

the Watershed Watch

Newsletter of Salt Lake County's Watershed Planning & Restoration Program

Spring 2020, Issue 21

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RainHarvest 2020

Discounted rain barrel sale is back! Order now at <http://utahrivers.org/rainharvest/>
Barrel pickup in July (date TBD)

Blueprint Jordan River Refresh Public Meeting

Share your ideas for the future of the Jordan River Corridor. [Register by May 14.](#)
May 18-21

Stop the Spread Challenge

A social distancing project that helps fight the spread of invasive weeds.
[Join the challenge!](#)

Lights Out For Migrating Birds

Take the [pledge](#) to protect over 250 species of songbirds that migrate at night. Turn off your lights between 11pm and 6am
March-May (August-October too)

Pollinator Week

Pollinators positively affect all our lives, supporting wildlife and healthy watersheds. Let's save and celebrate them!
[Learn more here.](#)
June 22-28



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We're recycling old Christmas trees to protect and repair eroding stream banks

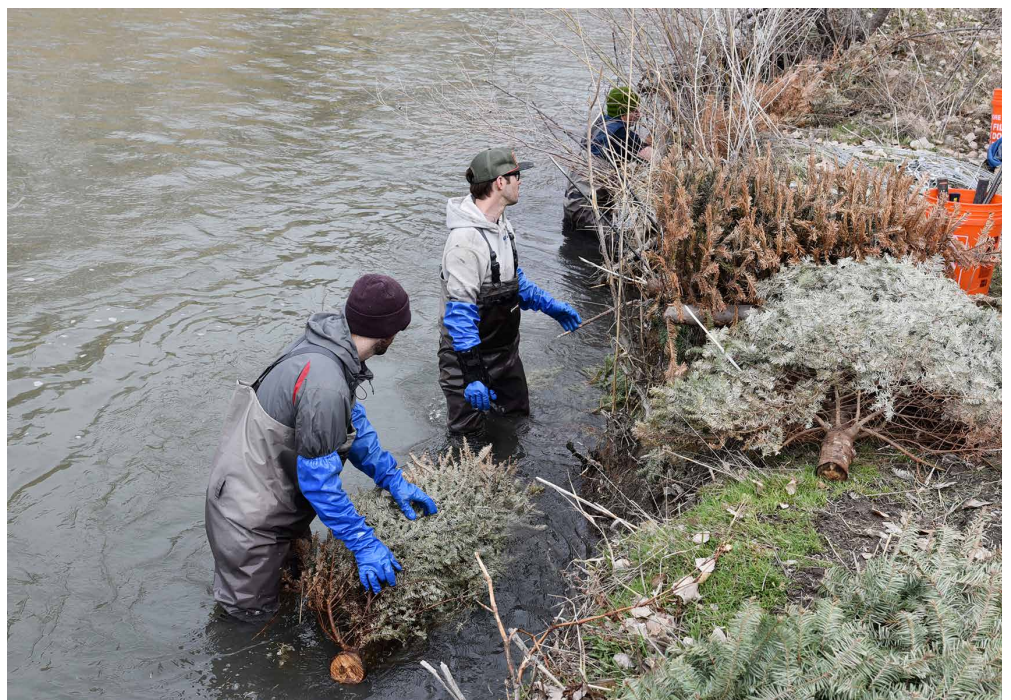
by Watershed Planning & Restoration

Stream bank erosion...good or bad? Actually it's both, depending on the circumstances. When left to their own devices streams are dynamic. Banks move as erosive forces shape and reshape the channel and floodplain. Soils scour and deposit in a healthy balance, and sediments deliver nutrients that support life above and below the water. But when development and stream alterations put stresses on a natural stream system, erosion can accelerate beyond the norm. This leads to unstable banks, loss of riparian vegetation, and excess sediment clouding the water, which degrades water quality and aquatic habitat.

One of our best defenses against eroding stream banks is a healthy buffer of native

plants. Deep roots stabilize the soil, while stems and branches at the water's edge reduce floodwater energy. Unfortunately, some of the most unstable banks in the Jordan River and its tributaries have eroded so much they are bare and completely vertical. A sure sign that the system is out of balance. When banks are vertically eroding, most, if not all, of that protective riparian vegetation has washed away. Salt Lake County Watershed Planning & Restoration is using natural channel design techniques to rebuild floodplains, stabilize excessive erosion, and help rivers and streams return to a more natural, stable form. Recycling old Christmas trees to build conifer revetments is one of our favorite (and most effective) techniques! We use natural

(continued on page 4)



SLCo Watershed uses discarded Christmas trees to repair and protect stream banks that are eroding excessively. These "conifer revetments" are remarkably effective and cost efficient.

