



National Urban & Community Forestry Advisory Council (NUCFAC)



report to **The Secretary of Agriculture**

on **Catastrophic Storms and Urban Forests**



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⌘ Council Members

BRENDA M. ALLEN

Assistant Professor, School of Forestry & Wildlife Sciences, Auburn University
Extension Specialist-Urban Forestry, Alabama Cooperative Extension System
Representing academic institutions

CATALINO BLANCHE

National Program Leader, Natural Resources and Environment, USDA CSREES
Representing USDA Extension Service

JUAN CARLOS CERVANTES

Former Director of Science and Research for the International Society of Arboriculture (ISA)
Representing professional renewable natural resource or arboricultural societies

JAMES E. HUBBARD

Deputy Chief, State and Private Forestry
Representing the USDA Forest Service

J. JAMES KIELBASO

Professor Emeritus, Urban Forestry, Michigan State University
Representing non-government employee living in city with population of less than 50,000

MELANIE R. KIRK

Texas Cooperative Extension
Representing academic institutions

DAN LAMBE

Vice President of Programs at the National Arbor Day Foundation
Representing national non-profit forestry and conservation citizen organizations

W. NEIL LETSON

Alabama Forestry Commission
Representing State government

CARL NORDSTROM

Executive Director, New Jersey Nursery and Landscape Association
Representing forest products, nursery, or related industries

SUZANNE PROBART

Owner, Southwest Interiorscape Ltd.,
Representing urban forestry, landscape, and design

STEPHEN SHURTZ

Landscape and Forestry Manager for the City of Baton Rouge, Louisiana
Representing city/town government

STEVE SINCLAIR

State Forester, Vermont Department of Forests, Parks, and Recreation
Representing State forestry agencies or equivalent state agencies

ALICE EWEN WALKER

Executive Director, National Alliance for Community Trees
Representing national non-profit forestry and conservation citizen organizations

BOBBI WALLACE

Manager, Surface and Waste Water, Kirkland, Washington
Representing county government

JOE WILSON

Chair, NUCFAC
Executive Director of Keep Greater Milwaukee Beautiful/Greening Milwaukee
Representing non-government employee living in city with a population of more than 50,000

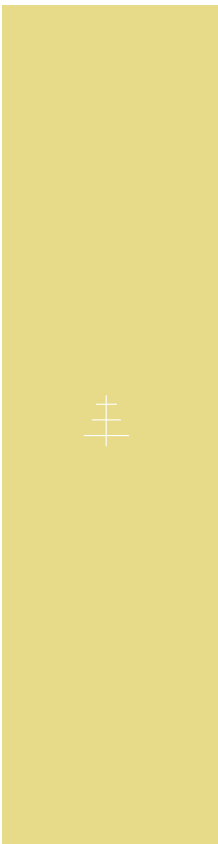
LARRY WISEMAN

President of the American Forest Foundation
Representing academic institutions



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Catastrophic Storms Speak Up, I One of the simplest and community recover from

"I am very interested in helping communities prepare for catastrophes and would like to learn how others, with direct experience, have managed devastating storms."

In the aftermath of recent storms, the National Urban & Community Forestry Advisory Council (NUCFAC) approved during their June 2006 meeting in Minneapolis a proposal to collect public testimony on the issue of catastrophic storms and urban forests. The goal was to use the widest array of ideas and cross-section of perspectives to develop recommendations to the Secretary of Agriculture on ways to mitigate this national problem.

From across the nation we invited citizens, policy-makers, and tree professionals to share their input in places where urban forests have been hardest hit by Hurricane Katrina in the Gulf region, by ice storms in the Midwest, by tornadoes, by wildfires and other devastating storm events. This public forum input is an important planning tool for addressing the immediate and long-term impact of catastrophic storms on urban forests.

Joe Wilson, Chairperson

National Urban & Community Forestry Advisory Council (NUCFAC)

Storms & the Urban Forest Plan & Protect!

and yet most effective ways to help a
from a storm is to **repair and replant its trees.**

THE PUBLIC WAS ASKED TO ADDRESS FOUR KEY QUESTIONS:

- 1 How can we empower communities to protect urban forests during catastrophic events?
- 2 What are the lessons learned from other communities sustaining long-term tree loss from natural events?
- 3 Where can we improve public policy to best address urban forests impacted by catastrophic storms?
- 4 How can we effectively partner with other agencies, companies, community groups and citizens in planning for these devastating events?

FINDINGS

Storm Impacts on Urban Forests are a National Problem

The impact of storm-damaged urban trees cannot be underestimated. Trees may topple over or break apart, while others are damaged beyond repair only to fail long after the storm occurred. The results commonly affect communities by clogging streets, disrupting utilities, loss of city services, and increasing recovery costs.

The Consequences affect our urban forests and our communities

Storm-damaged urban trees are a major issue along with storm debris cleanup efforts and costs. Corps of Engineer models estimate that common hurricane generated debris consists of 30% clean woody material, such as shrubs and trees. Safety to the public and cleanup crews is a serious concern. The number of chainsaw and debris cleanup injuries among homeowners spikes after major storm events. Following hurricanes Ivan and Katrina alone, OSHA inspectors intervened in over 400 tree trimming and 300 debris removal operations affecting nearly 1,000 workers. During the ensuing chaos, public safety becomes compromised when homeowners and unlicensed tree contractors take matters into their own hands. The long-term consequences of catastrophic natural events can be seen for many years and highlight the devastating results of losing urban forests and tree canopy.

RECOMMENDATIONS

Government has an important role

The severity of storm events mandates the development of a national public policy for urban forests and having it become part of any emergency management planning.

- 1 Develop a National Urban Forestry Disaster Response Plan in partnership with FEMA that includes post-storm assessments by qualified arborists.
- 2 Initiate tree code research to address current issues, such as urban-interface defensible space for fire prevention, local zoning restrictions for tree selection, and a model for hurricane-responsive tree ordinance.

BENEFITS: Improves standards for public tree policy and insures appropriate emergency response guidelines and post-storm assessments.



Funding is essential

Well funded programs will allow local governments to invest in activities that help communities and their urban forests fare much better before, during, and after a storm event. It is apparent that inadequate and poorly funded municipal tree programs result in unnecessary storm damage and related costs.

