

Watershed Connections

Delivering News to the Carson River Watershed Community

Lost Lakes, photo by Debbie Neddenriep.

2019 Carson River Water Year Outlook

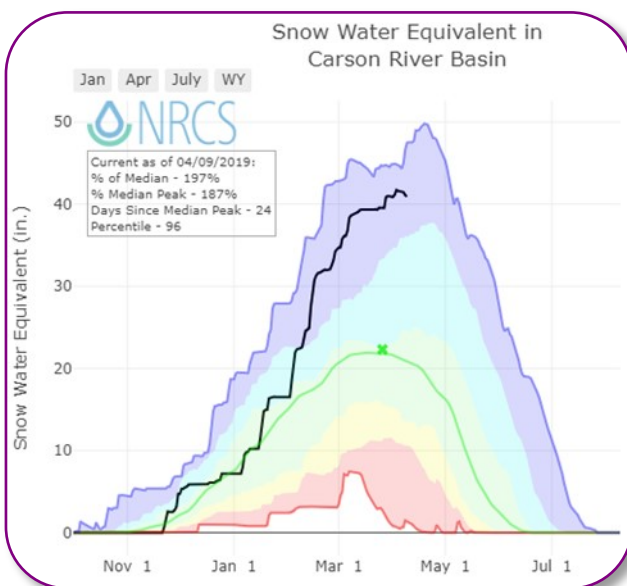
By Shane Fryer

Welcome to 2019! Spring has sprung in the Carson River Watershed and with it many questions about what the early season runoff will look like. You're not the only person looking for this answer. It's a big question for county managers, our agricultural community and recreational boaters just to name a few. While we don't have a crystal ball, we do have data!

Three key factors affect the timing and magnitude of the Carson River's peak spring runoff. The first factor is "snow water equivalent". This is a measure of the available water in the Sierra Nevada Mountain's snowpack accumulated over the last 6 months. Sierra snowpack is the most important water source for our communities. Understanding how much and when the water will come down the mountain is important. Not enough and we have a drought. If it melts too quickly it could flood. Luckily for us the "Natural Resources Conservation Service" or NRCS has their "[Snow Survey Program](#)". This program provides mountain snowpack data and streamflow forecasts for the Carson River

Inside this Issue:

- 2 Interactive CRW Map
- 3 Andy Aldax Award
- 3 A Watershed Welcome
- 4 Happy Trails
- 6 Happy Earth Day!
- 7 Water Year Outlook
- 8 The AmeriCorner



Graph showing the Carson River Watershed is currently very high in available water (black line) compared to the last 30 years. Courtesy NRCS.

Watershed and for all the Western United States. Here's a link to their latest Water [Supply Outlook Report](#) (As of April 1st).

If we look at the NRCS's "Snow Water Equivalent in the Carson Basin" graph to the left, notice the 2019 black line currently places our watershed in the 90th Percentile. This means compared to the past 30 years of data, the Carson is ranking very high in available water. 2017, an incredible year for snow, sets the upper limit of the graph in purple. Though 2019 has been impressive, we are far from 2017 levels. As of right now we have 40.9 inches of water waiting on the mountains (as of April 9th).

The second factor is the "Daily Average Air Temperature" (see page 7). Determining the effect of air temperature isn't as simple. Many variables like evaporation, night time lows, duration of freezing periods and vegetation/shaded area effect the calculation that projects future conditions.

Continued on page 7

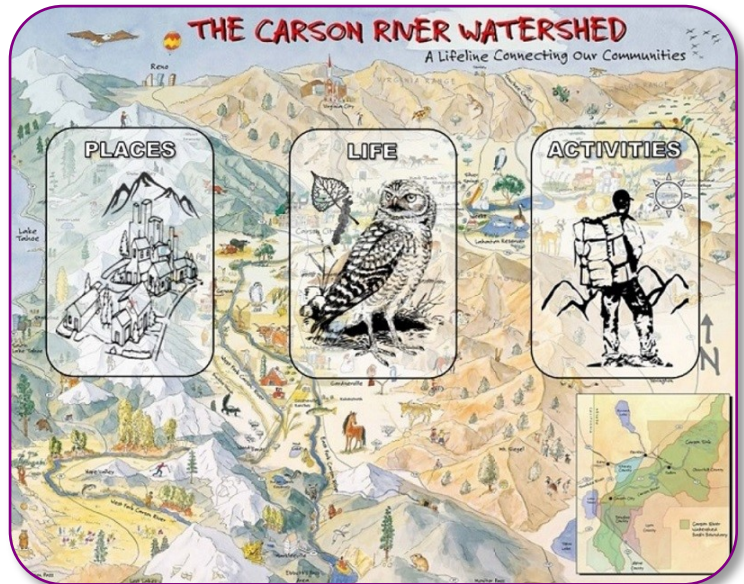
Carson River Watershed Online Interactive Map