Legislative Roundup

Passed Pending Tabled/Postponed Failed

The 2020 Utah State Legislative Session was a busy one. Many bills of interest could significantly affect water quality and watershed function in Salt Lake County. Here's what passed and what didn't:

S.B. 26, Water Banking Amendments (Sponsors: Sen. Iwamoto, Rep. Hawkes) *Allows for the banking of water rights. Promotes the optimal use the public's water to balance agricultural needs, municipal demand, water quality improvements, and a healthy natural environment.*

S.B. 29, Drug Disposal Program (Sponsors: Sen. Thatcher, Rep. Hutchings)

H.B. 27, Waste Tire Recycling Act Amendments (Sponsors: Rep. Chew, Sen. Sandall)

H.B. 166, Watershed Councils (Sponsors: Rep. Hawkes, Sen. Okerlund) *Develops diverse and balanced stakeholder forums for discussion of water policy and resource issues at watershed and state levels. Creates a Utah Watershed Council and grants rule-making authority to the Division of Water Resources. Establishes the roles and*

governance of local watershed councils.

H.B. 226, Storm Water Permitting Amendments (Sponsors: Rep. Snider, Sen. Bramble) *Addresses rule-making by the board regarding storm water discharges. Enacts provisions related to storm water permits and certain appeals related to post-construction retention requirements.*

H.B. 245, Dogs in Watershed Areas (Sponsors: Rep. Acton, Sen. McCay) *Addresses the ability to have a dog in a motor vehicle within a watershed area.*

H.B. 297, Yurt Amendments (Sponsors: Rep. Brammer, Sen. Hemmert) *Exempts remote yurts from water quality provisions with certain requirements.*

H.B. 480 Water Source Protection Zone Amendments (Sponsor: Rep. Waldrip)



Visit the Utah Legislature website for more information on these and other bills.

<http://le.utah.gov>

Westminster students take on Rosgen by Watershed Planning & Restoration

Each year seniors in the Environmental Science program at Westminster College have the opportunity to partner with environmental organizations as part of their final capstone project. In the spring of 2019, Salt Lake County Watershed Planning & Restoration sat alongside other agencies to present projects in a “speed-dating” session with the students. After hearing our proposal to conduct detailed river surveys as part of our stream gauging program, three students were eager to take it on! They would learn survey techniques used extensively by Dave Rosgen, the original river restoration cowboy.

SLCo Watershed operates a network of stream gauges located throughout the county, each providing a continuous record of flow. Every year, our hydrologic technicians complete geomorphological surveys at each of the stream gauges to describe existing stream conditions and how they may be changing. The information collected in these Level III surveys is critical to accurately calculate the amount

of water flowing in the stream. It is also valuable for river restoration and natural channel design.

We worked closely with the students for the duration of the semester, visiting various stream gauges and completing Level III surveys which include longitudinal profiles, cross sections, and pebble counts. A longitudinal profile characterizes the average slope of the stream, and the depth and sequence of different stream features including pools, glides, riffles, and runs. These features are defined by water surface elevation, material on the channel floor, and amount of water within the channel.

For anyone, these survey practices can seem daunting, but our team quickly learned what it was like to get their feet wet in a river. We met weekly in all sorts of weather. Some days were spent in the office processing the data to learn just exactly what all the numbers meant. As the semester ended, students presented their work to the class and other agencies. They shared that the project was valued

because they spent time outside helping our organization complete important work. It was a success from our perspective as well, and we look forward to working with Westminster students on future projects. □



Westminster College students learn river surveying techniques where Emigration Creek flows through campus, home to Salt Lake County's newest stream gauge.

Attack of the balsam woolly adelgid, aka BWA

by Watershed Planning & Restoration

The balsam woolly adelgid is a tiny sucking insect from Europe that is impacting forests across North America. It is killing fir trees and disrupting the balance of the forest ecosystem.

What does BWA do?

This insect reproduces asexually (only females are present in the US) and its reproduction cycle is commonly referred to as a “hatch”. Locally, the bug can go through three hatches per year. A simple overview of its life cycle is *Egg -> Crawler -> Nymph -> Adult*. An adult will lay 100-250 eggs (Forest Service, 2006). These eggs hatch into crawlers which will seek out a place to feed. The crawler stage is the only part of the cycle when BWA can spread, much of which is done through wind dispersal. A crawler will attach itself to a tree via mouthparts and remain there for the rest of its life. Transformation occurs here into Nymph stage, leading to egg production and starting the cycle over again. Adult BWA insects are about 1mm in length.

