The Outside Story

If a Tree Falls in the Woods, It Creates Opportunity

By Declan McCabe

In May of this year, when a cottonwood measuring nearly 3 ½ feet in diameter and more than 100 feet tall fell across a trail in the Saint Michael's College Natural Area, I saw the event less as a tragedy, and more as a circle of life opportunity. As the saying goes, "Nothing in nature is wasted," and a fallen tree provides opportunity to an array of beings, from the smallest organisms to the seeds that may grow into the next big tree.

When a tree falls in the woods, it creates a new gap in the canopy allowing light to reach previously shaded saplings – and increasing their chances to reach maturity. The fallen tree's decomposing wood provides a base for the detritivore food chain, from insects to woodpeckers and on to their predators. Rodents and other animals find shelter under bark and grounded branches. The dislodged roots leave a hole in the ground that can become a small pool filled with life. Soil from tree-fall root balls forms mounds on the landscape. "Pit-and-mound" topography caused by tree falls is a defining characteristic of old-growth forests.

Ecologists call fallen trees – from their roots to their broken branches to their solid, now sideways trunks – "coarse woody debris." This material provides essential habitat and, until it decays, stores carbon. Although much of that carbon will eventually end up in the atmosphere, some of it will enter the soil, where it may remain locked away indefinitely.

This particular cottonwood, however, presented a human-centric problem. The now horizontal trunk created a 4-foot-high barrier across a busy trail. It took considerable chainsaw work, a front end loader, and a team effort to cut an 8-foot-long section and move it from the trail. This part of the Saint Michael's College Natural Area is a young floodplain forest, growing on what was once the farm that supplied milk and potatoes to campus. The last vestige of this farming operation, some 65 acres, was leased for corn production until 2018. To improve wildlife habitat and provide new learning opportunities, the college has worked to convert the fields to forest.

In the five years since the last corn harvest, cottonwood trees have grown to heights of 20 feet and have been joined by silver maples, speckled alders, and black willows. A mixture of goldenrod, New England aster, and Joe Pye weed has filled every available gap, providing food for pollinators. In addition to fostering insect diversity, floodplain forests like this one reduce soil erosion, filter phosphorus from runoff, and capture carbon as the trees grow, live, and die.

The giant cottonwood toppled from the edge of an older forest across an area of this newer growth. After it fell, I explored the crown of the tree, imagining its future in the regenerating floodplain forest. The wide branches that had shaded the trail, now fallen sideways, still stood taller than many of the tree's own saplings, growing where only a few years ago there had been corn. It would become incredible habitat, I thought, and I looked forward to watching – via trail cameras – the succession of animals making lives from this windfall.

But permanence in a floodplain can be fleeting. In July, the Winooski River rose rapidly in response to heavy summer rains falling on saturated soils. The result was a flood of historic proportions. In the Saint Michael's College Natural Area, the water levels exceeded those recorded during 2011's Tropical Storm Irene – and kept me out of the floodplain for more than a week.

Once the water receded, I returned to the cottonwood. The cut section of trunk and tree crown were gone. Evidently, flowing water 16 feet deep was more than enough to float the huge tree downstream. All that remained was the section of the tree attached to the root ball. The roots had settled farther back into the hole and the cut trunk was now at eye level. By mid-August, leafy sprouts had emerged from the bark at the highest point of the stump. And while some of the saplings crushed by the fallen tree were past recovery, others had already sprung back to fill the vacant space. Life is eternal!

Did the tree make a sound when it fell, or again when it was lifted from the landscape and floated away? If it did, I can guarantee there were beings there to hear it on both occasions.

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