

Watershed Connections

Delivering News to the Carson River Watershed Community

Photo by Brenda Hunt

Eurasian Milfoil on the Move in Carson City

By Marenn Disbro, Carson City Weed Coalition

Eurasian watermilfoil was identified in Carson City in August, 2018 and has been confirmed at multiple sites along the Carson River, the Mexican Ditch, and a few ponds filled from these sources. Eurasian watermilfoil (*Myriophyllum spicatum*) is a noxious perennial aquatic plant species that originated in Europe, Asia, and Northern Africa. It was first recognized in North America in the mid 1900's and is now in 45 states. Eurasian watermilfoil is difficult to identify in that numerous native look-alikes occur alongside it in many bodies of water. The situation is further complicated because this plant also hybridizes with native milfoil species.

Eurasian watermilfoil has been so successful at invading susceptible bodies of water because of its unique reproductive strategies. It can bloom and produce seeds up to twice per year but can also reproduce vegetatively through autofragmentation. Autofragmentation occurs after blooming where the plant begins to shed portions of its stems that can produce new roots. These stems float until settling in slower-moving water to establish a new colony. This plant can lie dormant during dry seasons, waiting for wetter conditions to germinate again.

The Carson City Weed Coalition (CCWC) will begin hand-pulling Eurasian watermilfoil from the Mexican Ditch this fall.

Herbicides are often used to treat this plant across the nation, but have detrimental impacts on wildlife living in the water. Carson City will likely forego using herbicides at this time. Continued monitoring efforts will document the level of spread and treatment success.

Eurasian watermilfoil invades waterways readily and its extent is still being discovered,. The CCWC asks that watercraft and any gear or clothing are thoroughly cleaned immediately after recreating in any waterways. With the help of the public, we have a better chance of limiting the spread of Eurasian watermilfoil in the Carson River Watershed. Contact info: MDisbro@carson.org, (775) 887-2262.

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Eurasian Milfoil in a petri dish.
Photo by Marenn Disbro



Eurasian Milfoil in water.
Photo courtesy USDA.

Volunteers Show Watershed Dedication at Markleeville Creek Day

By Julia Keane, AWG Education and Outreach Coordinator

On Saturday, September 8th, 2018, 45 volunteers gathered at Markleeville Library Park for a morning of restoration work. Volunteers worked on four different projects in the Alpine County portion of the Carson River Watershed for Alpine Watershed Group's (AWG) 19th Annual Markleeville Creek Day. Folks came from all over the watershed and beyond to show their love for Alpine County. Team leaders representing partner organizations including Friends of Hope Valley and California State Parks, joined forces with community members and visitors to complete projects in Hope Valley, Grover Hot Springs State Park, and Heritage Park along Markleeville Creek.

The group accomplished the following work:

- 250 willow stakes were planted in Hope Valley to stabilize over 60 linear feet of streambank,
- 20 large garbage bags of invasive bull thistle rosettes were removed from Grover Hot Springs State Park,
- Two brush boxes were built with willow, alder, and pine tree clippings to remediate headcuts in Grover meadow, stabilizing nearly 75 ft. of Hot Springs Creek bank. The larger brush box was approximately 7 ft. tall, 3 ft. deep, and 75 ft. wide,
- 10 native trees were wrapped for beaver protection, 6 picnic tables were stained, 2 large garbage bags of trash were removed, and weeds were mowed in the picnic area at Heritage Park, and
- Trail to town from Heritage Park was cleared and stairway was raked.



Exposed stream bank before stabilization.

Photo by Justin Bedocs



The event was a great success because of the hard working volunteers and partner organizations that came together to celebrate our local waterways. Afterward, AWG hosted a community celebration with a tasty taco bar provided through donations from Costco, Raley's, and Trader Joe's. Prizes donated by Alpine Watershed Group, American Alpine Club, Big Five Sporting Goods, and Tahoe Sports Ltd. were raffled off to everyone

who participated in Creek Day. We are grateful to Starbucks for getting everyone off to a great start with coffee and pastries.

