purchase of a new item with similar capacity is eligible.

If the cost to replace the item is less than the cost to repair it, FEMA limits PA funding to the replacement cost.

Terminology

Consensus standards are standards that have been adopted by a nationally recognized standards-producing organization.

(c) Files

Eligible activities associated with the recovery of files include, but are not limited to:

- Recovery of damaged hard copies
- Stabilizing the damaged hard copies
- Sanitizing damaged hard copies
- Photocopying or scanning damaged hard copies to re-establish files
- Recovering data from water-damaged computer hard drives

Recovery of damaged hard copies includes labor and materials, such as bags, boxes, and containers. Stabilizing damaged hard copies includes freeze-drying. Photocopying or scanning includes labor and materials such as new folders and paper.

Not all activities are eligible. Examples of ineligible activities include:

- Establishing new information databases
- Manually entering data that was lost in damaged computers

Terminology

A **reagent** is a substance used in a chemical reaction to detect, measure, examine, or produce other substances. Some reagents are very common and available for purchase from commercial sources.

A **specimen** is a portion or quantity of material for use in testing, examination, or study, including blood plasma and flesh tissue.

A **specimen collection** is a repository of specimens related to biomedical, marine, or agricultural research.

[291] 44 CFR § 206.226(h).

- Scanning re-established hardcopy files into computers to create digital files
- Deciphering photocopies of damaged hard copies

(d) Research-Related Contents

Reagents and specimen collections are eligible for replacement based on the following criteria.

The number of units of each reagent eligible for replacement is equal to the number actually lost OR to the number necessary to restore basic research activity, whichever is less.

FEMA reimburses the purchase price from commercial sources or other institutions, whichever is less. The replacement of reagents that are so unique that they are considered an outcome of a research program is not eligible.

Replacing a representative, but not necessarily a whole portion, of a specimen collection may be eligible. To be eligible for replacement, the specimen types should be available for purchase from commercial sources or other institutions and support an ongoing eligible educational or medical program.

(e) Animals

Animals housed or exhibited in an eligible facility are eligible for replacement with the same number of comparable animals if they are:

- Injured to the extent they are no longer able to function for the intended purpose
- Killed
- A destroyed specimen
- A damaged specimen that is not recoverable

The animal is not eligible for replacement if a comparable animal is not available for purchase or the Applicant is unable to obtain a comparable at a reasonable cost.

Eligible animals may include, but are not limited to:

- Police animals
- Trained and certified rescue dogs
- Animals in museums, zoos, or publicly owned nature centers
- Fish in fish hatcheries
- Taxidermy specimens
- Animals used by rehabilitation facilities as part of diagnosis or treatment
- Laboratory animals used in an active research program

Terminology

A taxidermy specimen is an animal that has been preserved and mounted in a lifelike representation.

The replacement of animals on loan to an eligible facility at the time they are destroyed is eligible if the Applicant is able to provide documentation that establishes legal responsibility.

Additionally, FEMA may provide PA funding for actions taken to save the lives of these animals as a Category B emergency protective measure.

Determining Costs

The estimated cost to replace an animal is usually determined through market surveys. Costs associated with acquiring donated, loaned, or wild animals as replacement animals are eligible provided they do not exceed the estimated cost of purchasing a comparable animal.

When a destroyed animal is replaced through a donation or loan of a comparable animal, costs associated with the purchase of another comparable animal are not eligible.

For laboratory animals, eligible costs associated with replacement include, but are not limited to, the replacement cost of a laboratory animal that is as genetically close as possible to, but does not exceed, the genetic progression of the lost animal AND can be reasonably procured commercially. If an identically genetic animal is not available, the eligible cost is based on a readily procured animal that is as genetically close as possible to the original animal. The Applicant, using its scientific research staff, an independent member of the scientific community, or a certified expert, needs to make reasonable decisions on the genetic likeness of the replacement lab animals.

Ineligible costs associated with replacing laboratory animals include:

Terminology

Archives are materials created or received by a person, family, or organization, public or private, and preserved because of the enduring value they contain, or as evidence of the functions and responsibilities of their creator, especially those materials maintained using the principles of provenance, original order, and collective control.

Accession is formal process used to legally accept and record a specimen or artifact as a collection item.

A **catalog** is a full record of information specific to an item and cross-referenced to other records and files, including identification and documentation of the material.

Stabilization is a series of treatment measures intended to maintain the integrity of a collection or object and to minimize deterioration. It involves the minimum steps necessary to return a collection or object to a condition in which it can function in the same capacity as it did prior to the disaster.

Conservation is the preservation of a collection or object for the future. Conservation activities include examination, documentation, treatment, and preventive care, supported by research (e.g., scholarly and technological, x-rays, paint sampling) and education.

Special library collections typically include unique, rare printed books, first editions (often author-signed), manuscripts, archives, artifacts, photos, engravings, graphics, music, and ephemera, as well as limited edition print runs of special collections of maps or other important topics.

- The cost of reproducing a new animal with all the characteristics of the lost animal to re-establish research
- The cost of using a laboratory to perform a breeding program to advance benchmark stock to the genetic changes lost because of the incident
- The cost associated with surgery required to replace a surgically altered animal
- The cost associated with the replacement of a laboratory animal when an animal of similar genetic characteristics can be obtained at no cost from other researchers or institutions

If the Applicant requests, and the Recipient approves, other than in-kind and exact number of replacement animals, FEMA caps the Federal share based on the estimated in-kind replacement costs.

(f) Irreplaceable Collections and Individual Objects

Collections and individual objects are artifacts, specimens, artworks, archives, public records, and other items that are often considered irreplaceable because of their artistic, educational, historic, legal, scientific, or social significance. They are nonliving and, therefore, do not include animals or plant material, and are usually one-of-a-kind. Eligible collections and individual objects may be in storage or on display in a public or PNP facility and may include items located outdoors, such as sculptures and public art installations.

Stabilization of damaged collections or individual objects is eligible. Stabilization is a series of treatment measures to maintain the integrity of a collection or object and to minimize deterioration. Stabilization involves taking the minimum steps necessary to return a collection or object to a condition in which it can function in the same capacity as it did prior to the incident. This includes:

- Treating damaged items through proper environmental controls, such as temperature and humidity; and
- Chemical or mechanical cleaning to stabilize items to prolong their existence, maintain their integrity, and minimize further deterioration from the damaging effects of the incident.

Additional treatment beyond stabilization is eligible if it is necessary to maintain the integrity of the collection or object and return it to its pre-disaster function.

In some cases, costs associated with restoring an item to pre-disaster—but not original—condition may be eligible. For example, repairing a tear in a painting that was a direct result of the incident may be eligible, whereas costs to remove signs of pre-disaster aging, such as layers of old varnish, are not eligible.

Costs associated with the development of a treatment plan for a damaged collection or individual object are eligible.

Treatment is conducted by qualified conservation professionals with the appropriate specialty and in accordance with the American Institute for Conservation of Historic and Artistic Works Code of Ethics and Guidelines for Practice.[292]

FEMA, in consultation with the Recipient and Subrecipient, may recommend no treatment when non-intervention best serves to promote the preservation of damaged items.

Collections and individual objects damaged to the extent that stabilization is not practicable or possible are considered destroyed. Replacement of destroyed collections or individual objects is not eligible.

Restoring materials, equipment, and exhibition furnishings associated with the

Documentation Supporting Classification as Collection or Individual Object

Generally, documentation of collections and individual objects include accession, catalog, and inventory documentation. Subrecipients should submit all associated documentation along with a clear title to all items.

[292] http://www.nps.gov/training/tel/Guides/HPS1022_AIC_Code_of_Ethics.pdf.

storage, display, preservation, or exhibition of collections and individual objects is eligible. These may include, but are not limited to:

- Equipment regulating temperature or humidity
- Exhibit panels
- Models
- Video and audio equipment

(g) Library Books and Publications

Replacement of damaged or destroyed library books and publications is eligible based on the pre-disaster inventory of the quantities of the books and publications. Re-shelving, cataloging, and other work incidental to the replacement of library books and publications is also eligible.[293]

However, special library collections, including rare books, manuscripts, and other fragile materials, are only eligible for treatment, not replacement.

4. Utilities (Category F)

Utilities include:

- Water storage facilities, treatment plants, and delivery systems
- Power generation, transmission, and distribution facilities, including, but not limited to, wind turbines, generators, substations, and power lines
- Natural gas transmission and distribution facilities
- Sewage collection systems and treatment plants
- Communication systems

(a) Right-of-Way Clearance

The Applicant may need to clear its ROW to obtain access to repair a utility. It is the Applicant's responsibility to maintain its ROW. FEMA may fund limited clearance of disaster-related debris from the ROW to enable access to the facility. Additionally, if trees in the vicinity of the facility were damaged by the incident and an arborist confirms that the trees cause an immediate threat of further damage to the facility (e.g., overhead power lines), FEMA may provide PA funding to remove those trees. Any further clearance of debris in the ROW is not eligible for FEMA funding.

(b) Conductor Replacement

For electrical transmission or distribution systems, determining the disaster-related damage to some components, such as poles, guys, and cross-arms, can usually be accomplished by visual inspection. However, determining the full extent of disaster-related damage to conductors is

Conductor Spans

The number of conductor spans is calculated by multiplying the number of conductors per span by the number of spans.

For example, a three-phase line section with three spans has 12 conductor spans:

4 conductors x 3 spans = 12

If a single conductor span has damage in more than one location, it only counts as one damaged conductor span. Similarly, if more than one conductor is damaged, it still only counts as one damaged span.

[293] 44 CFR § 206.226(i).

more challenging, particularly with older systems. A conductor is eligible for replacement when it is stretched beyond the point where it can be effectively repaired and re-sagged to meet appropriate clearances, sag, and tension, and to meet pre-disaster reliability.

A conductor is only eligible for replacement (reconductoring) when the Applicant cannot effectively repair it because one of the following exists within a line section:

- Twenty-five percent or more of the conductor spans have visible damage, such as broken strands, splices, or sleeves (installed as a result of the event) or severe pitting, burns, or kinks.
- Thirty percent or more of the line spans are visually stretched (out of sag), or do not meet clearance requirements such as conductor-to-conductor or conductor-to-ground clearance.
- Forty percent or more of the supporting poles need to be replaced or plumbed (straightened). A pole is considered to be in need of straightening if it is leaning such that it is unsafe to climb.
- Forty percent or more of the supporting structures (other than poles) have damage such as broken cross-arms, braces, ties, insulators, guys, pulled anchors, or bent pins. If more than one element of the support structure is damaged, it still only counts as one damaged support structure. If a pole is counted under the previous bullet, FEMA does not count the supporting structure under this criterion.
- Sixty-five percent or more of any combination of the damage described in the bullets above.
- Evidence provided by a licensed Professional Engineer that demonstrates the conductor is damaged beyond repair.

Terminology

A **line section** is a group of contiguous spans selected for evaluation. A span is the distance between two poles or structures.

An Applicant has flexibility in defining a line section. A line section can be:

- A single span
- All the spans between two dead-end structures
- All the spans on a feeder
- All the spans on a tap
- Any other group of contiguous spans that are evaluated together

If the Applicant provides sufficient documentation establishing the pre-disaster condition and a line section of its system meets one of the six criteria above, that line section is eligible to be reconductored.

