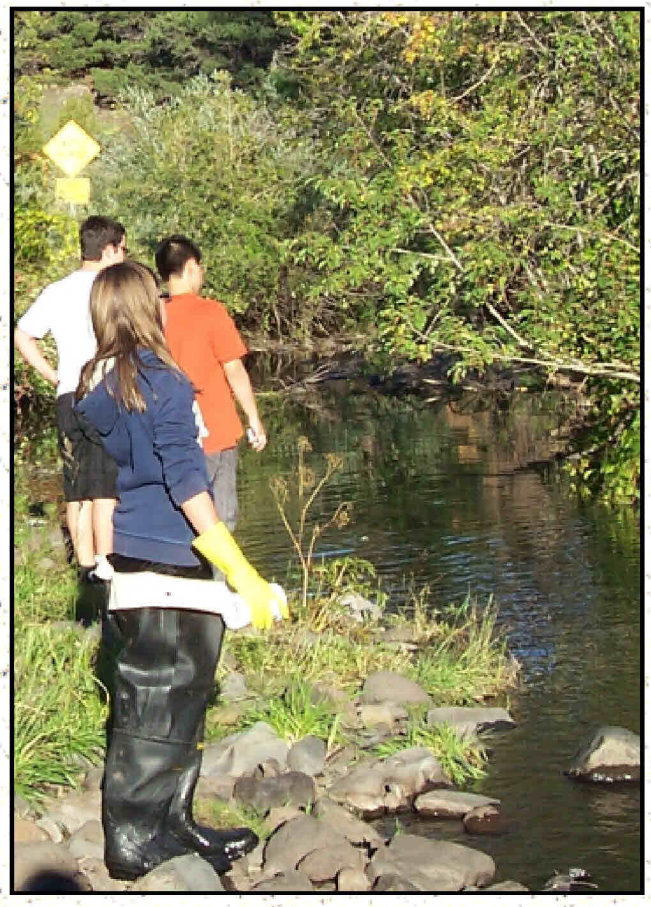
World Water Monitoring Day 2011

In Celebration of World Water Monitoring Day, in September 2011, Round Valley Middle School's 7th grade Science, Technology, Engineering and Mathematics Class tested water quality of the Little Colorado River.

With the support of the Arizona Department of Environmental Quality (ADEQ), Mrs. McCall's STEM class students visited four sampling sites along the Little Colorado River (LCR), to test their hypothesis that "water quality is better upstream of the Wallow Fire burned area." Using World Water Monitoring Day test kits and hand-held meters, the students tested the water for temperature, pH, turbidity (clarity) and dissolved oxygen, indicators of the general health of surface waters. The data were recorded and uploaded to a water quality database, where they will be included in a world-wide, publicly available report.

