

A Comprehensive Look at Tropical Urban Forestry



December 2008

Executive Summary to The Secretary of Agriculture
National Urban and Community Forestry Advisory Council (NUCFAC)



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“We need a summit with different groups in Puerto Rico, Hawaii and the mainland/US Virgin Islands.”

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executive summary report



Tropical forests serve many unique and essential life-supporting roles for the world at large. These important ecosystems are heavily impacted by deforestation, urban growth and expansion, and increased carbon emissions, as well as threats to tropical biodiversity.

On June 18, 2008 the National Urban and Community Forestry Advisory Council (NUCFAC) hosted a day-long public forum held in Rio Grande/San Juan, Puerto Rico. Additional input was gathered through a web-based response forum. “We gathered more than 40 experts and citizens from Guam, Hawaii, Puerto Rico and other tropical islands to share ideas, best practices and research to help us advise the Secretary of Agriculture on urgent issues facing tropical urban forests”, said Joe Wilson, NUCFAC Chair.

Tropical forests in urban and urbanizing areas are incredibly complex ecosystems that provide essential green infrastructure for diverse plant and animal species, are the first line of defense for coastal erosion, capture significant levels of carbon and represent important economic benefits including tourism, nursery production, agricultural food production, pharmaceutical research, as well as timber production.

Without question, the impacts on urban tropical forests cannot be ignored.



The fragile shoreline ecosystems for tropical islands represent “canaries in the mines” conditions. These varied tropical communities share the same challenges related to experiencing **climate change impacts at an accelerated pace**. Tropical urban forests and shorelines have vulnerability to sea level changes, tropical storm activity, land use damage, tourism growth and threats, and other economic impacts. The forum highlighted the complexities of tropical islands compared to the mainland in which tropical islands have different population density, different island cultures, and different conservation priorities.

Forum participation included representation from six island areas, varied community stakeholders, and forestry professionals. Participation was energetic, collaborative, and action-focused. Forum attendees raised concerns in response to

SEVEN INITIAL TOPIC AREAS:

- 1 Invasive Species – Prevention & Control
- 2 Coastal Readiness & Shoreline Protection
- 3 Climate Change & Ecosystem Impacts
- 4 Eco Tourism & Tropical Forests
- 5 Nursery Standards & Production
- 6 Cultural Practice / Assessment of Tropical
- 7 Urban & Community Forestry Programs

Tropical Urban Forests: Canaries in the Mines

Today, 53% of the U.S. population lives in coastal areas and 95% of consumer goods come in by ships through coastal ports, yet coastal areas represent just 17% of the total land area of the U.S. The islands are like the canary in the mine for these coastal areas. Through a lively and informed exchange of ideas, island participants were particularly encouraged by this rare opportunity to share their insights and put the spotlight on the conditions impacting tropical urban forests. They framed the discussion with these key insights:

Trees and vegetation are important along shorelines.

Vegetation in coastal areas, especially trees, minimizes the effects of sea level rise resulting from climate changes. Since so much urban development impacts shorelines, urban forests in coastal areas provide an opportunity to mitigate the harmful impacts.

Plant nurseries present important opportunities for enhancing and maintaining biodiversity through production of native species and reduction of the continual introduction of potentially invasive species. Tropical nurseries are also important for the reintroduction of important native species through improved practices and maintenance of the tropical species gene pool.

Invasive species pose a significant threat to tropical islands.

The Pacific Territories, Puerto Rico and the State of Hawaii have all experienced the pervasive and severe impact of invasive species. These invasive species have been recognized as one of the most serious threats to our collective ecological, social, and economic well being.

The National Conference of State Legislatures estimates the total costs attributable to invasive species in the United States amount to \$137 billion each year with an estimated thirty percent of the National Park System in the lower forty-eight states infested by invasive species. Islands need to work together towards a unified approach for harmful exotic species prevention, control and/or eradication.

Increased communication is essential.

Communications and tactical exchange of information as a best management practice is essential for tropical urban forestry viability. Cutting-edge research, forestry funding, and land development issues are hampered by a lack of intra-island sharing of information, funding for island-wide outreach, and long-term reporting of tropical forestry issues.

recommendations

Land Use Management Plans and Coastal Zone Protection

Management Plans and Coastal Zone Protection

1. Vegetation is important for shoreline protection and wetland preservation. Direct the Forest Service to support comprehensive land use plans for all islands and coastal communities, including:
 - Coastal zone protection plans and regulations;
 - Watershed and land use management;
 - Draft and adopt local and regional ordinances to implement comprehensive land use plans
 - Vegetation selection for coastal protection for example; mangroves.

