Conservation Almanac

Trinity County Resource Conservation District Winter 2018-19 Vol. XXVIII No. 1

Carr Fire Impacts to Grass Valley Creek

Overview of the Carr Fire from Mainline Spur A Road

On July 23, 2018 the Carr Fire started along Highway 299 in the area of French Gulch, CA. In total, the fire burned almost 230,000 acres in Shasta and Trinity Counties including almost 64,000 acres of land managed by the Bureau of Land Management (BLM). Some of the BLM managed lands affected are within the Grass Valley Creek watershed, which is a large tributary to the Trinity River. Grass Valley Creek is comprised primarily of decomposed granite soils, sometimes referred to as DG. This soil type is highly erosive and susceptible to common erosion features like rill and gullying (See photos on the next page).

The BLM contacted the District in early October and requested assistance with repairing damage to roads from fire suppression efforts, and to protect roads from potential high runoff rates in severely burned areas before winter. This work involved ensuring culvert inlets were open at creek crossings, repairing dips damaged during fire suppression, and constructing and repairing water bars on roads used as fire breaks.

In late October, with limited time and funding, the RCD started work on four roads, totaling approximately ten miles, in the fire area. The Carr Fire severely scorched vegetation and soils in some of the Grass Valley Creek areas. The highest priority work was identified for treatment, and these areas will require more extensive work over the next few years.

The RCD is also conducting winter storm patrols of BLM managed lands in the area of Grass Valley Creek, and the County Line Road north to Hoadley Peak, to monitor and inventory damage to the road network. The photos on page 2 were taken in early January of 2019 during storm patrol in Upper Grass Valley Creek.

Continued on page 2...

Carr Fire Impacts to Grass Valley Creek, cont.

Rill and gully erosion causing road fill failures on Mainline Spur A Road

Stream crossing erosion on Mainline Spur A Road

Rill and gully erosion on Mainline Road

In This Issue

District Manager's Corner

With winter setting in, we are wrapping up our 2018 field season and setting our sights on 2019. It's wonderful to finally be getting winter weather after such a long dry spell!

After an unprecedented fire season last year, the District is gearing up for what may be our biggest fire prevention season to date. We recently recruited for a Forest Health Project Coordinator position, and hope to have the seat filled by late February. We are also working towards doubling the size of our forest health workforce in order to increase our productivity in creating more fire resilient communities. Currently, we are planning fuels reduction projects in the Lewiston, North Lake, and down river areas. You may also see our crews doing roadside fuel breaks along county roads in the Douglas City, Junction City, and Weaverville areas this coming spring and summer.

Along with all the fire prevention activities we have planned, you may also see our restoration crews working along State Highways 299 and 3 working on revegetation projects related to the Big French Creek and Slate Creek slides.

Our roads crew is planning ongoing rehabilitation and monitoring work in and around the Helena, Buck, and Carr Fires footprints for 2019.

Wherever in Trinity County you may see our hard working crews, take heart that we are working for you as Your *Local* Conservation District!

Kelly Sheen, District Manager

You can support the TCRCD every time you shop on Amazon through the Friends of the Trinity County Resource Conservation District (Friends) at smile.Amazon.com.

Support
Friends of Trinity County Resource Conservation District.
When you shop at **smile.amazon.com**, Amazon donates.
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Friends was established as a non-profit in 2015 in association with the Trinity County Resource Conservation District. The purpose of this non-profit is to support the mission and ongoing work of the RCD. The Friends helps the District further its mission by securing funds not otherwise available to the RCD, through foundations, tax-deductible donations, and gifts. Increasing the variety and amount of revenue streams available to both organizations can help the District extend its programs and increase effectiveness.

www.FOTCRCD.org

Friends of the Trinity County Resource Conservation District

Trinity County Resource Conservation District

TCRCD Conservation Scholarship Fund Donation

TRINITY COUNTY RESOURCE CONSERVATION DISTRICT SCHOLARSHIP FUND

Make a tax-deductible donation today! We will mail you a receipt or you are welcome to stop by the office.