The Alpine Watershed Group would like to thank our volunteers for coming to Markleeville Creek Day. We would also like to thank our sponsors for helping to make this restoration event possible: Alpine County Chamber of Commerce, Bentley Heritage Foundation, Carson Water Subconservancy District, and Trout Unlimited Sagebrush Chapter. Contact Mo Loden, AWG Watershed Coordinator, at awg.mo.loden@gmail.com to get involved in ongoing restoration and monitoring programs. Like [AWG's Facebook page](#) and visit the [website](#) to sign up for the newsletter and discover opportunities to preserve and enhance Alpine County's watersheds!



Stream bank after stabilization with brush boxes. Photo by Justin Bedocs

CWSD Offers Fond Farewells

By Brenda Hunt, CWSD

Please join CWSD staff in wishing Steve Lewis, University of Nevada Cooperative Extension (UNCE), Mary Kay Wagner, Nevada Department of Environmental Protection (NDEP), and Duane Petite, The Nature Conservancy (TNC), fond farewells.

In June 2018, Steve R Lewis, Extension Educator – Douglas County, retired and moved on to greener pastures in Idaho! Steve provided community education in leadership, environmental stewardship, and agriculture. He was a founding member of and provided tireless support to the Carson River Coalition. Steve is a solution-oriented facilitator. For every watershed problem faced, he continuously challenged the CRC to think big picture and work together for watershed level solutions. Steve, we know you are enjoying your retirement. Play hard, you deserve it.

Mary Kay Wagner, NDEP, retired as an Environmental Scientist from the Bureau of Water Quality Planning in June 2018. Mary Kay administered Clean Water Act Section 319(h) grant funding and was the State's

Environmental Education & Outreach/Project Wet professional. She coordinated Snapshot Day, an annual event where multiple student monitoring teams assess water quality and habitat throughout the Carson River Watershed on the same day at the same time. Mary Kay actively participated in the CRC for over 20 years of her NDEP career. Thank you, Mary Kay, for sharing your passion for environmental stewardship and water science with the CRC, but more poignantly, with the kids throughout the Carson River Watershed. Your tireless advocacy for youth outreach is your lasting legacy. Travel well, and keep on running, jumping, swimming and riding!

Duane Petite's last day as TNC's Carson River Project Director was September 13, 2018. Working out of Whit Hall Interpretive Center at The Nature Conservancy's River Fork Ranch in Genoa, Duane dedicated his time

to conserving the lands and waters that sustain all life in the Carson River watershed. Focusing on nature-based solutions designed to make local communities more naturally resilient, Duane's work included land protection, community outreach and habitat restoration with a special emphasis on wetlands, meadows and riparian areas. Duane has been an active CRC participant and advocate for working together at multiple levels. Creating effective connections to people and land, Duane's grounded approach got things done. We already miss his balanced and thoughtful presence in the watershed. Duane, enjoy your next adventure and we hope you, your wife and grandchildren are out searching the watershed for frogs, turtles and butterflies!



Steve Lewis.

Photo by Michele Lewis.



Mary Kay Wagner enjoying a hike.

Photo courtesy NDEP



Duane Petite pointing to the floodplain.

Photo by Brad Coman.



A More Visible Carson River Watershed

By Shane Fryer, CWSD

We cross boundaries every day; property, geologic, political. These invisible lines are occasionally arbitrary, others bought, and some the result of years of adjudication. The most interesting boundaries however, require millions of years of geologic process to draw, including our Carson River Watershed boundary. Today we are happy to announce this line has just become much more visible.

Through a partnership between the Carson Water Subconservancy District (CWSD), Nevada Department of Environmental Protection (NDEP) and Nevada Department of Transportation (NDOT) watershed boundary signs are now located along both federal and state roads in Nevada marking the topographic divide between the Carson River Watershed and other adjacent watersheds. There are a total of 22 signs in 12 locations.