- 3** Increase funding for ongoing urban forestry tree care and maintenance to mitigate the impact of catastrophic storms.

- 4** Explore the Wisconsin match-free urban forestry policy as an effective model for providing funding resources for tree replacement and repair following a catastrophic event.

- 5** Request FEMA to develop guidelines for funding tree repair or replacement during storm recovery and to encourage support for the pilot program for community's to develop a pre-approved storm response plan which includes qualified tree contractors.

BENEFITS: Improves storm recovery timeframe, reduces storm related costs, provides long-term urban forestry health, and fosters community and private sector planning.

Stakeholder involvement improves community resilience

Maximizing a community's ability to recover from catastrophic events requires a focus on resiliency – where systems are interdependent.

- 6** Engage more people and organizations in design and stewardship, since green infrastructure planning reduces short-term efficiency (potentially increasing costs), but increases long-term resilience through adaptive co-management and diversified funding.

- 7** Mitigate environmental injustices by focusing on expanding benefits, inclusiveness, management redundancies, and local community empowerment.

- 8** Reduce redundancy and overlap in the co-management of urban forest systems by fully engaging and informing public and private sectors.

BENEFITS: Provides for greater innovation in maintaining urban forest resources and benefits by combining the leadership and implementing recommendations that create a faster and more cohesive response thus increasing a community's ability to recover more quickly from a natural disaster.

US Forest Service Provides Critical Urban Forest Resources and Leadership

The United States Forest Service is uniquely qualified and located throughout the country to address tree care issues with depth of knowledge to achieve community and municipal support. The Forest Service can identify and promote innovative tree care strategies to mitigate storm damage and set industry standards for tree care.

- 9 Include emergency management protocol (i.e. Incident Command System) in current U&CF programs .
- 10 Develop storm response plans in partnership with FEMA and other national organizations.
- 11 Fund more research on storm resistant trees.

BENEFITS: Improves knowledge on storm resistant tree species, leverages best resources at the local, state and federal level.

Public Education and Professional Certification are Important

There is a demand for information to help citizens, private sector, and local governments to make urban trees perform better during and after storm events. Citizens, tree professionals and local governments can work together more effectively when key stakeholders are informed and have guidelines for storm preparedness.

- 12 Public education to increase awareness of the value of urban forests and trees should be made a priority at the local, state, and federal level.
- 13 Request and assist FEMA to require licensing and registration of qualified tree professionals contracted during storm recovery efforts.
- 14 Develop national guidelines for tree professionals hired for storm recovery efforts

BENEFITS: Increases public safety, increases support for long-term urban forest health, decreases injuries, and decreases indiscriminate and reckless tree removal.

Forest Service Collaboration and Coordination with FEMA, HUD, OSHA, IRS and EPA are Essential

The devastating aftermath of Katrina and other natural events has highlighted the pressing need to convene a new discussion between the primary agencies to address strategies, standardized protocols, and on-site coordination before, during, and after storm events.

- 15 Appoint a national task-force to develop strategies and standardized protocols.
- 16 Meet with the task force annually to reinforce the importance of their joint-agency impact.
- 17 Work with the IRS to develop rules for casualty loss, valuation and appraisal as part of the tax code.

BENEFITS: Establishes one "model" for inter-agency storm response, IRS valuation and elevates it to a national priority.



Multi-jurisdictional Approach will make Regional and National Efforts more Effective

Catastrophic storms are not localized, but regional. When storms damage urban trees, it typically affects large populations and multiple jurisdictions. The ability of individual citizens, communities, and local governments to individually prepare and respond can be quickly overwhelmed. Regional and national organizations should organize emergency plans along regional lines so that recovery efforts and resources are delivered more efficiently to multiple communities and states.

- 18** Refine US Forest Service's "Storm Damage Assessment Program" so that it is applicable and practical for use for any storm event anywhere in the US.

- 19** Complete US Forest Service Region Eight "Remote Assessment of Urban Forest Damage" project with University of Florida and expand for nationwide use.

- 20** Incorporate urban forest risk assessment in US Forest Service "Redesign" of State & Private Forestry.

BENEFITS: Coordinates and standardizes the use of existing localized initiatives on a national basis, resulting in cost-effective and efficient use of federal, state, and private funds.

Urban forest management mitigates the problem

It is becoming apparent that improperly managed urban trees that are poorly selected, planted, and maintained result in increased and unnecessary tree loss and community damage. Local governments that implement proactive and professionally managed urban forestry programs can reduce the costs and damages related to storms and urban forests.

- 21** Train first responders as an important strategy in storm recovery planning to include knowledge about tree safety, using qualified professionals and coordinating with appropriate agencies.

- 22** Develop a nationwide forestry disaster preparedness response system to be used by FEMA, other appropriate agencies and the community.

- 23** Provide guidelines for storm event urban forestry resources.

- 24** Support ongoing forestry research to better manage urban forest infrastructure.

BENEFITS: Encourages inter-agency collaboration, insures appropriate resources, and improves community recovery.

FORUM THEMES AND TRENDS

Over a four month period from May to August 2007, NUCFAC heard from 85 people representing all corners of the country. Their comments represented nine central themes.

- 1 Policy changes/national standards and guidelines
- 2 Funding programs
- 3 Resilience and redundancy
- 4 Tree Care
- 5 Public Education and Professional training, licensing and certification
- 6 Casualty and losses/Insurance/tree appraisal – Government
- 7 Task force - Assessment/coordination of national technical resources
- 8 Regional landscape/ecosystem approach
(i.e. GIS/Mapping, assessment/inventory/imaging for decision making)
- 9 Management and planning



PUBLIC COMMENTS

The following comments were taken from individuals who gave input either electronically, by written form, or at the NUCFAC public forum held in Biloxi, Mississippi.

