



GREENING HOUSTON:

UNLOCKING THE POTENTIAL OF MIYAWAKI URBAN FORESTS

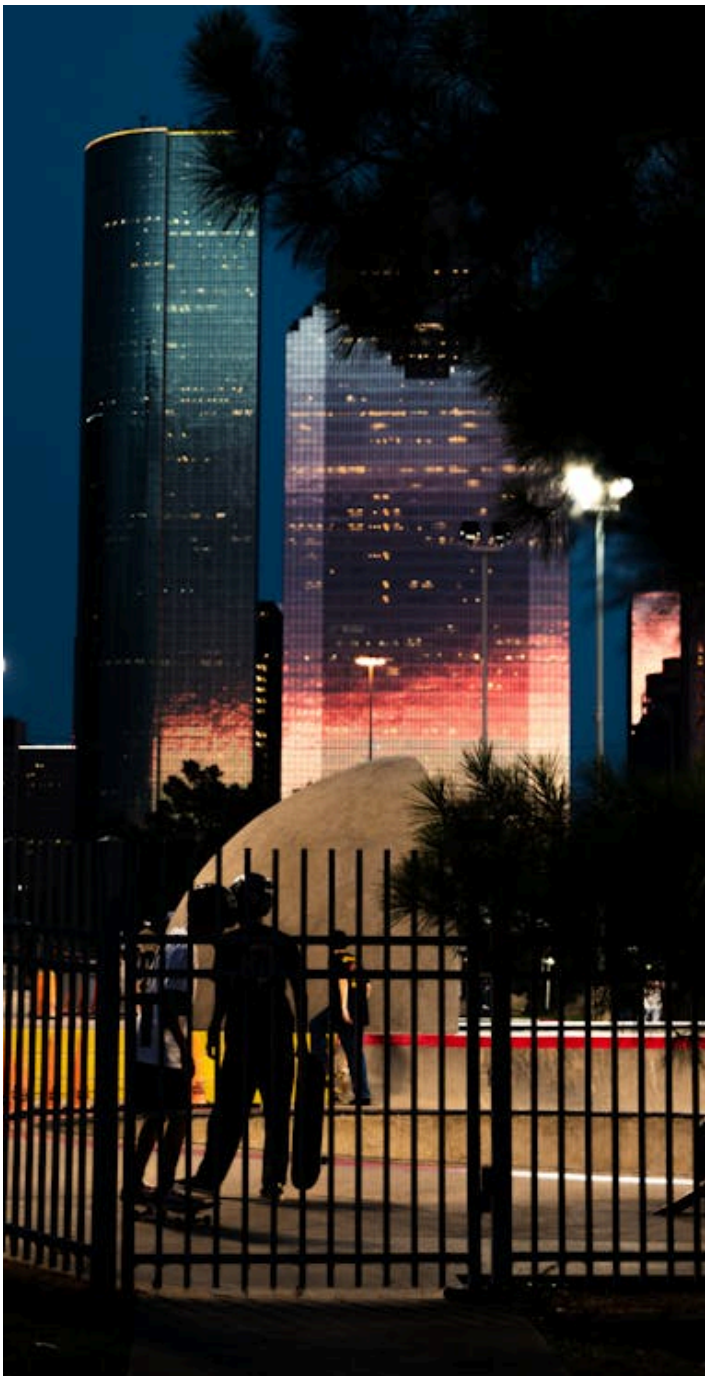
A PROPOSAL FOR HOUSTON'S RESILIENT FUTURE

June 2026 | Raj Dharamshi | v3.0

EXECUTIVE SUMMARY



10× Faster growth than conventional planting	30× Denser canopy cover	100× More biodiverse than standard plantings	2–3 Yrs To a self-sustaining forest	5,000+ Acres of opportunity in Houston
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With the nation’s most diverse population, a subtropical climate that makes things grow almost effortlessly, and thousands of acres of underutilized land scattered across the metro, the ingredients for something extraordinary are already here.

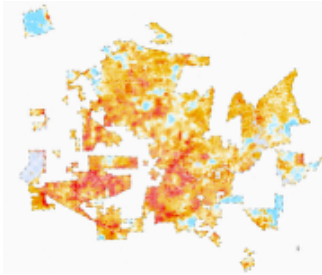
The urgency is real. Houston’s urban neighborhoods **run up to 14°F hotter** than surrounding areas and the heat burden is felt most by the city’s most vulnerable residents¹. Harris County’s bayous, still healing from Harvey, flood faster on land stripped of natural cover. And the urban tree canopy that once cooled and connected neighborhoods has been shrinking for decades.

