

## THE REAL NATIVES

by Ken Undercoffer

The native brook trout is a product of the Pleistocene epoch. This was a turbulent time whenever great glaciers crept down from the north all the way to the northern border and into the eastern and western corners of Pennsylvania. During glacial periods, the ice front advanced and retreated in pulses, each lasting many thousands of years. With each advance, the courses of rivers and streams were shifted from north to south. During periods of retreat, as the ice melted, raging torrents of water rushed downstream, carving out steep valleys and forming the streams we now call Kettle Creek, Pine Creek, Sinnemahoning, and Loyalsock. The Pine Creek gorge was carved out by successive torrents of glacial meltwater.

During interglacial periods, water levels fell. Brook trout populations were cut off from one another and lived in isolation for thousands of years. During these periods of isolation each population evolved traits unique in the particular environment it inhabited. Some lived in large rivers, streams or lakes where food was plentiful. Here they grew rapidly, lived long lives and reached sizes better measured in pounds than inches. Others adapted to limestone streams which, although not usually large, were incredibly fertile. Here too, brook trout grew large. But most brookies lived in little freestone streams and brooks where food was scarce. In such meager environments, they had to mature quickly and spawn early, for life was tenuous and brief. They were small and slender, but brilliantly colored, as if to make up for their diminutive size. As the glaciers ebbed and flowed populations of brook trout were alternately separated and then reunited. When reunited, they interbred and shared the genes evolved during years of isolation. This alternate separating, then mixing of the various populations endowed brook trout with an extremely diverse gene pool that allowed them to readily adapt to a wide variety of conditions. They could live in large and small, freestone and limestone streams ... lakes and ponds ... even tiny headwaters and trickle tributaries. No stream was too big or too small, as long as the water was cold and clear. This then was the icy crucible that molded *Salvelinus fontinalis*, the only salmonid native to the cold water streams of Pennsylvania and our state fish. Their survival as a species is absolutely dependent upon this diversity and their ability to adapt to a wide range of environments.

Until shortly after the turn of the 20th century, brook trout angling in the streams of northcentral Pennsylvania was nothing short of fantastic. There were no brown trout. They were not introduced into our waters until The 1880's. In big freestone streams like Kettle Creek, Sinnemahoning and Loyalsock brook trout averaged between 9 and 10 inches, 12 to 14 inch fish were not uncommon and, incredibly, some reached lengths in excess of 20 inches and weights approaching four pounds. These were the so-called river trout ... deep-bodied, silvery and less distinctly marked than brook trout of the smaller tributaries and headwaters. River trout did not spend the whole year in the larger waters, however. Even in the "good-old-days" these streams reached temperatures above the lethal level for trout during the summer months. But the versatile brookie had evolved a strategy to deal with this situation: They

moved upstream into cool headwaters and tributaries for the summer months. After spawning in the fall they moved back downstream and wintered in large pools of the main stem where they were safe from anchor ice and the other perils of winter. Brookies that lived year-round in the smaller upstream waters were called hemlock trout and were brilliantly colored, big-headed and slender ... the same as those familiar to most Pennsylvania anglers of today. They seldom exceeded 10 inches in length. Brook trout of the limestone streams were even larger than those of the freestone streams. In these richer waters it is said they averaged about 2 pounds.

This is the way it was in Pennsylvania until shortly after the turn of the century. Brook trout made their last stand in the Kettle Creek watershed, according to Charles Wetzel, who wrote of his angling experiences there from 1918 to 1920. He told of how immense schools of brook trout gathered at the mouths of Beaverdam Run, Trout Run and Hammersley Fork as the summer sun warmed the main stem waters of Kettle Creek. Wetzel related how with the first high water of June they moved up into these tributaries in such numbers that they darkened the bottoms of the large downstream holes, before moving upstream and dispersing; and how all the anglers envied experts like Rube Kelly who would catch several brookies of 20 inches or so every year. Similar accounts of angling in the East Fork of Sinnemahoning and in Loyalsock Creek during the same period were told by Max Greely, a former district forest warden from the Wharton area, and Charles Lose, a noted conservationist of early 20th century Pennsylvania.

Until recently, like most other anglers in Pennsylvania, I subscribed to the belief that these fish and these days were gone forever. We have been told for several generations that brook trout can no longer live in our large freestone waters because of the massive logging and subsequent forest fires which swept the area around the turn of the century, supposedly damaging the watersheds forever. These streams, it is said, are too warm to support brook trout, so they are destined to live forever in small headwaters and tributaries. Because of the lack of food in these sterile waters, they are limited to a maximum size of about 12 inches, and it is a rare brookie indeed that even reaches 10 inches in any but the most remote freestone stream in Pennsylvania. But the disappearance of large brook trout from our big northcentral freestone streams cannot be explained by the effects of the logging era. The forests were indeed stripped by the loggers and the watersheds were decimated by fire, but this was nothing compared to what these resilient fish had already survived over twelve thousand years of flood, fire and ice... The forests surrounding the big freestone streams of northcentral Pennsylvania have long since recovered from the disastrous effects of the logging era. I fish Kettle Creek every year and have caught native brook trout as far down as the dam at Ole Bull State Park, well into June. Water temperatures, even below the dam at Ole Bull, do not exceed the low 70s until well into June, long after the time brookies would have left these waters in the past, according to early accounts. So why then are large brook trout now almost non-existent in these waters?