1 Policy changes/national standards and guidelines

- Planning Urban forests are seldom assessed for their ability to withstand tropical weather. There is a “disconnect” between the written laws (municipal public policy) and hurricanes. Tree laws must help craft the 'jambalaya' of ideas and relationships between trees and hurricanes. Tree and landscape laws across the country fail to address tropical weather events in coastal areas. There is a critical need for revision to community tree laws so that communities recognize the relationship between trees and hurricanes in regard to planting, maintenance, pre-storm operations, and post storm clean up and rebuilding the coastal urban forests with more hurricane resistant plantings.
- California's ordinance requires urban-interface defensible space in order to protect property from fire. Homes sprawling into wild lands are a fire threat to their own safety. Insurance companies regularly refuse to cover these structures. Property owners clear to their property lines, but beyond is the wild land where there is fire fuel build up.
- That is the real threat! To date, there is no regulation about how to best manage urban-interface in order to reduce the opportunity for fire that quickly gets out of hand and may take days to get under control. The Environmental Protection Agency has a stake too, because of the potential to lose endangered and protected species.
- Determined to correct an oversight of public policy towards trees, there is a need for better written tree laws that consider the impacts of tropical weather on urban forests in coastal states. There are several ways that tree laws can be made more hurricane responsive. This green paper proposes to the Secretary of Agriculture and to NUCFAC that the nation should determine standards for public tree policy within local zoning law districts for tree selection, planting, maintenance and related storm protective practices in hurricane susceptible areas of the nation. This green paper proposes that code research be conducted and that draft ordinance language be crafted so as to allow for a “model hurricane responsive tree ordinance” to be written and widely disseminated to assist communities with the task of inserting proper, timely and correct tree ordinance language into existing tree and landscape laws.
- There should be a national Urban Forestry Disaster



Recovery Assistance Center that can establish guidelines, programs, protocols, specifications, etc. that could be modified, adopted and implemented on a regular and state basis. (It) should also be the one stop center for identifying what is available from federal, state, regional and local agencies and authorities as regards funding, human resources, equipment, military assistance, private sector, etc. The Urban and Community Forestry authorities need to do a better job of preparing to appropriately respond in a timely manner to disasters affecting trees in the urban – suburban and rural environments.

- Clean woody debris makes up 35+% of FEMA's Public Assistance. There is a need to incorporate urban forestry in the emergency management process. Opportunities include pre-disaster tree repair and clean up contracts, incorporating urban forestry in mitigation planning, blending federal funding in public education, involving urban forestry in ICS and NIMS process, and involving urban forestry in local exercises.
- FEMA should allow pre-disaster mitigation program to allow federal funding for tree maintenance activities. This is cheaper than after the fact. FEMA should allow national tree care standards (ISA). US Forest Service should develop urban tree damage assessment protocol using ICS.
- FEMA policy fosters vast removal of urban trees. They don't pay for tree repair. This forces communities to remove urban trees to get FEMA dollars. There is a need for US Forest Service and FEMA to have post-storm assessments by qualified arborists. Recommendation to the Secretary is to help change FEMA policy regarding urban forests and to develop urban tree assessment teams before storm strikes, like building assessment teams.
- Standardize FEMA documentation.
- Standardize FEMA tree standards.
- Many "real" urban tree hazards show up after FEMA programs close. These continue to pose safety risks long after federal programs end. There is a need to create or adjust federal programs to, at least, offer some help in treating these storm related tree problems.
- Government assistance and financial help is essential to restore the urban forest. Make these programs user-friendly and avoid bureaucracy.
- Contracting for tree related purposes before a storm is by far the most effective way to go.
- Nothing in our city's laws requires ISA Certified Arborists. That needs to change.
- There is a big disconnect between FEMA and clean-up crews. Staging areas used to collect debris are huge and damage surrounding trees by soil compaction. Debris cleanup crews often damage healthy survivor trees as well. FEMA did not accept urban tree assessment done in Louisiana communities by Forest Service, ISA, and Society of Municipal Arborists.
- FEMA quality control people had little knowledge of professional tree care standards. Many cleanup activities were harmful to remaining trees. I recommend that the Secretary work with FEMA to make them more receptive to professional tree care standards.

2 Funding programs

- Provide money for cleanup and replanting after the disasters. It is vital that replanting and greening take place as soon as possible to help the healing and rebuilding of both lives and communities
- I strongly urge NUCFAC to recommend to the Secretary of Agriculture and the Forest Service, that they also adopt Wisconsin's match-free urban forestry grant policy in the event of catastrophic storm events. Most states do not have the luxury of a state-funded urban forestry grant program like Wisconsin has, and they often rely on the Forest Service U&CF grants to fund their pass-through grant programs if they even have one. Allowing the federal urban forestry funds to be awarded without documented match in the event of a catastrophic storm will acknowledge the reality of both the needs of the urban forest and the match that is actually taking place without the barriers of bureaucratic red tape that are to the detriment of the community, its urban forest and the federal program dedicated to serve them.
- Fund local urban forestry initiatives such as 1991's America the Beautiful legislation, at the \$50 million level.
- Many federal, state, private groups provide tree replacement funds immediately after a storm. For most communities, tree replacement is not a priority until later in the recovery and healing phase. Financial assistance programs to replace urban trees should be made available when communities are ready.
- Less bureaucracy and more leadership. More funding, and greater accountability for where dollars are spent. Greater coordination of efforts among agencies, organizations and individuals involved in the response.
- Funding for removal of fuel build up in wild lands and public education about preparation of homes with non-flammable construction and landscaping materials.
- Funding is made available for tree replacement and repair storm damaged trees.
- As our climate changes, planning and funding is more important than ever for community tree programs. Urban trees cost money to plant and maintain—and maintenance becomes more important than ever in these days of drought, flooding and natural disasters.
- Provide money for maintenance of older trees. Catastrophic events always find the weak ones. In the planning process, give the cities the economic advantage to find the problem trees and either remove or do maintenance. In this way, we mitigate catastrophic events.
- Response from state and federal agencies, although initially good, rapidly drops off when funding becomes overwhelming. The Indiana state government response was to just quit after their initial resources were exhausted. Mitigation (i.e. re-planting the urban forest is left to local communities and NGO's; big pools of dollars at the state or multi-state level; a more coordinated effort by federal agencies that has really staying power.
- We had a sit down meeting with a SEMA representative in mid June. At that time we learned that SEMA/FEMA was piloting a program where if a community had a pre-approve response plan and 2 pre-approved tree contractors under agreement then the community could receive additional reimbursement should they have a disaster. I liked this...it's a carrot to get people to do the necessary planning.
- King County, Washington experienced a devastating storm in December 2006. Thousands of trees failed in the gale force winds and 755,000 customers were without electricity, some for as long as eight days. Within twenty-four hours Washington State's federally-funded Urban and Community Forestry Program was helping cities spread the word about tree safety issues.
- A 59 MPH windstorm in Seattle on December 14, 2006 showed the need for better tree management. Pruning is a safety precaution that prudent managers take to protect valuable trees. Modification of tree architecture by pruning can streamline the tree and reduce wind drag, allowing it to remain upright during storms. Progressive government agencies are recognizing that risk assessment can be vital as a tool



for responsible stewards of the public trust. Funding for tree maintenance will arise out of the public perception of the need to manage this risk.