During the 2015 Carson River Watershed-Literacy Survey, over 60% of Carson River Watershed residents stated that they did not, or did not know, they lived in a watershed. Today, driving from Washoe Lake and traveling south on I-580/395 you will see a boundary sign at the top of Lakeview Summit, stating you are “Entering the Carson River Watershed”. The North bound lane states you are “Entering the Truckee River Watershed”. The signage has also been completed for the Carson Watershed’s boundaries between the Humboldt, Walker, Gabbs Valley, and Dixie Valley watersheds. In the future we hope to complete signage in Alpine County, CA to identify the Carson Watershed’s upper most boundaries. We all live in a watershed and we hope these signs will improve our communities watershed awareness.

The Carson River Watershed is the collective of lands, which capture rain and snow, and drain to a system of streams, which feed the Carson River. An example of this hydrologic connectivity would be Carson Pass, to Red Lake Creek, to the West Fork of the Carson, to the Carson River, all the way out to the Stillwater National Wildlife Refuge. These paths of connected lands and streams can be traced throughout the watershed. Other topographic highs include Spooner Pass, Virginia City or even the North side of Mineral Peak in the Pinenut Mountains. All of which would naturally drain to the Carson River and terminate at the Carson Sink.

The Eastern slope of the Sierra in Alpine County makes up the headwaters of the Carson River Watershed. Seasonal precipitation in this part of the Sierra contributes to the vast majority of instream flows, but not the totality. Smaller perennial (yearlong) streams like Clear Creek, and ephemeral (event driven) streams like Eldorado Canyon and Six Mile Canyon contribute to flows in the river. Groundwater helps regulate flow along the Carson River through gaining (charging) and losing (pirated) reaches. For Carson River Watershed residents, these newly installed signs will help identify the land from where their surface water comes, where groundwater is recharged, and how the Carson River Basin’s waters connect our communities.



A newly installed Carson River Watershed Sign. Photo by Brenda Hunt

Red Lake Cyanobacteria Harmful Algal Bloom

By Mo Loden, AWG



Cyanobacteria (also known as blue-green algae) and algae are naturally present in waterbodies. They've been around for billions of years and are vital to aquatic communities and ecosystems by producing food and oxygen. Cyanobacteria becomes dangerous when it rapidly multiplies into harmful algal blooms (HABs), caused by warmer air and water, high nutrient levels, and slow, stagnant water. At Red Lake this summer, one such HAB event occurred. Volcanic soils near the lake may also contribute phosphorus during the spring melt period.

HABs can produce excessive amounts of cyanotoxins potent enough to threaten the safety of humans, wildlife, and pets, sometimes to the point of causing serious illness or mortality.

California Department of Fish & Wildlife has recommended to stay out of the water until further notice at the Red Lake Wildlife Area. Warning signs have been posted at the lake after the Lahonton Regional Water Quality Control Board (Water Board) received results of water testing that confirmed presence of several genera of cyanobacteria and high levels of cyanotoxins. Cyanotoxins measured in the Red Lake water samples were above the 20 ug/L trigger level established for recreational waters for the protection of human and animal health. If you visit Red Lake, do not touch scum in water or on shore; let pets or other animals drink or go into the water or near the scum; eat fish or shellfish from water; use this water for drinking or cooking. Boiling or filtering will not make the water safe. For more information, visit the site: <https://www.wildlife.ca.gov/Lands/Places-to-Visit/Red-Lake-WA>.

On Tuesday, September 18, 2018, the Water Board received a report of a suspected HAB at Wet Meadows Reservoir.

Water Board staff intends to conduct a field visit to further investigate the site and collect water samples.