The use of #2 Aluminum Conductor Steel Reinforced (ACSR) is considered a lower cost alternative to replacing conductor with equal or lesser amperage capacity such as copper weld conductor, hard and soft drawn copper wire, smaller ACSR, and Amerductor. Therefore, if a conductor with equal or lesser amperage capacity to #2 ACSR is eligible for reconductoring, the line section is eligible to be replaced with #2 ACSR. When the Applicant replaces conductor with #2 ACSR, adjustments to other components of the electric distribution and transmission systems to accommodate #2 ACSR, including, but not limited to, adjusting span lengths between utility poles and increasing pole heights and standards to meet appropriate design requirements are eligible. The Applicant does not need to cite a code or standard for this additional work even though the appropriate design requirements may come from Federal, State, Territorial, Tribal, or

local codes or standards, including National Electrical Safety Code or Rural Utilities Service (RUS) standards.

If the Applicant prefers to reconductor a line with conductor of lesser amperage capacity than #2 ACSR, such as #4 ACSR (including associated adjustments in span lengths and pole heights), FEMA will provide PA funding for the work as long as the cost is less than the cost of reconductoring with #2 ACSR (including associated adjustments in span lengths and pole heights).

If the Applicant plans to upgrade its conductor to an amperage capacity above #2 ACSR, and there is no code or standard requiring the upgrade that meets the eligibility requirements discussed in Chapter 2:VII.B, the additional upgrades are not eligible and the Applicant must request an Improved Project.

If the damage does not meet the criteria for replacement, only the repair of the damaged line section(s) is eligible.

Documentation Supporting Pre-disaster Condition of a Conductor

To document the pre-disaster condition of a conductor, the Applicant should provide the following information:

- A signed, dated, and stamped letter from a licensed professional engineer who has direct experience with the damaged electrical transmission or distribution system certifying the pre-disaster capacity and condition of the conductor along with records providing satisfactory evidence of the pre-disaster capacity and condition of the conductor. Records may include, but are not limited to, maintenance records, contract documents, work orders, inspection logs, or a description of pastinspection and maintenance activities certified by a licensed professional engineer.
- If available, copies of construction work plans demonstrating the utility's past practices and current and future projects.
- If required by RUS, a copy of any correctiveaction plans submitted to RUS in compliance with 7CFR §1730.25, Corrective action (RUS borrowers only).

If the Applicant is able to provide the information above, FEMA does not require further documentation to establish pre-disaster condition. The Applicant is not precluded from substantiating the pre-disaster condition with other documentation if it is unable to provide the documentation described above.

5. Parks, Recreational, Other (Category G)

Eligible publicly owned facilities in this category include:

- Mass transit facilities such as railways
- Beaches
- Parks
- Playground equipment
- Swimming pools
- Bath houses
- Tennis courts
- Boat docks
- Piers
- Picnic tables
- Golf courses
- Ball fields
- Fish hatcheries
- Ports and harbors
- Other facilities that do not fit in Categories C–F

Unimproved natural features are not eligible.

Plantings (such as trees, shrubs, and other vegetation) are eligible when they are part of the restoration of an eligible facility for the purpose of erosion control, to minimize sediment runoff, or to stabilize slopes, including dunes on eligible improved beaches.

Grass and sod replacement is eligible if it is an integral part of the restoration of an eligible recreational facility. Vegetation replacement is also eligible if necessary to restore the function of the facility (e.g., if vegetation is a component of a sewage filtration system).

Plantings required to mitigate environmental impacts, such as those required to address impacts to wetlands or endangered species habitat, are only eligible if required by a Federal, State, Territorial, Tribal, or local code or standard or permit that meets the criteria described in Chapter 2:VII.B.7 above.

Long-term monitoring to ensure vegetative growth is not eligible even if it meets the requirements above.

Plantings ineligible for replacement include, but are not limited to:

- Replacement of trees, shrubs, and other vegetation.
- Replacement of destroyed crops.
- Cosmetic or aesthetic vegetation, such as landscaping around public facilities or in median strips along roadways. This restriction applies even when the vegetation is damaged during performance of eligible work, such as when repairing underground utilities within landscaped areas.

Documentation Supporting Eligibility of a Beach

To document eligibility of a beach as a designed and maintained facility, the Applicant should provide the following information:

- All design studies, plans, construction documents, and as-builts for the original nourishment;
- All studies, plans, construction documents, and as-builts for every renourishment;
- Documentation and details of the maintenance plan, including how the need for renourishment is determined and funded; and
- Pre-and post-storm profiles that extend at least to the seaward edge of the sub-aqueous nearshore zone (closure depth, usually -15 to -20 feet). (See Figure 15)

Beaches

Replacement of sand on beaches is only eligible under certain conditions, described below. A beach is considered an eligible facility when all of the following conditions exist:

- The beach is not a federally constructed shoreline under the specific authority of USACE;
- The beach was constructed by the placement of imported sand—of proper grain size—to a designed elevation, width, and slope;[294] and
- The Applicant has established and adhered to a maintenance program involving periodic renourishment with imported sand to preserve the original design.[295] Placement of sand under the following circumstances does not meet this requirement:
  - Emergency or "one-time" nourishment, even if to a design

[294] 44 CFR § 206.226(j)(2)(i).
[295] 44 CFR § 206.226(j)(2)(ii).

JaxDigsTrees Webtool Evaluation Criteria Recommendations/Discussion

Canopy Planner "Plan Tab" Criteria

- 1. Overall- Equally Weighted Criteria
- 2. Urban Tree Canopy Percentage
- 3. Stormwater Benefits
- 4. Urban Heat Islands
- 5. Socio-Economic Benefits

Scoring Breakdown

- Maximum 20 Points- 4 Points Per Category based on 5 categories listed above)

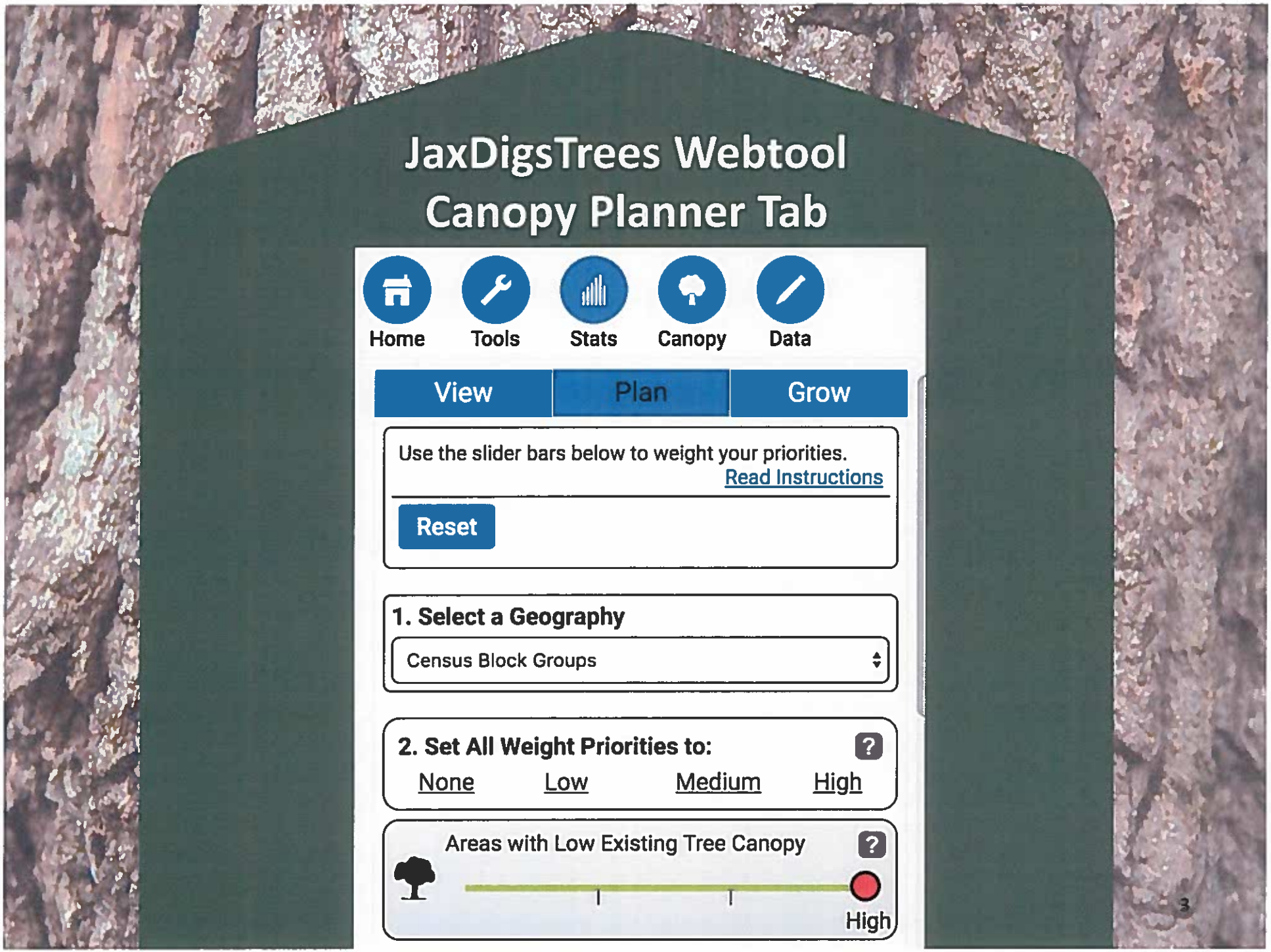
Attachment E

JaxDigsTrees Webtool Evaluation Possible Scoring Discussion

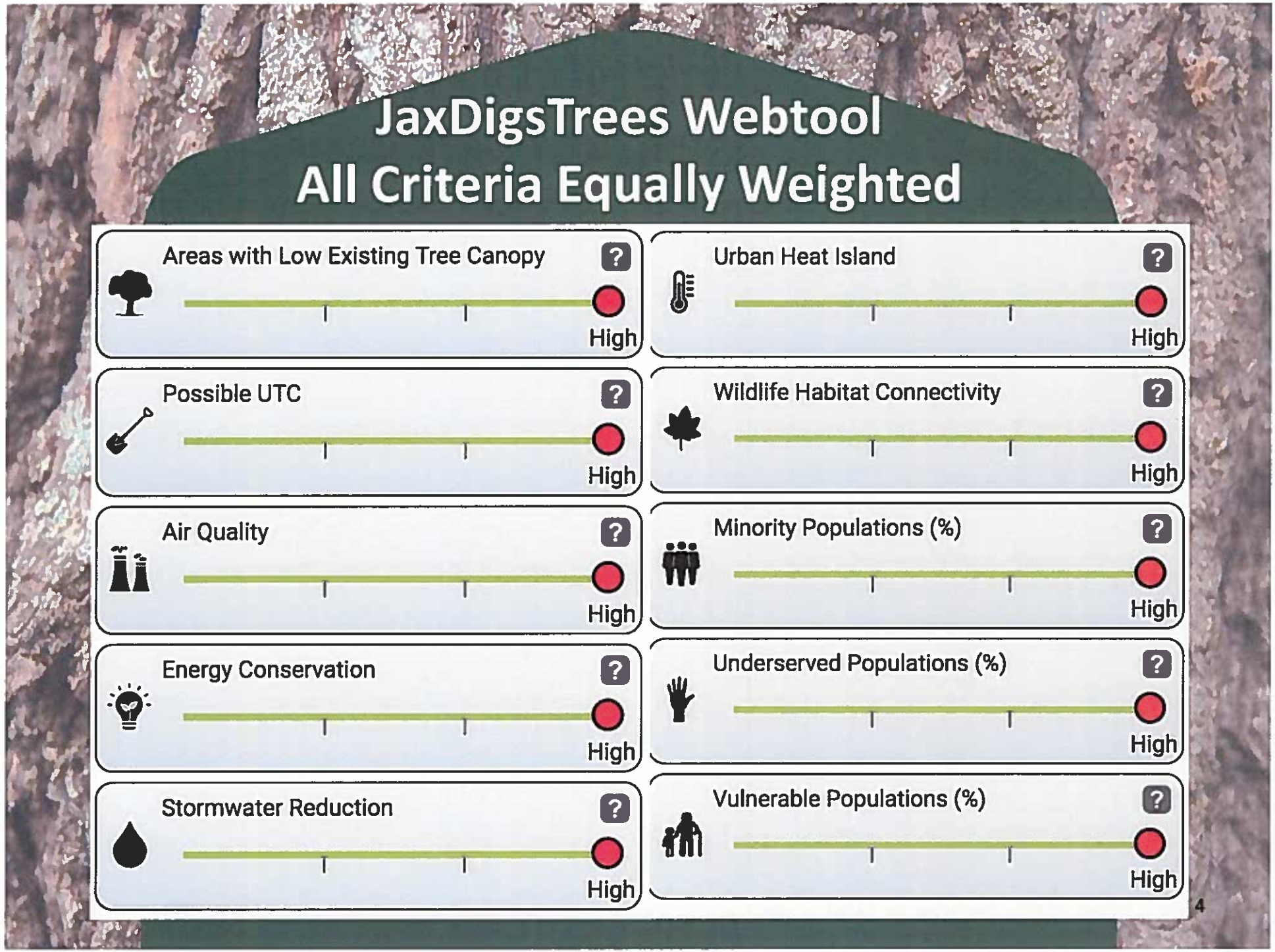
- Maximum 20 Points- 4 Points Per Category based on 5 categories listed in previous slide
- 488 Census Block in Duval County (Ranked 1-488)
- Blocks Ranked in Top Quarter (1 to-122) – 4 points
- Blocks Ranked in 2nd Quarter (123-244)- 3 points
- Blocks Ranked in 3rd Quarter (245-366)- 2 points
- Blocks Ranked in 4th Quarter (367-488)- 1 point

