

Miyawaki Method - DRAFT -

2024

Overview

The Miyawaki Method is an approach for creating hyper-dense patches of native vegetation on small plots of land. The method uses a four-step technique of botanical research, soil enhancement via added nutrients, planting of dense clusters of seeds, and maintenance. Proponents of the method claim that it grows up to 10 times faster than traditional plant growth and that planted areas are self-sustaining after 2-3 years.

Findings

What is the Miyawaki Method?

- What is the Miyawaki Method?
 - The Miyawaki Method is a planting technique that focuses on growing dense patches of local vegetation over short periods of time.
 - The method is named after Dr. Akira Miyawaki, a botanist whose works is centered around the restoration of depleted land (Nargi, 2019).
- What are the benefits of the method?
 - The results are not reliant on plot size, meaning they can work with whatever land is available down to 3 square meters (Western Washington University)
 - The planted areas use around 30,000-50,000 seedlings per hectare as opposed to the 1,000 seedlings per hectare common in commercial forestry, producing much denser vegetation. (Nargi, 2019).
 - This dense vegetation encourages competition between the plants, resulting in growth around 10 times faster than conventional afforestation techniques (Nargi, 2019).
 - The method focuses on local plant life, restoring local ecosystems and encouraging biodiversity (SUGi, 2021).

How Does the Method Work?

- The Miyawaki uses a four-step system that is consistently reflected in the various consultants that utilize the method (SUGi, 2021).
 - Step 1: Researching and identifying the proper plants for the area. The method emphasizes using local fauna. It also specifies the inclusion of four categories of plants: main tree species, sub-species, shrubs, and ground-covering herbs (Nargi, 2019). Around 70-80% of the plants are main species or sub-species, with around 10% of the plants as shrubs and the rest as ground-covering herbs (Western Washington University).
 - For greater detail concerning the classifications of main tree species, sub-species, shrubs, and ground-covering herbs, see the research document “Native

Plants.” It is also important to note that main tree species and sub-species are also referred to as canopy and sub-canopy.

- o Step 2: Preparing the soil. Because the method often focuses on ecologically-sparse areas, extra care should be given to the preparation of the soil. However, even in areas with existing vegetation it is important to prepare the soil for dense planting. The soil should be loosened down to around 30 cm to 1 m (Western Washington University) and should be enriched with supplements like compost (SUGi, 2021). Further specifications can vary according to region and soil type.
 - Soil mounds are advised in rainy areas to prevent water pooling. Rounded plating mounds are advised in windy areas to provide shelter for the seedlings (Western Washington University).
- o Step 3: Planting the seedlings. The plots are generally best planted in the spring, with the seedlings dispersed in dense clusters that are around 3-5 seeds per square meter without planting two of the same seeds in close proximity to each other. After planting, cover the area in a layer of mulch and water to press down the soil (Western Washington University).
- o Step 4: Maintain the plot. The area will need continued watering, weeding, and general maintenance for about 2-3 years before become self-sustaining (Western Washington University).

Criticisms of the Method

- The primary criticism of the method is the high expense of the approach for a low amount of coverage, making the method unaffordable for many areas (Gisebert, 2023).
- The method tends to ignore complex local ecological factors, instead opting for a “shortcut” approach of creating biodiversity (Gisebert, 2023).
- The method was developed with a focus on Japanese ecology. Recent studies on its implementation outside of the country have shown less promising results than Miyawaki claims (Gisebert, 2023).
- The method is strongly promoted by corporations that are known for intensive, deforesting logging (Gisebert, 2023). There is a possibility that the results of the method are exaggerated by the companies using them to preserve public image.

Case Studies

Daheny Park Forest: Cambridge, MA

- Planted in 2021 in collaboration with SUGi. Since the planting, the forest has had a 95% survival rate with the tallest trees measuring 5.3 m. The site has served as an important community center, as it was planted as part of a community volunteer initiative. So far, the project seems to be a success (SUGi).

Greene-Rose Park Forest: Cambridge, MA

- Planted in 2022, this budding park is still too young to provide solid data regarding the long-term success of the project. However, it has already proven to be a popular community node that provides a regular avenue for community members, especially children, to learn about local vegetation and gardening principles (Biodiversity for a Livable Climate).

Resources

- Urban Forestry Tree Service <https://urbanforestrytreeservice.com/2020/03/22/plant-classification/>
- Native Plants Finder: <https://nativeplantfinder.nwf.org/Plants>

References

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