By Justin Bedocs, AmeriCorps, CWSD Watershed Technician

The Carson River Watershed has a diverse topography and abundance of ethnicities, history, wildlife, and recreation opportunities. During a watershed-wide survey in 2015, CWSD discovered that 62% of respondents either did not know what a watershed is or that they live in one. After being made aware that they live in a watershed, 70% said that their actions affect the watershed only “a little” or “not at all”. Based on these survey results, CWSD launched our watershed-literacy campaign. This online map is one tool to help reconnect people, especially K-12 students, to their watershed.

Maps help to normalize our surroundings. They provide information on the places we live, work and play, connecting us to our landscape and environment. Maps can raise watershed-literacy by identifying important features that define the watershed like boundaries, local wildlife, places, historic sites and recreation activities.

Production of the online map began in 2016 by CWSD staff. It was a collaborative process informed by the Carson River Coalition, a large watershed stakeholder group. The map was revised to allow CWSD staff to make changes and improvements. The revision was recently

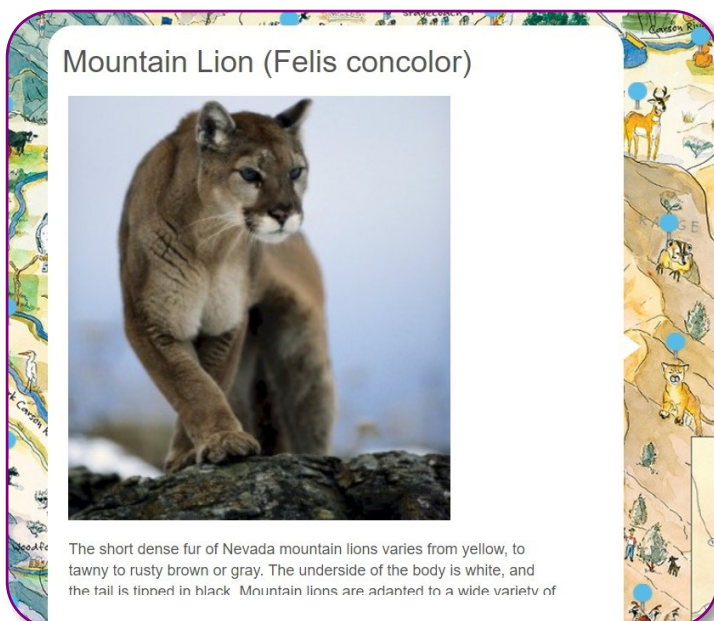


Visitors can choose between three categories to explore.

completed by CWSD AmeriCorps member, Justin Bedocs. The project was funded by the EPA’s Clean Water Act Section 319 grant program administered by NDEP. Funding also provided for Spanish translation completed by [Int. Professional Development Services](#) (IPDS).

The online interactive map is based on Greg Brady’s 2003 illustration, “Our Lifeline in the Desert.” It features three categories to explore; places, life and activities (example above). Each button leads to a new page of the base map with clickable pins. When clicked, the pins open a new window containing pictures, text and links describing the feature (example left).

CWSD staff will collaborate with [Sierra Nevada Journeys](#) to develop classroom curricula for all grade school levels. The map provides a great introduction to the Carson River Watershed, encouraging visitors to learn about their watershed and discover new places to explore. As we become more aware of the watershed we live in and all of its amazing natural and cultural resources, we are more likely to become watershed stewards, which in turn benefits watershed health. The online map can be viewed at www.cwsd.org/watershed/. [Haz clic aquí para español](#). Explore your watershed today!



*An example of an opened pin, displaying a Mountain Lion.
Users can scroll down within the window to learn more.*

Introducing Lynn Zonge 2018 Andy Aldax Awardee!

Lynn Zonge is the Carson Water Subconservancy District's 2018 Andy Aldax Awardee for Exemplary Service in Conservation and Protection of the Carson River Watershed. The award, created in 2007, recognizes individuals or organizations who demonstrate a 10-plus year commitment to improve and sustain the Carson River watershed.