Name:_____

Address:_____

_____

Phone: _____

Email : _____

Amount: $_____

Please return to: **TCRCD Scholarship Fund, PO Box 1450, Weaverville, CA 96093**
(530) 623-6004 **www.tcrcd.net**

Big French Creek Slide Revegetation

In 2018, the TCRCD executed an agreement with Caltrans to revegetate the Big French Creek Slide, located at the confluence of Big French Creek and the Trinity River, and four associated disposal sites totaling just under seven acres. The impetus for the project arose in late 2016, when the slope above Highway 299 at Big French Creek destabilized and slid into the Trinity River, causing catastrophic impacts to the highway. As crews removed material from the right-of-way, the soil and rock was hauled to four distinct locations known as disposal sites – three in Big Bar and one in Burnt Ranch. These areas, essentially small artificial mountains, require replanting with native plant species.

The RCD completed revegetation of two of the four disposal sites in 2018, replanting 5.23 acres with native tree and shrub species, about half of which were grown at the Trinity County RCD Native Plant Nursery from local seed. A mini-excavator and inmate crews were utilized to dig planting holes in the compacted, poor quality soil. Watering tubes - 2' long lengths of PVC pipe - were installed with each planting to encourage deep root growth. Over 10 cubic yards of high-quality organic soil amendment was distributed among the planting holes to introduce beneficial soil organisms and improve soil structure. Finally, 4' deer fencing was installed around each plant to prevent herbivory.

Revegetation at Big French Creek disposal site

Digging holes for planting native trees and shrubs

2' PVC watering tubes and 4' deer fencing installed around each plant

Inmate crews helping to dig holes at disposal site for planting

Big French Creek Slide Revegetation, cont.

Burnt Ranch disposal site of debris from Big French Creek Slide

Corral Bottom disposal site of debris from Big French Creek Slide

More Kids in the Woods

Free Mountain Bikes to Get the Next Generation Outside

On December 7, 2018 three students from Weaverville Elementary School had no idea what was in store for them as Principal Katie Poburko escorted them from the school to the new Lowden Bike Park. Little did they know that the Lions and Rotary Clubs of Weaverville answered the solicitation for donations from the Trinity County RCD to purchase brand new mountain bikes for deserving fourth grade students. The RCD, working with the US Forest Service to encourage fourth grade students to spend more time outside, developed this idea to get kids onto trails and outdoors as part of the US Forest Service sponsored "More Kids in the Woods" initiative. These students were so excited when they saw their bikes waiting for them that they did not hesitate to get on them and ride.

Nicole Goodwin, Adam Harrington, and Danial Graham enjoying their new bikes

CHP Officer Tom Frank brought helmets for each child, and taught them about bike safety. The Trinity Trail Alliance offered to adjust the bikes to properly fit each student, and to guide them in the art of mountain bike riding.

In a collaborative effort between the Trinity County RCD and the US Forest Service, the More Kids in the Woods project is focused on inspiring fourth grade students in Trinity County to get outdoors, and encouraging a lifetime of healthy outdoor activities.

The District is seeking donations for seven more mountain bikes to reach our goal – a total of ten. If you would like to donate please contact Elizabeth at TCRCD at (530) 623-6004.

Nicole Goodwin and Mike McFadin getting ready

Trinity Trail Alliance adjusting the new bikes

Volunteers Needed at the 11th Annual Trinity County

Plant and Seed Exchange

FREE Community Event

Bring Plants, Seeds, and Starts
to Share, Trade, or Give Away

If you're new to gardening, you don't have to bring anything. In the years to come, we hope you'll pay it forward. Take what you like, but keep the community in mind.

Volunteers needed. You can work in the craft shed with children, help set up before opening, help take down, etc.

While starting seeds this spring, please consider starting some to share at the exchange.

Save the Date

Saturday, April 20
11 a.m. - 3 p.m.

Young Family Ranch, 260 Oregon St., Weaverville

Contact Elizabeth at the TCRCD to schedule your volunteer time slot: 623-6004

Trinity County Resource Conservation District

Sponsored by the Young Family Ranch, a community trust and agricultural property, the University of California Cooperative Extension, and the Trinity County Resource Conservation District.

Master Gardener — University of California Cooperative Extension

Young Family Ranch

UNIVERSITY of CALIFORNIA
calfresh Nutrition Education

Wildfire and Salmon Streams

TRRP.net

Contributed by the Trinity River Restoration Program

The effects from wildfire on streams are highly variable, a high-intensity fire can have severe results, but often short-lived. River ecosystems can recover or adapt after short-term impacts because they are constantly transforming. Salmon and steelhead can adapt to natural changes too (Reference 1).

