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# Success Stories: City of Elizabeth 'Micro Forests for Macro Solutions'

A Groundwork Elizabeth Initiative

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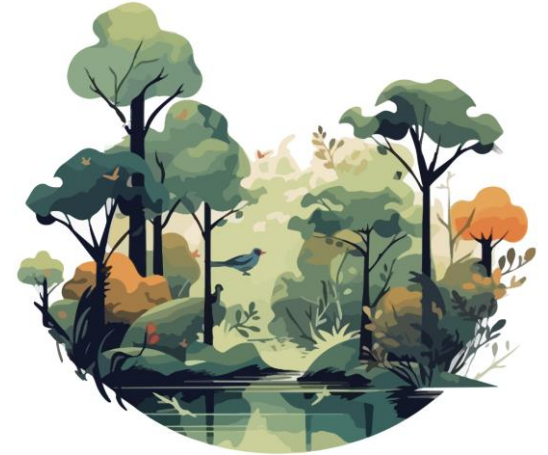
[GroundworkElizabeth.org](http://GroundworkElizabeth.org)



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## What is a Micro Forest?

An innovative and effective method of tree planting, micro forests increase carbon mitigation in urban areas, delivering exceptional air quality and biodiversity benefits. Micro forests are proven to be successful in restoring degraded lands worldwide.



Micro Forests become an oasis for biodiversity, heal the environment in many direct ways and help connect the local community back to nature.

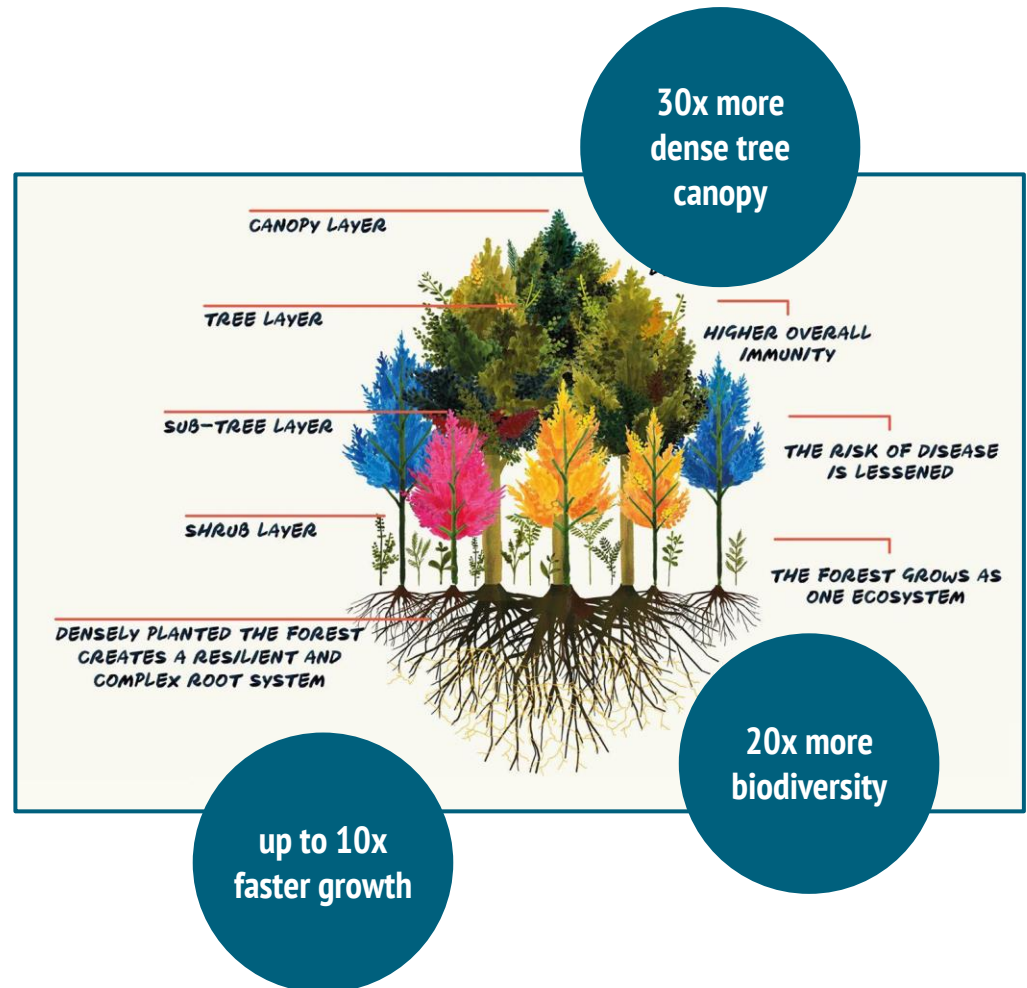


Micro Forests are grown using the basic principles of the Miyawaki Method of afforestation that prioritizes the natural development of forests using native species.