As fall approaches, the temperatures will drop and hours of daylight will decrease, which limits the sunlight available for cyanobacteria to photosynthesize. This should provide immediate relief for the problem, but AWG staff intend to stay as closely involved as possible with future Water Board sampling endeavors and lend assistance wherever possible. We are working with the Water Board to develop a more proactive plan. AWG Monitors--Stay tuned! We may need to coordinate additional sampling efforts in that region for next summer. For more information: Contact Mo Loden, awg.mo.loden@gmail.com.



Algal Bloom in Red Lake, September 6, 2018. Photo by AWG



A Harmful Algal Bloom in the St. Lucie River, Florida, displaying the sharp contrast between impacted water and healthy water.

Photo courtesy Getty Images.

Carson City to Participate in Bio-Control Experiment with Canada Thistle

By Marenna Disbro, Carson City Weed Coalition

Canada thistle (*Cirsium arvense*) is a perennial noxious weed in the sunflower family that was introduced to the United States over 300 years ago. This plant dominates several sites along the Carson River where its competitive nature is detrimental to the establishment of native vegetation like willows and cottonwoods. Canada thistle reproduces through seeds and vegetatively by horizontal root spread. These rhizomatous roots are capable of extending nearly 20 feet wide and deep. Effective treatment of Canada thistle targets its root system, often through repeated use of herbicide.

One alternative to using herbicides is to implement a biological control (when one organism attacks another). In this case, the CCWC (in collaboration with the Nevada and Colorado Departments of Agriculture) will use a rust fungus called *Puccinia punctiformis* that is host-specific to Canada thistle in attempts to mitigate the spread of the plant. The fungus spores will be introduced to the plants that germinated in the fall where the spores will move into the

root system to overwinter. If inoculation is successful, there should be evidence of the rust fungus on the underside of Canada thistle leaves in the spring of 2019. For most methods of biological

control, complete eradication of the host species is unlikely. This rust fungus is unique because it has demonstrated between 45-100% mortality of Canada thistle over the course of a five-year study by the Colorado Department of Agriculture. The CCWC is especially excited to participate in this study because it has the potential to effectively kill the entire plant, roots and all. There will be two study sites in Carson City, one at Morgan Mill Preserve and Open Space and the other at Mexican Dam Open Space. Each site is relatively small and will not impede recreationists or wildlife. The CCWC will conduct monitoring of the sites semi-annually and hopes to involve school groups with survey efforts.

Contact info:

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Canada thistle with rust fungus on the underside of its leaves. Photo courtesy Marenna Disbro



Regional Floodplain Management Planning Assists Carson River Communities

By Brenda Hunt, Watershed Program Manager, CWSD

Flooding is a [regular occurrence](#) in the Carson River Watershed and is one of the most expensive natural disasters our communities face. Carson River Watershed communities have spent millions of dollars in just the last few years recovering from riverine and alluvial fan flooding. Carson Water Subconservancy District (CWSD) assists communities by approaching flood planning from a regional perspective. CWSD staff, working with Michael Baker International, local floodplain managers, FEMA and other federal, state and county entities, has updated and revised 2018 Regional Floodplain Management Plan (RFMP) and is recommending it for adoption at CWSD's October board meeting.

In 2008 the Carson River Coalition (CRC) developed the original RFMP. This visionary document promotes the use of the Living River approach to floodplain management. This multi-objective approach recognizes the importance of balancing the river's natural floodplain form and function with designated land uses that protect the floodplain from development, improve water quality, recharge groundwater, and provide wildlife habitat and recreational open space in the Carson River Watershed. The 2018 RFMP revision reaffirms this long-term vision for regional floodplain management with eight strategies and 48 suggested actions to reduce flood damage and keep people out of harm's way. The updated suggested actions are outcomes of CRC collaboration, Federal Emergency Management Agency (FEMA) requirements, and the application of long-term regional floodplain management principles.