The truth is that large brook trout vanished from our big freestone streams when northcentral Pennsylvania became readily accessible to anglers. With the opening of roads and the coming of the automobile, fishing pressure was intense, and the brook trout population was quickly decimated. It only took about 20 years. The limit was 40 a day around the turn-of-the-century; it was reduced to 30 a day

shortly thereafter and to 25 a day before 1920. Catching a limit was not difficult, and there was little thought given to limiting the catch. The resource was believed to be limitless. By 1940 it was all over.

In sterile freestone waters like those in Pennsylvania, brook trout grow at best at an average rate of about 2 inches per year. They have the potential to live about 7 years, and can live as long as 10 years. This corresponds very nicely with sizes documented in turn-of-the-century angling literature. But they need time and space, and this is what they no longer have. Brook trout are extremely sensitive to angling pressure and in heavily fished waters like ours seldom survive more than three years, the age at which they generally reach harvestable size. It's not very complicated: This is why native brook trout now average six inches in length and a ten inch fish is a trophy in waters that once teemed with 9- to 12-inch brookies.

Since about 1940, the large freestone streams of Pennsylvania have been primarily managed as put-and-take fisheries. Instead of limiting angler harvest, wild fish populations were supplemented with hatchery trout. This seemed logical at the time. Nature was thought to be inefficient and wasteful, and with hatcheries man could easily and cheaply replace wild fish with domesticated versions. It would no longer be necessary to wait years for trout to mature. They could be put in the stream one day and caught the next.

We still have thousands of miles of freestone streams with sufficient natural reproduction to support an extensive wild trout fishery. The best are located in the northcentral section, centered around Potter County. But now, just as the water is beginning to warm in the early spring sun, millions of hatchery fish are dumped into these streams. Recent biological studies have shown that the stocking of hatchery trout into streams with wild trout populations is a disaster for the wild trout. Hatchery fish are bigger and much more aggressive than wild fish and utter chaos results. The whole orderly system established by the resident fish collapses. Imagine what would happen if your neighborhood was suddenly occupied by a horde of big, ill-mannered, aggressive strangers who had nothing to eat except your food and nowhere to stay but your house. When streams containing wild trout are stocked, the number and size of the wild fish plummets. Conversely, when stocking is halted in streams with naturally reproducing trout, wild trout numbers and size increase dramatically. And, worst of all, stocking draws an army of anglers, many of whom are there to "limit out." The toll is enormous. The streams are quickly stripped of both wild and stocked trout. Repeat stockings are required every few weeks, just to meet the demand. The disaster that occurred earlier in this century is replayed every year now, starting on the opening day of each trout season.

Treating streams which are perfectly capable of supporting viable wild trout fisheries as though they are nothing more than counters from which to dispense expensive, domesticated hatchery trout is an incredible waste of increasingly rare and valuable resources. And imagine what is being done to the irreplaceable genetic diversity of our native brook trout populations. It took literally millions of years for these fish to evolve. Now those fish genetically coded to mature early in life while small in size, spawn and die, are heavily favored. There is no longer any survival advantage to long life and large size. As anyone with even the most rudimentary knowledge of natural selection knows, the species will adapt to fit the environment. Extinction is the only alternative. Make no mistake about it, these fish are highly

adaptable and will survive, but their ability to live long lives and reach large size will be lost forever if we continue on the present course.

Several states have now stopped stocking streams with naturally reproducing populations of trout. They have recognized that this is the first critical step in restoring a wild trout fishery. I think the PFBC recognizes that this is the way to go, but they have the unenviable task of trying to satisfy the demands of a diverse angling public. Hence, we stock over five million trout every year, too many of which go into streams perfectly capable of sustaining fishable wild trout populations.

The only thing required to create a world class wild trout fishery in Pennsylvania is that we quit killing the fish in these streams at a rate higher than that which nature can sustain. And perhaps most importantly: something must be done to preserve the larger fish. These are the survivors and they must be left in the stream to pass on their genes to subsequent generations. If we could only redirect our thinking towards the restoration and preservation of sustainable wild trout populations, and away from the "stock-and-plunder" philosophy of the past, the freestone streams of Pennsylvania could once again teem with wild brook (and brown) trout. Under a wild-trout-first management philosophy, a significant proportion of our native brook trout would be able to attain their potential life span of seven years and 10-inch brookies would no longer be a rarity and many would reach lengths of twelve to fourteen inches, just as they did in the past. And maybe, just maybe, expert anglers would be able to catch one around twenty inches now and then, just as Rube Kelly once did.