- Parks and Public Works cannot handle the extra load and do not have funds to hire to do the cleanup and tree repair. FEMA does not fund tree repair or replacement, yet our trees are critical to the environment and should be considered equal in importance as the grey infrastructure.
- During hurricane response, it is important for local and federal funds to be there when needed, so that contractors can be hired and paid on a timely basis.
- More funding for urban forestry planning, tree ordinances, tree inventories, educational outreach, and direct assistance after a storm.
- There is research currently underway to find the value of an urban forest's ecosystem services in the Pacific Island region. I recommend that the Secretary increase funding to research the value of the urban forest in mitigating storm damage to communities.
- Provide funds for an urban forestry recovery plan.
- The technical assistance and grant funding provided to communities by the USDA Forest Service through Washington State Department of Natural Resources have been invaluable in assisting communities in our state, in particular the smaller and underserved locals, to improve the health and extent of urban forests and to raise the bar for the arboricultural profession. The state program has been attenuated in recent years, the grant program virtually eliminated and staffing reduced by more than half because of federal budget cuts.
- Make federal assistance programs local. The funds work better and are more effective. Provide aid to help private citizens to deal with storm damaged tree problems and to restore their urban trees.
- State legislatures need to hear on this issue, so they can enact legislation and funding to make their urban forests safer during storms.
- Funding is needed to help citizens replace trees.
- Federal funding to repair and replace trees is essential to small communities.
- Urban Forestry has a low priority immediately after a storm. Many small communities don't have a professional tree program in place. Liability concern is an issue that hinders assistance designed to inventory and assesses storm damaged urban forests. I recommend the Secretary allow tree removal in its US Forest Service financial assistance programs, set aside federal dollars before storms hit, award these federal dollars shortly after storm event, encourage communities to use professional urban foresters, address public's fear of trees following a storm, and promote the use of storm resilient urban trees.
- After every major storm, there is a "merry-go-round" of personnel (i.e. FEMA, Corps of Engineers). Because of this (and politics), communications between emergency related groups, agencies, and local governments is not good. In communities where urban tree assessments were done, there was a time delay before tree remediation could be done. I recommend that the Secretary talk with FEMA about combining, or making concurrent, Individual and Public Assistance. I also recommend that FEMA be allowed to grind urban tree stumps.
- Must provide funding for long-term urban tree care.

3 Resilience and redundancy

- Efficiency and redundancy—by engaging more people and organizations in design and stewardship, green infrastructure planning reduces short-term efficiency (potentially increasing costs), but increases long-term resilience through adaptive co-management and diversified funding. This places natural resources at the center of discussions of community resilience.
- My agency also needs to offer pre-storm planning to communities. We need to all be working with similar pre-storm planning models in all the states and we need to develop “strike teams” of personnel that can respond to storm events in a similar manner to the way state agency personnel respond to fire events through compacts. These teams need to be trained so that their efforts can fit into ICS protocols.
- The secret to the success of the NeoSynthesis Research Centre is putting all of the pieces together. Over the years, the co-founders, staff, visiting scientists, an international networks of associates, have been putting all of the pieces together. We've worked with business people, investors, trade shows, governments, private foundations, etc., to get the job done. By organizing new cooperative groups and ventures, we've discovered affordable alternatives. Tsunami hits and we help rebuilding communities through urban forestry. We established coastal forests by the kilometer to protect the community of Kalmunai against future tsunamis. Kalmunai lost 6,000 of 30,000 people to the powerful waves.
- Mitigation is important. In my opinion, mitigation should be on public and private property. We should be encouraging green parking, innovative storm water techniques through open space and building within the trees. For small towns, they probably just need someone to come in and help them hire contractors and take care of the details of funding, tree maintenance and removal of damaged trees. Educated foresters and arborists from the local area should be on hand to help communities with this issue.
- Recovery of the urban forest is a long-term commitment.

4 Tree Care

- **Concerns over commercially planted trees:** Landscape industry has gone to 2" cal 25 gal or so containerized large species because easier to plant/longer planting season than B & B. In spite of ANSI Nursery specs, most real world specimens are significantly root bound. Reputed studies indicate girdling rooting in spite of scarifying, etc. Frequently mulched way too deep. Adverse affect on anchoring should tree attain size?
- Some private citizens along the Gulf Coast believe their live oaks saved their homes from tidal surge debris.
- Tree stresses due to these environmental factors will have a long term effect on our urban trees throughout this region. Plant stresses due to root & stem damage, insects, and soil contaminations will have negative impacts in plant vigor and with inventories
- A 59 MPH windstorm in Seattle on December 14, 2006 showed the need for better tree management. Pruning is a safety precaution that prudent managers take to protect valuable trees. Modification of tree architecture by pruning can streamline the tree and reduce wind drag, allowing it to remain upright during storms.
- The Sabal or cabbage palm (Sabal palmetto) and saw palmetto (Serenoa repens) were essentially the last plants left standing in severe storm surge and over wash areas. The flexible trunks, stems and branches and the ropelike, deep ascending fibrous root systems are well adapted to surviving hurricane damage. The

coordination of supplies and maintenance of seed and growing stock of hardy native beach and dune vegetation is needed to ensure sufficient material for post storm recovery and replanting. Continue funding research, production and outreach activities related to hardy native beach and dune vegetation.

