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# The Appalachian Voice

## All in favor of cranberry bogs, please raise your forks

The cranberry sauce on your holiday table is probably from somewhere along the low-lying New England coast, brought to you courtesy of Ocean Spray. Chances are good it was shipped along with millions of other supermarket cans to travel across the nation, to be opened and dumped onto fine china dishes, and to be set out on linen and lace tablecloths during the height of cranberry-eating season.

Luckily for previous generations that lacked long-distance freight carriers, cranberries once thrived in the Southern Appalachians — quite a shift in latitude and elevation from your typical cranberry habitat. Though that source is long gone—"dried up" might be the best choice of words—the Nature Conservancy is working to restore the cranberries to their former quarters, in the southernmost region the cranberry has been known to thrive, at an elevation of 2,900 feet above sea level.

The startling fact that they ever lived here at all is commemorated on a hand-painted corn silo that stands at a crossroads in a small town in the extreme upper northeastern corner of Tennessee. "Home of the Cranberry Festival, Shady Valley, Tennessee" introduces to passing motorists a picture-perfect little valley that sits like a bowl inside a ring of surrounding mountains—Iron, Cross and Holston mountains—near Mountain City. This is in every way the portal to paradise except for two minor problems: the bit about the shade, and that claim to the cranberries.

#### Incursions of man

The trees were the first to go. Shady Valley settlers cleared most of them during the early 1900s to make way for farmlands and for the railroad. The cranberries didn't mind that a bit and actually expanded their turf to engulf the parts of the valley that previously had been shady.

As one botanist put it, cranberries like their feet in the water and their heads in the sun. The only use they can find for trees is the down wood they like to grow on, and home sweet home is a moss-covered log in a soggy bog. For half a century after the trees were removed the valley was a riot of low-growing red-colored berries that arrived just in time for the holidays.

The murky wetlands so thoroughly enjoyed by the cranberries were not so much appreciated by farmers. In 1963 the Army Corps of Engineers drained the valley to improve the land's agricultural potential, essentially finding a variety of ways to get water moving and exiting the valley rather than lingering, standing and pooling. They straightened the meanderings of Beaver Dam Creek and its tributaries, and deepened the main channel, where they also laid tiles at the bottom to keep water from soaking into the ground.

This time the cranberries were devastated and almost entirely vanished, surviving only in small pockets here and there. Oddly, the annual Cranberry Festival was launched in 1991, nearly 30 years after the cranberries were almost entirely eradicated. The only cranberries that ever attend that fun-filled festival are those supplied by Ocean Spray.

Every year the Nature Conservancy sets up a display at the Cranberry Festival (second weekend in October) and invites visitors out for a drive to see the wetland restoration projects. Those who rose to the challenge this year were conducted down mowed paths in the Orchard Bog to catch small glimpses of several tiny cranberry plants that eked out a couple of shiny red

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berries. The little fellows are slow-growing and still struggling and, in spite of the vast efforts that have been invested in them, a bit of a let-down in the context of a big festival held in their honor.

As an added touch of irony, the valley never quite became an agricultural cornucopia. The sad lesson learned here is that water and soil conditions cannot completely be altered by massive log and bog removal efforts.

"The soil does not drain well," said Charles McQueen, a fifth generation Shady Valley resident. "Almost anywhere you go in here, two feet or not more than three feet down, you get into a soil that's like clay. If you roll up a ball of it wet and lay it out, it gets just as hard as a brick. Water will not drain through it."

#### In the beginning

Shady Valley is a rare remnant of the last Ice Age. While it is not generally believed that any glacier came this far south, certainly temperatures were very cold throughout this region for many years. Northern plant species with an instinct for survival seeded themselves and grew just a couple steps ahead of the glacier, and when the climate began to warm again they remained alive and well only in higher, cooler elevations. There is some speculation that when the ice receded, plants from this region went with it and reforested Canada.

The 40,000-acre watershed that feeds the valley produced a mosaic of sphagnum and peat bogs interlaced among white pine, red spruce, balsam fir and hemlock forests. A wide spectrum of unusual bird species frequented the valley and bog turtles at one time were plentiful.

The settlers were astonished when they arrived here, and wrote enthusiastically of 10,000 acres of cranberries, a story nobody buys. "I would probably have a difference with that," McQueen said. "I think at the most there were a thousand or two acres with cranberries growing."

Also out of the early European settlements came the name "cranberry." Allegedly the shape of the flower, a pretty little thing with reproductive parts that suggest a beak pointed downward, combine with petals that fold back slightly, suggesting a head. The pioneers were reminded of the cranes back in Europe and it took only a few generations for craneberries to be contracted to cranberries.