In streams and rivers in more densely populated areas, a major concern following wildfire is the threat of toxic runoff from household and industrial chemicals. In rural areas without this threat, salmon populations can survive disturbances if the river ecosystem is healthy upstream and downstream of the fire area.

In many cases, much of the sedimentation happens within the first few years after wildfire, though, sediment accumulations may take decades to recover to pre-fire conditions.

Wildfires can affect streams and rivers in numerous ways after the fire is out. There is uncertainty on how salmon and steelhead are impacted by wildfires directly, but three noticeable effects on fish habitat include (1) increased fine sediments, (2) nutrient and temperature changes, and (3) the addition of large woody debris (Reference 2).

In the short-term after a wildfire, it's likely that the rate of fine sediments settling into waterways will increase following rain, and could pose a risk to salmon and steelhead, especially in rivers that are already degraded.

A functioning river that supports salmon contains complex habitat as well as connectivity between suitable habitat types. This allows fish to move between habitats safely if one is altered. In the face of natural or human-caused disturbances to fresh water environments, rivers may not be able to maintain the processes important for salmon survival and growth. Salmon are better able to withstand changes to the ecosystem if there are plenty of habitat types that are connected.

Complex habitats partly consist of large pools with a wide range of water depths, velocities, substrates, temperatures and vegetation as well as riffles with clean gravels and off-channel habitat with slower moving water for young fish.

Habitats that support salmon in early life stages are particularly important and are referred to as "refugia". These habitats provide young fish feeding opportunities and shelter from predators. The salmon carrying capacity of a stream could be reduced if there is decreased connectivity between "refugia" areas, or if these areas are filled with fine sediments.

Adult female salmon lay their eggs in nests, called redds, that they build in streambed gravel. When redds are built in clean gravel beds, the nest creates prime temperature and oxygen conditions for fertilized eggs to develop by allowing optimum water flow (Figure 1).

River conditions when salmon first emerge are critical because that will influence their chance of survival throughout all life stages. When fine sediments wash into the stream following a wildfire, the sediments can smother salmon redds, decreasing the eggs' chances of survival.

In many cases, much of the sedimentation happens within the first few years after wildfire, though, sediment accumulations may take decades to recover to pre-fire conditions. Apart from individual cases such as Canyon Creek in 2017 and Dead Wood Creek in 2018 (Figure 2), stream-wide wildfires in large tributaries of the Trinity River have been relatively limited since 1964 (Map).

Enhancing and maintaining complex habitat is not only important to recover the watershed ecosystem from mining, logging and water diversion impacts, but an improved ecosystem could help salmon better withstand the effects from wildfires and increasing climate change disturbances, such as drought or severe rain events.