Miyawaki urban forests are the hopeful answer to every one of these challenges. By planting diverse native species densely on small plots, these forests can grow up to **10× faster**, become **30× denser**, and support **100× more biodiversity** than conventional plantings² and reaching self-sustaining **maturity in just 2–3 years**, on land no larger than a basketball court.

This whitepaper outlines the method, the science, the benefits, and a clear roadmap for how Houston with its donors, corporations, government, and communities can build a network of urban forests that positions this city as a national model for nature-based resilience.

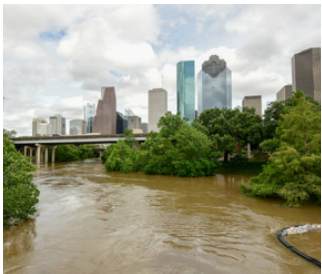


ENVIRONMENTAL CHALLENGES IN HOUSTON



HEAT & AIR QUALITY

Houston experiences some of the nation's most extreme heat waves. Its extensive pavement and concrete amplify the urban heat island effect, raising local temperatures by as much as 14°F¹ in certain neighborhoods. Combined with high ozone levels, this contributes to respiratory illness and heat-related health risks, especially in vulnerable communities.



FLOODING AND STORMWATER MANAGEMENT

The city's geography makes it highly flood-prone. Retention ponds and ditches are scattered across neighborhoods, but most are barren, grass-covered depressions that provide little ecological benefit. Vegetated, tree-filled landscapes absorb more rainwater, slow runoff, and filter pollutants—functions that bare grass cannot match.



OPEN LAND AND MISSED OPPORTUNITIES

Houston has thousands of acres of empty or underutilized land such as vacant lots, roadside verges, and decommissioned industrial sites. Left unused, these sites contribute to blight, attract illegal dumping, and drain municipal resources for mowing and maintenance.



DECLINE OF NATIVE BIODIVERSITY

Native trees and plants have been replaced by development, invasive species, and manicured lawns. Wildlife habitats have dwindled. Pollinators that are essential for agriculture and food systems are struggling. Reintroducing native species such as birds, wildlife and insects through compact forests can reverse these losses.

“Urban forests can reduce city maintenance costs by millions annually while boosting property values.”



WHAT IS THE MIYAWAKI METHOD?

Developed by Japanese botanist **Dr. Akira Miyawaki**, this method involves planting diverse native species densely (three to five saplings per square meter). The resulting forest grows 10 times faster, 30 times denser, and 100 times more biodiverse than conventional tree plantations. Within 2–3 years, these forests become self-sustaining, requiring minimal maintenance. By year 20, they resemble a mature natural forest, providing decades of ecological services.

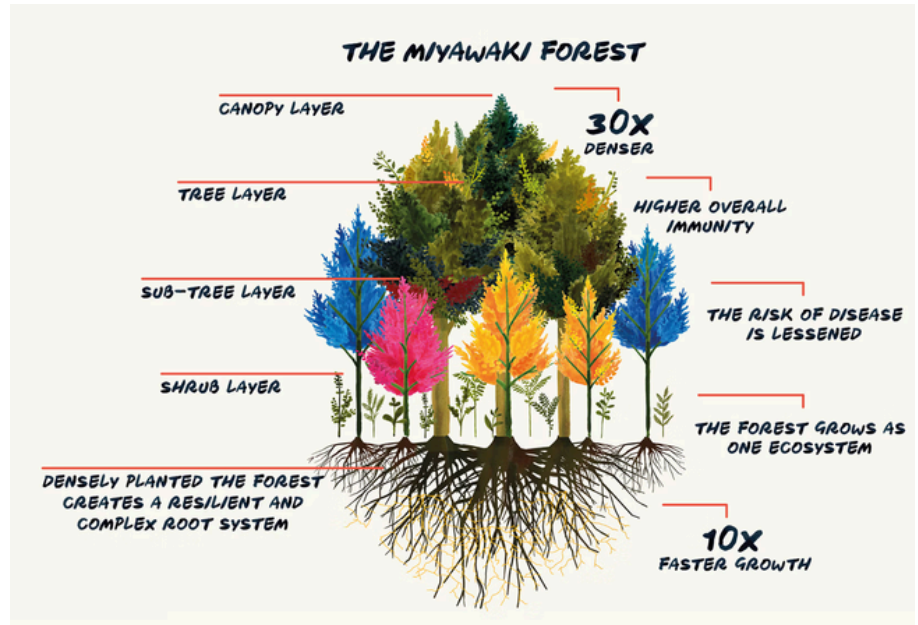


Figure Source: <https://www.sugiproject.com/blog/why-we-use-the-miyawaki-method>



London's South Bank Center - SUGi Pocket Forest

Why It Works for Cities³

- **Small-footprint:** Plots as small as a basketball court can host a thriving forest.
- **Low maintenance:** Once established, forests require little irrigation or care.
- **Native biodiversity:** The method prioritizes native species suited to local soil and climate.
- **Community engagement:** Forest creation can involve local schools, volunteers, and businesses.
- **Resilience:** Unlike manicured landscaping, Miyawaki forests survive floods, heat waves, and droughts.