## The Miyawaki Method

The abiding principle of the Miyawaki method is using species of trees that would occur naturally in that area and that can work together to create a dense and diverse multi-layered forest community.

This method of afforestation allows trees to be densely planted with native species, and, with the correct ground preparation, grow up to 8 times faster per annum than a conventionally grown tree, with a 90% success rate.





## Carbon Capture

**At four years of growth, 1 square meter of a Miyawaki forest can sequester 3 kilos of Co2 annually.**

This is due to the dense canopy of native tree heights that is around 30 times more dense than conventional tree planting schemes.

**Each species of tree added to a forest will increase its potential carbon capture by 6%.**

This is due to the greater canopy cover and increased pollination aspects.

The fertile forest soil that we create as part of the process can maximise this carbon sequestration potential.

*Carbon capture is calculated with help from our local university.*



## Oxygen/Air Quality

**At four years of growth, 1 square meter of a Miyawaki forest is able to emit 4.85lbs of pure oxygen annually.**

A Miyawaki forest will reduce particulate concentrations by up to 10% locally as well as absorb NOx.

We can calculate pollution capture by using software programs such as I-Trees.

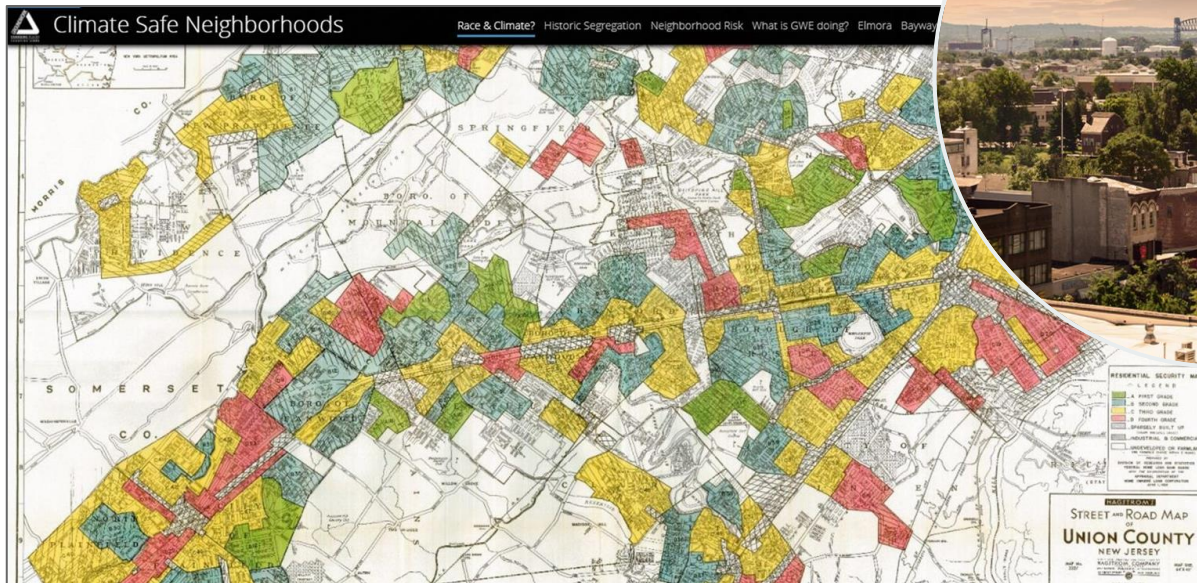


## Biodiversity

**At four years of growth, 2150 sq ft of a Miyawaki forest will provide an initial home for over 500 insect and animal species.**

- Each species of native tree can eventually provide a haven for around 80 species of insect unique to that tree.
- As our micro forests contain a mix of up to 20 tree species, an eventual long-term home for over 1,600 species of insect is created by a 10 year old 200m<sup>2</sup> forest (this figure does not include the general insect species common to most trees and other organisms).
- Soil biodiversity is enriched as part of the forest creation process.