Timeline: 24 months

2. Develop strategies for land acquisition and land use regulation to protect fragile ecosystems and coastal species.

Timeline: 24 months

3. Conduct GIS tree inventories, assessments, and mapping to reflect composition and base-line values.

Timeline: 12 months

4. Develop models to assess the effects of sea level and changes accompanying climate changes.

Timeline: 24 months

5. Fund tree planting projects for coastal restoration and carbon sequestration to mitigate climate change.

Timeline: 24 months

6. Through public awareness about the benefits of trees, remove barriers to adapting to climate change by including planning standards and municipal infrastructure guidelines.

Timeline: 24 months

BENEFITS: Promotes stabilization and conservation of coastal areas to address climate change, loss of coastal species and tropical economies.



Economic Development and Tourism

7. Partner with local communities and engage coastal residents as owners, investors, hosts and guides to encourage ecotourism and ongoing assessment of tourism impacts.
 - Monitor the impact of tourism on urban forestry in tropical coastal areas
 - Develop recommendations related to development, tour operators and agencies

Timeline: 24 months

8. Develop a Green Certification program with guidelines for cruise and tour operators to address impact of tourism on urban forestry and coastal areas.

Timeline: 24 months

BENEFITS: Strikes a balance between tourism and protecting shorelines and coastal species.

Public Policy & Regulations

9. Direct the Forest Service to work with other agencies to strengthen the enforcement of land use regulations at the local level – minimize granting of waivers, variances, and exemptions.

Timeline: 12 months

10. Encourage the development of tree preservation ordinances and guidelines for island urban forests.

Timeline: 12 months

11. Assist in the development of basin management plans by local/regional entities to avoid negative impacts to tropical urban forests.

Timeline: 12 months

BENEFITS: Establishes guidelines, standards, and policies to protect tropical urban forests.

“Islands have a potential to be leaders in the global dialogue. We represent the canary in the mines – we get the impact of climate change first in coastal areas.”



photo credit KIDD Cameron

recommendations



Exotic Species – Research and Assessment

- 12.** Direct the Forest Service to explore projects and funding to address the impact of billions in costs from tropical exotic and invasive species.

Timeline: Ongoing

- 13.** The Hawaii Invasive Species Program is an effective model. Review and modify the weed-risk assessment scoring system to fit local needs and adopt unifying codes of conduct as an important tool to reduce and control tropical invasive and exotic species.

Timeline: 24 months

- 14.** Address pathways for tropical invasive and exotic species, including:

- Commerce (air, seas, land)
- Long distance dispersal
- Illegal introduction
- Accidental transport
- Deliberate introduction
- Nurseries and exotics

Timeline: Ongoing

- 15.** Promote new standards and a certification logo to encourage selection and use of non-invasive plants.

Timeline: 24 months

- 16.** Adopt local and regional ordinances to encourage planting of more native species and partner with universities, growers and community groups on seed stock, cuttings, and educational outreach to develop a preference for native plants.

Timeline: 12 months

BENEFITS: Reduces the impact of disease and insects associated with plants not meeting minimum guidelines, restricts use of tropical exotic and invasive species, ensures healthier trees, and a bio-diverse ecosystem.





photo credit Gerald Bauer,
IITF International Programs US Forest Service

“We need to work more on understanding the invasives on different islands like the Coqui.”

Tropical Nurseries Standards and Production

17. Develop tropical nursery standards using the American Nursery and Landscape Association Standards as a model.

Timeline: 24 months

18. Direct the Forest Service and the USDA to support the development and enforcement of current and new regulations specifically for tropical species within the nursery industry.