BWA survives by feeding on fir and spruce trees in its native environment, but in North America the European spruce isn't present and only the fir is affected. In Utah subalpine fir and white fir are affected but white fir is more resistant. Mortality rates on affected trees is 40% for all age classes.

Affected trees take between three and eight years to die, and they show symptoms in a few unique ways. According to a fact sheet created by Utah State University and the Forest Service (March 2018) the following symptoms are common:

- yellowing needles on inner branches
- lower crown dieback leaving a green top
- abnormal swelling of branch nodes, called gouting
- woolly material on tree bole (trunk)
- reduced cone production
- dead leaders

Forests are more heavily affected in the first decade of infestation, but BWA will remain indefinitely.

What's happening locally?

BWA is creating a large fuels load in affected forests. It also presents a problem for forest health and genetic diversity. The potential for increased erosion in dead stands of subalpine fir has implications for watershed health as well. The insect was first identified in 2017 in northern Utah and has been spreading south. More recently it was identified in Big Cottonwood Canyon.

A group of land managers and concerned organizations has been organized to survey, research, and manage efforts on BWA in Utah. Mechanical spraying treatments are possible but very expensive and labor intensive. Tree removal is possible

and has been done in Big Cottonwood Canyon by the Forest Service and Brighton Ski Resort. Where applicable the Forest Service is offering free permits to homeowners for the removal of dead trees within 150 feet of private property.

References and for more information:

- [Utah State University and Forest Service, BWA Basic Factsheet \(2018\)](#)
- [Forest Service, BWA Forest Insect and Disease Leaflet 118 \(2006\)](#)
- [Natural Resources Canada, BWA Forest Pest Leaflet \(2015\)](#)
- [DecAID, the decayed wood advisor for managing snags, partially dead trees, and down wood for biodiversity in forests of Washington and Oregon \(2017\)](#) □



Two common symptoms of a balsam woolly adelgid infestation: (top) Abnormal swelling, or gouting, of fir branches caused by feeding injury; (bottom) white woolly insect masses on a tree trunk. (Photos: US Forest Service)

RECYCLING CHRISTMAS TREES

continued from cover

materials that blend into and become part of the landscape over time.

Conifer revetments are non-sprouting trees that have been wired together in an overlapping chain, and then secured to the base of an eroding stream bank with metal earth anchors. Old Christmas trees are ideal for use in revetments given their dense branches and ready availability in urban settings. Branches are removed from one side of the trunk to allow for a secure and tight fit against the bank. Installed with the underside of the tree facing upstream, the branches create a “roughness” that catches the current and slows the stream velocity along the bank. This protects the fragile bank from further erosion. The dense branches trap and collect sediments and debris. Eventually, the sediment builds up to form new banks and rebuilds the floodplain, making the river more resilient during flood events. Live willows or other quickly sprouting native riparian plant species can be planted behind the revetment to provide more immediate permanent vegetative cover and rooting stabilization.

All in all, using old Christmas trees in our stream restoration projects is a win, win, win! It’s just one example of how SLCo Watershed is using natural materials to protect eroding stream banks and restore streams to a more natural and self-sustaining form. □



Discarded Christmas trees are collected from the landfill and prepped for installation along stream banks. Wired together in a chain and secured to the bank with metal earth anchors (left), the tree branches create a “roughness” that helps to slow down the water current at the bank. This protects eroding stream banks. Over time the branches collect and hold sediment, providing fertile ground for new riparian plants. The deep roots of native riparian plants stabilize the bank and increase wildlife habitat.

Want our stream water quality data?

The Watershed Program conducts routine monitoring of county streams. Reliable stream data is critical to understanding the overall health of the watershed.

Downloads are available for:

- Field parameters (water chemistry, temperature, etc.)
- Bacteria (*E.coli*, total coliform)
- Aquatic macroinvertebrates

Learn more at <https://slco.org/watershed/data-collection/>



Discounted Rain Barrel Sale is back!

Add a rain barrel (or two) to your landscape and you can save water while protecting streams from polluted runoff. Purchase barrels during Utah Rivers Council’s **RainHarvest 2020** for the greatly reduced price of \$75 (retail \$129). And, while supplies last, residents of Millcreek, Murray, and Salt Lake County can save an additional \$25.

Participants will pickup their barrels in July (date TBD) with social distancing measures in place.

Order online at <http://utahrivers.org/rainharvest/>

Hosted by Utah Rivers Council, with partners Millcreek, Murray, and Salt Lake County Watershed Program.

The views expressed in this periodical are those of the authors, not necessarily those of Salt Lake County, the Salt Lake County Mayor, the Flood Control Engineering Division, or any other entity.