Zonge is a specialist in fluvial geomorphology, surface water hydrology and geology of the Sierra Nevada and Great Basin regions. Through her personal drive and employment with Resource Concepts, Inc (RCI), Zonge works on numerous projects in the Carson River and other watersheds. Zonge not only spends her working day protecting the watershed, she frequently provides volunteer assistance to Muscle Powered and the Eagle Valley Trails Committee (EVTC), assisting with sustainable trail design and development. Lynn is an avid outdoor enthusiast and enjoys rafting the Carson River, as she says, "a gem in northern Nevada." Congratulations Lynn and thank you for your dedication to the Carson River Watershed!



Lynn Zonge is an avid outdoor enthusiast who enjoys rafting the Carson River.

Welcome Patricia Tierney! NDEP Environmental Scientist III



Patricia returns to Nevada following a year-long AmeriCorps term through Truckee Meadows Parks Foundation.

Patricia Tierney is the newest Nevada Department of Environmental Protection (NDEP), Environmental Scientist III, replacing Mary Kay Wagner. In 2018, she was an AmeriCorps member and served as a watershed educator primarily in the Truckee River watershed. She is passionate about natural resource conservation, especially water and has a background in biology/stormwater and education. Prior to heading west, she was a Naturalist in Brevard County Florida's working on Environmentally Endangered Lands waterfront conservation properties. Tierney brings municipal, private industry, ecological consulting and contractor experience in watershed education and water quality to her new NDEP position.

Her main outreach/education duties at NDEP will include Project WET coordination, environmental event planning, coordinating and staffing for events like Earth Day celebrations, Truckee River Snapshot Day, grant project oversight and management, and other opportunities to support local efforts with the stakeholders in the area. She looks forward to joining the Carson River Coalition's Education Working Group and participating with you in your efforts. If you would like to contact Patricia, please email (ptierney@ndep.nv.gov) or phone at (775) 687-9454.

Happy Trails!

Trail Recommendations from Around the Watershed



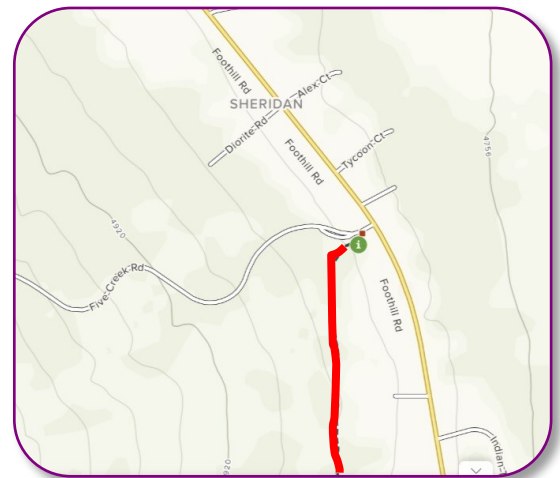
*View of the Carson Valley from Jobs Peak Trail.
Photo Courtesy Juan Guzman.*

JOBS PEAK TRAIL

Recommended by Juan F Guzman, CVTA Vice President

Jobs Peak Ranch Trail is my personal favorite of the 54 miles of trails planned, permitted, designed, constructed and maintained by the [Carson Valley Trails Association](#), (CVTA). The Trailhead near Sheridan on Foothill Road is well signed and connects to the Fay Luther Trailhead located 3.5 miles to the south.

The first mile from the Jobs Peak Ranch Trailhead has limited shade, travelling through thick areas of big sagebrush.



*Jobs Peak Trailhead Map.
Map courtesy alltrails.com.*

You will feel rewarded upon reaching an open Jeffrey pine forest with a mix of aspen, and willows. There are two perennial creeks with crossings. Views of the Carson Range, Pine Nut Range and Carson Valley throughout the trail system are magnificent. Get out there and enjoy our public lands!

BENTLY HERITAGE TRAIL

Recommended by Shane Fryer, CWSD

Explore nearly 5 miles of hiking trail adjacent to the Carson River in the Carson Valley. Near Minden, the Nature Conservancy has partnered with the Carson Valley Trails Association, local Eagle Scouts, and the property owner, Donald Bently, to construct this hiking trail system. The Nature Conservancy has been working here since 2005, when a conservation easement was acquired with funding from Question 1 and the Nevada Department of Wildlife to preserve the incredible floodplain lands that surround the 4 miles of Carson River that flow through the property.

