The Pigeon River was once so polluted that North Carolina classified the best use of its waters to be for waste disposal. Beginning in 1908, industrial discharge from a paper mill in Canton—just 6 1⁄2 miles from the river’s origin in Haywood County—turned the Pigeon the color of coffee and devastated many species living in its darkened waters. Toxic chemicals such as dioxins, furan and chloroform flowed downstream through the Pigeon River Gorge and into Tennessee. In 1930, its filthy waters were impounded by the Walters Dam for hydroelectric power generation, altering habitat and river flow patterns. The Pigeon was, for all practical purposes, biologically dead.

Studies by the N.C. Wildlife Resources Commission, the N.C. Division of Water Quality and others documented the decline in the river’s biodiversity, including the extirpation of all native snails and mussels. The Tennessee Valley Authority noted that the fish community downstream of Canton was dominated by pollution-tolerant species such as gizzard shad, common carp and goldfish. In 1988 and 1989, after finding high levels of dioxins in fish, the states of North Carolina and Tennessee issued “do not consume” advisories on all fish in the Pigeon River below the paper mill.

As early as 1911, citizens’ groups in eastern Tennessee had waged grassroots campaigns asking North Carolina to address the unabated pollution flowing from Canton. Eventually, the state of Tennessee sued the state of North Carolina to force a solution. The federal Environmental Protection Agency intervened in the early 1980s and gave the paper mill a timetable and a clear set of rules for cleaning up its discharge. The mill took action to comply with its newly mandated wastewater standards. More quickly than anyone expected, the river began to look cleaner. The color of the Pigeon improved from “coffee” to “weak tea,” and the level of carcinogenic dioxins in fish dropped low enough that authorities rescinded most of the fish consumption advisories. In the late 1990s, conservation agencies began to wonder if they might be able to restore native species to the river. Because many surviving populations were isolated in other French Broad tributaries with no way to return to the Pigeon River, scientists knew that not all native aquatic species could return without assistance. That meant reintroducing species to the river.

Once considered little more than a sewage ditch, the Pigeon River is on the rebound. Improved water quality has encouraged biologists to reintroduce native aquatic species. 

written by Joyce A. Coombs

Pigeon River Revival
The Pigeon River, which had decades earlier been read its last rites, began to thrive with new life. Once scientists proved that the Pigeon could again support invertebrate species, excitement began to build. State, federal, university and industrial groups joined the effort to revive the river, and the Pigeon River Recovery Project was born in 2001.

What species go where?
Before the snails and other wildlife came back home, researchers had to do a tremendous amount of digging into the faunal history of the river. Because the Pigeon had been a cesspool for so long, no one knew what native species were supposed to be there. Fish experts from the N.C. Museum of Natural Sciences, N.C. Wildlife Resources Commission, University of Tennessee and other groups located historical records of river fauna from surveys dating back as far as 1877. Using detective work, educated guesses and inventories of species that live in Pigeon tributaries, the groups compiled a list of species they believed were native to the Pigeon River. They estimated that 40 species of native mussels and 95 species of native fishes inhabited the river.

North Carolina was ruled out as the location for the first reintroductions. Steve Fraley, a Wildlife Commission fisheries biologist working on the Pigeon River Recovery Project, said that in addition to the paper mill’s effluent, nonpoint-source pollution is a problem on the upper Pigeon above Waterville Lake. Municipal wastewater, other urban pollution and runoff, and carrying sediment from poorly managed construction, forestry and agriculture projects create a significant cumulative effect on the Pigeon River that is harder to measure than pollution that comes from the end of a pipe. “Even if the paper mill went away tomorrow,” Fraley said, “these sources would still have an effect on the water quality of the river.”

In 1996, the upper Pigeon, not far from where it joins the French Broad River north of Newport, Tenn., was chosen as the best habitat in which to reintroduce fish. Water quality there is good, thanks to dilution by tributaries and settling of pollutants and mud in Waterville Lake. The Pigeon runs 26 miles through a largely unpopulated area from the state line to Interstate 40 winding alongside the river. Fish migration in the Pigeon is interrupted when Walters Dam impounds the lake and at the paper mill, where a small dam and the release of heated effluent discourage the passage of fish. At Walters Dam, a 12-mile section of the river is bypassed with a 6-mile-long tunnel that diverts water to a hydroelectric generating facility on the border with Tennessee.

Finding the fish
Biologists collected fish and mussel species from areas stream to place in the lower Pigeon. The first fish reintroduced were small, nongame species — the blueside darter, bluebreast darter and gilt darter — that appear to favor the highly oxygenated riffle habitat at the primary release site. To assess survival of relocated species, fish were tagged with a fluorescent, medical-grade silicone that is injected as a liquid and cures to a pliable solid. This medical-grade silicone that is injected as a liquid and cures to a pliable solid. This effect on the water quality of the river.

In September, hurricanes Frances and Ivan brought heavy rains and caused unprecedented flooding. Water from the upper Pigeon was delivered to the bypassed section of the river below the dam. That event could restore the bypassed section of the river to its pre-1994 quality, enhance fish and wildlife habitat and improve water access to the Pigeon and French Broad. The dam’s federal license, renewed in 1994, stipulates that if and when water quality on the Pigeon improves to meet specific high standards, the company must rewater the bypassed section of the river below the dam. That event could restore miles of habitat for aquatic species.

Constant work and a unified focus promise to restore the Pigeon River to a treasure people in both North Carolina and Tennessee can be proud of. Within a generation, the Pigeon could truly become a river revived.