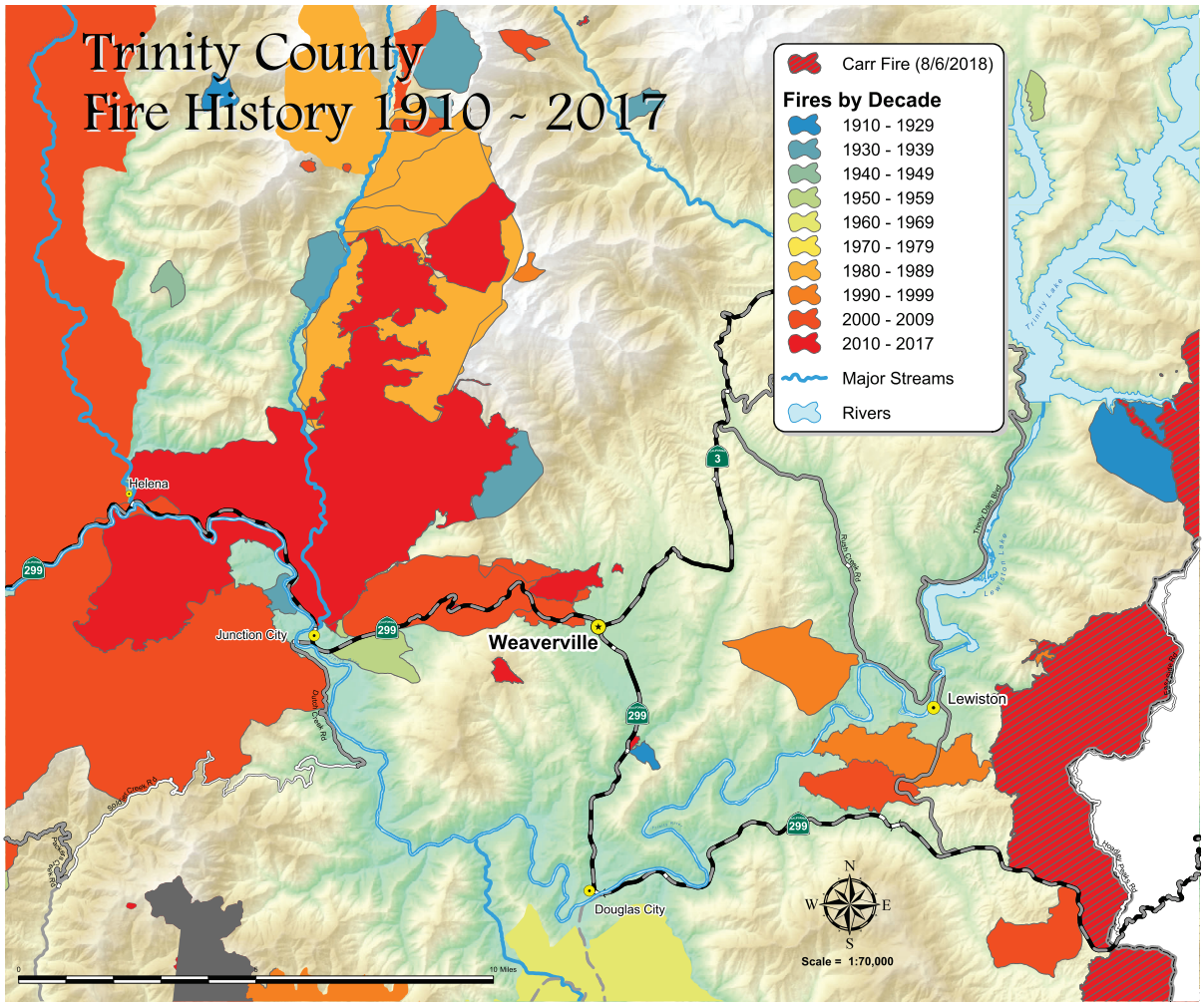
The Trinity River Restoration Program (TRRP) works to improve river conditions through the addition of clean spawning gravel to the river, scheduling restoration flow releases capable of scouring sand and moving spawning gravels around, and funding watershed restoration projects that reduce fine sediment inputs.

1. https://www.fs.fed.us/pnw/sciencef/scifi198.pdf

2. https://ucanr.edu/sites/postfire/files/248232.pdf

Figure 1. Spawned salmon are seen in the Trinity River just below the confluence of Dead Wood Creek after it was burned in the Carr Fire

Figure 2. The Dead Wood Creek drainage in October 2018 after the Carr Fire



Fire history from 1964 to present in the Trinity River watershed between Lewiston Dam and the confluence of the North Fork Trinity River

The Art of River Science

On December 1, 2018 the Trinity River was live at the December Weaverville Art Cruise. Many community members came to experience the Art of River Science at the Barking Mad Art Studio in downtown Weaverville.

Everyone was invited to "post" their favorite memory or experience of the Trinity River on this real-life social media event. Visitors learned about the Trinity River timeline from ancient history to current issues; experienced the virtual reality of swimming with salmon on the South Fork Trinity River and flying above the Klamath River estuary; browsed local artwork by Kelly and Sue Corrigan, and Mike and Noah St Cyr; played the Name that Fish game; and chatted with friends and neighbors about the river.

We plan to be at another Weaverville Art Cruise in the future. Don't miss this fun event!

Noah St Cyr exploring virtual reality

Creators of this Trinity River concept and map – Jeannie McSloy and Erik Flickwir

River Days with Local Elementary Schools

As part of our environmental education program, the District leads River Days with local schools each year. During River Days, students spend the entire school day immersed in nature while learning about environmental sciences.

