Eastern Brook Trout *Salvelinus fontinalis*

BY LUKE KEENER AND JASON CLINGERMAN

The eastern brook trout is of dark green to brown coloration, they have a distinctive map-like pattern along the top of their backs, and characteristic small red dots surrounded by blue halos are scattered along their sides. Their dark back and spotted body allow them to disappear over a stream's rocky substrate. The brook trout's belly and fins are in stark contrast to their darker bodies. Their bellies are of stunning coloration, ranging from orange to red. The orange stomach, particularly in males, often intensifies in color when the fish are spawning. These features contribute to the trout's beauty and make it a fish prized by anglers.

Brook trout are an indicator species of excellent water quality. They can be found in the cold, clear streams of the Appalachian Trail, as well as cold ponds and lakes in the northern portion of its range. The eastern brook trout's range spans the entire length of the Appalachian Mountains from northern Georgia to northern Maine. These fish are most commonly found in headwater streams where they feed mainly on insects, but are very opportunistic feeders and will also eat crustaceans, frogs, and smaller fish. Brook trout streams and ponds must have excellent water quality. They require a nearly neutral pH range, a temperature below 70°F, and high dissolved oxygen levels.

Brook trout are imperiled throughout their range and have even become extirpated in many areas. Populations of brook trout are declining in the eastern U.S. because of many anthropocentric changes. It is estimated that less than 9% of the historic habitat that once supported brook trout is still intact. A recent study indicates that high water temperature, agriculture, urbanization, exotic fish species, and poor riparian habitat have had the most negative impact on the eastern brook trout. Acid rain and acid mine drainage are more localized but still have a devastating impact on brook trout populations, especially in the middle Appalachians.

Streams impacted by acid rain and mine drainage can be restored by placing alkaline materials (like limestone) into the stream. Many state, federal, and nonprofit organizations are working to remedy these problems. One example is Williams Run in Pennsylvania, an acid mine drainage stream that is being restored by having a limestone bed system constructed to raise the pH. Streams affected by acid rain are generally treated by placing limestone sand into the stream, where it can effectively raise the pH.

The Conservation Fund's Freshwater Institute in Shepherdstown, West Virginia is undertaking a brook trout restoration effort for a local spring creek called Rockymarsh Run. Brook trout were historically native to this stream. Due to a loss of riparian canopy cover, mainly from agricultural clearing, the stream became too warm to sustain a brook trout population. The introduction of rainbow trout added to the decline of the brook trout as competition for resources increased. With targeted watershed grant support from the National Fish and Wildlife Foundation, the Freshwater Institute is teaming up with Trout Unlimited, the West Virginia Division of Natural Resources and the West Virginia Water Research Institute in efforts to restore riparian buffer zones. This will reduce erosion, sedimentation, and provide shade, which will reduce stream temperatures. Temperature loggers have also been strategically placed throughout the watershed to help locate inputs of cold groundwater. These areas will provide refuge for the brook trout during the warm summer. This restoration project is a small part of the big picture. Rockymarsh Run is a tributary of the Potomac River, in the Chesapeake Bay basin. When small headwater streams, such as Rockymarsh Run, are restored, not only do brook trout benefit; these restoration efforts reduce pollution downstream in the larger rivers and bays.

Recently the Eastern Brook Trout Joint Venture (EBTJV) was formed. It is a collaboration of federal, state, and private organizations, all with the objective to jointly protect, restore, and reintroduce brook trout throughout their range in the Appalachians. With continued efforts by the EBTJV and organizations such as The Conservation Fund, brook trout populations can be restored. Their beautiful colors and the pristine environment they inhabit make them one of the true gems along the Appalachian Trail corridor.