Repeat Block Ranking For Each of 5 Categories For a Total of Up To 20 Points

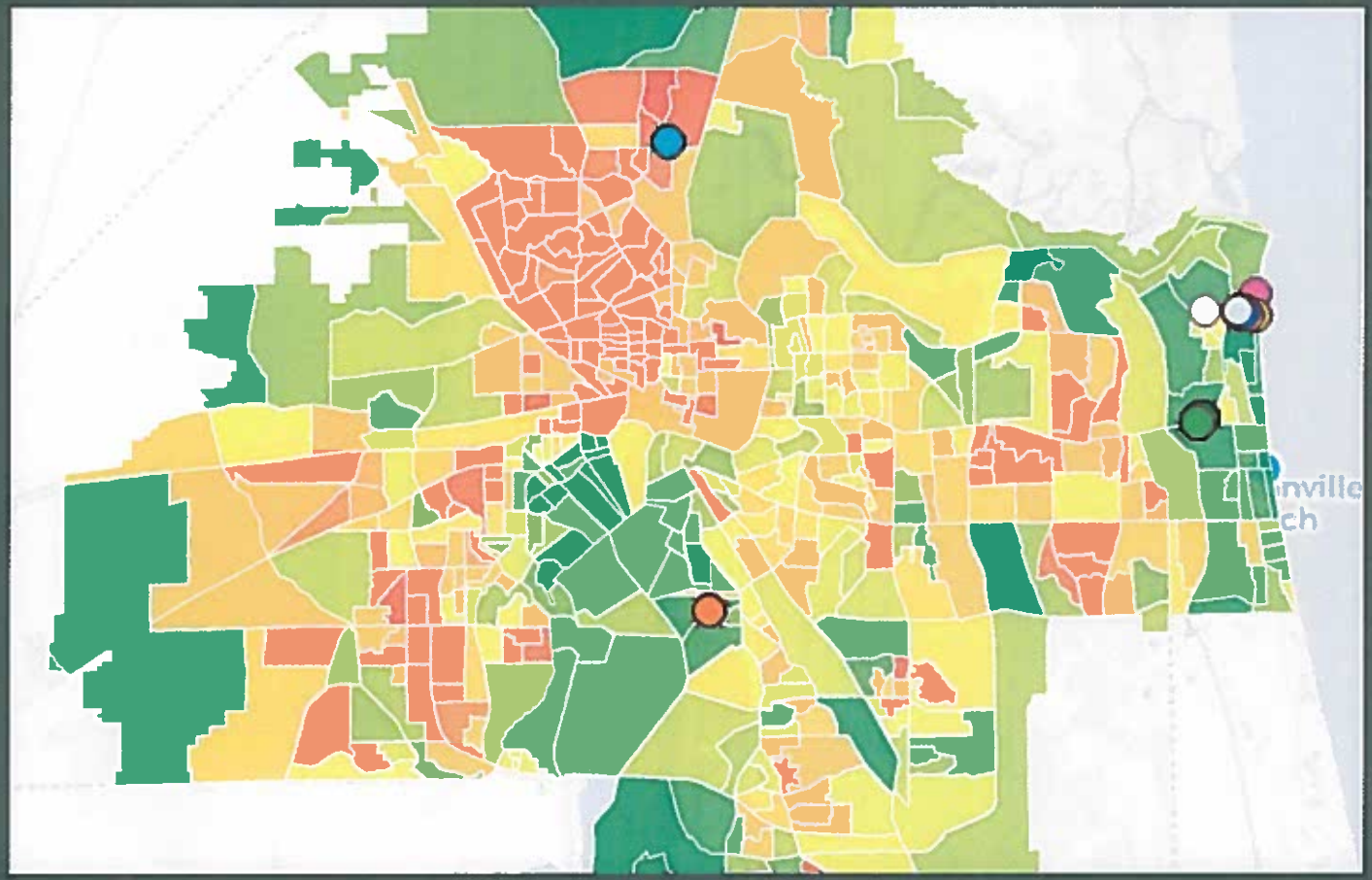
JaxDigsTrees Webtool
Canopy Planner Tab



JaxDigsTrees Webtool
All Criteria Equally Weighted

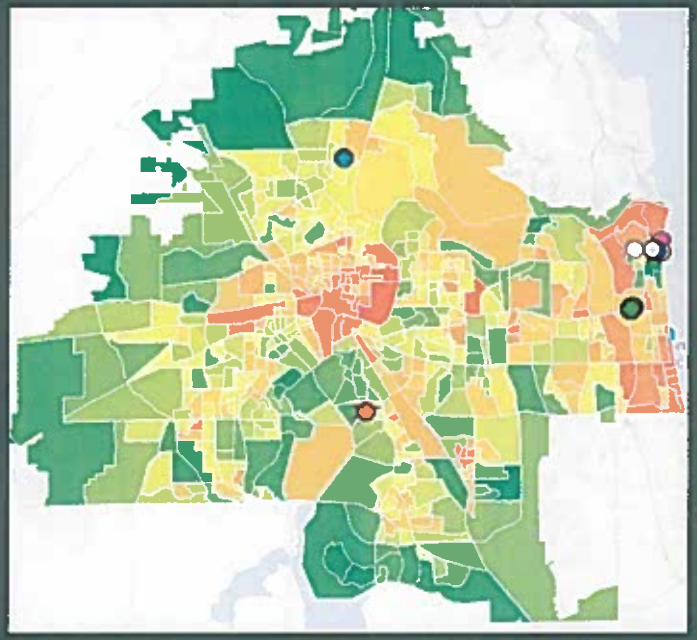


JaxDigsTrees Webtool
All Criteria Equally Weighted



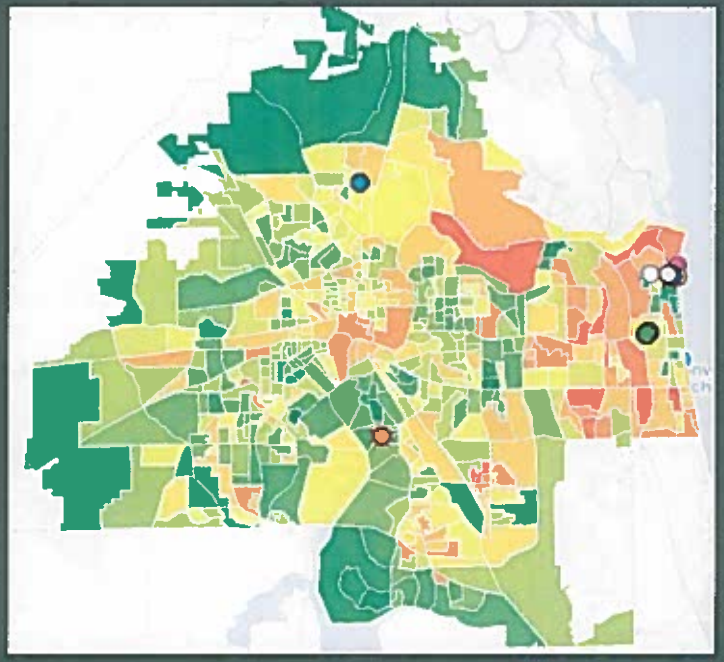
JaxDigsTrees Webtool
Urban Tree Canopy Percentage