#### The Nature Conservancy

The Jesse & Nelle Jenkins Bog was donated to the state in 1978, the first wetland in the valley to fall into the hands of the Nature Conservancy. This was a tiny parcel, not more than about two-tenths of an acre, and very little has actually been accomplished at this site in terms of cranberry restoration. An attractively hand-painted roadside sign indicates its location and, next to that, a firmly padlocked gate prohibits curiosity seekers from trampling what few small plants might persevere.

This bog is too shady, the volunteers say, and in too close proximity to a cattle pasture that supplies too many nutrients to the cranberries' competitors. A cranberry is a vine, not one to grow very tall—its tendency is to crawl across the ground shooting runners into any available soil—and constant vigilance is needed to support the cranberry's cause in this setting.

During the '90s the majority of the wetland restoration sites were acquired and McQueen became the Nature Conservancy's resident volunteer coordinator. To the best of his recollection, the 90-acre Orchard Bog was bought in '96, the 65-acre Quarry Bog and the 9.5-acre Schoolyard Bog in '99, and a boardwalk was erected around the Schoolyard Bog in 2001.

The Schoolyard Bog is a visible display of what goes on in subterranean strata throughout the valley. Artesian springs bubble up everywhere, sending up continuous rings that pinpoint their source and then widen until they lap up against each other and against the reedy rushes

#### growing in and around the bog.

"The springs periodically change places and they're scattered all through this area," McQueen said. "This is the only site left in the valley and they're disappearing."

He said the private owners who had the land during the Army Corps of Engineers intervention in the '60s had the presence of mind to build a small earthen dam between this bog and the site of the drainage efforts. "Had they not done that most likely these springs would have been eroded out to nothing," he said.

All this constant bubbling and gurgling is integral to the inner workings of the cranberry habitat that, in fact, is not technically a bog. The term "bog" implies stagnant water and what a cranberry requires is more accurately known as a "fen"—a constant supply of ever-moving, constantly cycling fresh water, of the type that can only be supplied by a vast network of underground springs.

The sunny, wide-open Orchard Bog is where the most recent surge of cranberry cultivation has taken place, with something in the neighborhood of 1,000 young cuttings planted in the field over the last few years. The cuttings came from a nursery maintained by the local Ruritan Club. "They're not part of the Conservancy," said McQueen, "but we encourage them and help them get small grants. They're interested in seeing the restoration work done."

The Nature Conservancy is also replanting the hemlocks and white pines that once provided the shade in Shady Valley. The goal is to return this landscape to its original state before havoc was wreaked.

#### A bird's eye view

For the last 50 or so years the Bristol Bird Club has done an annual count in Shady Valley in conjunction with the National Audubon count in early January. One of its findings is that aquatic birds have been arriving in increasing numbers ever since the local beavers pitched in to assist the Conservancy's efforts to raise the water table.

Wallace Coffey has participated in the bird counts for most of those years, witnessing the ebb and flow of wrens, sapsuckers, junkos and warblers. All told the club has recorded 204 different bird species, a number he calls "significant" for a mountain valley.

"Shore birds of different types will stop there in migration as they are coming through the mountains," he said. "Whenever northern birds extend their population south, they come down the mountain range. When the southern birds go north they go up the river valleys."

For this reason Shady Valley is a prime spot to detect some of the first bird migrations in the state. The habitat is also unique because it is in the northwesternmost area of the Blue Ridge and at the southernmost end of the Unaka range. "The Unaka chain in Tennessee is pretty much the Great Smokies and Roan Mountain and over into White Top, Virginia. So it divides itself in the Valley Region, a continuation in Tennessee of the Great Valley of Virginia."

## The plight of the bog turtle

Coffey said Shady Valley's bog turtles have become endangered not merely because of loss of habitat but also due to rampant poaching. "There have been tremendous raids of bog turtles where they have just about depleted the population overnight, stealing them right out of the bog," he said. "Now there are so few it wouldn't take a person very long to get them all collected in a basket or a bag."

Bern Tryon, curator at the Knoxville Zoo, has studied the turtles since 1986. This is not a species found in significant numbers outside of Shady Valley, he said, and fewer than 100 of them have been found in the valley.

"The turtles are shell-notched for individual identification, weighed and measured, sexed, and

aged if possible," he said. "The oldest are undoubtedly 50-plus years of age. Over time, population size can be estimated by the rate of recaptures, and some turtles have now been recaptured more than 50 times."

The study has used radio-telemetry to track turtle movements since 2001, and one finding has been that the turtles do not insist on a wetland residence. They are a wide-ranging species with no particular ties to land and no overwhelming allegiance owed to any particular bog, or to boggy conditions in general.

"It is impossible to determine how many turtles existed prior to this drainage project, but there is little doubt that the population was much larger than it currently is," Tryon said. "Radio-telemetry has shown that turtles are beginning to utilize some of the restored [wetland] habitat, in some cases year-round."

Another conceivable finding from all this research will likely be that bog turtles—as well as any number of rare and unusual bird species—eat cranberries. As no doubt has been the case in this lush valley for thousands of years.

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