For more information on restoration efforts, visit:

www.freshwaterinstitute.org

www.easternbrooktrout.org

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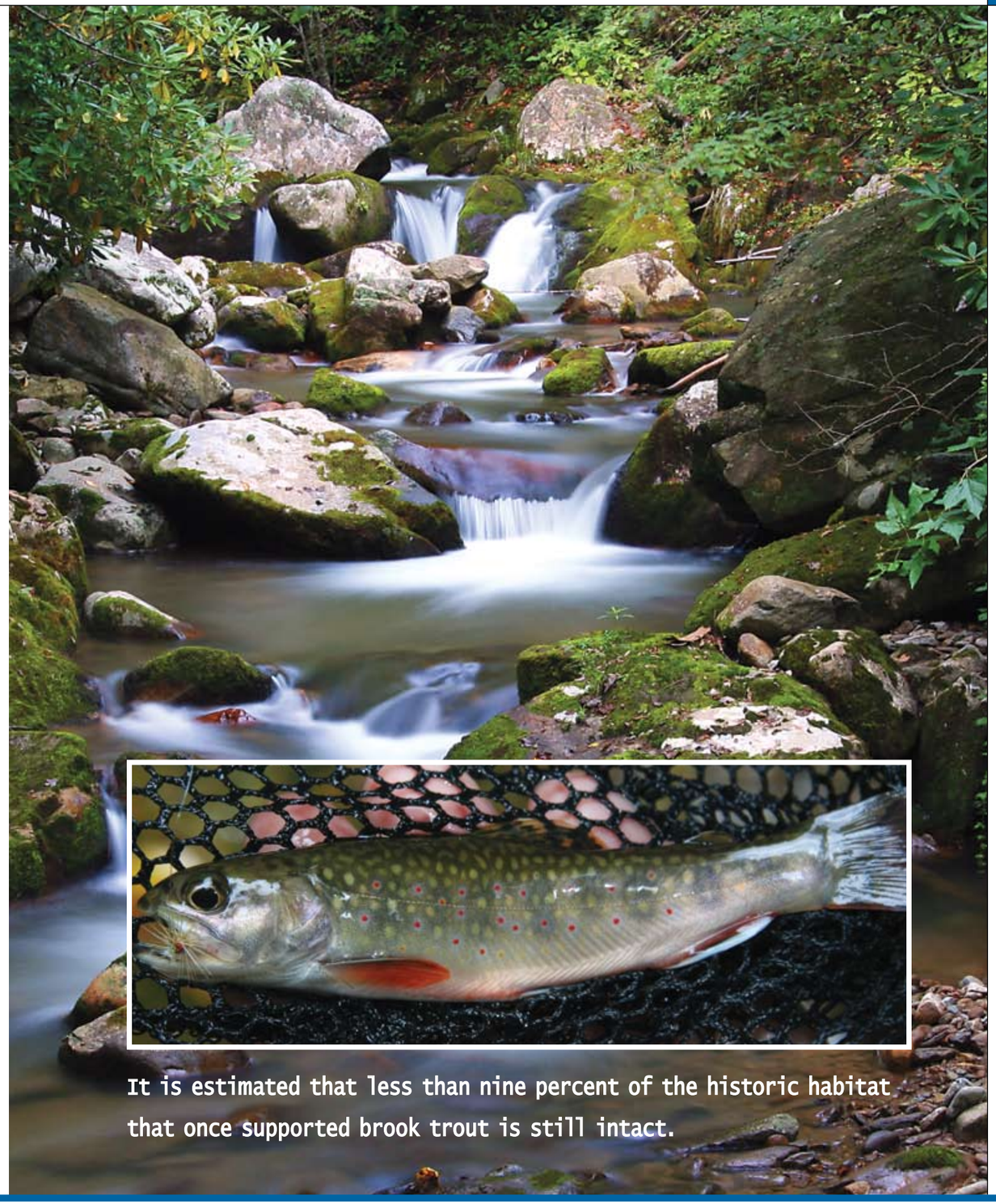
PHOTOS OF EASTERN BROOK TROUT AND ROCKY FORK CREEK IN NORTH CAROLINA BY DAVID RAMSEY.



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