STRATEGIES TO MITIGATE FLOOD HAZARDS:

1. Protect Natural Floodplain Function and Values
2. Set Higher Regulatory Standards
3. Collect Flood Data & Perform Maintenance
4. Balance Channel Migration & Bank Erosion Monitoring
5. Increase Floodplain & Flood Hazard Outreach & Education
6. Reduce Infrastructure Impact
7. Map/Study Alluvial Fans
8. Minimize Stormwater Impacts

"Rivers were here long before man, and for untold ages every stream has periodically exercised its right to expand when carrying more than normal flow. Man's error has not been the neglect of flood control measures, but his refusal to recognize the right of rivers to their floodplain." - Engineering News-Record 1937



The [National Institute of Building Sciences' 2017 report](#) determined that "mitigation funding can save the nation \$6 in future disaster costs, for every \$1 spent on hazard mitigation. By adopting this RFMP, communities are eligible to apply for funding from multiple federal and state agencies for floodplain management, hazard mitigation, emergency management, water quality improvement and other regional programs. The plan assists communities participating in FEMA's National Flood Insurance Program Community Rating System by providing credits for addressing floodplain management and flood hazard reduction planning and mitigation. These credits convert into discounts for local resident's flood insurance rates. As in 2008 and 2013, the revised 2018 RFMP will be presented to each of the counties in the Carson River Watershed for formal adoption.

Regional flood planning is critical to limit flood damages by ensuring strategies that are consistent, effective, and efficiently applied across the watershed. The RFMP is consistent with State and County Multi-Hazard Mitigation Plans and is a supplemental document to the Carson River Watershed Adaptive Stewardship Plan (2007/2017). Regional planning allows CWSD and local communities to leverage local funding with State and Federal dollars to benefit residents and the community. A copy of the plan will be available at www.cwsd.org with the October 2018 CWSD Board meeting agenda. For questions, contact Debbie Neddenriep at 775.887.1260 or Debbie@cwsd.org.



★ The AMERICORNER ★



AmeriCorps' Presence in the Carson River Watershed

By Justin Bedocs, CWSD AmeriCorps Volunteer

Today, AmeriCorps has a large presence in the Carson River Watershed. AmeriCorps is a network of national service programs where volunteers typically spend a year working to build and strengthen communities. AmeriCorps provides tremendous value for communities and organizations across the country, with an estimated \$4 return on every dollar invested in national service programs in the form of higher earnings, greater output, and other benefits (Columbia University). These programs satisfy critical community needs like mentoring students, supporting veterans and military families, aiding disaster response and recovery and environmental stewardship.

AmeriCorps was founded in 1993, when President Bill Clinton signed the National and Community Service Trust Act, thereby creating the U.S. Federal Agency, Corporation for National and Community Service (CNCS). However, AmeriCorps has roots dating back to 1965, when JFK founded VISTA (Volunteers in Service to America).

Members serve through Truckee Meadows Parks Foundation and the Sierra Nevada AmeriCorps Partnership in both AmeriCorps State & National and VISTA programs. Host sites include the Alpine Watershed Group, Carson City Parks and Recreation and Open Space, Carson Water Subconservancy District and the Greenhouse Project. Volunteers join for a variety of reasons, but all share a common passion to serve their community. If you are interested in becoming

a volunteer or a host site, please visit AmeriCorps (<https://www.nationalservice.gov>), Truckee Meadows Parks Foundation (<https://www.tmparksfoundation.org/>) or Sierra Nevada Alliance (<http://sierranevadaalliance.com/>).



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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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Upcoming Events

NV State Parks Events

<http://parks.nv.gov/events>

October 20, 2018 2pm-5pm

All Hallows Eve Fort Churchill State Historic Park
<http://parks.nv.gov/events/all-hallows-eve>

October 20, 2018 9am-11am

Fall Colors Hike, Carson River Park
<https://www.active.com/carson-city-nv/hiking/classes/fall-colors-hike-2018?int=72-3-A4>

October 30, 2018 4pm-7pm

Carson City Boo-Nanza
<https://www.facebook.com/CCPRDept/>

November 4-10, 2018

Nevada Flood Awareness Week
Visit: <http://www.nevadafloods.org/>