The Outside Story

Butternut: A Hopeful Story Hiding in Plain Sight?

By Sam Blair



The butternut (*Juglans cinerea*) is a deciduous tree of forest edges and fertile bottomlands. Its deep green compound leaves and silvery-gray bark are beloved by those who know it; but over my lifetime, that group, along with the butternut itself, has declined significantly due to an introduced fungal disease called butternut canker. First documented in 1967, butternut canker swept across the tree's range in just three decades, causing alarming mortality from the southern Appalachians to Canada. In 2002, researchers predicted that Vermont would lose about 90 percent of its butternuts by 2012. However, more than a decade after that due date, observations on the ground are suggesting a different story.

Martin Kratt, a zoologist and the co-creator of the popular PBS kids' show *Wild Kratts*, thinks "there's definitely hope for butternut trees!" In 2022, Kratt began noticing butternut seedlings in the woods and fields around his home on Isle La Motte, Vermont. That was surprising, he said, "because everything I'd read was that they're doomed." Looking further, he found 700 saplings and 150 mature trees on his land. Now, Kratt and Dale Bergdahl, professor emeritus at University of Vermont, along with other partners, are extending the search across the northern Champlain Valley, and finding similar stories elsewhere. They plan to track the health of hundreds of trees over multiple years to determine how they're actually faring, and to tease apart some of the factors that may affect survival.

So far, genetic testing shows that surviving populations are almost entirely pure, native butternut. That matters, because many restoration strategies call for breeding butternuts with non-native species like the Japanese walnut (*Juglans ailantifolia*) to create disease-resistant hybrids. These approaches raise questions about how much we should change a species to save it – but they also assume that scientists have accurate information about the species' resilience in the wild. But "butternuts are so good at hiding in plain sight," Kratt said, that shifts in survivorship may be difficult to detect.

In the Northeast, butternuts have always been scarce and spottily distributed. They tend to grow in loose clusters in early successional settings, but even then, distribution can seem random. For Kratt, the trick to finding butternuts is to "start thinking like a squirrel." Almost all butternuts are "planted" by gray squirrels. Three key traits of the butternut encourage this behavior: the nut's scarcity, its nutritional value (at one third protein and two thirds fat, it's the most protein-rich nut in our forests), and its incredibly hard shell, which takes squirrels an average of 45 minutes to open. With such a delectable prize, squirrels have an incentive to hide nuts somewhere thieves won't follow: at or just beyond the forest edge, where the increased risk of predation keeps interlopers away. These sites are also the butternut's preferred habitat – an overlap that researchers say shows the butternut "manipulating" squirrel socioeconomics to its benefit.

Squirrels aren't the only ones whose love of butternuts has affected the species' distribution. Butternut was once a common country food, and many trees were planted or preserved for culinary use. Abenaki, Haudenosaunee, and Passamaquoddy people counted on the rich, oily butternut for a critical source of fat in the winter months and still prize this food today. According to state archaeologist Jess Robinson, processed butternuts occur in Vermont archaeological sites dating back at least 6,000 years and are the most common culinary nut across those sites. That's surprising, since pollen records show that other nut-bearing trees, such as beech, chestnut, oak, and hickory were far more abundant, while butternut made up less than one percent of the forest.

In a butternut workshop in Shelburne, Vermont, Robinson explained that archaeological evidence suggests that humans "purposefully plant[ed] them in dedicated stands" where communities could return to harvest nuts year after year. In this case, the butternut's spotty, localized distribution is a legacy of histories that involve not only squirrels, but also Indigenous and later colonial agriculturalists. Learning to read these histories could help us find butternuts "hiding in plain sight" – and imagine a future in which butternuts are our close neighbors once again.

Sam Blair is a naturalist, writer, and PhD student in Anthropology and Environment at Yale University. Illustration by Adelaide Murphy Tyrol. The Outside Story *is assigned and edited by* Northern Woodlands *magazine and sponsored by the Wellborn Ecology Fund of New Hampshire Charitable Foundation: nhcf.org.*

Northern Woodlands

PO Box 270, Lyme, New Hampshire 03768
mail@northernwoodlands.org / 603-795-0660
www. northernwoodlands.org

This article is reprinted with the permission of the Center for Northern Woodlands Education. A not for profit organization, Northern Woodlands seeks to advance a culture of forest stewardship in the northeast by increasing understanding of and appreciation for the natural wonders, economic productivity and ecological integrity of the region's forests. Subscribe or donate at www.northernwoodlands.org.