- In storm prone areas - plant more storm damage resistant trees. A lot of research has been done on this subject but maybe more is needed. Increase budgets to perform timely canopy maintenance on all trees, particularly large ones with big crowns, to help make them more "storm resistant." Each community needs to develop a Storm Emergency Plan patterned on this template: <http://www.treelink.org/nufac/biloxi/press/TreeEmerPlanWkSheetJune2006.pdf>.
- The Emerald Ash Borer (& other insect/disease pest) can be a "slow storm" catastrophic event that impacts many cities/towns in a region. It's difficult to plan for an unknown pest, but once one is in the area, planning can be very helpful.
- Set larger minimums for tree pit size – at least 7 feet by 7 feet. Trees (except for Crape myrtles) should never be planted under overhead power lines. When hundreds of trees need to be replaced at once, using the opportunity to create an urban "arboretum" can be a wonderful result. It is important to depend on locally educated first responders.
- They (cities) also tend to purchase trees that are not

suitable for the restricted root location in which they are planted. When a storm occurs they topple due to poorly developed root systems. These same trees in a 'natural' forest would withstand the wind/ice because of proper root development.

- Catastrophic storms can increase invasive species problem. These storms also provide an opportunity to make the urban forest bigger and better.
- Emergency management decisions at the federal, state, and local level should pay careful attention on how they select professional tree care contractors. Look for ISA and TCIA certifications.
- Greatest damage in my community following Hurricane Katrina was to the trees. We lost 25% of our trees. We are continuing to lose trees to insects and other storm related problems.
- We are trying to teach our community that we must plant now for future disasters, properly maintain and improve the health of what we have now and plan more for the future. We must now be part of the emergency management plans. Cleanup must incorporate a more accurate assessment of our urban forest.
- Trees responded differently to Hurricane Katrina. Live oaks are tough, while pine trees suffered more damage and are continuing to decline. People are beginning to replant and getting help from the state. We're open to input.

5 Public Education and Professional training, licensing and certification

- Continuing the workshops that have been going on for the last few years about storms and trees. Knowing the true impacts that storms have on trees both initially and afterward - and being able to convey that information to the public - especially getting them to reinvest in the trees by recognizing the importance that the trees are worth the replanting
- Many communities and emergency management agency's use tree service companies that are not properly

trained or qualified. We will see the results of improper tree care practices for years.

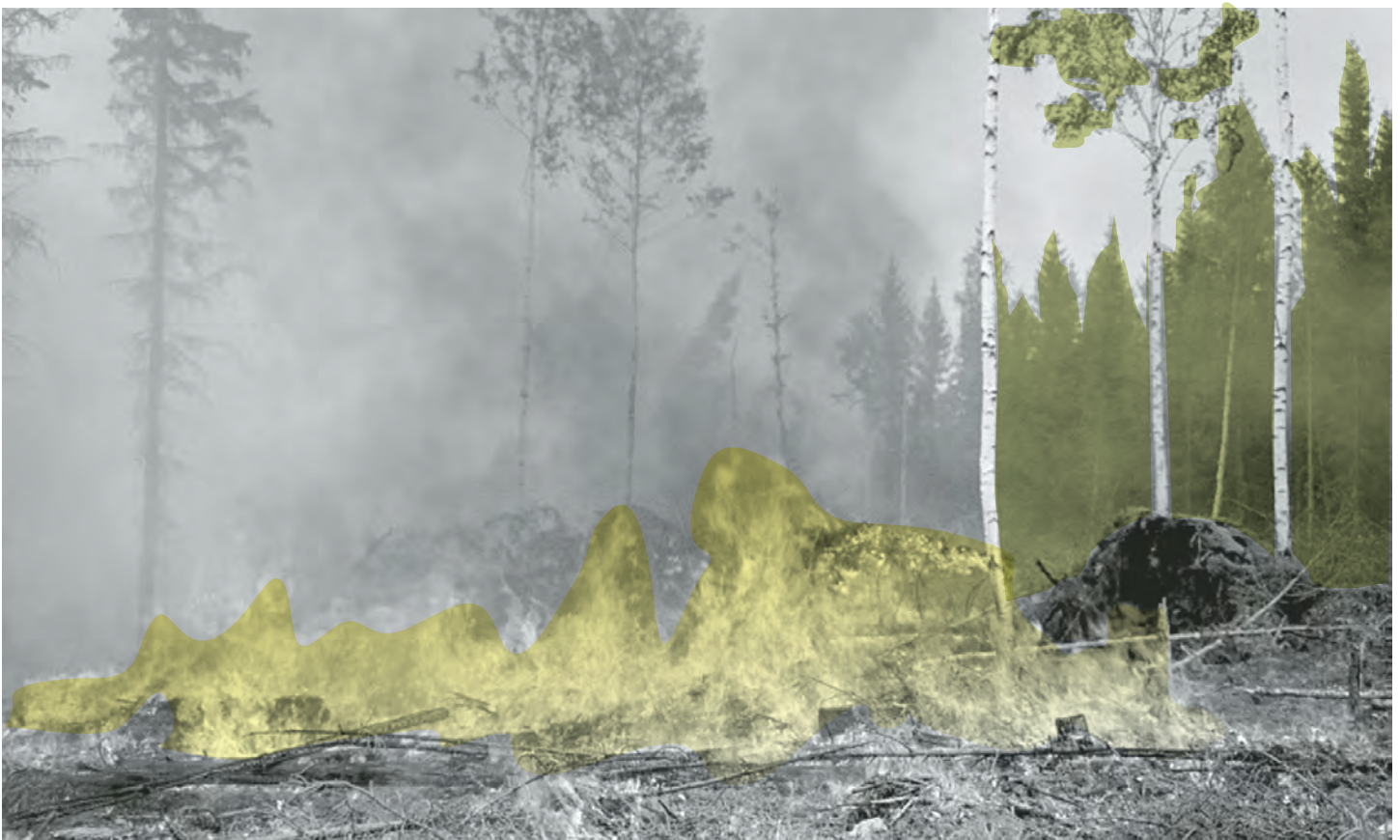
- After Hurricane Katrina, many local communities lifted restrictions and requirements for tree service companies. The result was increased damage and injuries to remaining urban trees. Local governments should never lift arborist restrictions to facilitate cleanup. Instead, there should be more training to help tree service companies' cleanup storm damaged trees professionally.
- There are not enough qualified tree care companies and workers to handle the damage to trees created from ice, wind or wet spring snow storms. People hire "fly by

night" businesses and the trees are damaged as much by these services as by the storm. Parks and Public Works cannot handle the extra load and do not have funds to hire to do the cleanup and tree repair. FEMA does not fund tree repair or replacement, yet our trees are critical to the environment and should be considered equal in importance as the grey infrastructure.