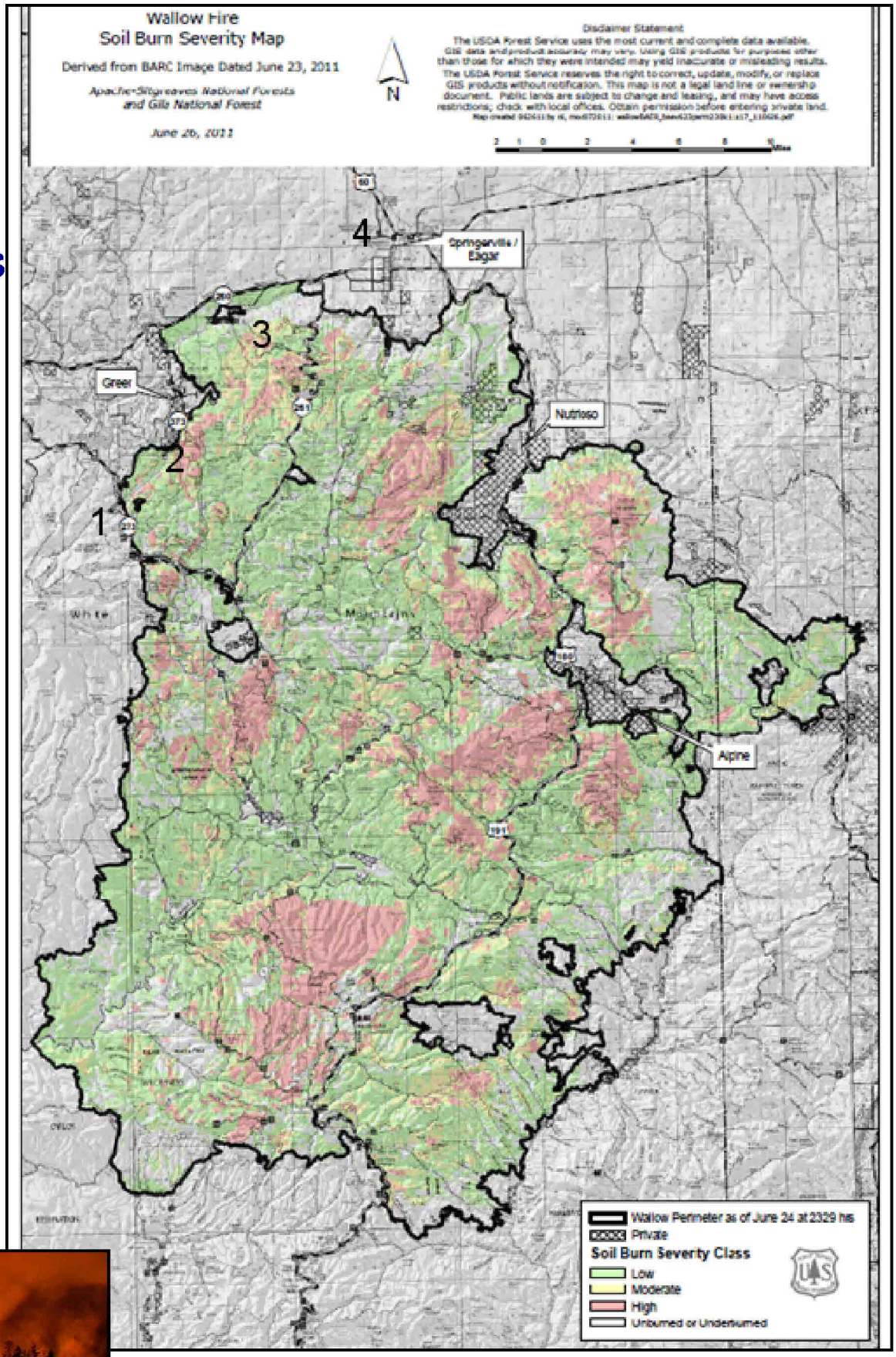


"Watershed events like these in the Little Colorado River and throughout the state increase environmental awareness and help students of all ages protect public health year-round."

Henry Darwin, ADEQ Director

Sampling Sites

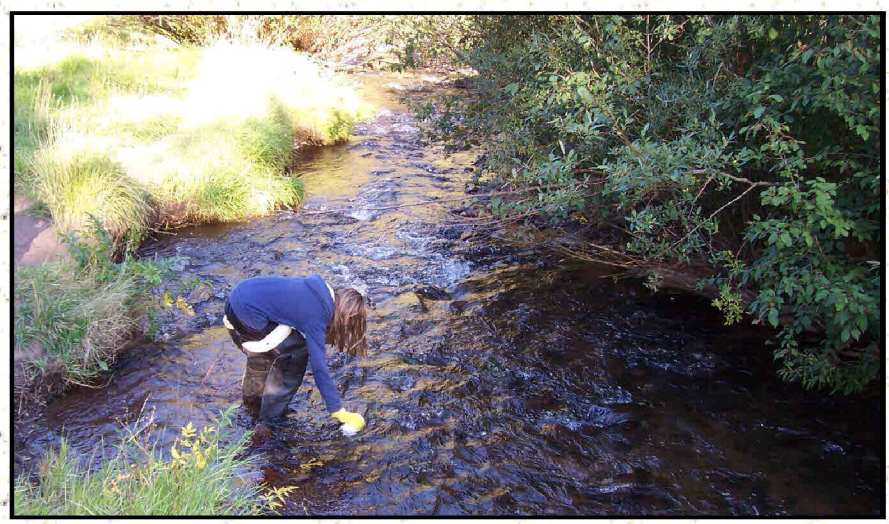
1. West Fork of the LCR at Sheeps Crossing (upstream)
2. West Fork of the LCR at Greer
3. LCR downstream of the confluence with South Fork
4. LCR in the town of Eagar.

