

Nut Orchard/Tiny Forest - Lakeside Forest Garden

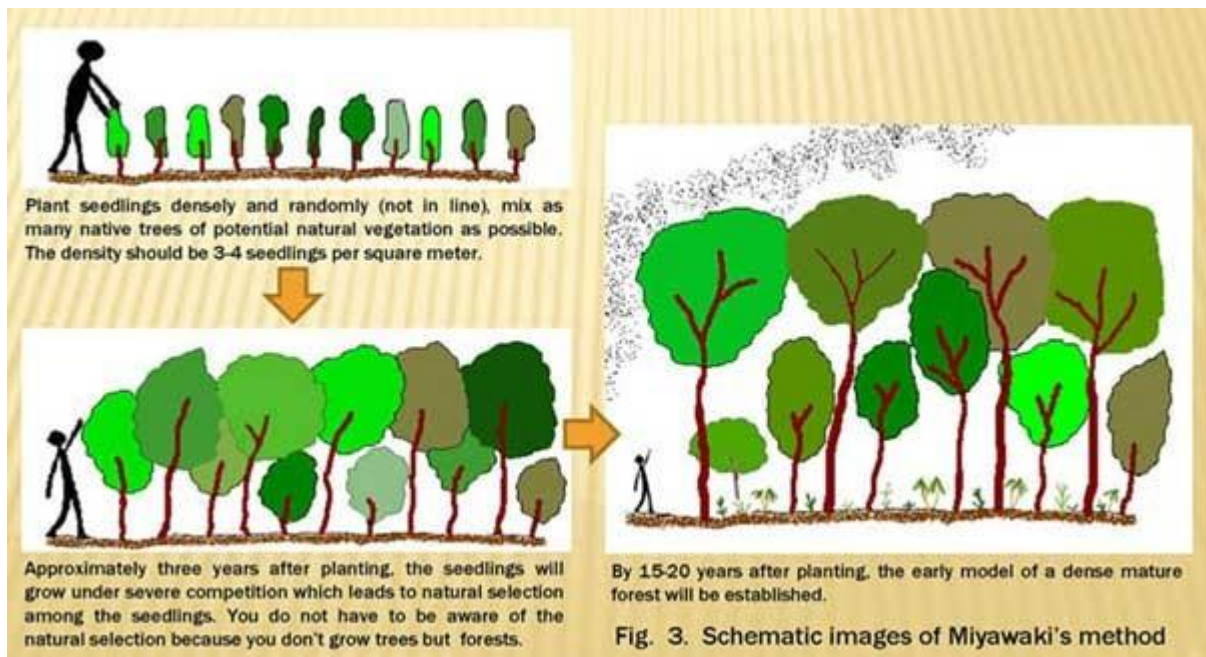
Urban tiny forests are high in biodiversity, low maintenance, filter pollution, store carbon and regenerate soil. Since Lakeside Community Garden wants to be an example for local food security, biodiversity and urban agriculture as well as expand its relationships with local schools with educational programming (children can learn about the importance of tiny forests) we would like to include a tiny forest in our design. Success of [urban tiny forests in the Netherlands](#) has promoted them to roll out the idea countrywide.



Proposed location of nut tree forest: size 40m x 40m

Miyawaki Method:

- Tiny forests grow quickly due to a careful selection of plant species and multi-layer planting
- Trees grow 10 times faster and 30 times denser, and the forest is 100 times more biodiverse
- Soil analysis to identify the species that will grow
- Soil amended up to 1m with locally sourced biomass (such as straw or leaves)
- Saplings (up to 80cm) densely planted (3-5 saplings per square metre)
- The forest itself needs to be a minimum of 100 sq m. After about eight months, the forest will be so dense that sunlight cannot reach the ground.
- Once the forest is established (1 year) it starts to become self-sustaining (every drop of rain conserved, every leaf that falls converted into compost)
- Water and weed for 1-3 years to help the forest establish, then disturb as little as possible to allow its ecosystem to establish



Spacing (40m x 40m = 1600 square meters [Miyawaki Method](#))

Note that these represent only a possible maximum of species. Numbers will change as volunteers work on the design directly on site (for example, creating a circular opening in the nut forest) and based on species sourced and propagated. Quantities are also high because this method uses natural competition and selection of tightly planted first year seedlings to help rapidly establish the forest.

Type	Spacing	Quantity
Canopy Layer (northern pecan, shellbark hickory, walnut, white pine, red pine) non-native: Korean pine (pine nuts)	density saplings (height 60-80 cm) per square meter = 3 x 400 canopy 20% tree layer 40-50% understory layer 25-30% shrub layer 8-12%	15% = 180
Tree Layer (chestnut, persimmon, black cherry, red oak, bur oak, black willow, sugar maple, kentucky coffee tree, basswood, hackberry, shagbark hickory)		43% = 516
Understory Layer (serviceberry, hawthorne, redbud, blackgum, mulberry, pawpaw) non-native: yellowhorn		30% = 360
Shrub Layer (hazelnut, viburnum, huckleberry, winterberry, aronia, witch hazel, possumhaw, elderberry, spicebush, pussy willow, cranberry, ninebark, golden currant)		12% = 144

Species

Final selection of species will be determined based on soil analysis and availability of nuts and seedlings

- We can use the [Edible Native Forest Plant List](#) from the first Miyawaki forest created with the help of Afforest in Michigan

Raising Awareness

Important to grow awareness so we can get volunteers and maximize the positive impact on the Kingston community.

- Climate anxiety: the best way to treat climate anxiety is by taking action:
<https://www.theguardian.com/environment/2020/feb/10/overwhelming-and-terrifying-impact-of-climate-crisis-on-mental-health>
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References

- Extreme Forest, Michigan, [Edible Native Forest Plant List](#)
- [An engineer's vision for tiny forests, everywhere](#), Shubhendu Sharma, TED
- Recreating native forests with native trees, Dr. Akira Miyawaki, Japan [Miyawaki Method](#)
- [Miyawaki Tiny Forest Methodology](#), Afforest
- Success with [urban tiny forests in the Netherlands](#) is promoting them to roll out the idea countrywide