- Micronesia. Pohnpei, being a small island, is covered under the Urban and Community Forestry Program, USDA Forest Service, from the top of the highest mountain down to the mangrove forests in the coastal swamps. With the assistance of the U&CF program, we have been conducting for the past several years education and awareness programs, carried out by the U&CF coordinator, to educate the public, especially farmers, the importance of the upland forests in preventing landslides around the island. With Forest Stewardship Program assistance we have put in the boundary for the watershed forest reserves around about a third of the island.
- "Corps of Engineers" contractors cut and remove tree debris based on price and volume. This wastes

government resources, because of trees that didn't warrant removal.

- I recommend the Secretary encourage FEMA to use professional arborists in emergency management planning, Use ISA Certified Arborists to evaluate urban trees after a storm, mandate that urban forestry be included in mitigation planning, and build capacity within USDA to help communities mitigate storm damage to their urban forests.
- The need for ongoing urban forest assessment, planning, hazard reduction and restoration. Utilizing regional urban forestry educational, research and outreach programs for providing a comprehensive urban forestry plan for the coastal areas. Providing internship opportunities for students to engage in research and outreach activities pertaining to planning, recovery, response and mitigation.
- Research must be undertaken to craft 'model' technical language for inclusion into local community tree laws and landscape ordinances.



- (Following storm events) fly-by-nighters arrived by droves. My suggestion is to create and train extensive teams of urban foresters to oversee monitoring and types of tree work required. Also, these teams could determine which sub-contractors were hired for the skilled work needed in the trees.
- Increase public awareness to help citizens deal with storm and urban tree problems. Provide more education to help communities utilize wood waste generated by storms.
- Strengthen government requirements for licensing and registration of post-storm tree service contractors.
- Education and training of the tree care workforce is needed. It must be safety minded and professional. Chainsaw injuries are a big problem, especially after the storm. Public education is the key. I recommend that the Secretary push for national guidelines in education and training.
- Many homeowners become fearful of urban trees after a storm event. In fact, many healthy trees in our town were cut down before the next hurricane because of fear they would fall on the person's home. How can we deal with this tree-phobia?"
- There are numerous injuries due to homeowners using chainsaws or working with storm damaged trees improperly after a storm event.
- There is a need for "canned" PSA messages that are in place and online so that agencies and local governments can release them to the media to curb public hysteria about their trees.
- Beginning with Hurricane Hugo in 1989, we have maintained a business-to-business support network that helps to deliver highly competent, well equipped crews into storm-hit areas to augment the work that can be done by competent local companies. We advise would-be responders from outside the area of all the profound challenges of storm-chasing. Finally, we communicate with the consumer via our TCIA.org web site and our consumer-oriented site called TreeCareTips.org about what they need to do to plan, and how they should choose a tree service firm with which to contract.
- FEMA and Army Corp of Engineers have learned through experience that safety training is an integral part of storm emergency preparedness. Get contracts ahead of time with qualified tree care professionals, anticipating the shortage of competent help.

6 Casualty and losses/Insurance/tree appraisal

- Unfortunately, volunteer training was inconsistent and FEMA guidelines for removal may be too broad. This led to a lot of inefficiencies. I recommend that volunteer training programs be more fully developed given how crucial the volunteer role can be during tree "preservation and risk assessment" efforts. Also, I recommend that guidelines for FEMA eligible tree work be written specific to the type of storm (i.e., ice storm vs. snow storm vs. hurricane vs. tornado, etc.). Given the best available science, some trees that meet removal guidelines may be saved. But who can assume that burden of liability? Therefore, FEMA guidelines should be more fully developed to include the best available science for tree loss specific to a type of storm and should clearly address liability issues.
- There is a big issue with how to assess the value of storm damaged or destroyed urban trees after a storm. Many homeowners look for standard appraisal guidelines to help them claim a loss on their tax returns. The IRS does not have a published rule to guide professionals in assessing this value. I recommend that the Secretary ask the IRS to give professional appraisers specific rules and/or clarifications to assess the value loss of a storm damaged shade trees.

7 Task force - Assessment/coordination of national technical resources

- Convene a new discussion—one that engages the Forest Service, HUD, the EPA, and FEMA—on the interrelationships and co-dependencies between the resilience of cities and the resilience of natural systems. This will strengthen environmental, social, and economic services in communities. The federal Rivers & Trails Conservation Assistance Program—a joint venture between the National Park Service, BLM, and America’s Outdoors that places technical assistance providers and grant funds in communities—provides one model for inter-agency collaboration.
- In the aftermath of Hurricane Isabel in Virginia (2003) FEMA was not able to effectively deal with tree loss by communities in terms of putting an S value on the loss and was not very well organized in its approach to determining loss. Specifically, we need an agreed upon protocol to assess storm damage that will yield data that will be acceptable to FEMA.
- NACO would like to be active partners with federal agencies and others.
- Recommend that Secretary convene meetings with other federal agencies, such as US Forest Service, HUD, EPA, and FEMA, to develop strategies to make urban forests more resilient to future storms.
- Require US Forest Service to adopt and implement post-storm urban tree assessments.
- OSHA only had 100 people to enforce federal safety rules following Katrina. They need more resources to keep tree related workers safe.
- There must be more collaboration between state and federal agencies.
- One issue is that when resources and people are brought in to assess urban tree damage, logistical arrangements (such as housing) is a problem.
- Partnerships are needed with US Forest Service, EPA, NASA, “state agencies,” “local governments,” etc. I recommend that the Secretary strengthen relationships with other organizations and really make it work. There is a need to go beyond the current level.

8 Regional landscape/ecosystem approach (i.e. GIS/Mapping, assessment/inventory/imaging for decision making)

- I encourage NUCFAC to vigorously advocate including a national Urban Forest Inventory and Analysis component as part of the Forest Service’s Timberland FIA program. This would give all states the information Wisconsin has on the composition and extent their urban forests and the values and services at stake, not only in the event of catastrophic storms, but other natural disasters such as emerald ash borer.
- It is important to be able to utilize ICS system (typically used for wild land fires) on urban forest storms.
- High-resolution tree canopy mapping from aerial or satellite imagery, before and after storm event. Biomass/volume removal estimates. Economic and environmental loss statements after urban forest damage due to storms.