This year, this event was held in Coffee Creek with both Coffee Creek and Trinity Center Elementary Schools, and led by staff from the District and Trinity River Restoration Program. The students learned about field, forest, and stream ecosystems, and explored the creek looking for aquatic insects (macroinvertebrates). All of these students enjoyed learning out of doors, and they found some interesting aquatic life such as Speckled Dace (*Rhinichthys osculus*).

Green Algae in the Trinity River

Is it Good? Is it Bad?

Good: Some algae are necessary for river health
Bad: Some are toxic, harmful, or invasive
Know the difference

Beneficial Green Algae
(Cladophora sp.)

Photo: Mary Power via UC Berkley News on Google Images

Toxic Blue-Green Algae
(Cyanobacteria sp.)

Photo: California State Parks on Google Images

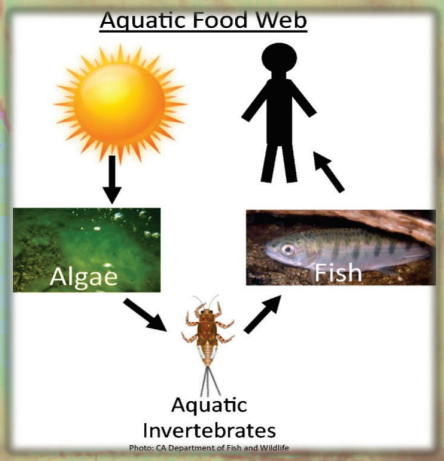
Invasive Didymo "Rock Snot"
(Didymosphenia geminate)

Photo: Invasive Species Council of BC on Google Images

Benefits of Green Algae (Cladophora)

- Helps clean river/stream water by absorbing nutrients and heavy metals
- Forms foundation of the aquatic food web:
  Algae is the main food source for many bugs that feed young fish
- Indicates the productivity and health of the river

Aquatic Food Web



Ecologists have studied the varying abundance of algae in Northern California's rivers for decades. Based on those studies, local scientist working on the Trinity observed that the 2018 algae abundance is likely a result of natural environmental factors. This theory was formed by observations that the algae growth is consistent below Lewiston Dam as throughout the river. Since water below the dam comes directly from the bottom of Trinity Lake, it is believed that the abundance of algae in the upper river is not caused by human influence such as nutrient runoff.

Possible reasons for an abundance of algae

- Algae abundance is more likely after wet years when high flows can wash away larger insects that feed on and control algae levels
- Increase of predators that feed on the bugs that eat green algae
- Air and water temperature
- High nutrient levels in water from a variety of sources including sediment run-off after a wildfire

For more information about how algae plays a key role in river health:
https://cloudfront.escholarship.org/dist/prd/content/qt90f0p629/qt90f0p629.pdf

Algae ID guide:
http://www.krisweb.com/ERRP/Canada%20Algae%20Field%20Guide.pdf

Trinity County
Resource Conservation District
Your Local Conservation District
Established 1956

Trinity County Resource Conservation District
P.O. Box 1450
Weaverville, CA 96093

The Trinity County Resource Conservation District is a special district set up under state law to carry out conservation work and education. It is a not-for-profit, self-governing district whose board of directors volunteer their time.

The District's Vision

The District envisions a balance between utilization and conservation of our natural resources. Through economic diversity and ecosystem management our communities will achieve and sustain a quality environment and healthy economy.

The District's Mission

To assist in protecting, managing, conserving and restoring the natural resources of Trinity County through information, education, technical assistance and project implementation programs.

District Board Meetings
Third Wednesday
5:30 PM
Open to the Public

District Office
30 Horseshoe Lane
PO Box 1450
Weaverville, CA 96093

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The District's Board of Directors are
Mike Rourke, Morgan Rourke, Patrick Truman,
Colleen O'Sullivan, and Greg Lowden.

The District is landowners assisting landowners with conservation work. The District can guide the private landowner in dealings with state and federal agencies. The District provides information on the following topics:

- **Forest Land Productivity**
- **Watershed Improvement**
- **Water Supply and Storage**
- **Educational Programs**
- **Erosion/Sediment Control**
- **Wildlife Habitat**
- **Soil and Plant Types**
- **Fuels Reduction**

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