-Add Weight to Census Blocks with Low Existing Tree Canopy Cover

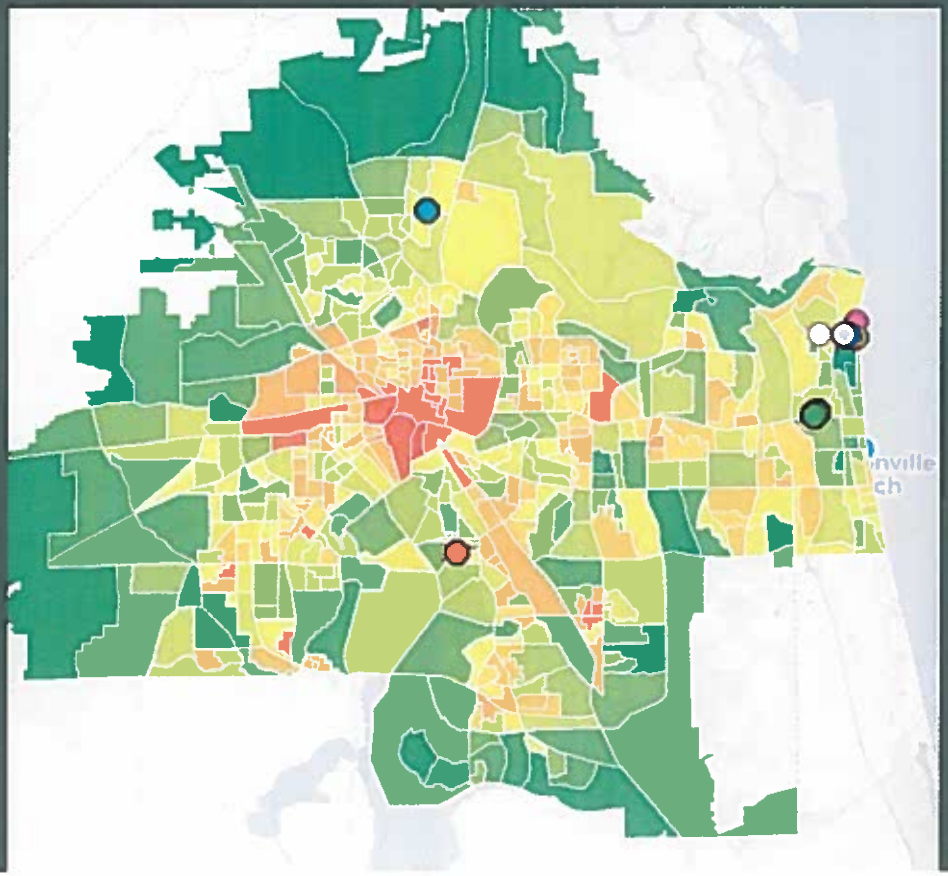


JaxDigsTrees Webtool Evaluation
Stormwater Benefits

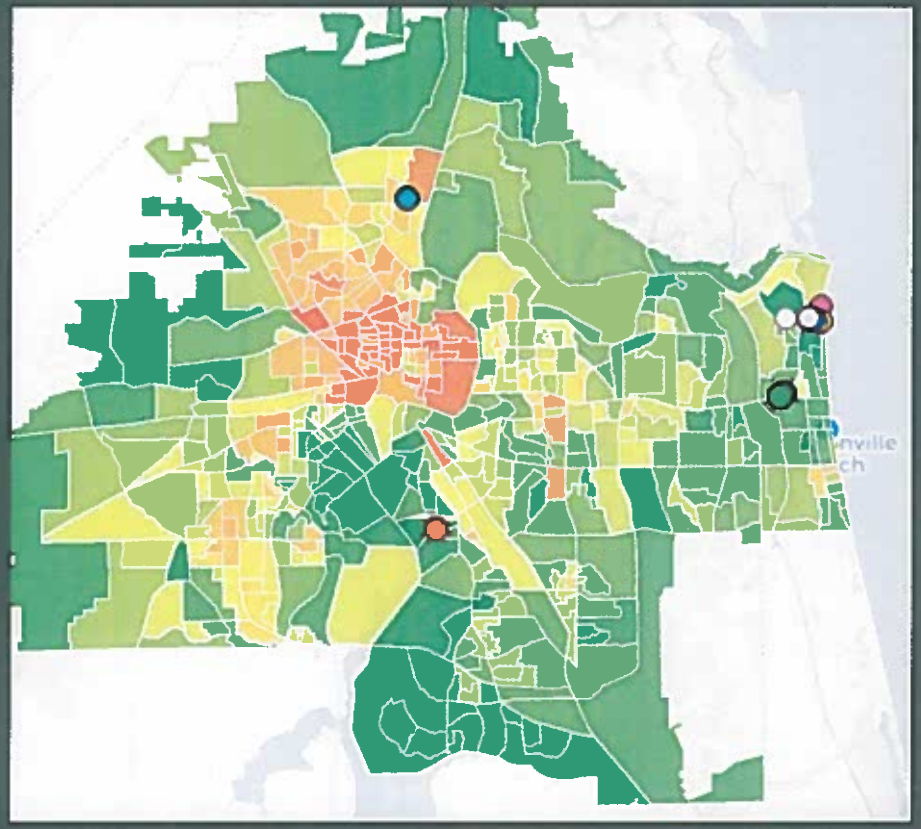
-Add Weight to Areas with Plantable Areas Near Surface Waterbodies



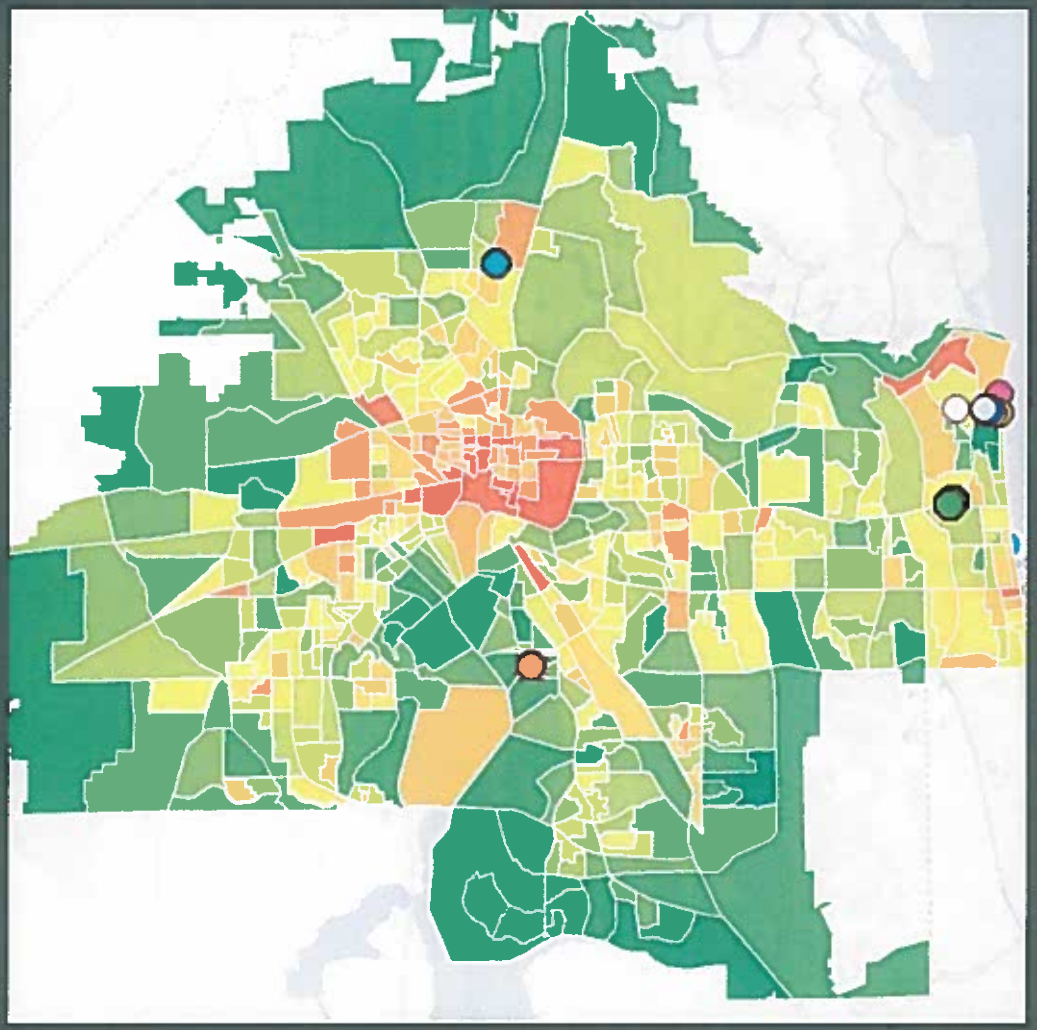
JaxDigsTrees Webtool
Urban Heat Islands
High Impervious Surface Area



Socio-Economic Criteria
Underserved, Minority, & Vulnerable Populations



Socio-Economic Criteria
Underserved Populations



Questions & Comments

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JAX DIGS TREES

PUBLIC TRUST
Environmental Legal Institute of Florida

Attachment F

Tree Planting Projects

Ordinance #2018-007 Approved - In Progress	District 7
Harts Rd. & Dunn Ave. median - 5 Date Palms 14" 18' initiated per CM Gaffney Vacant Medians (2) - no tree removals Streetscape replacements in Downtown Jax -(4 on Riverside Ave., 2 on Adams St. W 1 on Forsyth St. W., 1 on Monroe St.) - 8 Date Palms 14"/18' Removal of ex. Stumps due to car accidents; replace in ex. Sidewalk Streetscape Cutouts 13 Date Palms total	
From 15F - $62,540.03	

Ordinance #2018-043 Pending Legislation	District 6
Old St. Augustine Rd. from Bartram Park Blvd. to entrance of Palmetto Leaves Park South Vacant Median (2) - no tree removals 2 medians; 38 trees - Baldcypress, Holly, and Vitex initiated per CM Schellenberg	
From 15F - $18,364.21	

Ordinance #	District 14
King Street from College St. to Park St. initiated per CM Love Replacement of Declining/Dead Bradford Pears/Dead or Missing Crapemyrtles in Tree Grates (33) 9 medians; 33 Trees and groundcover - Hornbeam, Baldcypress, Crapemyrtle, Jasmine	
Projected cost: $85,000	

Ordinance #	District 14
Tree planting plan - Avondale - Hurricane/Dead or Severe Declining replacements 200 trees in City Right of Ways on residential streets in Avondale	

Ordinance #	District 6
San Jose Blvd. from Julington Creek Bridge to I-295 initiated by CM Schellenberg 19 medians - vacant medians/vehicular damage/dead/declining trees	

Upcoming

Southside/Patton Rd.	District 4
North Shore Tree Survey - Assess Hurricane damage & Potential Replacements	District 8
Springfield/Brooklyn Tree Planting Plan	District 7
District #13 Planting Project	District 13
Riverside - 5 Points	District 14
Harlow Blvd - Medians	Dist.9-10

Attachment G

RIGHT TREE / RIGHT PLACE

SELECTING & PLANTING

Trees for the North Florida URBAN FOREST

Florida Urban Forestry Council

By the Committee on Community Affairs; and Senator Steube

578-03174-18 2018574c1

A bill to be entitled

An act relating to tree and vegetation trimming and removal; amending s. 163.3209, F.S.; providing legislative findings; providing that local governments are liable for electric utility restoration costs under certain conditions; specifying a time limit for an electric utility to invoice a local government for such costs; specifying a burden of proof; deleting a requirement that an electric utility must meet with a local government upon request to discuss and submit the utility's vegetation maintenance plan; deleting a provision regarding applicability to specimen trees, historical trees, or canopy protection areas; providing applicability when a local government and an electric utility agree on a written plan for certain specified purposes; creating s. 589.37, F.S.; providing legislative findings; prohibiting local governments from requiring permits or other approvals for vegetation maintenance and tree pruning or trimming within an established right-of-way managed by a water management district, water control district, or special district exercising chapter 298 powers; defining the term "vegetation maintenance and tree pruning or trimming"; specifying an exception; requiring water management districts, water control districts, and special districts exercising chapter 298 powers to provide certain advance notice before conducting vegetation maintenance under certain conditions; providing applicability; prohibiting the

application of certain tree-related local regulations during emergencies; providing an effective date.

Be It Enacted by the Legislature of the State of Florida:

Section 1. Section 163.3209, Florida Statutes, is amended to read:

163.3209 Electric transmission and distribution line right-of-way maintenance.—

(1) The Legislature finds that the uncontrolled growth of trees and vegetation within electric transmission and distribution rights-of-way may compromise the function of electric facilities, leading to extended electrical outages and adversely impacting public health and safety.

(2) After a right-of-way for any electric transmission or distribution line has been established and constructed, a ~~no~~ local government may not ~~shall~~ require or apply any permits or other approvals or code provisions for or related to vegetation maintenance and tree pruning or trimming within the established right-of-way. The term "vegetation maintenance and tree pruning or trimming" means the mowing of vegetation within the right-of-way, removal of trees or brush within the right-of-way, and selective removal of tree branches that extend within the right-of-way. The requirements ~~provisions~~ of this section do not apply to ~~include~~ the removal of trees outside the right-of-way, which may be allowed in compliance with applicable local vegetation plans, ordinances, or practices. However, if an electric utility provides written notice to a local government that its local vegetation management plan, ordinances, or practices may

adversely impact electric reliability by allowing trees or other vegetation to be planted where, at mature height or width, the trees or other vegetation may conflict with electric facilities in either normal or inclement weather, the local government is liable to the electric utility for all reasonable restoration costs thereafter incurred by the electric utility attributable to damages or electrical outages caused by such trees or other vegetation. An electric utility must invoice the local government for all such restoration costs within 120 days after any event of loss. In any civil action by an electric utility against a local government to recover such damages, the burden of proof shifts to the local government to demonstrate that the damages are not attributable to the trees or other vegetation or that the damages are otherwise in amounts less than those claimed by the electric utility ~~ordinances~~.