# Micro Forests and the Restoration of Healthy Neighborhoods in Redlined Areas

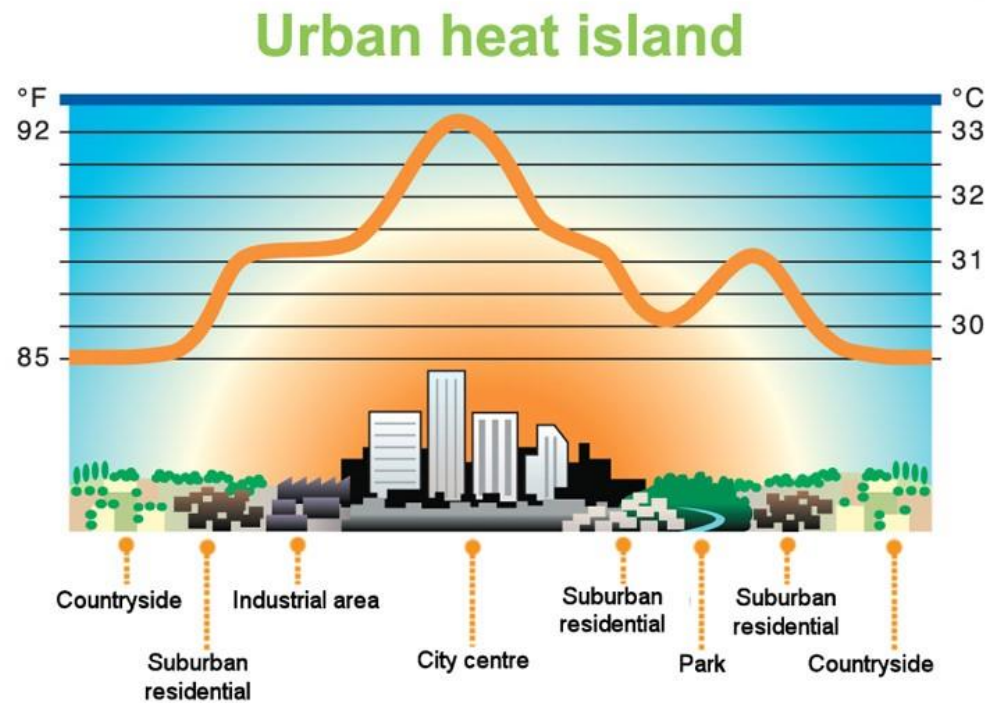




## Reducing Heat Island Effect

Localized reduced temperature differences up to 6 degrees are possible.

This is partly due to the micro forest's transpiration and shading effects.

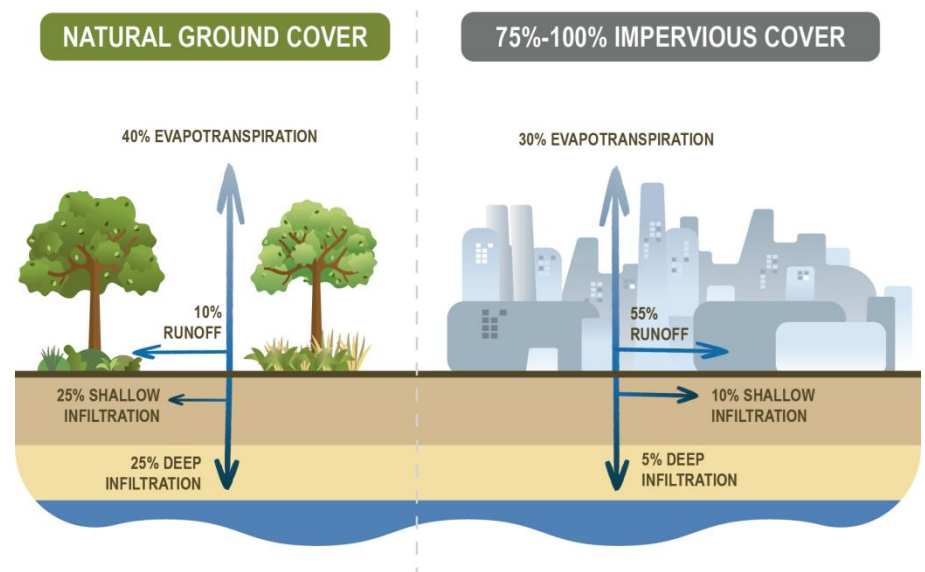




## Stormwater Runoff Control

During storm conditions, just 10.76 sq ft of micro forest is able to process up to 150 litres (1.5m<sup>3</sup>) of water run-off.

This is partly due to the fertile forest floor that acts as a sponge.



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## Noise Reduction

Due to the dense nature of micro forest plantings, localized noise reduction can be reduced by up to 30 times.

Noise and traffic 'breaks' can be created with forest growth.





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## Micro Forests for Macro Solutions Initiative



In 2021, New Jersey's first micro forest was planted by Groundwork Elizabeth working in partnership with the Housing Authority of the City of Elizabeth (HACE)

The planting used the Miyawaki method and was one of four that launched Groundwork Elizabeth's 'Micro Forests for Macro Solutions' initiative.

The project was made possible with support from The City of Elizabeth, Kean University, and the New Jersey Conservation Foundation with funding provided as part of a \$367,000 Climate Preparedness Land Restoration Grant from Groundwork USA.