Here, the Carson River winds its way in braided channels, supporting cottonwood gallery's, willows and wetland habitat that sustain many animals and migratory birds. The trail provides visitors with access to these natural areas and to amazing panoramic views. This is both a natural area and a working cattle ranch so the trail is open to hikers only. Horses, bikes and dogs will need to sit this hike out as they're prohibited.

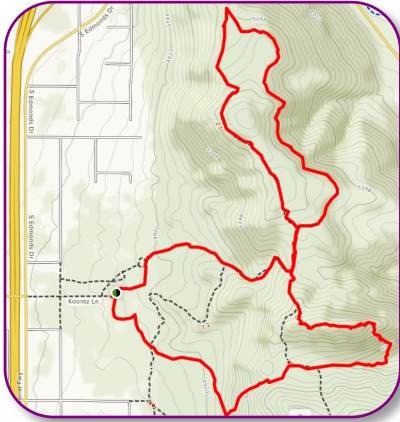


*Bently Heritage Trail Map.
Map courtesy alltrails.com.*

PRISON HILL TRAIL

Recommended by Debbie Neddenriep, CWSD

Prison Hill is the perfect get-away just minutes from Carson City. Trails are accessed from all directions – check out the [trail map](#). Whether you want to climb to the jagged rock formations, stroll along the river, or run on trails around the base, there is a trail for you. Dogs are welcome and allowed off-leash under voice control; kindly pick up after them and put them on-leash when approaching



*Prison Hill Trail Map.
Map courtesy alltrails.com.*

other people/dogs. The scents are delightful as you traverse through pungent sagebrush, desert peach, bitterbrush, spiny hopsage, and Mormon Tea (Ephedra). In wet springs, there are a myriad of desert wildflowers to admire. Wildlife abounds as hawks and eagles perch on the rocks as they scan for desert mice, rabbits, and lizards. Be mindful where you step as rattlesnakes come out once the temperature is above 60° and coyotes roam the area. The occasional bear and mountain lion have been sighted, look for their tracks! Mule deer quietly graze in the spring and migrating warblers, mountain bluebirds and migratory birds frequently break to take in the stunning views. Prison Hill is a year-round oasis in Carson City to walk, hike, mountain bike, or run in Carson City.



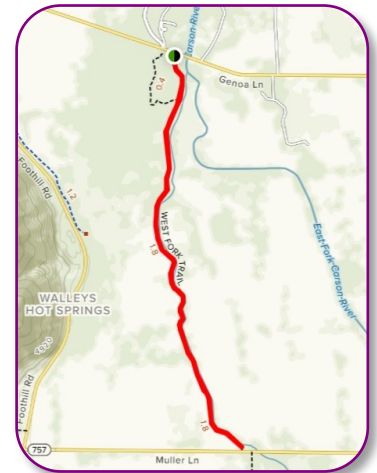
Poppy Neddenriep enjoying a hike on the Prison Hill Loop. Photo by Debbie Neddenriep.

RIVER FORK RANCH TRAIL

Recommended by Justin Bedocs, AmeriCorps, CWSD

Explore River Fork Ranch, a property owned by the Nature Conservancy possessing stunning views of the Carson Range and Valley. The River Fork Ranch and [trailhead](#) are one mile east of Genoa at the confluence of the East and West Forks of the Carson River.

There are two trails at River Fork Ranch, the 0.75 mile East Brockliss Loop and the 2.0 mile West Fork Trail. The West Fork Trail parallels the West Fork Carson River, connecting Genoa Lane to Muller Lane with panoramic views. There are also interpretive signs at the ranch house about the area. To protect the native animals, including nesting birds, turtles and frogs, dogs are not permitted on the trails. Hikers, bikers and equestrians are permitted. There are many other trails around the watershed to explore. Visit [AllTrails.com](#) to discover your next adventure and happy trails!



*River Fork Ranch trail map.
Courtesy alltrails.com*



A hiker takes in the splendiferous view from the River Fork Ranch trail. Photo by Justin Bedocs.

