

The Ice Storm

Like all denizens of the hills, I awoke on December 12 to find the world transformed. Everywhere were arches. Who knew crystal could be so supple? It was the noise that first conveyed the news that this was not an ordinary ice storm. The air reverberated with the cracks of breaking branches. The thundering booms of whole trees crashing to the ground added occasional variation.

The roads were impassable, so most of us had no choice but to stay home and enjoy the show. Seen from the safety of a sturdy timber-frame house, I found the show dazzling, but too remote. Before long I could hear the Voice of Reason and the Voice of Carpe Diem arguing upstairs:

“You’d have to be nuts to go out on a day like this!”
“You’d have to be nuts to stay inside on a day like this!”

Like other members of my spiritual group, I resolved the dispute by asking, “What would John (Muir) do?” I headed to the beaver pond.

On that day, not only had the substance of the world changed, but so had the orientation of familiar objects. The old woods road now passed over and under tree trunks and through beaded curtains that must have been branches. This spectacle of sparkle provided a striking demonstration of how evolutionary forces have shaped our trees. In *The Trees in My Forest*, Bernd Heinrich describes weighing clippings from the branches of young trees coated by an ice storm, and weighing them again once the ice had melted. He found that the birches collected much more ice than any other species. The maples and apple were mid-range, and white ash had collected the least.

Sure enough, the yellow birches along the path bowed like weeping willows. Like all birches, they have numerous slender branches. As ice begins to build up on them, they bend, and precipitation trickles down, building up thickest at the twig tips. Birches, however, are endowed with great flexibility, and will bend rather than break much of the time. Despite this flexibility, the birches still lost more branches

during the ice storm than most species.

White ash, at the opposite end of Heinrich’s ice-accumulation spectrum, has relatively few twigs, and they tend to point skyward like a candelabra. This reduces the surface that precipitation can land on, and directs any flow to the base of twigs, the point of greatest strength. To compensate for the loss of leaf attachment sites, the trees produce compound leaves with seven to nine leaflets. Despite this adaptation, I still found I had to step over a few fallen ash branches on my walk.

The evergreen gamble of keeping needles year-round gives them the advantage of energy production on warm days throughout the year, and an energy savings since they don’t need to grow a complete set of new leaves each year. Alas, it means the surfaces for catching and holding ice and snow are greater. Spruce and fir, trees of the north, have whorls of branches growing from a single trunk. If they space things just right, snow and ice bend the branch tips down to rest on the whorl below, creating a steep-sided cone that sheds loads well. On December 12, these species were showing off the effectiveness of this strategy. The spruce and fir trees remained upright with their flexible branches bent, making a city of ice tipis among the buckled deciduous trees. The champion contortionists were the hemlocks. Their delicate young twigs and branches draped like fabric. I saw little or no evidence of broken branches beneath any of these evergreens. The large white pines in my yard, on the other hand, had dropped numerous branches, and take credit for ripping the phone and electric lines from the house.



Unlike their more conservative coniferous neighbors, I suspect the white pines have invested more energy in the strategy of stoutness and rapid growth at the expense of suppleness.

It took nearly an hour of clambering to make it to Surprise Pond, a walk that usually takes twenty minutes. The beavers seemed unimpressed with their new ice palace. The noise of rushing water and clacking branches made them nervous and kept them in the water, so I didn't linger.

Three nights later the ice disappeared. The next day I headed out to see if the trees would rebound. Those that remained rooted and intact had regained their proper posture, and I found the way blocked by only four major obstacles. I was impressed! At Surprise Pond all was calm, but messy. Branches broken from beech and red maple littered the understory. I found Bunchberry tidying up. Like many beavers, she disdains red maple, but often eats beech, and was busy towing a beech branch to their food cache. This bounty of branches may provide a winter of feasting for the beaver family.

Many of the plants and animals of our forests have evolved to take advantage of the occasional widespread disturbance like this ice storm. I have learned that such events should not be considered "natural disasters." The openings and damage created by flood, ice, wind, and fire, allow some suppressed species to proliferate and rebuild their vigor. Such events also keep tree species on their evolutionary toes, giving individuals that fare well the chance to pass along their genes. The real problems arise when the natural part of the designation is in question, as it always must be these days.

The trees that failed the ice-load test are likely to make the hiking and skiing less pleasant for a few years to come. Still, I will take what pleasure I can in the knowledge that the beavers and other earthbound herbivores — deer, moose, snowshoe hare — will be among the storm's beneficiaries. And I won't soon forget the beauty of those three days of ice!