



# Enviro-News

SPRING 2014  
VOL 2, ISSUE 1

901 S. Stewart Street, Carson City NV 89701

Promoting **recycling** practices, **watershed** education, and **environmental** stewardship for Nevada

A Publication for School and Community

## Our Watershed Connections

### What exactly is a Watershed?

A watershed is the area of land that drains to a common body of water, like a river, wetland or lake. Watersheds can be very small (a few acres may drain to a local pond), or very big like the Colorado River Watershed that encompasses 244,000 square miles of seven states and parts of Mexico. Large watersheds, like the Colorado River system, contain thousands of smaller drainage basins or sub-watersheds.

A watershed doesn't typically follow city or state boundary lines. Watershed boundary lines connect all of the highest elevation points that provide drainage to a low point. Watershed boundaries are based on topography and drainage.

Colorado River Drainage Basin, main stem in dark blue.



### What's Inside

What is a Watershed?	1
Watershed Video - DCRVirginia	2
Stewards From The Past	3
Business Opportunity	3
Educators Receive Presidential Award	4
Recycling in Clark County Schools	4
Guest Column	5
GREENevada	5
Upcoming Events	6



Undeveloped Watershed, Eastern Nevada, USA

Photo. Bob Goodman

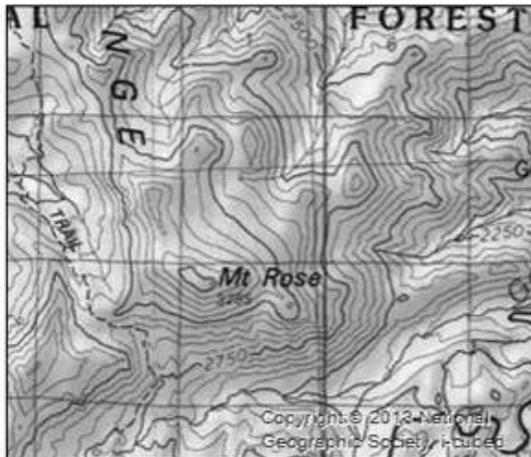
Topography is the shape of land surface which includes the vertical relief (the elevation above mean sea level), slope and location of natural features like hills, valleys, rivers, and lakes; and man-made features like bridges, roads, and cities.

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Cartographers use contour lines to represent the three-dimensional land surface on a flat piece of paper. Topographic maps portray vertical relief by using contour lines that connect points of equal elevation. The change in elevation between one contour line and the next is the contour interval.

Watersheds are often named after the main stem (or river) that flows through the drainage and links contributing tributaries. Small creeks originating at higher elevations (often near ridgelines) combine to form larger streams, much like branches on a tree or blood vessels in the human body. The main stem grows larger as it collects water from more tributaries.



Closer spaced contour lines on the right indicate a steeper grade than more loosely spaced lines on the left.

### Watershed Video—DCR Virginia

This [10-minute video](#), produced by the Virginia Department of Conservation and Recreation, has helpful information for understanding watersheds and the enormous benefits we receive from them.

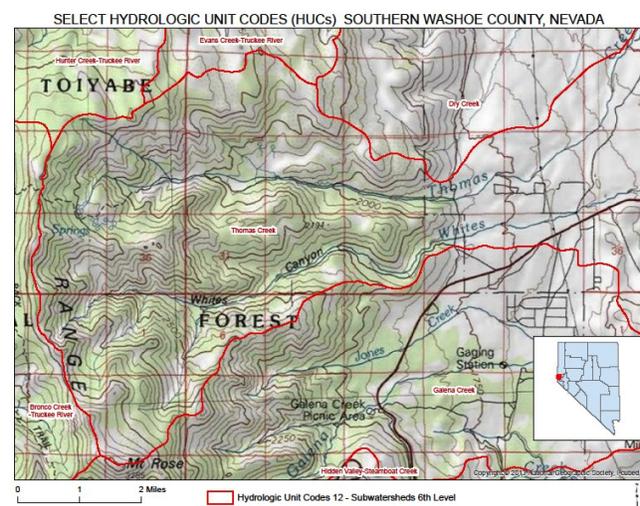
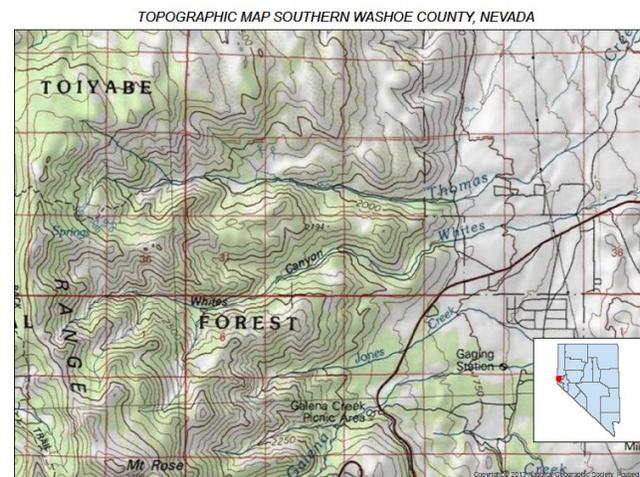
It has been recognized that there may be less understanding of our watersheds than we realize. Precisely what defines a watershed anyway? *“Nobody has an easy way to conceptualize this, but you might find this video interesting,”* says **Margie Evans**, Coordinator for the Carson City Weed Coalition. Margie has a passion for healthy watersheds and thinks this watershed video is *“clear, to the point, and well-defined.”*

