



Soil health and the Mini Forest method

A preliminary overview of below ground soil health and function as it relates to the Mini Forest method

A preliminary case for soil carbon storage: Windermere Basin Park

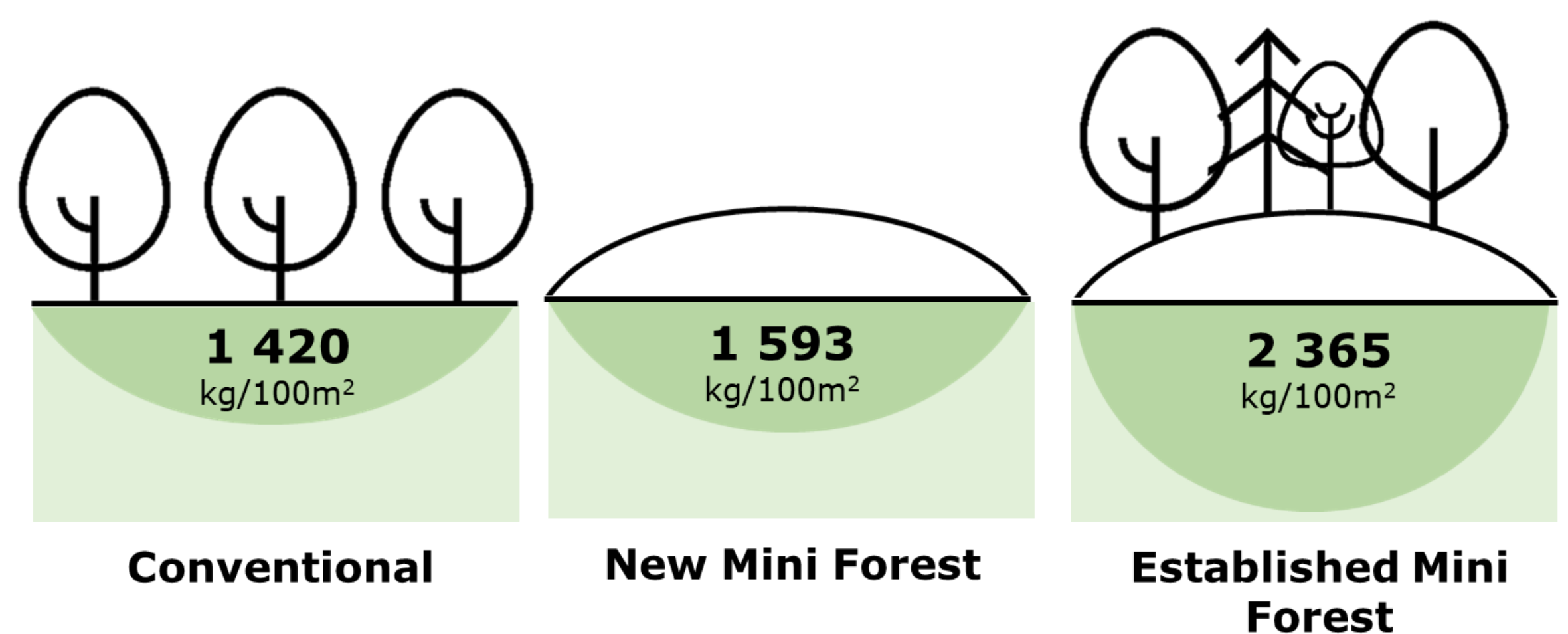


Windermere Basin Park is a semi-naturalized park area located along the south east corner of Hamilton Harbour in Hamilton, ON. The park is home to two Mini Forest plantings installed as part of an ongoing collaboration between the local environmental non-profit, Green Venture and the City of Hamilton. Mini Forests were established at this site in October 2021 and November 2023. Both Mini Forest plantings are situated adjacent to a conventional tree planting area, which is used here as our baseline for understanding soil health at the site level. Vineland Research and Innovation Centre collected a total of 18 soil samples from Windermere Basin Park. Three distinct points were sampled within the conventional planting area, as well as three in the 2021 or 'Established' Mini Forest and three in the 2023 or 'New' Mini Forest planting areas. Two soil samples were collected from each point, one from between 0 and 20 cm below the soil surface (i.e. the topsoil layer) and a second from between 20 and 40 cm below the soil surface, (i.e. the subsoil layer).

Preliminary analysis of soil health showed variation in the total carbon stored within soils underlying Mini Forest and conventional planting areas:

- Both Mini Forests contained more carbon in both topsoil and subsoils than the baseline soil.
- The 2023 'New' Mini Forest soil samples were collected directly following soil restoration and prior to the installation of trees. It is expected that soil carbon storage will increase and likely align with that of the 2021 'Established' Mini Forest within approximately 1 – 2 years.
- Preliminary data generated through the analysis of soil samples collected at Windermere Basin Park showed a total of 2 365 kg of carbon stored within soil underlying the 2021 'Established' Mini Forest planting and 1 593 kg of carbon stored within soil underlying the 2023 'New' Mini Forest planting area.
- Additional soil sample collection, testing and analysis is required to support the detailed characterization of soil carbon storage as it relates to Mini Forest and conventional urban forest systems.

Windermere Basin Park Preliminary Soil Carbon Results *



* Results are not statistically significant due to limited sample size. Additional soil testing and analysis is required to further validate results.

For more information about the use of the Mini Forest method and approach here in Canada, please [visit the Network of Nature website](#).

If you would like to have your Mini Forest's soils tested and analyzed for soil health, please [contact Charlene Williams](#), Senior Research Technician at Vineland Research and Innovation Centre.

