

Science of the Seasons: Podcast 7 Veteran Trees

Kelly van Frankenhuyzen talks with forester and plant physiologist about veteran trees

Theresa Heyer Program Specialist-Urban Connections in St. Paul, Minnesota

Kevin T. Smith, supervisory plant physiologist for the Northern Research Station of the USDA Forest Service in Durham, New Hampshire.

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Narrator: This is Science of the Seasons, episode 7. I'm your host Kelly van Frankenhuyzen with the U.S. Forest Service, Northern Research Station. Today I talked to a program specialist with the U.S Forest Service Urban Connections program and a plant physiologist about veteran trees.

Theresa Heyer: This is Teri Heyer. I am with the Urban Connections program with Region 9. I'm located in St. Paul Minnesota. In my job as the Urban Connections Coordinator one of the things I try to do is make connections to people wherever they live to the Forest Service and the work that we do. And in doing that, one of the things I have realized is everybody has a story to tell. Just like veteran trees have a story to tell. When I think of a veteran tree I think of a large gnarly, hollowed out cottonwood that's located at Fort Snelling State Park. Last winter I had the pleasure of taking a group of girl scouts out on a snowshoe hike on a winter's day. We found deer scat and lots of other interesting things, but they found the cottonwood the most interesting thing, because they wanted to have their picture taken right where it was hollowed out. We passed by a lot of trees that day on our snowshoe hike and they didn't want to have their picture taken by any one of them, but the cottonwood really drew their attention because, I think, of its shape and it's character. I'm sure many animals spend their time hiding from the cold winter winds in the middle of that hollowed out cottonwood tree. When I look at that cottonwood tree, I think about what stories it can tell. What can it tell about all those people who have floated down the Minnesota River right where it's located. So that's what I think of when I think of a veteran tree.

Kevin T. Smith: This is Kevin T. Smith, supervisory plant physiologist for the Northern Research Station of the USDA Forest Service and I'm based in Durham, New Hampshire.

I first heard the term "veteran tree" from British conservationists and they were using the term to describe a tree with a long experience in the landscape. Although usually it's an older tree for these species and for the locality, the characteristics of a veteran tree are more about showing the evidence of a long life with episodes of disturbance in the landscape and the disturbance could be from storms or from human activity. One way to look at veteran trees are themselves as ecosystems and they support a community of wildlife, insects and other arthropods, and fungi frequently involved in the wood decay process.

So how I got interested in working with veteran trees, like so much of my research life, it really comes from my childhood. As a child, I was always intrigued by trees with unusual shapes and growth responses, and I later learned that much of that response growth was due to a mechanical structural injury that the tree was working to overcome. As a forest pathologist and mycologist (that's a scientist who studies fungi) I became more interested in the long-term relationships between growth and decay between those process of life and death. As part of a research project in northern New England after the devastating ice storm of 1998, my colleagues and I have been following the fate of trees – and we continue to do that now – that were injured with that storm and with a wide range of crown injury and I continue to be impressed how trees were able to produce new growth to compensate for what was lost. So this helped me develop my view on veteran trees in parks and other community areas. I was able to

apply that understanding gained from the natural forest, from the wild forest, and that specific ice storm, to the care of veteran trees in the human environment. In terms of the character of trees and wonder, when we see an old tree with a green crown of leaves and branches, yet also with an extensive cavity or hollow, someone might say that the tree was not good for very much because of those characteristics, but to me, what I see is an optimized organism that is continuing to convert the sun's physical energy into chemical energy through photosynthesis and then use that energy to build more tree, and then that building provides habitat and nutrition to a whole host of interesting creatures.

I think forest ecosystems as a whole are strongest and most resilient to disturbance when there is a diversity of tree species, sizes, ages, wildlife habitat, and so on. We know that veteran trees, and as trees get larger, they continue to fix or capture a large amount of carbon from the atmosphere, also a large canopy can do a more effective job at removing particulate pollutants and other pollutants out of the atmosphere, and also the root systems and the uptake of water by large trees can also help ameliorate flooding and storm water discharge and those ecosystem characteristics. Probably the best, on a landscape basis, on an ecosystem basis, having the diversity is good, but veteran trees do continue to provide those ecosystem services and also provide a particular linkage of people to nature. That's one of the big contributions of veteran trees to the human environment.

We have a concept of life and death as being the end of things, but for trees they can take decades to die, and then once dead, continue to contribute to the landscape for long periods of time. With veteran trees in the human landscape, part of what management requires- land management requires, and this is usually more in parks and historic sites, than with street trees, to open up our minds to the possibility that decaying wood, as logs on the ground or as standing monuments provide visual interest and character and provides another way for people to connect with the landscape.

One of the neat things with trees is that writers and authors and historians through time will mention specific trees at specific locations and those become the veterans for us to cherish and to take care of now. And so, they provide that historical link. At older historic sites and important landscape sites across the country, people are becoming more interested in how to take care of the existing veteran trees that as I say, provide a real connection to people and their imaginations.

Narrator: To see Kevin T. Smith's work related to how trees respond and recover from mechanical injury, infection, and environmental change visit www.nrs.fs.fed.us/people/ktsmith

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Music from Purple Planet- "Introspective"