



# Sycamore Land Trust

## Media Coverage

News source: The Herald-Times

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Date: 11/19/2016

URL: [http://www.heraldtimesonline.com/life/at\\_home/how-the-blue-jay-plants-an-oak-forest-ecosystem/article\\_e8cfafd2-1b09-54f4-bed2-84258e01b1d9.html](http://www.heraldtimesonline.com/life/at_home/how-the-blue-jay-plants-an-oak-forest-ecosystem/article_e8cfafd2-1b09-54f4-bed2-84258e01b1d9.html)

## How the Blue Jay plants an oak forest ecosystem



One of the greatest pleasures of living in southern Indiana is wandering our oak-hickory forests in autumn. On a recent outing to a Sycamore Land Trust conservation easement, a group of us hiked through a stand of impressively large oak trees. We shuffled through the tawny leaf litter, kicking up the autumn aromas of tannin, fungus and humus-in-the-making. The nasal screams of blue jays echoed through the surrounding woods, so familiar we paid them little attention. We paused now and then to admire the trees and wonder how old they were, as this, like most of our upland forests, was once marginal farmland, abandoned during the Great Depression. Now these oaks have reclaimed the slopes and creek bottoms, just as they once followed the retreating glaciers northward, increasing their range dramatically—and quickly, for a tree with such large, heavy seeds.

We marveled at the plethora of white oak seedlings on the forest floor, dropped directly below the parent tree in a recent mast year (when oaks produce more acorns than can be consumed by the hordes of animals that relish them). Yet even though these seeds had germinated, few of the seedlings will survive into sapling-hood. They will fail to thrive in the lack of sunlight here under the forest canopy.

Acorns, of course, have evolved dense, lipid-rich nut-meats that enlist more effectual agents of dispersal than gravity—most famously the tree squirrel, that icon of autumn nut-gathering and burying. These mammals (and the chipmunks whose alarm calls have been set off by our crashing through the fallen leaves) disperse acorns in the forest as they pile up the seeds in their underground larders.

But what if an oak tree could recruit an even more effective courier, one that moved thousands of acorns every autumn, diligently transporting them beyond the woods of origin—and then stored them under conditions optimal for successful germination and growth into sturdy saplings, and eventually into mature trees?

The jeer-jeer of the jay is such an intrinsic part of the oak forest because the blue jay is the champion mover of acorns. The jay harvests and caches vast numbers of acorns every autumn, and was likely the expeditor of the postglacial oak surge, lending wings to the trees' gravity-bound seeds. The jay even possesses a special adaptation for their conveyance: an expandable crop that serves as a cargo bay, elastic enough to hold several acorns.

Harvesting, transporting and storing seeds uses a lot of energy, so the jay quality-tests each acorn by sight and heft to determine if it's worth swallowing into its hold. Even loaded with prime acorns, and carrying 1 or 2 more in its bill, the jay, a strong flier, can transport its goods a significant distance from the parent tree. Unlike squirrels, which are loath to venture across clearings, the blue jay readily traverses our fragmented landscape.

The jay also distributes its acorns broadly throughout this landscape. Using a technique called "scatter hoarding," the jay has multiple cache sites, usually in edge habitats or small clearings, with multiple cache holes at each site. Within each hole it regurgitates and tucks in just one to a few acorns, and further protects and conceals them with leaves or moss. Scatter hoarding helps ensure the acorns' winter survival, making them less prone to rot or wholesale depredation by pilfering animals. Blue jays, with their Crow family smarts, remember these highly dispersed caches throughout winter, often using landmarks as guideposts. Some stored acorns are inevitably left uneaten, of course, especially in a mast year.

Come spring, what happens to a high-quality and thus highly-viable acorn, pushed into the earth—effectively planted—and mulched? It germinates, and because it was cached in a relatively open and sunlit area, away from the competition of other seedlings, saplings or large trees, it has a great chance of growing into a mature, acorn-bearing oak, and contributing to a new oak-hickory ecosystem.

I may not live at my current home long enough to witness the oak trees I've planted produce acorns or attain the size of those in the conservation woods, but my 4-foot-tall white oak sapling hosted some extraordinary caterpillars this summer. Throughout its life, an oak is the ultimate giving tree, supporting more wildlife than any other plant, providing food and shelter for an amazing number of birds, mammals, and insects (500+ caterpillar species alone!), creating habitat for wildflowers and mushrooms, adding its tint to the autumn landscape through which we humans love to ramble.

The harsh call of the jay may not be melodious, but to my ears it is sweet; it evokes autumn in the incomparable oak forest—brought to us all by the blue jay.

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