“A Miyawaki forest the size of a basketball court can cool a neighborhood, absorb stormwater, and house dozens of native species”

BENEFITS FOR HOUSTON



BETTER BIODIVERSITY

Miyawaki forests can **enhanced biodiversity** in urban settings. They promote growth of native species, crucial for maintaining local wildlife habitats and improving air quality, making cities more resilient to climate change effects.



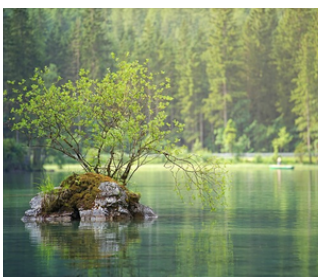
SOCIAL COHESION

Tree planting projects bring communities and volunteers schools, and civic groups. They give these communities something to cherish and benefit from.



ECONOMIC GROWTH

The establishment of Miyawaki urban forests can lead to **increased property values** and attract businesses. Green spaces enhance the aesthetic appeal of neighborhoods, resulting in a direct positive impact on local economies and community investment.



FLOOD MITIGATION

Forests slow down stormwater, recharge aquifers, and reduce the volume of runoff entering storm drains. This directly supports Houston's resilience to hurricanes and flash floods.



HEALTH & WELL-BEING

Access to green space reduces stress, promotes physical activity, and lowers health disparities. For underserved neighborhoods, forests are an affordable way to provide wellness benefits.

URBAN FOREST SUCCESS



Laguna Legacy Forest, Phuket, Thailand. 1 year old forest



Urban Forest Project, Belgium, 2017



Hope Eternal Gardens, Florida



NY Times, Aug 24th, 2023: Tiny Forests³

Notable Examples

Project	Location	Key Takeaway for Houston
Rewild DFW	Dallas–Fort Worth, TX	Texas-native species; parking lots & highway edges
Tiny Forest – McAllen Library	McAllen, TX	1,500+ plants; outdoor classroom near schools
Miyawaki Forest – U of Iowa	Iowa City, IA	Academic & research partnership model
First NE Miyawaki Forest	Cambridge, MA	Dense urban deployment; proof of concept
Roosevelt Island, NY	New York, NY	Micro-Forest can bring a quiet space for Houstonians
Dense Micro-Forests Are Thriving in France	Paris, France	Planted in road medians and Houston can experiment with this planting style
Multiple micro forests in UK	UK	One forest led to momentum for more
Multiple micro forests in NL	Netherlands	Education driven and raises a new generation of kids learning native species to improve bio-diversity

STEPS TO SUCCESS



A Comprehensive Guide to Implement Miyawaki Urban Forests

1. MAP OPPORTUNITIES

Identify underutilized city land, vacant lots, retention ponds, and public rights-of-way suitable for mini-forests.



2. PARTNERSHIP ECOSYSTEMS

In government, nonprofits, charitable foundations corporations, and communities.

3. PILOT PROJECTS

Begin with a set of 10 pilot forests across diverse contexts: a retention pond, a brownfield site, a schoolyard, and a roadside corridor.



4. VOLUNTEER MOBILIZATION

Tap into Texas-wide campaigns like 1 Million Trees Across Texas to recruit and train volunteers for planting days.



5. MONITORING & SCALING

Document growth rates, biodiversity recovery, and social impacts. Use data to scale the model across hundreds of Houston sites.

“Houston can lead the nation by transforming wasted land into living infrastructure.”

JOIN US ON THE JOURNEY



Houston stands at a crossroads

The city can continue pouring money into mowing vacant land and battling floods with concrete alone or it can invest in **nature-based solutions** that deliver compounding benefits for generations.

