The Nature Conservancy
SAVING THE LAST GREAT PLACES ON EARTH

Etowah Currents: How Important Are Our Tiniest Streams?

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Growing up, my friends and I spent our free time down by the creek trying to catch "crawdads." We even built a rope swing overlooking the creek. We preferred that wild place to all the paved playgrounds. We never really thought about where that creek went. We didn't know that in the same way capillaries feed oxygenated blood to our organs and tissues, small streams are crucial to the health of our river systems. They are so important that scientists have given a name to the job they perform -- *ecosystem services*.

Despite their importance, small streams are often taken for granted, partly because they perform their job unnoticed. Most of these streams don't appear on maps, yet they comprise as much as 80 percent of our river systems. They are the headwaters where rivers begin. These seemingly insignificant creeks, seeps, rivulets, springs and wetlands come together over and over again, moving faster as they grow larger. There is probably one near your home. Perhaps it is only a trickle. Streams do not have to flow year-round to make a significant contribution to good water quality. Moving slowly enables them to do their job better.

We humans - who often think in terms of the destination and not the journey - might assume that a straight concrete culvert is just as good as a slow meandering creek. It still gets the water to where it's going and that's the object, right? Actually, no. Our tiny streams, wetland seeps and springs are able to perform essential functions because they meander and seep slowly. This slow moving water helps filter out pollutants, remove sediment, and recharge groundwater resources while providing protection for juvenile fish from predators and habitat for insects, amphibians and more.

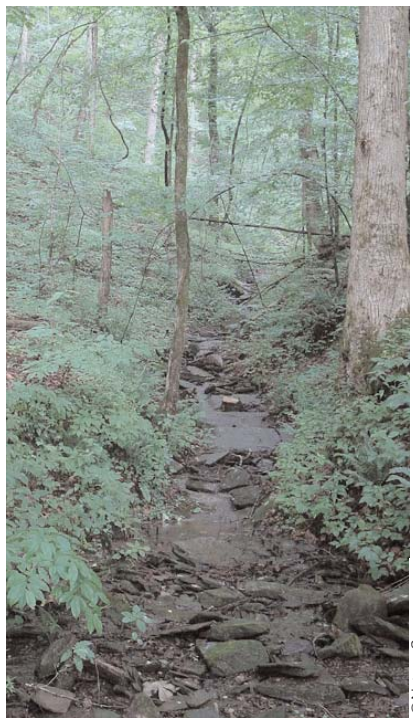
Slower moving water doesn't have the power to carry things very far. Leaves, twigs, dead insects and other debris sink to the bottom and begin to decay, remaining there instead of continuing downstream, creating a rich feeding ground for animals such as caddis flies, snails, and darters. These animals then become food for predators such as fish, birds and mammals, which in turn, become prey for larger animals.

Some of what washes into streams is not beneficial. Pollutants, fertilizers, animal wastes - anything that is deposited on the ground - is picked up by stormwater runoff. The helpful bacterias, fungi and other microorganisms living on the bottom of tiny streams consume substances like animal waste and break them down to improve water quality.

Vegetative buffers along tiny streams and wetlands also help keep excess sediment and other pollutants out of downsteam rivers and lakes. When these valuable headwater streams and wetlands are filled in or channeled into pipes or paved waterways, their buffers are removed and they can no longer perform this valuable filtering service. Sediment can fill up reservoirs and navigation channels, damage commercial and sport fisheries, spoil recreation areas and increase water filtration costs. When the water is murky, underwater plants no longer have enough light to grow. Fish may have difficulty spawning thereby reducing the sport fish population.

As the water slowly makes it way across the bumpy surface of a natural streambed, water is absorbed into the ground. If this groundwater recharge process get short-circuited because water is channeled rapidly downstream, the connections between surface water, soil and groundwater are disrupted. Streams, rivers and wells can run dry and the frequency and duration of flooding downstream can increase.

Clearly the downstream health of the entire river is hugely affected by the ecosystems services provided by our small streams and wetlands. In the same way that the human body is damaged when tiny capillaries are destroyed by disease, small streams and wetlands are damaged when



First order stream

other parts of the river system become degraded. Nearly 2,700 of the nearly 3,600 miles of watercourses in the Upper Etowah River Basin are small headwater streams that meander through parts of Cherokee, Forsyth, Lumpkin, Dawson and Pickens counties.

However, our small streams and wetlands are under-appreciated and their contribution to the health and well-being of our rivers deserves greater recognition. For example, in many areas, basic buffer protections are not enforced on streams that are not shown on maps or that do not run year-round. It is critical that policies are developed and implemented to protect our small streams and the ecological services they provid, so that our children are able to enjoy healthy streams for generations to come.

For more information about The Nature Conservancy's work in the Etowah watershed, call 770/704-7280 or visit ***nature.org/georgia***.

(Information for this article is from Where Rivers Are Born by Judy L. Meyer, et al)

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