Timeline: 12 months

19. Promote the diversity of trees within the urban forest.

Timeline: Ongoing

20. Direct the Forest Service to make the genetic diversity of selected best tree species a priority.

Timeline: Ongoing

21. Develop best management practices for nursery production to address tropical species.

Timeline: 24 month

BENEFITS: Protects the genetic diversity of trees for the future of a healthy urban canopy.





recommendations

Research, Communication and Cultural Practices

Research & Tech Transfer

- 22.** Advise the Forest Service to support the research and technology transfer in the following:
- Development of a tropical urban forestry strategic plan;
 - Development of a model for island-wide land use plans;
 - Research capacity at the local level;
 - Coastal issues and conservation;
 - Modification of the weed-risk assessment scoring tool to meet local needs;
 - Development of standardized tropical nursery practices;
 - Inclusion of tropical islands in the Forest Service Inventory.

Timeline: 24 months

- 23.** Develop a Community Accomplishment Reporting System (CARS) that reflects island population densities.

Timeline: 24 months

- 24.** Establish standards for strategic distribution of research data to:
- Develop a website with cataloged research topics;
 - Share research across disciplines and networks;
 - Provide basic upgrades in GIS capability and file transfer technology;
 - Use Extension Service Agents to disseminate results.

Timeline: 24 months

- 25.** Increase funding for tropical urban forest research grants and develop grant categories linking researchers to specific issues listed in section above.

Timeline: 12 months

BENEFITS: Leverages the innovative possibilities of research and technology transfer by focusing on strategy sharing and distribution of high-quality research data.



“Get out of the traditional forest research box — move towards ecosystem services,

Communications

- 26.** Consistently fund and support a collaborative Tropical Forestry Forum/Conference to provide exchange and review of tropical urban forestry research, best management practices, and data from all coastal and island areas.

Timeline: 12 months

- 27.** Encourage the Forest Service to identify a tropical representative to the National Urban & Community Forestry Advisory Council (NUCFAC).

Timeline: 12 months

- 28.** Advise the Forest Service to empower tropical communities through urban forestry outreach programs focused on promoting local forestry-related resources, BMP's, data on challenges from climate change, tourism, and development.

Timeline: 12 months

- 29.** Develop tropical urban forestry education and training programs for key government and community leaders, arborists, landscape architects, landscape maintenance companies including C.E.U.'s and certifications.

Timeline: 12 months

BENEFITS: Develops local leadership and support for the management and protection of tropical urban forest; encourages consistent exchange of tropical urban forestry findings; increases awareness of urban tropical forestry issues at the local, state, & federal levels.



e.g. link engineers,
foresters, others,
to do research
together.”



recommendations



Research, Communication and Cultural Practices *(continued)*

Cultural Values & Belief Systems

Around the world, some 500 million people live in or at the edge of the tropical forests. Included in this population of forest-dependent peoples are the world's 150 million native or indigenous peoples who rely on the forests for their way of life. They not only meet their economic needs for food and shelter but also form an integral part of their culture and spiritual traditions.

This cultural respect for trees is an especially important social norm in tropical areas. It allows them to live in and off the forest and make it a priority for:

- Intergenerational transmission of cultural knowledge;
- A vital cultural practice related to forest foods, dance, lei-making, forest products, canoe building, medicines and wisdom;
- Strengthening of the local identity, and the indigenous culture and language that come from such practices;

The story of the islands is entwined with the stories and songs of the native culture. It talks about the forest, the ocean, the reefs and the island resources, and how they have sustained the native culture for hundreds if not a thousand years. It speaks in the voice of all the ancestors that came before and those that will come after.





30. Advise the Forest Service to consult with indigenous leadership to:

- Incorporate cultural priorities related to tropical forestry guidelines;
- Develop a cultural model valuing both native and urban forests;
- Standardize tree planting protocols consistent with local cultural norms and belief systems.

Timeline: 24 months

31. Develop a comprehensive report on cultural tropical urban forestry norms as a resource guide for researchers and tropical forestry experts across the region.

Timeline: 12 months

BENEFITS: Encourages respect for cultural norms, increased awareness about tropical urban forestry practices, and integration of cultural norms in funding, research, and conservation.

“From the earliest human writings and myths, trees have represented the power and mystery of nature. Many early peoples thought that spirits of their ancestors lived in trees. They cultivated and protected holy trees and would beg forgiveness from a tree if it was cut. Our traditions of living with trees continue today. From our backyards, to the name of streets and shopping centers, trees and tree symbols surround us. What will become the tree myths and traditions of our age?”