(3) Before ~~Prior to~~ conducting scheduled routine vegetation maintenance and tree pruning or trimming activities within an established right-of-way, the electric utility must ~~shall~~ provide the official designated by the local government with a minimum of 5 business days' advance notice. Such advance notice is not required for vegetation maintenance and tree pruning or trimming required to restore electric service or to avoid an imminent vegetation-caused outage or when performed at the request of the property owner adjacent to the right-of-way, provided that the owner has approval of the local government, if needed. ~~Upon the request of the local government, the electric utility shall meet with the local government to discuss and submit the utility's vegetation maintenance plan, including the utility's trimming specifications and maintenance practices.~~

(4) Vegetation maintenance and tree pruning or trimming conducted by utilities must ~~shall~~ conform to ANSI A300 (Part I)-2001 pruning standards and ANSI Z133.1-2000 Pruning, Repairing, Maintaining, and Removing Trees, and Cutting Brush-Safety Requirements. Vegetation maintenance and tree pruning or trimming conducted by utilities must be supervised by qualified electric utility personnel or licensed contractors trained to conduct vegetation maintenance and tree trimming or pruning consistent with this section or by Certified Arborists certified by the Certification Program of the International Society of Arboriculture. A local government may ~~shall~~ not adopt an ordinance or land development regulation that requires the planting of a tree or other vegetation that will achieve a height greater than 14 feet in an established electric utility right-of-way or intrude from the side closer than the clearance distance specified in Table 2 of ANSI Z133.1-2000 for lines affected by the North American Electric Reliability Council Standard, FAC 003.1 requirement R1.2.

(5) This section does not supersede or nullify the terms of specific franchise agreements between an electric utility and a local government and may ~~shall~~ not be construed to limit a local government's franchising authority. ~~This section does not supersede local government ordinances or regulations governing planting, pruning, trimming, or removal of specimen trees or historical trees, as defined in a local government's ordinances or regulations, or trees within designated canopied protection areas.~~

(6) This section does ~~shall~~ not apply if a local government and an electric ~~develops, with input from the~~ utility agree on~~,~~

~~and the local government adopts,~~ a written plan specifically for vegetation maintenance, tree pruning, tree removal, and tree trimming by the utility within the local government's established rights-of-way and the plan is not inconsistent with the minimum requirements of the National Electrical Safety Code as adopted by the Public Service Commission; provided, however, such a plan shall not require the planting of a tree or other vegetation that will achieve a height greater than 14 feet in an established electric right-of-way. Vegetation maintenance costs shall be considered recoverable costs.

Section 2. Section 589.37, Florida Statutes, is created to read:

589.37 Tree and vegetation maintenance within established flood and drainage rights-of-way.—

(1) The legislature finds that water management districts, water control districts, and special districts authorized to exercise powers under chapter 298 establish and manage public rights-of-way for the purpose of flood protection and drainage control. Uncontrolled growth of trees and vegetation within rights-of-way established for these purposes may compromise the function of such rights-of-way and, left unaddressed, may adversely impact public health and safety and may adversely affect other adjacent jurisdictions.

(2) After a right-of-way for flood protection or drainage control has been established and constructed by a water management district, a water control district, or a special district authorized to exercise powers under chapter 298, a local government may not require any permits or other approvals for vegetation maintenance and tree pruning or trimming within

the established right-of-way. The term "vegetation maintenance and tree pruning or trimming" means the mowing of vegetation within the right-of-way, removal of trees or brush within the right-of-way, and selective removal of tree branches that extend within the right-of-way. The provisions of this section do not include the removal of trees or vegetation outside the right-of-way, which may be authorized in accordance with applicable local ordinances.

(3) Before conducting scheduled routine vegetation and tree maintenance activities within an established right-of-way, a water management district, water control district, or special district authorized to exercise powers under chapter 298 must provide the official designated by the local government with a minimum of 5 business days' advance notice. Such advance notice is not required when maintenance is necessary to avoid imminent threat to public safety.

(4) This section does not limit the licensing and regulation by local governments of persons engaged in vegetation maintenance and tree pruning or trimming.

(5) This section does not prohibit a water management district, water control district, or special district authorized to exercise powers under chapter 298 from entering into agreements with local governments to perform maintenance services for the water management district, water control district, or special district authorized to exercise powers under chapter 298.

(6) This section does not prohibit a local government with delegated authority from the Department of Environmental Protection from implementing a mangrove regulatory program

pursuant to s. 403.9324.

(7) This section does not apply to the exercise of specifically delegated authority for mangrove protection pursuant to ss. 403.9321-403.9333.

(8) Local government regulations regarding the maintenance, pruning, or removal of trees or vegetation may not apply to such activities conducted at a single-family home, in an area zoned for residential use, during an emergency declared pursuant to s. 252.36.

Section 3. This act shall take effect July 1, 2018.

Attachment I

The Florida Senate

BILL ANALYSIS AND FISCAL IMPACT STATEMENT

(This document is based on the provisions contained in the legislation as of the latest date listed below.)

Prepared By: The Professional Staff of the Committee on Community Affairs

BILL:	CS/SB 574
INTRODUCER:	Community Affairs and Senator Steube
SUBJECT:	Tree and Timber Trimming, Removal, and Harvesting
DATE:	February 15, 2018 REVISED:

	ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1.	Cochran	Yeatman	CA	Fav/CS
2.			EP	
3.			RC	

Please see Section IX. for Additional Information:

COMMITTEE SUBSTITUTE - Substantial Changes

I. Summary:

CS/SB 574 removes an exemption for local government ordinances regarding planting, pruning, trimming or removal of specimen trees, historical trees, or trees within designated canopied protection areas in relation to an electric transmission and distribution line right-of-way. The bill provides that a local government may be liable to an electric utility if vegetation outside the right of way conflicts with electric facilities, with the burden of proof on the local government to demonstrate the damages are not attributable to the trees or that the damages are less than those claimed by the utility. The bill prohibits local governments from requiring a permit, attempting to regulate, or interfering with certain governmental entities from trimming or removing trees or vegetation where that entity has a duty to maintain any right-of-way. Finally, the bill suspends local regulation for tree maintenance, pruning, or removal during a state of emergency.

II. Present Situation:

Currently, in Florida there are 67 counties and 413 municipalities.[1] Local governments often have tree ordinances that specify the species that must be used in a given area depending on the land use. Some local governments require a permit prior to trimming certain trees. Local governments may also afford certain trees protection because they are considered an important

[1] *See* ch. 7, F.S.; *The Local Government Formation Manual 2017-2018*, Appx. B, at http://myfloridahouse.gov/Sections/Documents/loaddoc.aspx?PublicationType=Committees&CommitteeId=2911&Session=2018&DocumentType=General Publications&FileName=2017-2018 Local Government Formation Manual Final Pub.pdf (last visited Feb. 14, 2018).

community resource. The terms used to describe such trees may include heritage, historic, landmark, legacy, special interest, significant, or specimen trees.

For example, in Broward County the removal of any historical tree[2] without first obtaining approval from the Board of County Commissioners is prohibited, as is the removal of any tree without first obtaining a tree removal license from the Environmental Protection and Growth Management Department.[3] Furthermore, municipalities within Broward County are authorized to adopt and enforce their own tree preservation regulations in addition to Broward County's regulation of trees.[4]

Home Rule

The Florida Constitution grants local governments broad home rule authority. Specifically, non-charter county governments may exercise those powers of self-government that are provided by general or special law.[5] Those counties operating under a county charter have all powers of self-government not inconsistent with general law or special law approved by the vote of the electors.[6] Likewise, municipalities have those governmental, corporate, and proprietary powers that enable them to conduct municipal government, perform their functions and provide services, and exercise any power for municipal purposes, except as otherwise provided by law.[7]

The Florida Statutes enumerate the powers and duties of all county governments, unless preempted on a particular subject by general or special law.[8] Those powers include the provision of fire protection, ambulance services, parks and recreation, libraries, museums and other cultural facilities, waste and sewage collection and disposal, and water and alternative water supplies.[9] Article VIII, Section 2 of the State Constitution and s. 166.021, F.S., grant municipalities broad home rule powers.

Mangrove Trimming

In 1996, the Florida Legislature enacted the 1996 Mangrove Trimming and Preservation Act (MTPA).[10] This law regulates the trimming and alteration of mangroves statewide, with the exception of the Delegated Local Governments of Broward, Hillsborough, Miami-Dade, and Pinellas Counties, the City of Sanibel, and the Town of Jupiter Island. [11]

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[2] Broward County Code of Ordinances, Ch. 27, Art. XIV, s. 404 defines a "historical tree" as a particular tree or group of trees which has historical value because of its unique relationship to the history of the region, state, nation or world as designated by the Board of County Commissioners.
[3] *Id.* at s. 405
[4] *Id* at s. 407
[5] FLA. CONST. art VIII, s. 1(f).
[6] FLA. CONST. art VIII, s. 1(g).
[7] FLA. CONST. art VIII, s. 2(b). See also s. 166.021(1), F.S.
[8] Section 125.01, F.S.
[9] *Id.*
[10] Sections 403.9321-403.9333, F.S.
[11] Florida Department of Environmental Protection, *Mangrove Trimming Guidelines for Homeowners*, available at https://floridadep.gov/sites/default/files/Mangrove-Homeowner-Guide-sm_0.pdf (last visited Feb. 14, 2018).

The heights to which a mangrove tree may be trimmed will depend upon the provisions of the MTPA as well as the species and condition of the tree. Projects that involve alterations, and trimming projects that exceed the allowances of the exemptions and general permits, may be authorized through individual permits in s. 403.9328, F.S. Trimming may be authorized in an Environmental Resource Permit (ERP) along with other ERP activities for the same property. Mangrove impacts associated with and located within the footprint of an ERP authorized activity do not require a separate authorization under the MTPA.[12]

Authority to Maintain Rights-of-Way

The following governmental entities have comprehensive authority to maintain rights-of-way:

Department of Transportation (DOT): DOT is authorized to designate transportation facilities and rights-of-way and to establish lanes. DOT may locate and designate transportation facilities as part of the State Highway System and use DOT funds to construct and maintain the transportation facilities.[13] Additionally, DOT may survey and locate the line or route of a transportation facility[14] and establish standards for lanes on the State Highway System.[15] Additionally, DOT must provide written permission to remove trees or vegetation from the rights-of-ways of roads located on the State Highway System, except when tree trimming is performed within the provisions of its utility accommodations guide.[16] The penalty for violating this provision is a misdemeanor of the second degree.[17]

Water Management Districts (WMD): A WMD and the governing board is authorized to maintain and regulate natural and artificial waterways as deemed necessary. The works of the district shall be those adopted by the governing board of the district.[18]

Community Development District (CDD): A CDD and the governing board of the CDD is authorized to finance, fund, plan, establish, acquire, construct or reconstruct, enlarge or extend, equip, operate, and maintain systems, facilities, and basic infrastructures for:

- Water management;
- Sewer and wastewater management;
- Bridges;
- District Roads;
- Investigation of environmental contamination;
- Conservation areas; and
- Other projects as required.[19]

[12] *Id.*
[13] Section 335.02(1), F.S.
[14] Section 335.02(2), F.S.
[15] Section 335.02(3), F.S.
[16] Section 337.405(1), F.S.
[17] Section 337.405(2), F.S.
[18] Section 373.086(2), F.S.
[19] Section 190.012(1), F.S.