9 Management and planning

- Debris management – severe damage to 50% of Mississippi; Unprecedented amount of debris, mostly vegetative above the coastal counties.
- Train first responders. Plan ahead to save old trees. Provide funds for long-term care.
- During and after electric service has been restored local, state, and federal agencies should work together to develop more comprehensive debris removal programs that insure debris removal does not cause further damage to overhead and underground electrical facilities. From our standpoint it would be helpful if criteria for the removal of dead and dying trees on public rights of way as well as private property is developed in advance of disasters by urban forestry professionals giving consideration to overhead and underground electrical facilities. Also, tree removal contractors should be qualified to work in close proximity to energized conductors.
- Managing crews for safety and efficiency during event can always be handled better.
- How about better radio/other communications hardware compatibility between responding agencies or even within an agency? Include backup systems here.
- Plant the Right Tree In the Right Place
- Systematically Identify and Mitigate Hazard Trees on and off Right of Ways.
- Maintain Full Rights of Way Widths. Reclaim encroachments. Include off Right of Way Hazard Tree Language in Servitudes. Apply Tree Growth Regulators to Reduce stress and decrease the number of hazard trees after storms in Urban Areas. Prepare for the “after shocks” of beetle infestation and soil contamination particularly with post storm droughts (regular aerial patrols).
- Standardization - Make sure you have the right people involved from as early on as possible, preferably in advance of an event.
- Adequate and comprehensive response to trees and catastrophic events is a two part process. First, communities must have the resources to plan and implement disaster event management plans. Risks, response, and mitigations can be reviewed, selected and implemented in a reasoned way to prepare for events. Second, if a catastrophic event happens there must be adequate resources for communities to act on their plans. This includes budget, staff, equipment and space to rapidly assess damage conditions, prioritize actions, and respond in a timely way. National resources are needed for communities to respond to catastrophic events and urban trees. Research is an important aspect as biophysical studies can help us better manages city trees and forests to minimize risk and damage, and social science studies can help us to create better communities.
- 1) Make certain that the community's tree inventory is complete and current. 2) Educate and re-educate the public--trees to remove and trees to save... 3) Insist that qualified forestry professionals are in charge of damage assessments related to tree health. Have local forestry professionals on hand to direct and monitor all work. 4) Develop a nation-wide urban forestry response system for FEMA to use and contractors to follow. community response systems that engage citizens and decision makers.
- 1) Forestry research and the effective dissemination of findings to practitioners. 2) Ongoing coordination efforts among agencies handling storm preparedness and response. 3) Forestry technical and financial assistance to communities. Small cities and grass roots groups in underserved communities are in particular need of help. 4) Develop strategies and tools for improving tree and forest management on private property and to educate landowners what does and what does not constitute a risk from tree failure.
- Encourage, support, fund, if necessary, the development of pre and post disaster preparedness plans for local agencies that have a relationship with the urban forest. Include in the post disaster

assistance teams (FEMA, Red Cross, etc) Arborist with damage assessment experience to assist local arborist. Encourage the development of the local seed banks and/or public nurseries for urban greening efforts after the storm. Funding may be needed.

- Any national strategy to mitigate the impact of catastrophic storms and urban forests should include employee safety standards.
- We had a sit down meeting with a SEMA representative in mid June. At that time we learned that SEMA/FEMA was piloting a program where if a community had a pre-approve response plan and 2 pre-approved tree contractors under agreement then the community could receive additional reimbursement should they have a disaster. Support SEMA/FEMA's pilot program. Allow FEMA greater latitude to address mitigation of future problems (i.e. allow proper tree pruning and/or removal of the entire tree at the time of the disaster). Require FEMA to have all tree assessments and identification of tree work done by a qualified and preferably ISA Certified tree expert.
- Need to start thinking about urban forest as a system, not

localized. Use new technologies such as remote sensing,

- There is a critical need for planning before catastrophic storms affect the urban forest. It needs to involve the private sector.
- Citizens must be involved in storm related urban forestry issues. They are the agent for the most effective change. Government agencies should provide training to help citizens be a more effective force after storms occur.
- Most Mississippi communities took for granted their urban forests. After Hurricane Katrina, it became apparent more needed to be one to manage this resource. Mississippi communities need urban tree assessments and inventories, access to arborists, better wood waste utilization, national and regional resources after a storm, better urban tree replacement programs, and better education and training.
- Planned communities are the key to restoring the Gulf Coast. More greenways and parkways are needed.
- Must plan ahead to make urban forest recovery effective. Planning must include wood waste utilization and establishment of local banks.



CONTRIBUTORS

The response to NUCFAC's call for input was nationwide. Individuals from every aspect of urban forestry and those groups affected by storm damaged urban trees spoke out. Collectively, their comments are about making things better for our urban forests and people. The Council sincerely appreciates the time and effort each person took to make their voice heard.