*Dr. Kim Coder, Professor, Silvics/Ecology, Warnell School of Forest Resources
The University of Georgia*



conclusion

NUCFAC Tropical Forests Summary

Urbanization, climate change, and unrestricted tourism pose long-term threats to coastal ecosystems and may completely annihilate tropical urban forests. The diverse regions that represent our coastal communities have joined together to establish important safeguards, lobby for protective public policy, research innovative solutions, and provide indigenous leadership. But even this collaborative leadership alone is not enough. They have raised the voice of alarm, but our shorelines and tropical urban forests require federal funding and protection from the accelerated rate of destruction and damages.

The Secretary of Agriculture can elevate this crisis to the attention of Congress, the media, researchers, and other constituencies. The U.S. Forest Service has the requisite resources and expertise to create fast-track momentum and address the far-reaching consequences of coastal zone protection, and invasive species balanced against the economic importance of tropical tourism. This report is a blueprint by those most at risk on the front-lines of tropical urban forests. These recommendations to the Secretary are a necessary first step for the work ahead – protecting tropical urban forests and shorelines.



forum participants

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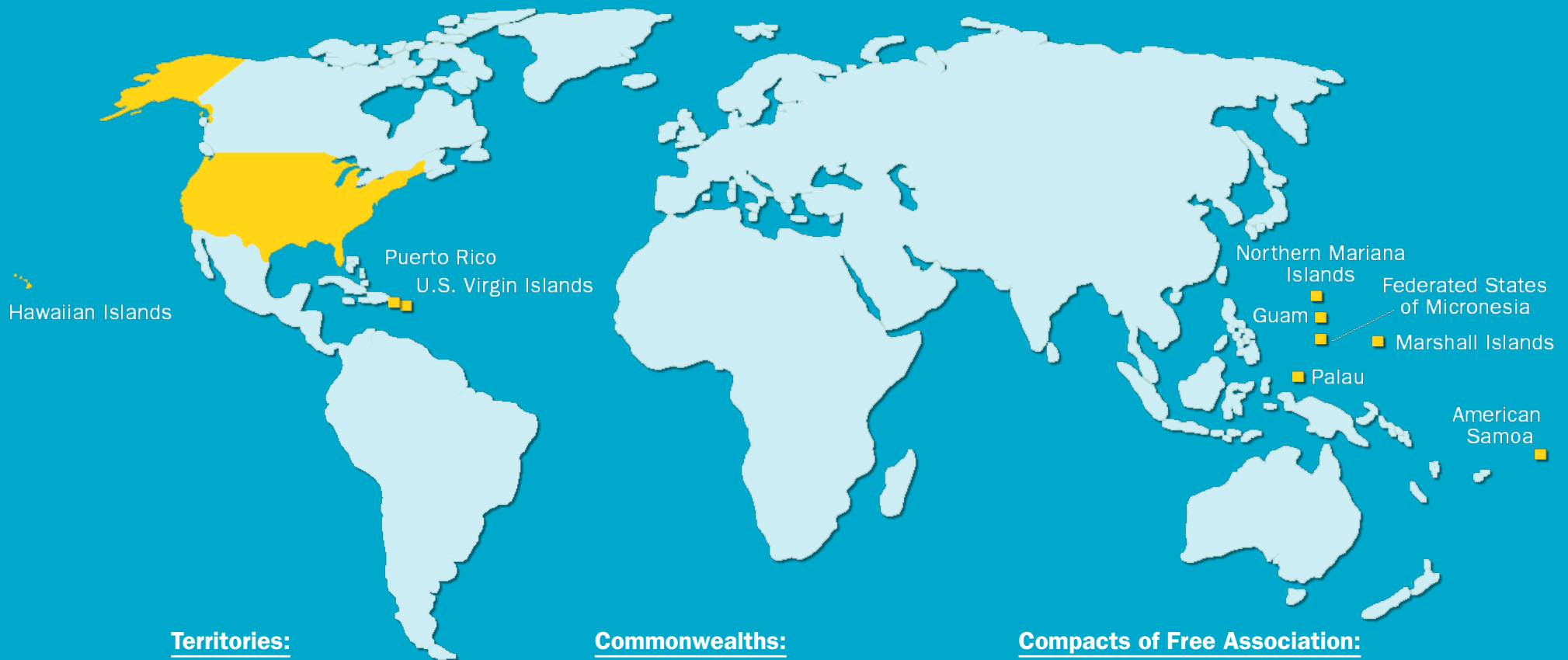
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