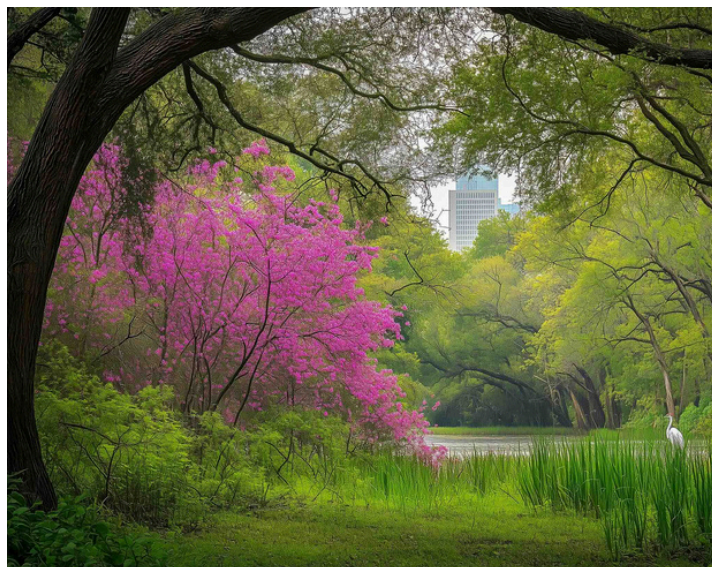
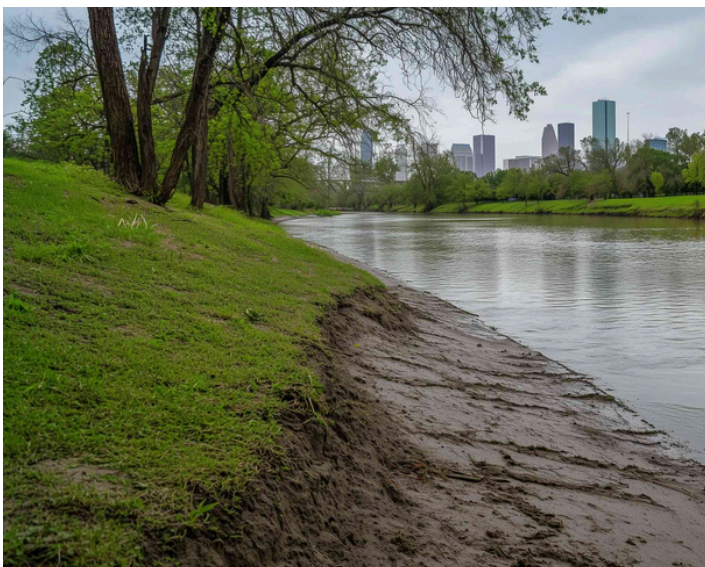
Miyawaki forests are a low-cost, high-impact intervention that transforms wasted spaces into thriving assets. But this requires the collective action of donors, philanthropies, corporations, and government agencies. Together, Houston can pioneer a model for urban reforestation that other U.S. cities will follow.

Donors and philanthropies can seed pilot projects that demonstrate success.

Corporations can sponsor forests as part of their sustainability commitments.

Community groups can plant, nurture, and claim ownership of their forests.

Government agencies can integrate forests into their strategic resilience plans



SOURCES AND FURTHER READING



1	Harris County Heat Mapping Campaign	Link
2	Miyawaki, A. (1999). Creative Ecology: Restoration of Native Forests by Native Trees.	Link
3	The Miyawaki Method for Creating Forests, SUGi Pocket Forests	Link
4	Tiny Forests With Big Benefits	Link
5	Promoting Native Trees in Northern Virginia	Link
6	Miyawaki Forest on University of Iowa Campus	Link
7	The first Miyawaki forest in the Northeast was planted in Cambridge. Organizers hope it's just the start.	Link
8	Tiny Forest: Miyawaki Method in the Atlanta Beltline Arboretum	Link
9	First Two Miyawaki Mini-Forests Ever in Bellingham	Link

FOR MORE INFORMATION, CONTACT US



URBAN GREEN INITIATIVE

Urban Green Initiative is a Houston-based organization dedicated to transforming urban landscapes through Miyawaki reforestation, ecological restoration, and community engagement. We work with government, corporate, and community partners to build a greener, cooler, and more resilient Houston.

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A NOTE FROM THE FOUNDER

Over the last 3 decades I've seen Houston grow outward with more concrete, more asphalt, more heat. We can do better. Miyawaki forests are not a distant dream. They are a proven, affordable, community-powered technique that Houston can deploy right now, neighborhood by neighborhood, plot by plot.



I started this work because I believe Houston deserves to be not just one of America's biggest cities, but one of its most beautiful and resilient ones. Urban Green Initiative is at the beginning of that work and identifying sites, building partnerships, and designing the first pilot forests. We are not yet planting at scale, but the science is proven, the land is ready, and the right partners are in this city. This whitepaper is our invitation to build it together.

Raj Dharamshi,
Founder, Urban Green Initiative