

Riparian Notes

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Myth Number 4 – Creeks should be wide and straight

Seven common myths and misperceptions about creeks and rivers are being addressed in this series. When misunderstandings are explained, clarified and untangled, riparian managers are in a better position to apply appropriate management and avoid some of the mistakes of the past.

Various government entities as well as landowners have spent untold billions of dollars making crooked creeks straight. Countless thousands of miles of creeks and rivers have been re-engineered to take out the meanders and bends to make the water flow where people want it to flow.

The straightening of creek and rivers, often called channelization, has been done for several different reasons. One of the primary reasons for straightening a meandering river is to allow more efficient farming. Rivers that meander back and forth across a valley make farming more difficult, with fewer acres available for crop production. Channelization has also been done on larger rivers to improve their use in navigation, shipping and barge traffic. In other places, creeks and rivers are straightened to accommodate more efficient road construction and land development. Flood control is another common purpose for straightening creeks and rivers.

Regardless of the reasons for straightening creeks and rivers, nature does not agree with this kind of engineering. Usually there will be undesirable long-term consequences. A chain reaction of negative side effects often occurs when meandering streams are made straight:

- When sinuosity (meandering) decreases, the slope of the channel necessarily increases
- When the slope of the channel increases, the velocity of the water increases
- When the velocity of the water increases, erosive energy increases
- With increased erosive energy, channels often cut downward or wider
- As channels cut down, water tables are drained
- As channels cut down, floodplains become less accessible and groundwater recharge decreases

In addition, there are other negative consequences of straightening channels. With decreased channel length, there is decreased riparian area, decreased water storage capacity, decreased sediment trapping, decreased floodwater retention and decreased aquatic habitat.

Conversely, when creeks and rivers are allowed to meander naturally, water is slowed, erosion is reduced, sediment is trapped, more water soaks in, more water is stored, and the riparian area is enlarged.

Engineers have often widened creeks and rivers as they straighten them. The widening is done to accommodate floodwater. However, what often happens is the intensification of flooding problems farther downstream. In nature, the general rule is a relatively narrow main channel, and a comparatively wider floodplain. When this general rule is violated, bad things often happen.

Channelization projects treat creeks and rivers like drainage ditches with the goal of getting rid of the water faster. With natural channel configuration and functional riparian areas, water will be retained longer and creeks will be water-catching and water-holding parts of the landscape rather than simply drainage features.

Fortunately, channelization has been greatly curtailed over the past several decades. People and government agencies have come to realize the importance of naturally meandering creeks and rivers and have come to see the damage caused by straightening. While the effects of past channelization projects are still apparent in many places, creeks and rivers are putting meanders back into the channel through the natural process of erosion and deposition. Let nature do the engineering.

Credit is given to Wayne Elmore, Riparian Specialist and former Leader of the National Riparian Service Team for compiling the list of creek and river myths which are used to help teach riparian principles.

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