Water Control Districts: the board of supervisors of the district has power and authority to construct, complete, operate, maintain, repair, and replace works and improvements necessary to execute the water control plan. In doing so, the board may:

- Employ persons and purchase machinery;
- Make changes to any canal, ditch, drain, river, watercourse, or natural stream in or adjacent to the district;
- Build any improvements deemed necessary to preserve and maintain the works in or out of said district;
- Purchase pumping stations, electric lines and power;
- Construct bridges;
- Hold, control, and acquire any land easement to be used in maintaining said works for the district water control plan;
- Condemn or acquire land for the use of the district;
- Adopt resolutions and policies;
- Assess and collect reasonable fees for the connection of the district;
- Implement and authorize the comprehensive water control activities;
- Control the spread of agricultural pests and diseases; and
- Construct recreational facilities.[20]

Independent Special Districts: any construction, expansion, or alteration of a public facility, which affects the public facility's level of service, must be consistent with the local government comprehensive plan. However, the local government comprehensive plan must not:

- Require an independent special district to construct, expand, or perform a major alteration of any public facility; or
- Require a special district to construct, expand, or perform a major alteration of any public facility resulting in an impairment of covenants and agreements relating to bonds validated or issued by the special district.[21]

An independent special district has the right to construct, modify, operate, or maintain public facilities authorized by a development order.[22] This does not apply to water management districts, regional water supply authorities, or to Federal Government spoil disposal sites,[23] but it does apply to ports in compliance with a port master plan.[24] Local governments and special districts may provide public facilities or services to a particular geographic area,[25] and any independent district may provide housing and housing assistance for certain employed personnel.[26]

Neighborhood Improvement Districts: The board of a Neighborhood Improvement District is empowered to:

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[20] Section 298.22, F.S.
[21] Section 189.081(1), F.S.
[22] Section 189.081(2), F.S.
[23] Section 189.081(3), F.S.
[24] Section 189.081(4), F.S.
[25] Section 189.081(5), F.S.
[26] Section 189.081(6), F.S.

- Acquire, own, convey, or otherwise dispose of, lease as lessor or lessee, construct, maintain, improve, enlarge, raze, relocate, operate, and manage property and facilities of whatever type to which it holds title and grant and acquire licenses, easements, and options with respect thereto; and
- Improve street lighting, parks, streets, drainage, utilities, swales, and open areas, and provide safe access to mass transportation facilities in the district.[27]

Electric Transmission and Distribution Line Right-of-Way Maintenance

Section 163.3209, F.S., provides that after a right-of-way for an electric transmission or distribution line has been established, a local government may not require any permits or other approvals for vegetation maintenance, tree pruning, or trimming within that right-of-way. This section defines the term "vegetation maintenance and tree pruning or trimming" as the "mowing of vegetation within the right-of-way, and selective removal of tree branches that extend within the right-of-way." This section requires a utility to provide five business days advance notice to a local government official prior to conducting vegetation maintenance activities within a right-of-way. An exception applies for service restoration, avoidance of imminent vegetation caused outage, or when performed at the request of the property owner adjacent to the right-of-way, provided the owner has approval of the local government if required.[28]

Local governments are authorized to request a meeting with a utility provider to discuss the utility's vegetation-maintenance plan, including the utility's trimming specifications and maintenance practices. In addition, vegetation maintenance performed by utilities must conform to ANSI standards, and vegetation management activities must be supervised by qualified utility personnel, licensed contractors under the utility's control, or certified arborists. A local government may not adopt an ordinance or land development regulation that requires the planting of a tree or other vegetation in an established right-or-way that achieves a height greater than 14 feet or intrudes from the side closer than the clearance distance specified in referenced standards.[29]

The section explicitly notes that it does not supersede or nullify the terms of specific franchise agreements between an electric utility and a local government and must not be construed to limit a local government's franchising authority. In addition, this section does not supersede local government ordinances or regulations governing planting, pruning, trimming, or removal of specimen trees or historical trees, as defined in a local government's ordinances or regulations. or trees within designated canopied protection areas. This section does not apply if a local government develops, with input from the utility, and the local government adopts, a written plan specifically for vegetation maintenance, tree pruning, tree removal and tree trimming by the utility within the local government's established rights-of-way and the plan is not inconsistent with the minimum requirements of the National Electrical Safety Code as adopted by the Public Service Commission. Provided, however, the plan does not require the planting of a tree or other vegetation that will achieve a height greater than 14 feet in an established electric right-of-way. Vegetation maintenance costs are considered recoverable costs.[30]

[27] Section 163.514, F.S.
[28] Section 163.3209, F.S.
[29] *Id.*
[30] *Id.*

The Florida House of Representatives Select Committee on Hurricane Response and Preparedness recommended repealing the statutory exception to statewide standards for vegetation management within power line rights-of-way for local governments that adopt plans that differ from the statutory standards.[31]

III. Effect of Proposed Changes:

Section 1 amends s. 163.3209, F.S., providing a legislative finding that uncontrolled growth of trees and vegetation in rights-of-way maintained by state or certain governmental agencies interferes with infrastructure that protects the public from flooding. The bill removes an exemption for local government ordinances regarding planting, pruning, trimming or removal of specimen trees, historical trees, or trees within a designated canopied protection area in relation to an electric transmission and distribution line right-of-way. The bill removes the requirement for an electric utility to meet with a local government to discuss and submit the utility's vegetation maintenance plan upon the request of the local government. The bill also provides that a local government may be liable to an electric utility if vegetation outside the right of way conflicts with electric facilities, with the burden of proof on the local government to demonstrate the damages are not attributable to the trees or that the damages are less than those claimed by the utility.

Section 2 creates s. 589.37, F.S., providing that the Legislature finds that water management districts, water control districts, special districts authorized to exercise powers under chapter 298 establish and manage public rights-of-way for the purpose of flood protection and drainage control. The uncontrolled growth of trees and vegetation within rights-of-way established for these purposes may compromise the function of such rights-of-way, and left unaddressed, may adversely impact public health and safety and may adversely affect other adjacent jurisdiction.

The bill provides that when an aforementioned governmental entity has a duty to maintain any right-of-way, no municipality, county, or other political subdivision of the state may prohibit, restrict, condition, or require a permit, fee, or mitigation for the trimming or removal of trees or vegetation to protect the public. The bill also provides that a water management district, water control district, or special district authorized to exercise powers under chapter 298 is required to provide notice to the local government before conducting routine vegetation and tree maintenance activities, except in situations when maintenance is necessary to avoid imminent threat to public safety.

The bill does not prohibit the licensing and regulation by municipalities or counties of persons engaged in tree or vegetation trimming or removal. Additionally, the bill does not prohibit a water management district, water control district or special district authorized to exercise powers under chapter 298 from entering into agreements with local governments to perform maintenance services for the water management district, water control district, or special district authorized to exercise powers under chapter 298. The bill also does not prohibit a local government with

[31] Select Committee on Hurricane Response and Preparedness, The Florida House of Representatives, *Select Committee on Hurricane Response and Preparedness Final Report* at 45 (January 16, 2018). Available at http://www.myfloridahouse.gov/Sections/Documents/loaddoc.aspx?PublicationType=Committees&CommitteeId=2978&Session=2018&DocumentType=General Publications&FileName=SCHRP - Final Report online.pdf (last visited Feb. 14, 2018).

delegated authority from the Department of Environmental Protection from implementing a mangrove regulatory program pursuant to s. 409.9324, F.S.

The bill also suspends local regulation for tree maintenance, pruning, or removal during a state of emergency.

Section 3 provides an effective date of July 1, 2018.

IV. Constitutional Issues:

A. Municipality/County Mandates Restrictions:

None.

B. Public Records/Open Meetings Issues:

None.

C. Trust Funds Restrictions:

None.

V. Fiscal Impact Statement:

A. Tax/Fee Issues:

None.

B. Private Sector Impact:

Prohibiting certain local governments from prohibiting, regulating, or requiring permits or fees for the trimming or removal of trees, timber, and vegetation within rights-of-way for which water management districts or other governmental entities are responsible may simplify the regulatory process and thereby reduce the cost of compliance for private firms.

C. Government Sector Impact:

There could be negative fiscal impacts on local governments where an electric utility is holding the local government liable for restoration costs because of damages caused by trees or vegetation.

VI. Technical Deficiencies:

None.

VII. Related Issues:

None.

VIII. Statutes Affected:

This bill amends section 163.3209 of the Florida Statutes.

This bill creates section 589.37 of the Florida Statutes.

IX. Additional Information:

A. Committee Substitute – Statement of Changes:
(Summarizing differences between the Committee Substitute and the prior version of the bill.)

CS by Community Affairs on February 13, 2018:

- Removes an exemption for local government ordinances regarding planting, pruning, trimming or removal of specimen trees, historical trees, or trees within a designated canopied protection area in relation to an electric transmission and distribution line right-of-way.
- Provides that a local government may be liable to an electric utility if vegetation outside the right of way conflicts with electric facilities.
- Prohibits local governments from requiring a permit, attempting to regulate, or interfering with certain governmental entities from trimming or removing trees or vegetation where that entity has a duty to maintain any right-of-way.
- Suspends local regulation for tree maintenance, pruning, or removal during a state of emergency.
- Differs from the original bill in that it no longer preempts to the state the regulation of trimming, removal, or harvesting of trees and timber on private property. Additionally, the bill no longer prohibits municipalities, counties and other political subdivisions of the state from prohibiting or restricting a landowner from trimming, removing or harvesting trees located on the landowner's property, requiring mitigation for the removal of trees, or prohibiting the burial of trees and vegetative debris on properties larger than 2.5 acres.

B. Amendments:

None.

JaxDigsTrees Webtool Evaluation Criteria Recommendations/Discussion

Canopy Planner "Plan Tab" Criteria

- 1. Overall- Equally Weighted Criteria
- 2. Urban Tree Canopy Percentage
- 3. Stormwater Benefits
- 4. Urban Heat Islands
- 5. Socio-Economic Benefits

Scoring Breakdown

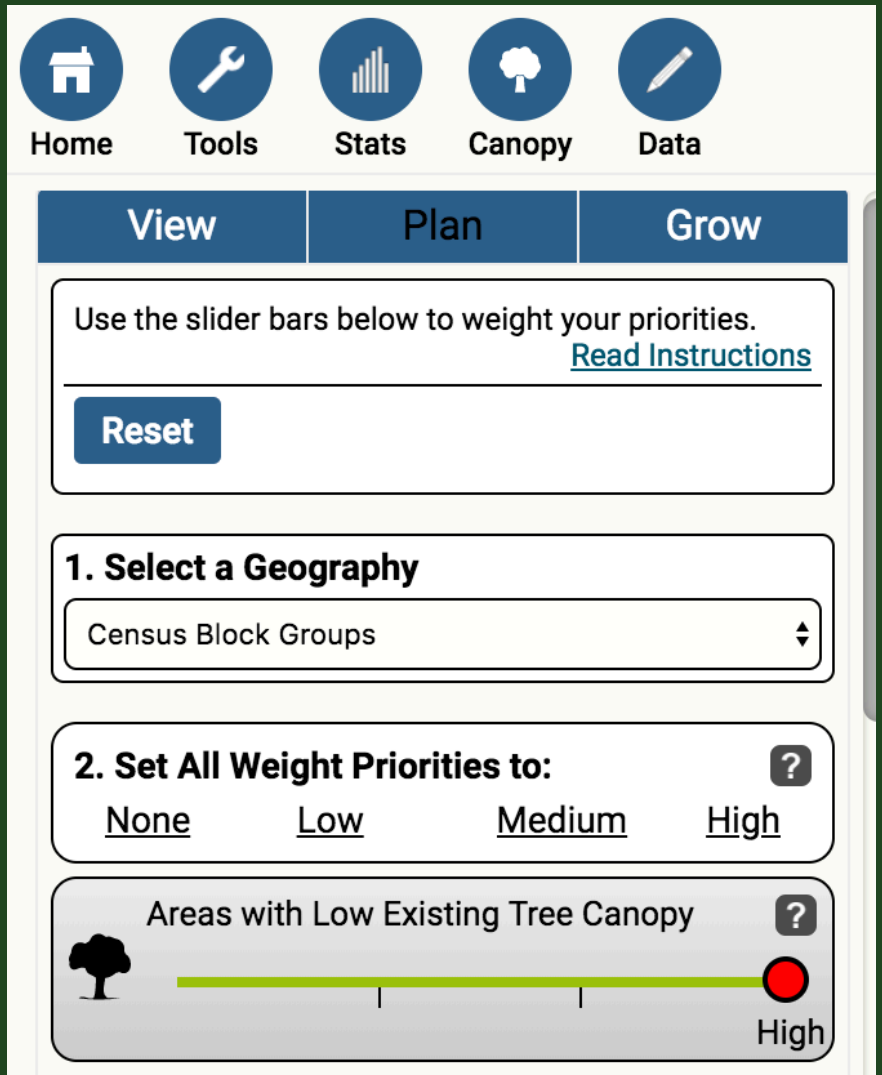
- Maximum 20 Points- 4 Points Per Category based on 5 categories listed above)