Earth Day Events Around the Watershed

By Justin Bedocs, CWSD, AmeriCorps



As Earth Day approaches, Carl Sagan emphasizes the importance of protecting the Earth in [Pale Blue Dot: A Vision of the Human Future in Space](#);

"The Earth is a very small stage in a vast cosmic arena. [...] Look again at that dot. That's here. That's home. That's us. On it everyone you love, everyone you know, everyone you ever heard of [...] every saint and sinner in the history of our species lived there - on a mote of dust suspended in a sunbeam. [...] Like it or not, for the moment the Earth is where we make our stand. [...] To me, it underscores our responsibility to deal more kindly with one another, and to preserve and cherish the pale blue dot, the only home we've ever known."

It's time to celebrate! The first Earth Day was observed in 1970 and was created by Gaylord Nelson, a U.S. senator from Wisconsin, after witnessing a massive oil spill in Santa Barbara, California. On April 22, 1970, 22 million Americans across the country took to the streets, parks and auditoriums to protest widespread pollution from unregulated factories.

The demonstrations paved the way for the creation of the EPA, the Clean Water Act, Clean Air Act and Endangered Species Act. This environmental movement transcended political bias as people from all backgrounds united for the common cause of protecting the planet for future generations. Here are a few exciting ways you can celebrate Earth Day this year.

☯ The [Fallon Earth Day Celebration](#), organized by the Fallon Paiute-Shoshone Tribe of Fallon, NV, is being held on Saturday, April 20th this year from 10am to 2pm at Oats Park in Fallon, NV. This is a great, family-friendly community event featuring food vendors, arts & crafts, educational booths and live music! This year's celebration will raise awareness about nature and the environment. Many local agencies from Northern

Nevada will educate the community about Earth Science, water pollution prevention and conservation of natural resources. If you are interested in participating, please call (775) 423-0590.

☯ [Celebrate Earth Day at Grover Hot Springs](#) on April 20th from 8am to 12:30pm. This is a family-friendly work day event coordinated by [Alpine Watershed Group](#) and [California State Parks](#), including an activity for children. Participate in restoration projects like invasive weed

removal and trash pickup. For your safety, please bring water and proper outdoor clothing. For more information, contact Taylor Norton, AWG Restoration Coordinator at awg.snap.rm@gmail.com.

☯ On April 28th, Carson City will celebrate Earth Day at the Foreman-Roberts House Museum in Carson City from 10am-3pm. Sponsored by [Bee City USA](#) and [Great Basin Bee Keepers of Nevada](#), the event's goal is to raise

awareness of the importance of pollinators and bees in our natural ecosystem as well as the call to action to protect the Earth for future generations. Check out the [Carson City Earth Day Facebook page](#) for more info.



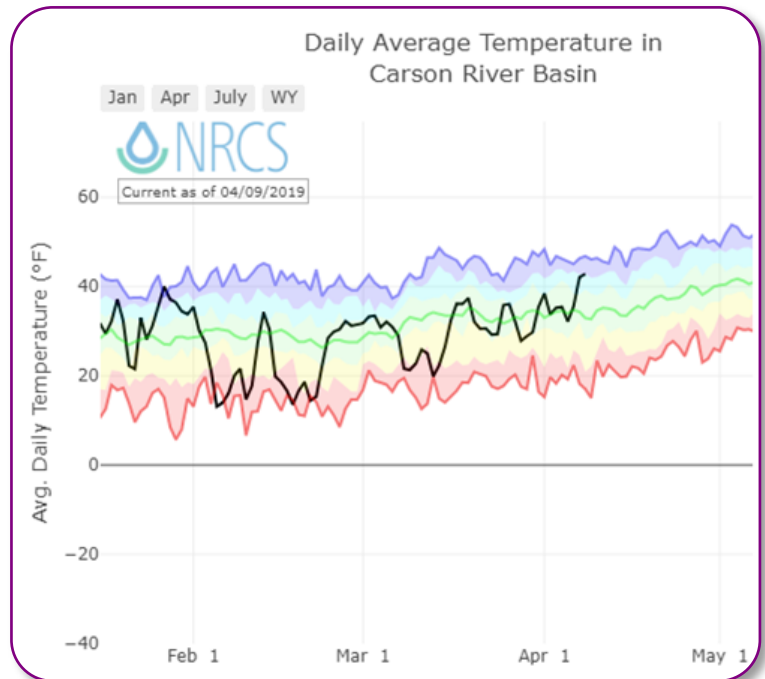
Art by Melanie Davis for this year's Earth Day celebration depicts local animals. Bald Eagle, Lahontan Cutthroat Trout, Yellow-Billed Cuckoo, Grey Wolf & Desert Tortoise.