### Watershed Health -

Human activities can directly impact water quality in a watershed. As water flows downhill from high to low points it carries sediment and other pollutants. Chemicals and other compounds that are deposited on streets, parking lots, lawns, gardens, or fields in rural areas enter drainage systems and end up in another part of the watershed. Excess dirt, fertilizer, weed killer, detergents, household waste, petroleum products, plastics, and metals are all pollutants that can degrade water quality.

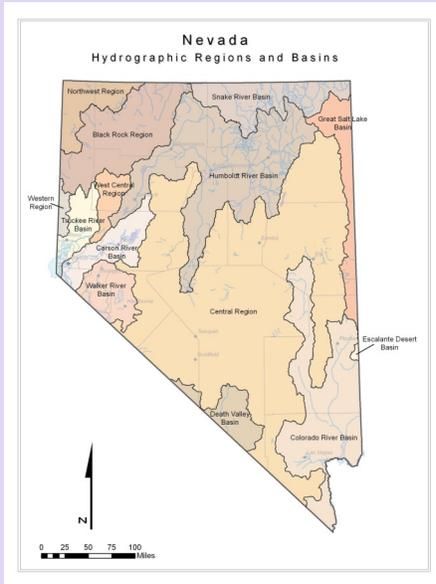
Clean water is vital to the people, plants, aquatic life and wildlife that live in a watershed. What watershed do you live in? What can you do to protect water quality in your watershed? [Click here](#) to learn more.

Check out the Project WET activity, “Seeing Watersheds” that can be used to define watershed boundaries.



Nevada has 14 major hydrographic regions, defined as a geographic area drained by a main river or an area consisting of a drainage system comprised of streams and natural or man-made lakes.

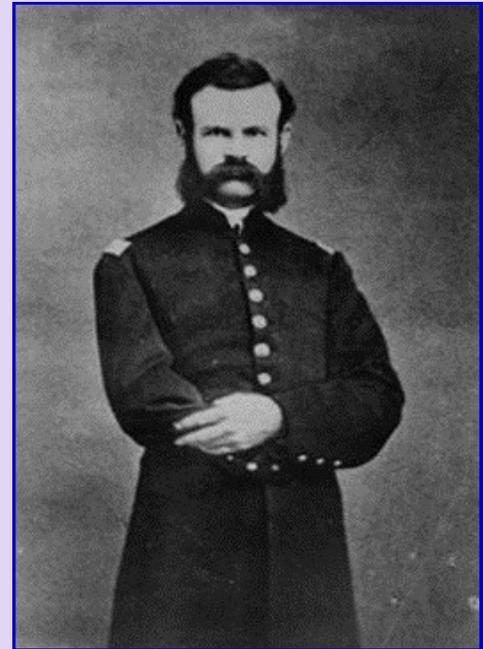
- Black Rock Desert
- Carson River
- Central
- Colorado River
- Death Valley
- Escalante Desert
- Great Salt Lake
- Humboldt River
- Northwest
- Snake river
- Truckee River
- Walker River
- West Central
- Western



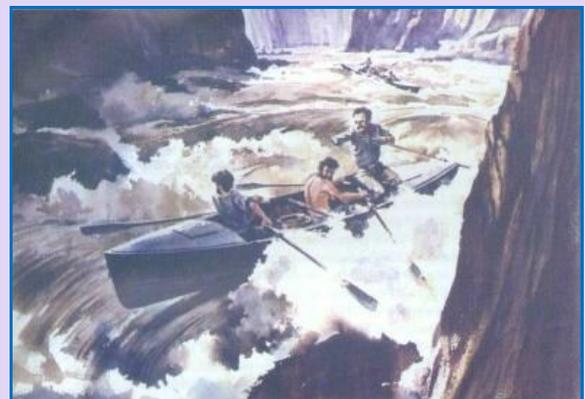
For additional Nevada maps, [click here](#)

## Stewards From The Past

[John Wesley Powell](#) (a soldier, explorer, and geographer) described a watershed as "a bounded hydrologic system, within which all living things are inextricably linked by their common water course and where, as humans settled, simple logic demanded that they become part of a community."



