

KLICKITAT CONSERVATION NEWSLETTER

SPRING 2014

Central & Eastern Klickitat Conservation Districts

IN THIS ISSUE:

- *Protecting streambanks during flooding*
- *CKCD changes regular meeting schedule*
- *Tree planting field trips*



Protect Streambanks During Flooding

Riparian forests provide many recognized ecological benefits, including shading the stream to reduce temperature fluctuations, providing organic matter input to the aquatic ecosystem, and absorbing pollutants such as excessive nutrients from runoff or subsurface flow. Woody vegetation is also highly effective for stabilizing streambanks and reducing erosion under normal streamflow conditions. Streambank erosion is a natural adjustment process of rivers, but lateral migration rates of the channel can be accelerated by reducing the resistance of bank material or increasing the velocity of the water. During flood events woody vegetation reduces streambank erosion by slowing



streamflow speed (and thus erosive energy), trapping sediments and debris in the stems and trunks, and holding the soil with woody and fine root systems. This is called flood attenuation. Riparian woodlands do not reduce flooding, but they reduce the damage that floods can cause. Even fallen tree trunks, depending on their orientation, can help deflect current away from the bank.

Streambank channel erosion varies with channel morphology and position. Erosion rates are typically highest at the outside bends, whereas sediments may be deposited on inside bends, where velocities are slowest. Erodibility depends on bank height, the ratio of root depth to bank height, bank angle, soil surface protection and soil texture. Stream discharge varies greatly with precipitation and other weather events (snowmelt), and numerous climate change scenarios point to more episodes of extreme weather in the future. Will riparian woodlands continue to protect streambanks effectively, even under extreme flooding conditions? Yes! Studies have shown that even during a 500-year flood event on a major river, the presence of trees in the riparian zone makes a clear difference in the lateral migration, erosion, and deposition of sediments.

*Riparian woodlands
do not reduce flooding,
but they reduce the damage
that floods can cause.*

These studies show that woody vegetation is highly effective for protecting streambanks even during severe flooding. Standing trees slow water velocity, thus reducing the energy available for erosion, and allowing disposition of flood-borne sediment. The greater rooting depth of trees, along with larger and stronger roots, also helps stabilize the soil mantle. To protect agricultural land in the face of extreme weather events such as flooding, natural stands of timber should be left standing on streambanks, and riparian buffers containing trees should be established in areas where trees are absent, to reduce streambank erosion.

This article was adapted from "Riparian Forests Protect Streambanks During Flooding" by Charles J. Barden and Wayne A. Geyer, and used with permission from "Inside Agroforestry," published by the USDA National Agroforestry Center.

Central Klickitat Conservation District Board of Supervisors' regular meeting schedule has changed to:

**Every third TUESDAY of the month at 5:00 PM
at the District office in the Goldendale USDA Service Center**

Public Welcome!

CENTRAL & EASTERN KLICKITAT CONSERVATION DISTRICTS

1107 S. Columbus Ave.
Goldendale WA 98620



509-773-5823 x 5

cdoffice@gorge.net

ckcd.org

ekcd.org

Tree Planting Field Trips

Central Klickitat CD recently completed its annual tree planting field trips for Goldendale students. For nearly fifteen years, CKCD has sponsored this program for local 2nd and 5th graders, which includes in-class presentations on how trees can improve water quality by reducing erosion and lowering water temperatures. Using funds from a grant from the Dept. of Ecology's Centennial Clean Water Program, the district arranged for planting sites, donated 400 Ponderosa pine trees for each class, and paid for the use of the school buses. The 5th graders got to plant a slope that was burned by the Milepost 28 Fire, and which drains into the East Prong of the Little Klickitat River; the 2nd graders went south of town to a pasture adjacent to the Little Klickitat River.



New this year was a planting day for Centerville 5th and 6th grade students, funded by a grant from the Charlotte Martin Foundation. Their project included lessons on the Swale Creek watershed and the opportunity for each student to develop his or her own planting plan, including choosing from a variety of native plants. Plants were installed by the students in a riparian area along Swale Creek, with help from Centerville 1st and 2nd graders, district staff, and a crew from the Washington Conservation Corps (WCC). This riparian planting is part of

larger project being sponsored by the district (again with grant funds from Ecology's CCWP), which will include additional riparian plantings, livestock exclusion fencing, and off-channel water troughs.



Both Swale Creek and the Little Klickitat River are listed by the Department of Ecology as having impaired water quality— specifically, water temperatures that are too high for optimum salmonid (salmon and trout) habitat. The addition of trees and shrubs from these planting field trips will improve water quality by slowing the erosion of streambanks, reducing the amount of sediment and other pollutants entering the streams, and increasing shade to lower water temperatures. The lessons learned by these students will help guide their choices when they grow up to be adults making land use decisions.