JaxDigsTrees Webtool Evaluation Possible Scoring Discussion

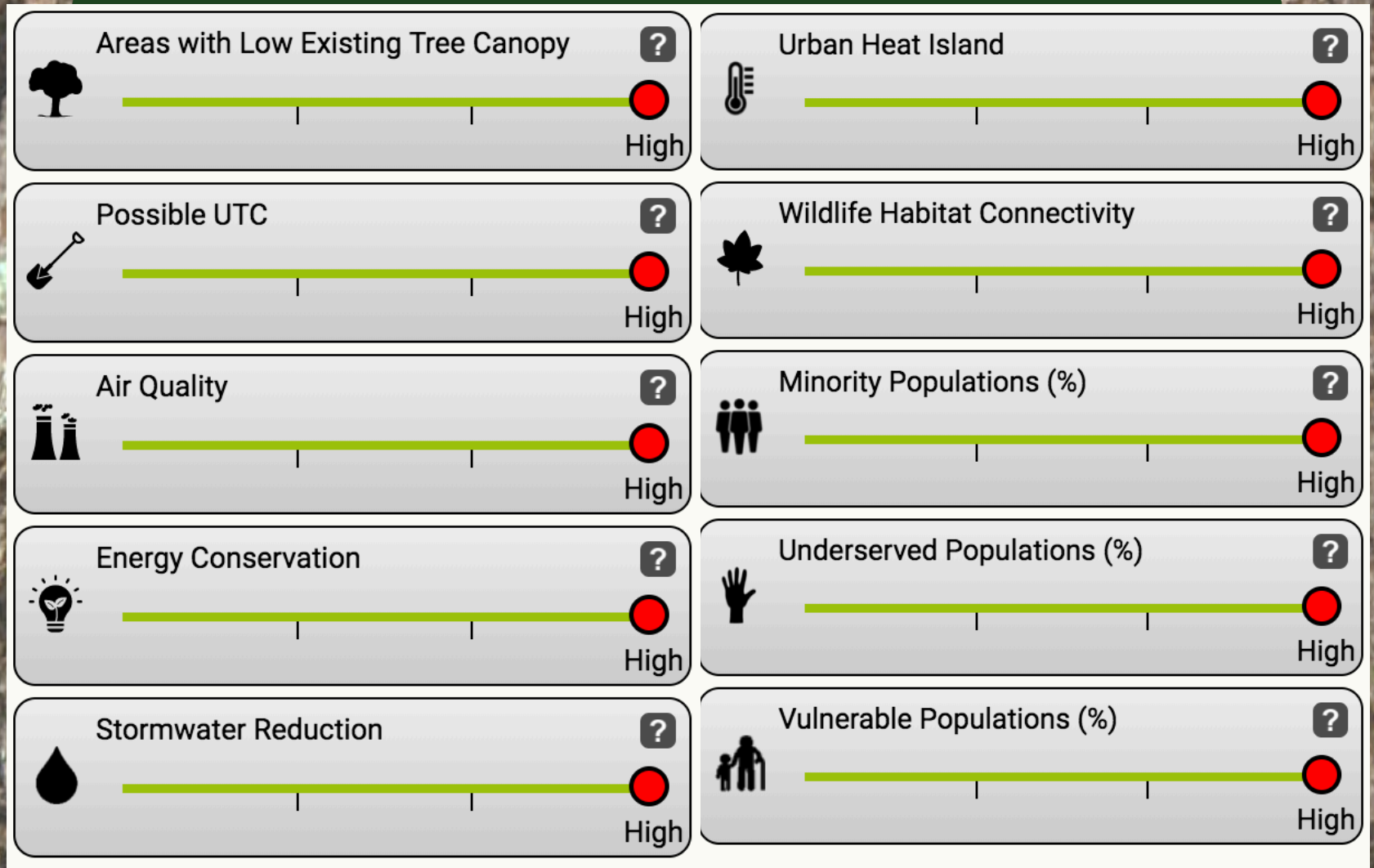
- Maximum 20 Points- 4 Points Per Category based on 5 categories listed in previous slide
- 488 Census Block in Duval County (Ranked 1-488)
- Blocks Ranked in Top Quarter (1 to-122) – 4 points
- Blocks Ranked in 2nd Quarter (123-244)- 3 points
- Blocks Ranked in 3rd Quarter (245-366)- 2 points
- Blocks Ranked in 4th Quarter (367-488)- 1 point

Repeat Block Ranking For Each of 5 Categories For a Total of Up To 20 Points

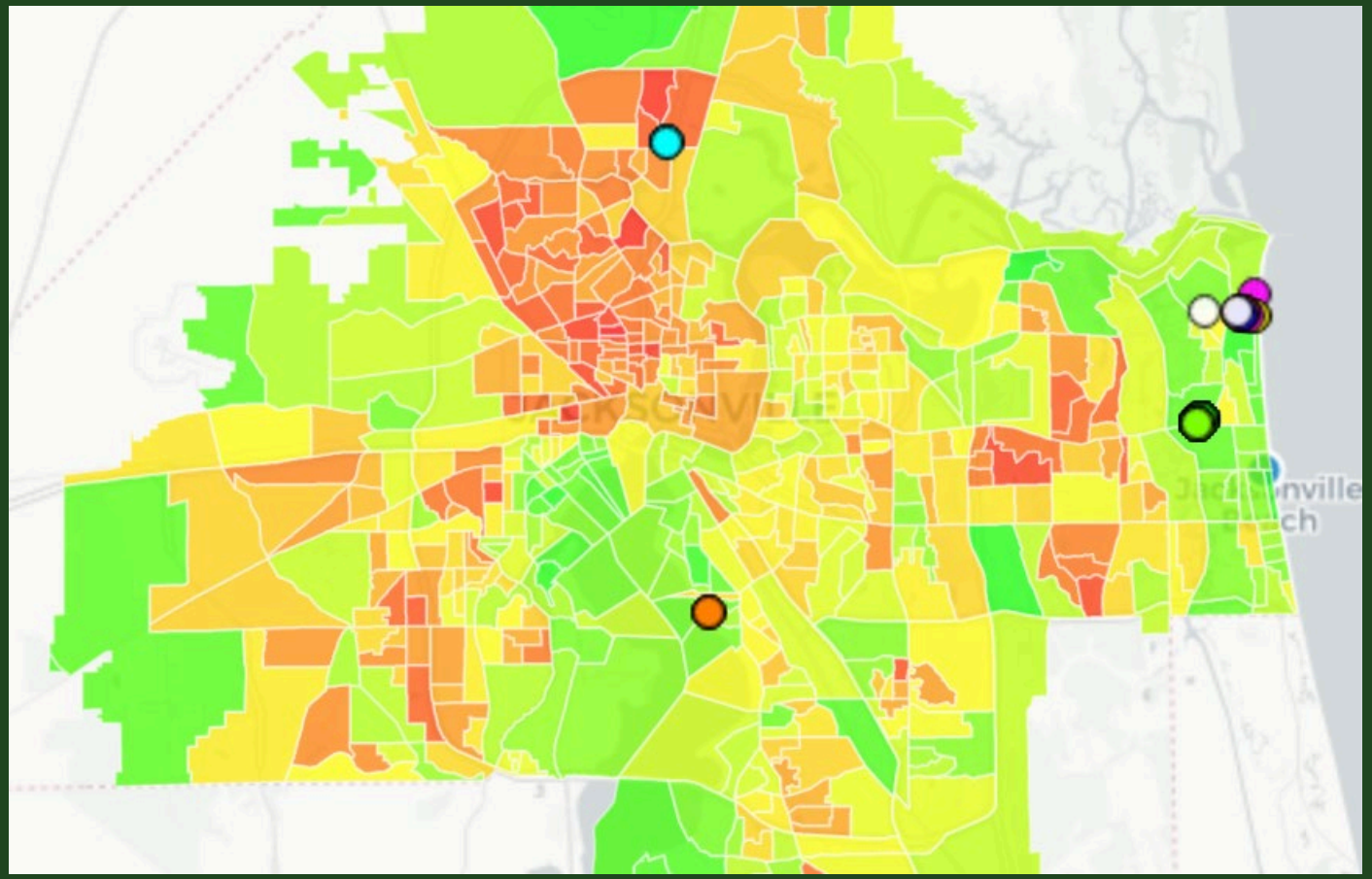
JaxDigsTrees Webtool
Canopy Planner Tab



JaxDigsTrees Webtool
All Criteria Equally Weighted

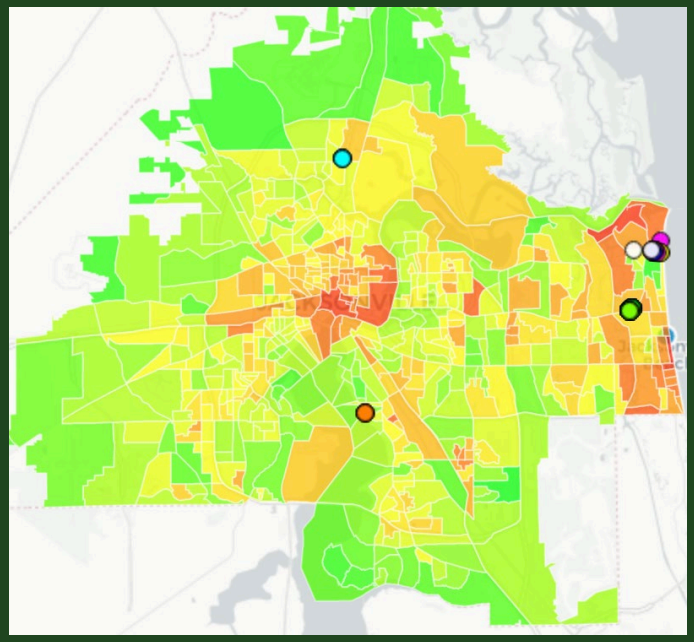


JaxDigsTrees Webtool
All Criteria Equally Weighted



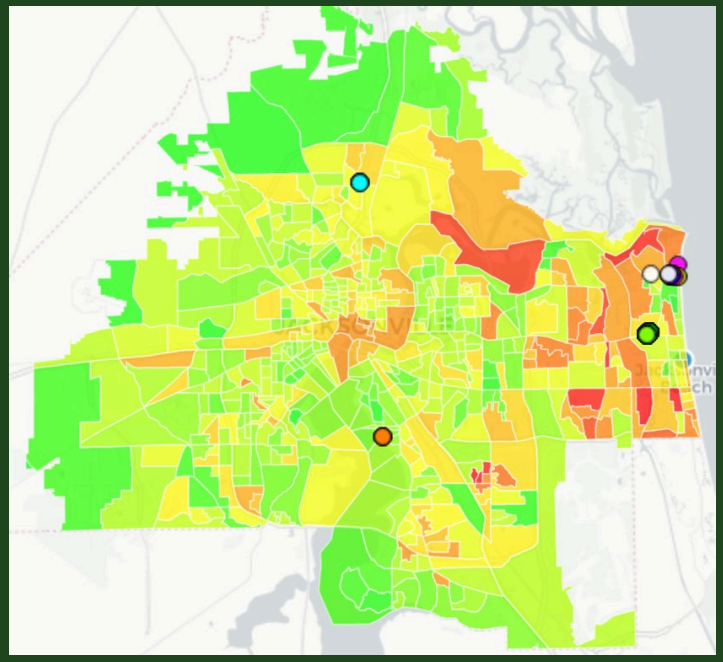
JaxDigsTrees Webtool
Urban Tree Canopy Percentage