Despite losing his right arm during the Civil War, Powell led several expeditions into rugged and unexplored regions of the American West.



## Business Opportunity to Shine

Do you work with or know of a business that deserves recognition for its sustainable practices?

A new program, **Green Business Improvement Group** ([Green BIG](#)), has been launched to recognize green businesses in Carson City, Douglas, and Lyon Counties. Green BIG is a cooperative group of community leaders, business leaders, and environmental experts (including NDEP's Nevada Recycles staff). Green BIG's mission is to recognize businesses for green business practices; to educate business owners on best environmental business practices; and to encourage citizens in the community to support green businesses and to understand why environmental sustainability is important.

Interested businesses can apply for recognition by filling out the [green business checklist](#). Members of the Green BIG Board will review the survey and qualifying applicants will receive a green business certificate that they can use to promote their companies.

## EDUCATORS RECEIVE PRESIDENTIAL AWARD FOR EXCELLENCE

Last month, the White House named 102 math and science teachers as recipients of the prestigious Presidential Award for Excellence in Mathematics and Science Teaching. Nevada's winners are both from Washoe County School District (WCSD):

**Ryan Doetch for Mathematics** and **Traci Loftin for Science**.

Traci Loftin has been an educator for 11 years in the WCSD. She taught third, fourth, and eighth grades at Caughlin Ranch Elementary and Dilworth STEM Academy. Traci is currently a Consulting Teacher in the District. Ryan Doetch has been an educator for 10 years and has been teaching first grade at Alyce Taylor Elementary for the last 9 years.



The Presidential Award for Excellence in Mathematics and Science Teaching is awarded annually to outstanding K-12 science and math teachers across the county. Each year, the award alternates between elementary and secondary school teachers. The 2013 awardees announced last month teach kindergarten through 6th grade. Winners of the Presidential Award receive a \$10,000 award from the National Science Foundation to be used at their discretion. They are also invited to Washington, D.C. for an awards ceremony and several days of educational and celebratory events.

Congratulations Ryan and Traci for being recognized as leaders in math and science education and for your dedication to youth over the years. We wish you the very best success in your professional endeavors.

Nominations are open for **2014 Presidential Awards for Excellence in Mathematics & Science Teaching (PAEMST)**, which will honor math and science (including computer science) teachers working in grades K-6.

## Boosting recycling efforts in Clark County Schools



The Clark County School District (CCSD) is continuing its effort to increase and promote recycling in the schools. Did you know milk cartons can be recycled in Clark County?

Emily Hemmert, Southern Nevada Recycling Coordinator, and Mark Jones, CCSD Director of Recycling, have been busy visiting schools to get kids excited about recycling. Over the course of two lunch-time presentations, students learn about recycling and how to put into practice. The first presentation helps students understand what it means to recycle and why it is important. Participating schools that increase their recycling are given quarterly rebates based upon the resulting savings (recycling services cost less than trash services).

Students are challenged to collect as many plastic water bottles as they can during the week for a contest the following week. One elementary school collected over 500 bottles! The second presentation gives students the opportunity to “guesstimate” how many plastic water bottles were collected. Teachers are also encouraged to participate in a recycling can decorating contest, and the winner, determined by student vote, receives a gift card.

Recycling in the schools not only saves money but teaches environmental stewardship. CCSD staff interested in improving their school's recycling efforts can contact Mark Jones: [mljones@interact.ccsd.net](mailto:mljones@interact.ccsd.net) or Emily Hemmert: [ehemmert@ndep.nv.gov](mailto:ehemmert@ndep.nv.gov).