BILOXI FORUM JUNE 6, 2007

1. Kamran Abdollahi – Southern University, Baton Rouge, Louisiana
2. Rachel Barker – American Public Works Association, Washington, DC
3. Phil Bass – EPA Gulf of Mexico Program, Stennis Space Center, Mississippi
4. Joe Baucum – Louisiana Urban Forestry Council, Jefferson Parrish, Louisiana
5. Xavier Bishop – City of Moss Point, Mississippi
6. Robert Boyd – Mississippi Power Company
7. Beau Brodbeck – Alabama Cooperative Extension System, Bay Minette, Alabama
8. Tom Campbell – Louisiana Department of Agriculture & Forestry, Baton Rouge, Louisiana
9. Rob Crawford – Gulf Coast Urban Forestry
10. Tony Dixon – USDA Forest Service, Jackson, Mississippi
11. Mahlon Doucet – Louisiana Department of Agriculture & Forestry, Baton Rouge, Louisiana
12. Norm Easey – International Society of Arboriculture, Sarasota, Florida
13. Randall East – USDA-NRCS, Grove Hill, Alabama
14. Jean Fahr – Parkway Partners, New Orleans, Louisiana
15. Parah Fishburn – Senator Cochran's Office
16. Debbie Gaddis – Mississippi State University, Starkville, Mississippi
17. Peter Gerstenberger – Tree Care Industry Association, Manchester, New Hampshire
18. Mark Graffagnini – Tree Medics Inc., New Orleans, Louisiana
19. Charles Harrison – City of Biloxi, Mississippi
20. Jerry Henderson – Mississippi Power Company
21. Britt Hubbard – Mississippi Forestry Commission, Hattiesburg, Mississippi
22. Erik Johnston – National Association of Counties, Washington, DC
23. Michael C. Knobloch – Louisiana Urban Forestry Council, Baton Rouge, Louisiana
24. Chris Lagarde – Congressman Gene Taylor
25. Sylvia Jean Landry – The Nature Conservancy, Grand Isle, Louisiana
26. Grant Larsen – Mississippi Department of Marine Resources, Biloxi, Mississippi
27. Heather Mann – Urban Open Space Foundation, Madison, Wisconsin
28. Kyanna McCray – USDA Forest Service
29. Mayor Chipper McDermott – City of Pass Christian, Mississippi
30. Emilie Mims – Chamber of Commerce, Atmore, Alabama
31. David Minkler – City of Ocean Springs, Mississippi
32. Gary Moll – American Forests, Washington, DC
33. Gary Mullane – American Society of Consulting Arborists, Rockville, Maryland
34. Zhu Ning – Southern University Urban Forestry, Baton Rouge, Louisiana
35. Eric Nolan – City of Biloxi, Mississippi
36. Rick Olson – Mississippi Forestry Commission, Jackson, Mississippi

37. Andy Parker – City of Hattiesburg, Mississippi
38. Larry Payne – USDA Forest Service, Washington, DC
39. Steve Pearson – National Arbor Day Foundation, Nebraska City, Nebraska
40. Robert L. Prather – USDA Forest Service, Washington, DC
41. Warren Quinn – American Nursery & Landscape Association, Washington, DC
42. Cynthia Ramseur – Eco Logic Restoration/LTMCP, Ocean Springs, Mississippi
43. Eric Ray – American Forests, Washington, DC
44. Dick Rideout – Wisconsin Department of Natural Resources, Madison, Wisconsin
45. Nolan Rundquist, City Forester, Seattle, Washington
46. Steve Scott – National Association of State Foresters, Washington, DC
47. Tina Shumate – Department of Marine Resources, Biloxi, Mississippi
48. Ron Smith – USDA Forest Service, Wiggins Mississippi
49. Vertis Stovall – US National Forest, Jackson, Mississippi
50. Teresa Madriaga – Friends of Hawaii's Urban Forest, Kapolei, Hawaii
51. Jan Walker – Replant South Mississippi, Ocean Springs, Mississippi
52. Scott Walker – Senator Trent Lott's Office
53. Charles Williams – Alabama Emergency Management Agency, Montgomery, Alabama
54. Doug Williams – National Association of Conservation Districts
55. Bernie Wisnowski – Arborist, Jefferson Parish, Louisiana

ELECTRONIC & WEB-BASED COMMENTARY

MAY – AUGUST 2007

1. D.G. Abbey – Louisiana State University, Baton Rouge, Louisiana
2. Richard E. Abbott - Kent, Ohio
3. Carri Abner – Muskogee Parks Department, Muskogee, Oklahoma
4. Davie Biagi – Georgia Department of Transportation
5. Burnell "Burney" Fischer – Indiana University, Bloomington, IN
6. Gary L. Eichen – Mikes Tree Surgeons, Inc., Troy, Michigan
7. Jennifer Fidler – Public Works, Fairhope, Alabama
8. Justine Gartner – Missouri Department of Conservation, Columbia, Missouri
9. Joseph Gregory – Davey Resource Group, Cuyahoga Falls, Ohio
10. Donovan Guilbeau – Entergy, New Orleans, Louisiana
11. Ralph Hale – Entergy, New Orleans, Louisiana
12. Ian Hanou – NCDC Imaging & Mapping
13. Bailey Hudson - Santa Maria, California
14. Gene Hyde – City Forester, Chattanooga, Tennessee
15. James Jennings – City of Auburn, Alabama
16. Cheryl B. Kortemeier – Trees Atlanta, Atlanta, Georgia
17. Nicholas Kuhn – City Forester, Albuquerque, New Mexico
18. Edith Makra – The Morton Arboretum, Lisle, Illinois
19. Jerry Moles - New River Land Trust, Blacksburg, Virginia
20. (Unnamed) OSHA, Emergency Preparedness Guide
21. Michael Oxman – Professional Tree Surgeon, Seattle, Washington
22. (Unnamed) Pohnpei, Federated States of Micronesia
23. Mary Ray – City of Prattville, Alabama
24. Paul Revell – Virginia Division of Forestry, Charlottesville, Virginia
25. Carlos Robles – University of the Virgin Islands, Saint Thomas, Virgin Islands
26. Sandra Sellinger – Marin ReLeaf, San Rafael, CA
27. Susan Stead – Nevada Division of Forestry, Carson City, Nevada
28. Linda Vane – King County, Seattle, Washington
29. John Wettstein – Florida Department of Environmental Protection, Tallahassee, Florida
30. Kathleen Wolf – University of Washington, Seattle, Washington
31. Mike Zarichnak – Alabama Power Company, Birmingham, Alabama

Council Staff

SUZY DEL VILLAR
US Forest Service
Sugarloaf, CA

CHARLOTTE KING
Snowden & King Marketing
Communications
Atlanta, Georgia

ED MACIE
US Forest Service
Washington D.C.

SUSAN MOCKENHAUPT
Program Manager, Urban and
Community Forestry
Washington D.C.

ROBERT PRATHER
US Forest Service
Washington D.C.

JUDY STECKLER
Land Trust for the Mississippi
Coastal Plain
Biloxi, Mississippi

NANCY STREMPLE
Executive Staff to NUCFAC
US Forest Service
Washington D.C.

STEVE MARSHALL
Assistant Director, Cooperative
Forestry & Acting
Assistant Director, Urban &
Community Forestry

LARRY PAYNE
Director, Cooperative Forestry

ELLITA HARRINGTON
Public Affairs Specialist
WO

WENDI WEAVER
Public Affairs Specialist
Southern Region



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