Promote the retention or restoration of vegetative buffers. Vegetation along a stream helps stabilize the banks of the channel. Encourage the protection of buffers in your area.

Good Riparian Buffer

Increased urbanization and deforestation in the Etowah watershed threatens to degrade our precious water resources. It will take all of us working together to protect our streams from the negative impacts of storm water runoff. You can help protect our amazing Etowah river and streams by practicing good watershed stewardship and by spreading the word to friends, neighbors and local officials.

Spread the Word! Spread the Word!

Upper Etowah River Alliance
341 E Main Street
Canton GA 30114

770-704-7280
770-704-7281 fax

www.etowahriver.org **web site**
info@etowahriver.org **email**

This brochure was financed in part through a grant from the US Environmental Protection Agency under the provisions of Section 319 of the Federal Water Pollution Control Act, as amended.

Storm Water Runoff

Quantity

What does it do to our streams?

Do Your Share, Care About Water!

As development and urbanization throughout the Etowah River Watershed increases, many of our streams are becoming degraded due to greater amounts of storm water runoff. This is rain that literally runs off the land rather than soaking into the soil to become groundwater.

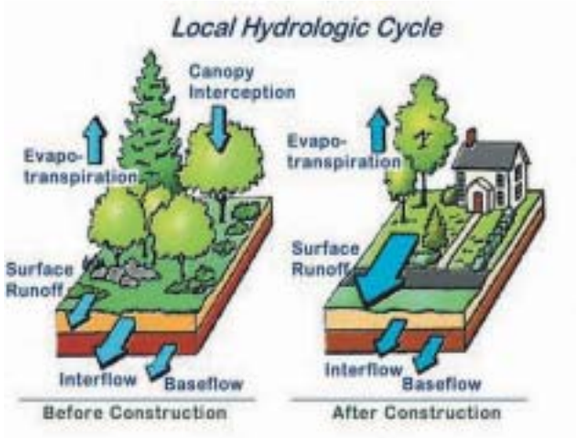
In a naturally forested watershed, the thick layer of organic material on the forest floor and the soils below absorb most rainfall and release it slowly to replenish streams during dry periods. Many contaminants like sediment, nutrients and bacteria are filtered or broken down before reaching the stream.

An intact forest soaks up rainfall and slowly releases it to recharge streams during dry weather.

When forest cover is removed, most rainfall no longer soaks into the ground. Instead, it becomes storm water runoff.

Adding impervious surfaces like roofs and driveways increases runoff even more.

This natural process of filtration and groundwater recharge is disrupted when trees are removed, or when non-porous surfaces like roofs, driveways and parking lots are added to the landscape. Since less rainfall is soaking into the ground, more of it becomes runoff. For example, a typical city block generates nine times more runoff than a forest of the same size. This has devastating impacts on streams because the excess runoff causes in-stream channel erosion, localized flooding and can also lead to property damage.



A typical city block generates NINE TIMES more runoff than a forest of the same size.

Water Quantity Problems

To accomodate the increased amount of runoff and higher stream flows which result from impervious surfaces and deforestation, the stream channel usually widens. Most streams widen two to four times their original size due to post-development runoff.

How does this affect our streams?

Higher and faster flows due to urbanization or deforestation erode stream channels and can wash away entire biological communities. The pools and riffles which provide habitat for fish and aquatic insects in forested watersheds are altered by high storm water flows after a heavy rain and are replaced by more uniform, shallow stream beds that provide less habitat.

An eroded stream that has lost the pools and riffles which are critical for fish and other aquatic life.

Lower Dry Weather Flows

As impervious surfaces increase in the watershed, less rainfall soaks into the soil to naturally replensih groundwater. Therefore, during dry periods, streams may actually dry up because there is not enough groundwater available to keep them flowing.

Change in Channel Shape

Excess Sediment

Storm water runoff deposits soil into the stream burying rocks where fish and other aquatic species lay their eggs and look for food. Streams with too much sediment have fewer insects, snails, crayfish and other stream organisms.

Loss of Woody Material

Woody debris and other plant matter normally found in streams are a critical source of food and shelter for aquatic life. High flows wash away these important parts of the stream ecosystem.

Flooding

Greater storm water runoff can lead to increased downstream flooding. Areas that previously flooded only once every five years may flood every year, or several times each year.

Cherokee Ledger News

Loss of Vegetation Along Streams

Unnaturally high storm water runoff during large storm events can destabilize a stream's banks and uproot trees. The loss of this protective buffer can leave the stream bank even more vulnerable to erosion.

Center for Watershed Protection

What can we do to reduce the QUANTITY of storm water runoff...

Reduce impervious surfaces around your home. Design landscaping and patio areas with vegetation, gravel or other porous materials instead of concrete. Make walkways or driveways of wood, interlocking bricks or paver stones rather than concrete.

Promote the use of porous surfaces and rain gardens in parking lots and driveways. These techniques allow more rainfall to soak into the soil naturally.

Create a rain garden in your yard. Redirect rain into a rain garden or a grass or gravel area in your yard (but always at least ten feet away from your house).