# GUEST COLUMN

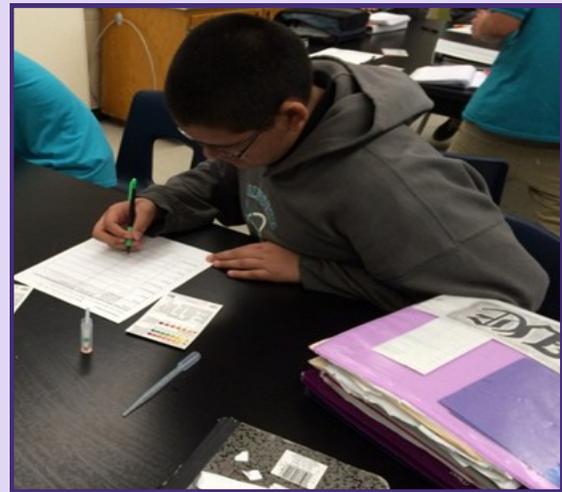
*Nicolle Wambold, Dilworth STEM Academy  
7th Life Science | 8th Physical Science Teacher*



Students at Dilworth STEM Academy are spending this quarter learning about a precious resource that so many of us take for granted: water. Each week, students work in groups to solve the problem of how to design a water park for a major US city and ensure that the water park is filled with clean and healthy water from a local water source. In one of their classes, groups conduct research on a US city and a water source within that city. Then they identify contaminants within that water source and research how the contaminants were introduced into the water. In math and English, students design and investigate the engineering of water parks. In science class, students test the quality of water from local water sources around Reno and Sparks.

They will then investigate different filtering techniques to ultimately design a system that will effectively filter contaminated water so that it will

be safe for their water park. This project allows scholars to not only discover our very own Truckee River Watershed and how water quality varies throughout the watershed, but also gives them the opportunity to research water quality throughout the US. Students will be testing for indicators such as nitrate, nitrite, alkalinity, pH, total chlorine, free chlorine, copper, iron and total hardness. They will then use this data and their research to design a water filtration system to remove the contaminants. When it comes time for scholars to present their quarter's work, they will demonstrate their filtration design and unveil their water park design. This project has provided students with an opportunity to study the science behind water quality, the technology and engineering involved in water park design, and the mathematical knowledge to design their own water park. By integrating student interests with content, a truly engaging STEM unit has been developed.



Class Website: <http://mswambold.weebly.com>



Nevada Recycles is working with Keep Truckee Meadows Beautiful to produce a recycling how-to guide for schools wanting to improve their recycling and waste reduction practices.

The potential extent of each school's recycling program will vary by location, but every school can do something to help divert waste from landfills.

Are there any questions you'd like to see addressed in this guide? Let us know! Email Nicole at [ngoehring@ndep.nv.gov](mailto:ngoehring@ndep.nv.gov).

# UPCOMING EVENTS



Las Vegas GreenFest	UNLV	April 12th	11am-6pm
Tahoe-Truckee	Squaw Valley Village	April 19th	11am-5pm
Fallon	Oats Park	April 19th	10am-2pm
Douglas County	Locavore Dinner (reservation required)	April 22nd	6pm
Elko Take Pride Event		April 26th	
South Lake Tahoe	Bijou Park	April 26th	10am-4pm
Reno Earth Day	Idlewild Park (e-waste collection at Reno High School!)	April 27th	10am-5pm

*Mark  
Your  
Calendars*

## TRUCKEE RIVER SNAPSHOT DAY - May 16<sup>th</sup>

"Snapshot Day" is an exciting education and outreach event in the Truckee and Tahoe watersheds. This May 16<sup>th</sup>, students will explore the Truckee River and its tributaries and conduct field studies to provide a "snapshot" of environmental conditions.

Lead by water quality professionals, 5<sup>th</sup> through 12<sup>th</sup> grade students gain hands-on experience with the science of river ecosystems and learn about the importance of landscape, ecology and water quality. Students will use scientific instruments to test for pH, dissolved oxygen, temperature, and specific conductivity in the field and will collect water samples for laboratory analysis of nutrients, sediment and bacteria.



Students from Dilworth STEM Academy monitored and sampled Steamboat Creek in 2013.

If you are interested in participating or for more information call Mary Kay Wagner 775-687-9454 [mkwagner@ndep.nv.gov](mailto:mkwagner@ndep.nv.gov)

## Water Education Workshops Address Next Generation Science Standards

Water in Nevada is critical to our environment, our economy and our future.

Would you like to provide your students with a deeper and more comprehensive understanding of the natural world and the local environment while developing the problem solving skills needed to be productive members in society? Register for upcoming [water education workshops](#) here.

- April 16, 23, 30 & May 7----- 4:30-9pm  
*River Fork Ranch, **Genoa***
- April 11, 12 -----4-9pm, 7-6pm  
*French Ford Middle School, **Winnemucca***
- May 2, 3 -----4-9pm, 7-6pm  
*Mineral County Cooperative Extension, **Hawthorne***
- May 9, 10 -----4-9pm, 7-6pm  
*Great Basin College, **Ely***
- May 30, 31-----4-9pm, 7-6pm  
*High Tech Center, **Elko***

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[NevadaRecycles.nv.gov](http://NevadaRecycles.nv.gov)



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