Continued from page 1

Let's lean on the NRCS for a little assistance here. Their web site hosts some [amazing graphing tools](#) to visualize data. Check out their [Interactive Basin Graphs](#).

If we look at the NRCS's "Period of Record Daily Average Air Temperature" graph (right), notice our 2019 black line since January 1st is performing at or below the 30 year average. This means (as you may have already surmised) that 2019 has been a cold year. If this cold trend continues into the spring, we could expect a delay or a longer duration spring runoff with reduced peak flow.

The third factor is weather. This is the great unknown. The early winter of 1997-98 was gearing up to be an impressive snow year. However, an extremely warm tropical rain system hit the Sierra Nevada Mountains on Dec 30, 1997 and sustained rain through January 5, 1998. This was a devastating "Rain on Snow" event which led to 136,000 acre-feet flowing from Tahoe in just 6 days and massive flooding across the Sierra. Ironically, despite the good start and the rare atmospheric event, 1997-98 turned out to be an average, if not mediocre water year.



Graph showing the Carson River Watershed is currently very high in available water (black line) compared to the last 30 years. Courtesy NRCS.



A drone captures the Carson River winding along the Bently Heritage trail, waiting for spring runoff to begin. Photo by Shane Fryer.

So, what does this all mean? The Carson River Coalition (CRC) runs an annual peak flow contest, asking our partners to hypothesize the daily average flow, and date of 2019's peak runoff. After plotting out all the entries there seems to be three schools of thought.

The first is the "Early Warm Up" scenario with speculations averaging around 3,500cfs in mid-May. The second is the "It Stays Cold" scenario with predictions around ~3,100cfs occurring near the beginning of June. Finally, we have the "Catastrophist" waiting for that warm storm to push the river over 6000cfs.

All in all, this year is looking much like 2011. That year it snowed in June and stayed wet and cold, with an average daily discharge of 3,520cfs on June 24th. Will it warm up? Only time will tell.



★ The AMERICORNER ★



Trout in the Classroom

By Shauna Langan, AmeriCorps, River Wranglers



Shauna Langan Enjoying the outdoors.

Over the past several years, River Wranglers has hosted an AmeriCorps volunteer dedicated to watershed education. This past October River Wranglers welcomed Shauna Langan as their new Education and Outreach Coordinator. Langan, a San Diego, CA native, is excited to be a part of River Wranglers programs and help facilitate watershed learning to local students.

As soon as she arrived, Langan jumped right into the world of Trout in the Classroom. This program allows students to raise trout in their classrooms, learn about their growth, and ultimately release their trout into the Carson River. River Wranglers staff educate students in the classroom and in the field. Langan quickly learned the Trout in the Classroom curriculum and has been

instrumental in teaching students about trout habitat, their life cycle, and how water quality influences trout health. Once the trout are ready to be released in the field, River Wranglers, with supporting partner, Nevada Department of Wildlife, accompanies the students to the river where they let their fish go in a safe and secure manner. While students are at the river, Langan assists River Wranglers in providing unique outdoor educational activities that teach the students the importance of their local river and its watershed. Please contact Shauna at shauna@riverwranglers.org to learn more, or if you or someone you know is interested in AmeriCorps, check out the [Sierra Nevada AmeriCorps Partnership](#) and [Truckee Meadows Parks Foundation](#).



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CWSD works within existing governmental frameworks to promote cooperative action for the watershed that crosses both agency and political boundaries.

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Patricia Tierney
Lynn Zonge



UPCOMING EVENTS

Fallon Paiute-Shoshone Earth Day Festival
April 20, 10am-2pm at Oats Park in Fallon, NV
<https://www.facebook.com/fallonearthday/>

Grover Hot Springs Earth Day Work Day
April 20, 8am-12:30pm at [Grover Hot Springs State Park](#)
<https://www.alpinewatershedgroup.org/>

Carson City Earth Day
April 28, 10am-3pm at Mills Park East End in Carson City
<https://visitcarsoncity.com/event/earth-day-celebration/>

National Trails Day! June 1, 8am-10am
Witness [trail-building](#) near Ash Canyon!

Carson River Watershed Forum-October, 2019

We now have Instagram! Follow us at:
www.instagram.com/carsonriverwatershed/

