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Is the Miyawaki Method the Answer to Deforestation?

By [Gemma Alexander](#)OCT 17, 2023 [environment](#), [forests](#), [miyawaki forests](#), [tiny forests](#), [trees](#)

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Despite major efforts like the European Union's [new law](#) to prevent deforestation, forests are disappearing at an alarming rate. People are well aware of the ecological importance of forest ecosystems. But we just starting to realize that even urban tree cover has ecological value. As a result, a movement promoting tiny urban forests – called Miyawaki forests – is starting to catch on.

During the 20th century, humans destroyed forests around the world, clearcutting more land than the size of the United States. Over the last 20 years, the world has [lost 12%](#) of its remaining total tree cover. Despite many declarations by governments and companies that they would protect forests, the [World Economic Forum said in 2020](#) that “we’re actually further from stopping deforestation than we were six years ago.” Urban afforestation – the opposite of deforestation – is important. But how much of a difference can it really make?

Urban Forests

Extensive natural forests are so important that the UN has adopted a goal of preserving [30% of the world's land area](#) in its natural state by 2030. The Biden Administration endorsed the 30 by 30 strategy after taking office, but only 13% of U.S. lands are currently protected in perpetuity.

Overlooking the [value of urban trees](#) in the deforestation is a mistake. [Urban greening](#) has many benefits. These range from the personal – improved [mental health](#) and increased property values – to the environmental – much-needed [habitat](#) for [pollinators](#) and migratory birds; improved [air quality](#); and mitigation of the [urban heat island effect](#). The average hardwood tree absorbs about [48 pounds of carbon dioxide](#) per year. That's roughly one ton of carbon dioxide over its lifetime.

Miyawaki Forests

Named for Japanese botanist [Akira Miyawaki](#), who studied disturbed landscapes and their capacity for regeneration, a new breed of urban forest is taking shape. Inspired by the biodiversity of sacred groves around Japanese temples, he advocated for the regeneration of native landscapes in urban areas through what has become known as the [Miyawaki method](#).

Like all good garden systems, the Miyawaki method begins by [improving the soil](#) using local materials. Miyawaki breaks indigenous forest species into four categories – main tree species, sub-species, shrubs, and ground-covering herbs. Using this system, mixed clumps of seedlings from these categories must be planted very densely. Several dozen species can be planted in a very small area. Community members – often volunteers – water and weed the seedlings for three years before being leaving them to develop naturally.

Since Miyawaki developed his afforestation system in the 1970s, communities around the world have installed these tiny forests. Several companies have been formed to guide communities in developing their own Miyawaki landscapes.

In India, an engineer was so inspired by the installation at the Toyota plant where he worked, that he went on to form [Afforestt](#). Afforestt has planted over 450,000 native trees in 144 Miyawaki forests in 50 cities around the world, established a native plant nursery, and is developing a manual to guide communities through the Miyawaki method.

In 2020, another rewilding company, [SUGi](#), worked with the Yakama Nation to create a healing forest at a corrections facility. In two years, a grove containing 47 native species and 7500 individual trees reaching as tall as 10 meters replaced a once empty field.

Fast Forests

Because of climate change, forests may not regenerate naturally on their own, but a tended forest can regrow. Miyawaki forests have been found to grow up to [ten times faster](#) than conventional tree plantations. While much is made of the density of Miyawaki plantings, it's possible that the critical factor is those early years of maintenance. Notably, the method requires that the local community be responsible for the planting and maintenance.

Many [afforestation projects](#) take a “set it and forget it” approach that results in high sapling mortality and community conflicts that lead to project failure. Even Miyawaki-based forest projects have [stumbled](#) when municipalities have overlooked the community aspect of the method or failed to achieve consensus.

What the [high-density planting](#) does accomplish is rapid growth as a result of competition. In theory, this helps increase biodiversity sooner. Community members may value – and thus protect – the small forest more enthusiastically because of the perceived success. However, that density is not sustainable as plants grow and after the third year, crowding causes tree survival rates drop to 45%.

The dead trees do help nourish the soil. But when time and money are limited, purchasing and maintaining often hard-to-source native plants for three years is much more intensive than simply adding more compost. And the densely planted trees do not always find a natural balance, either in species or spacing. In practice, Miyawaki projects have been criticized for [resulting](#) in crowded, unhealthy groves of trees whose narrow canopies are less efficient at sequestering carbon and do not support the intended biodiversity.

The Value of Tiny Forests

The idea of quickly and easily compensating for deforestation is appealing. But convenient environmental solutions, like [young forests](#), don't always deliver real benefits.

Although fast-growing young trees capture more carbon, older forests sequester larger overall quantities of carbon. And these small, forested areas will never add up to the UN's 30% target. Miyawaki forests are not adequate replacements for old-growth primary forests.

Although urban trees cannot [sequester carbon](#) on the scale necessary to stop climate change, Miyawaki forests are much more biodiverse than both monocultural plantations and the urban brownfields and empty lots they often replace. Whatever their flaws, Miyawaki's tiny forests are an environmental improvement over degraded urban landscapes and can make cities better places to live.



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By [Gemma Alexander](#)

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