-Add Weight to Census Blocks with Low Existing Tree Canopy Cover

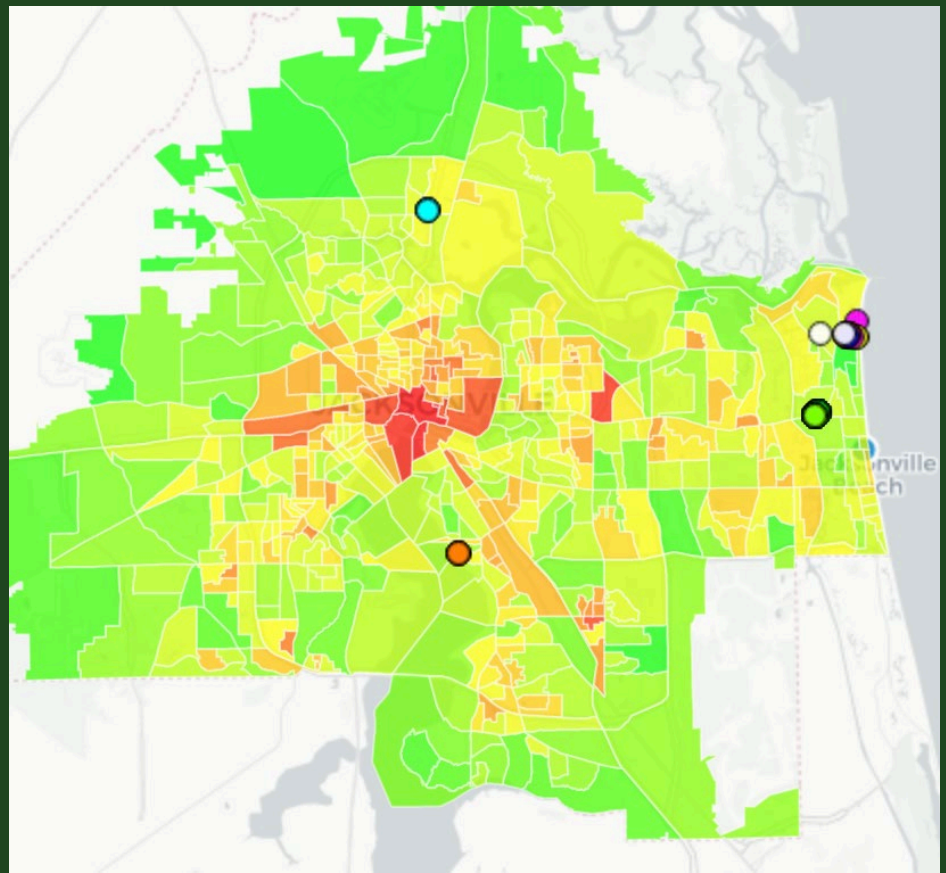


JaxDigsTrees Webtool Evaluation Stormwater Benefits

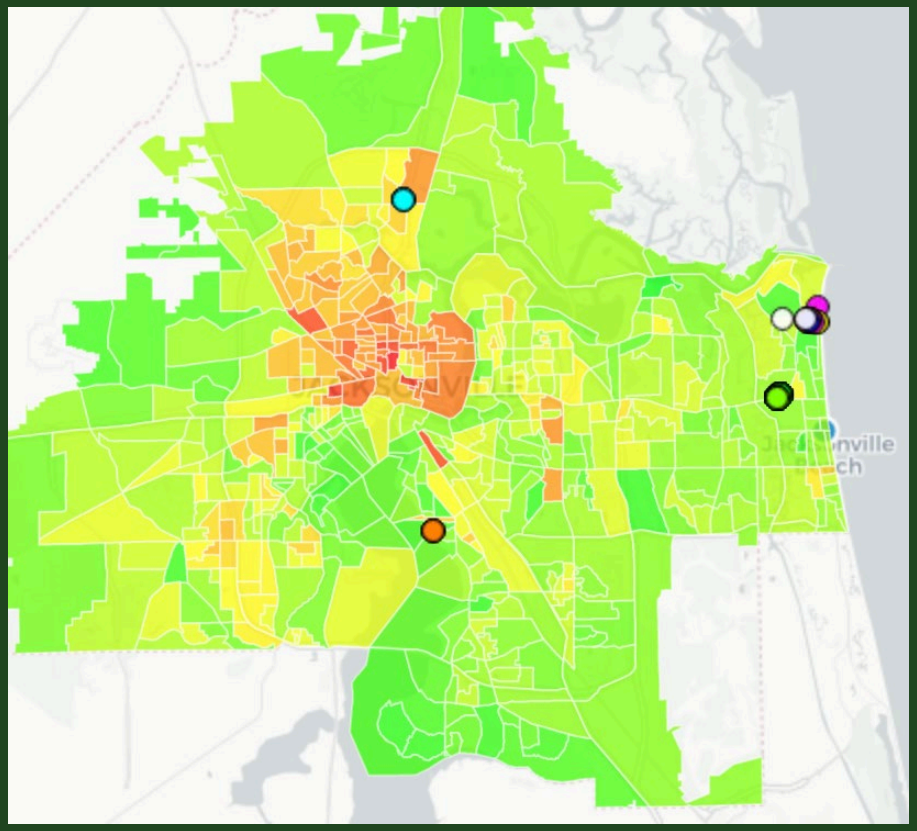
-Add Weight to Areas with Plantable Areas Near Surface Waterbodies



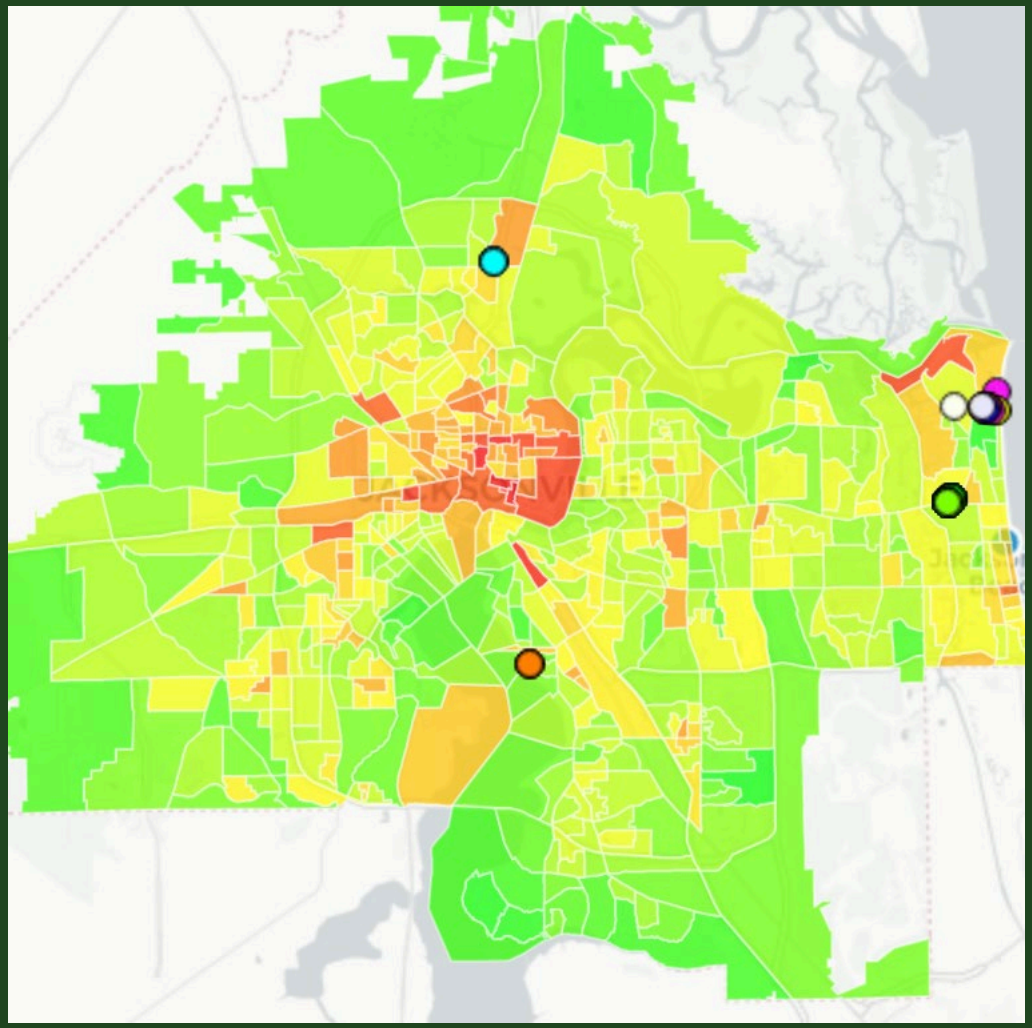
JaxDigsTrees Webtool
Urban Heat Islands
High Impervious Surface Area



Socio-Economic Criteria
Underserved, Minority, & Vulnerable Populations



Socio-Economic Criteria
Underserved Populations



Questions & Comments

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JAX DIGS TREES

PUBLIC TRUST

Enviromental Legal Institute of Florida

TREE MITIGATION
CITY OF JACKSONVILLE

TREE REMOVAL PERMIT INFORMATION

Click here to search detailed information on Site Clearing and Tree Removal Permits. In reviewing tree removal information on a specific permit, for "B" permits click on the Spec 2 tab; for "L" permits click on the Tree Mitigation tab.

TREE FUND CITY PLANTING PROJECTS

Click here to search detailed information about City Tree Fund Planting Projects.

AVAILABLE FOR APPROPRIATION

15F (Ordinance): $17,881,492.01
15N (Charter): $3,685,544.69
Total: $21,567,036.70

FILE AN ISSUE

Click here to report site clearing or tree removal without a permit, or to request tree maintenance on public property. In the CARE System, select "Tree Remove or Landscape Violation" from the dropdown.

Disclaimer: The AVAILABLE FOR APPROPRIATION information shown on this page is updated nightly from the City's financial records, but does not include any pending appropriations, or other financial transactions of the funds which have not been completed.

If you experience difficulty viewing or accessing the documents provided on this site, or navigating this application's table features, using any assistive technology please contact the Disabled Services Division at 904-630-4940 or 904-630-4933 (TTY) to request an accommodation.

Version: 1.0.0.6

As of February 22, 2018