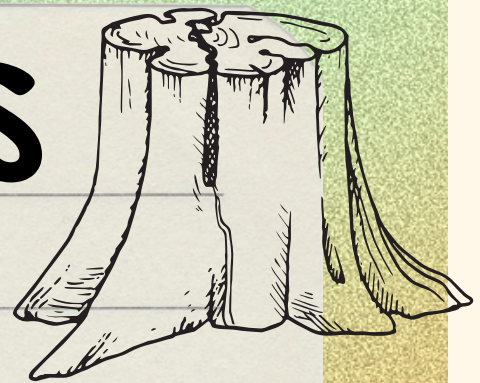


Stump Stories

Vol. 2



In May 2022, our region was hit by a derecho; a previously unfamiliar natural disaster and consequence of climate change.

In the aftermath of the derecho's destruction, we asked our community how their physical surroundings had been impacted.

We are excited to share these stories with you, interwoven with current research on tree growth.



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Swipe !! →

No Place to Hang

I have a hand-me-down hammock that I sometimes take with me when I go on walks or bike rides to hang up between friendly trees. As you may or may not know, the trees of Inverlea Park are tall and old and glorious, and also very spaced apart. Throughout the whole park, there was only one spot between two White Pines that were close enough for my hammock ropes to reach.

Over the past year or two I have enjoyed this spot with a book, a podcast, or just the birds.

I was out of town when the storm came through. It was only a few days later that I witnessed all the destruction.



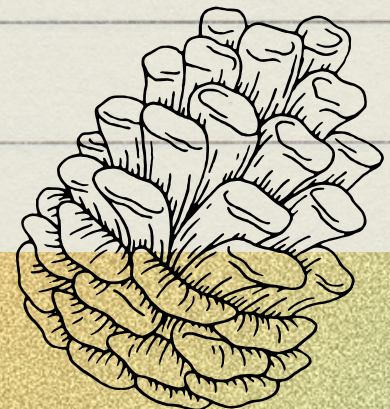
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Walking through Inverlea felt like walking through a cemetery except the deceased hadn't been buried. Massive trees at least three times my age had toppled over. How?!? I still have a sinking feeling in my stomach thinking about it now.

Both of the White Pine trees I used to hang my hammock between were among the fallen. I no longer have a spot to hang my hammock in Inverlea Park. I grieve the loss of all those trees. Especially the old ones, the natives ones, the ones sheltering birds nests and helpful bugs, and the ones holding strong on the bank of the Otonabee.

-Maya



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Weeping for a willow



My name is Astrid and I'd like to tell a story about the most wonderful and enchanting willow tree in Jackson's park that was sadly lost in this storm.

From anxiety walks to go sit under it, feeling it's sweet embrace of branches dancing around me, the sounds of the willow moving with the wind and calming my mind to picnic dates with friends and loved ones, blankets always set out neatly under its canopy with a thermos of tea, always shading us from the sun and making us feel welcomed. First dates and not so first dates were met under this tree. It felt like a full circle. I'd wander over in the fall to harvest fallen willow branches, sitting on my porch weaving small baskets that I'd use in my day to day life. Always making me smile when looking at them knowing they were from my favourite tree.



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Seeing children playing around it and parents teaching about its wonder.

Summer camps of children would make crafts to adorn the willows bark and branches, always thoughtfully placed, brightly coloured yarn wrapped around sticks with little beads and wildflowers placed here or there.

After the storm I took a short walk to the park and saw the devastating sadness of its loss. With seeing this I also felt others loving grief. I saw what I imagined to be a shrine, a beautiful wreath that someone had clearly hand made was placed on what was left of the tree.

It showed that this wasn't only my favourite tree, my comfort, but my communities as well.

- Astrid Ackerman



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Image courtesy of Jessica Voigt



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Snowmelt & Tree Growth

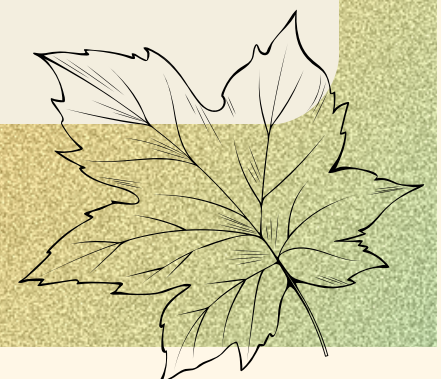
by Trent Environmental Professor,
Dr. Magali Nehemy

Spring snowmelt is an important water resource that replenishes soil water storage. Because the soil structure contains pore spaces, snowmelt becomes trapped and stored within the soil - like a sponge that holds water. But the soil cannot hold all snowmelt water and a large portion travels through the ground and eventually reaches groundwater reservoirs and streams. Given the large volume of water that melts from the snowpack in a short period, snowmelt is the primary source of groundwater recharge in places at higher latitudes - like Canada.

While we know about the importance of snowmelt to recharge groundwater and soil water, how important is snowmelt water to trees? Trees cover a large portion of Canada and transpire a lot of water - the processes of taking up water from the soil and releasing it back into the atmosphere through their leaves. Trees also absorb carbon from the atmosphere which they can then use to produce sugars and grow, which contributes to climate warming offsetting. Here in the Kawarthas, they also provide a traditional food source - maple syrup.



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But is snowmelt as crucial to trees as it is to groundwater? The general belief is that trees are dormant during snowmelt, and the snowmelt infiltrates the soil and bypasses the roots to reach groundwater. However, an investigation published in September 2022 in *Water Resources Research* showed that this is not the case. Trees rely on snowmelt water to rehydrate their wood in the spring and increase their internal water storage before they start to transpire. As such, snowmelt water is not only an important water resource for groundwater recharge but also for trees to recommence their transpiration and growth. Overall, this study offers opportunities to understand the impact of declining snowpacks on future forest survival and growth.

The first author of this study, Magali Nehemy, moved to the Kawarthas at the beginning of the year. She is now an assistant professor in hydrology and environment at Trent University. She has been investigating the source of transpiration of local tree species, including the source of maple water in the spring, as its production overlaps with snowmelt timing. Tree water source investigations are important to understand the relationship between snowmelt timing, groundwater recharge, and transpiration, which are all key components of the water cycle here in Ontario and underpin strategies for the conservation and preservation of natural resources.



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For a more in-depth description of Professor Nehemy's research, please visit the KWIC website.