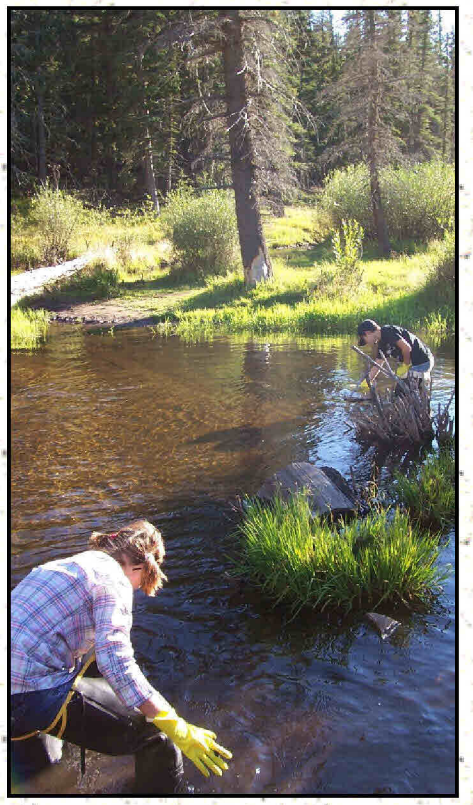



Source: Apache-Sitgreaves National Forests

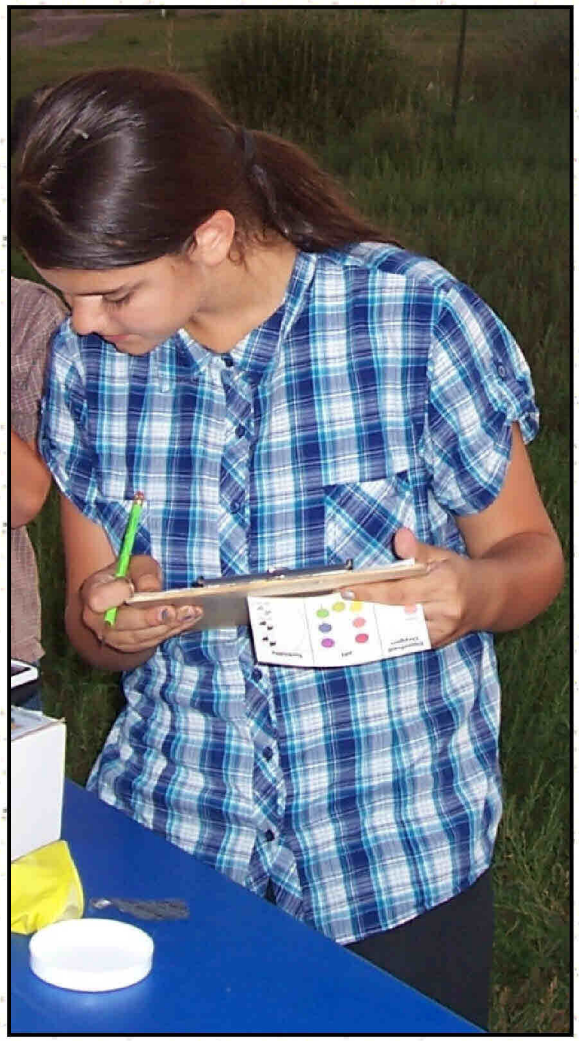
Wildfire changes nature's ability to absorb precipitation, impede erosion and filter pollution. Severe burning often results in flooding, mud and debris flows, and deposition of ash, sediment, bacteria and other non-point source pollutants in surface waters.

The students were divided into three groups. A representative for each group waded into the river at each of the four locations to collect a water sample.





Once collected, various tests were run on the water samples via World Water Monitoring Day test kits.

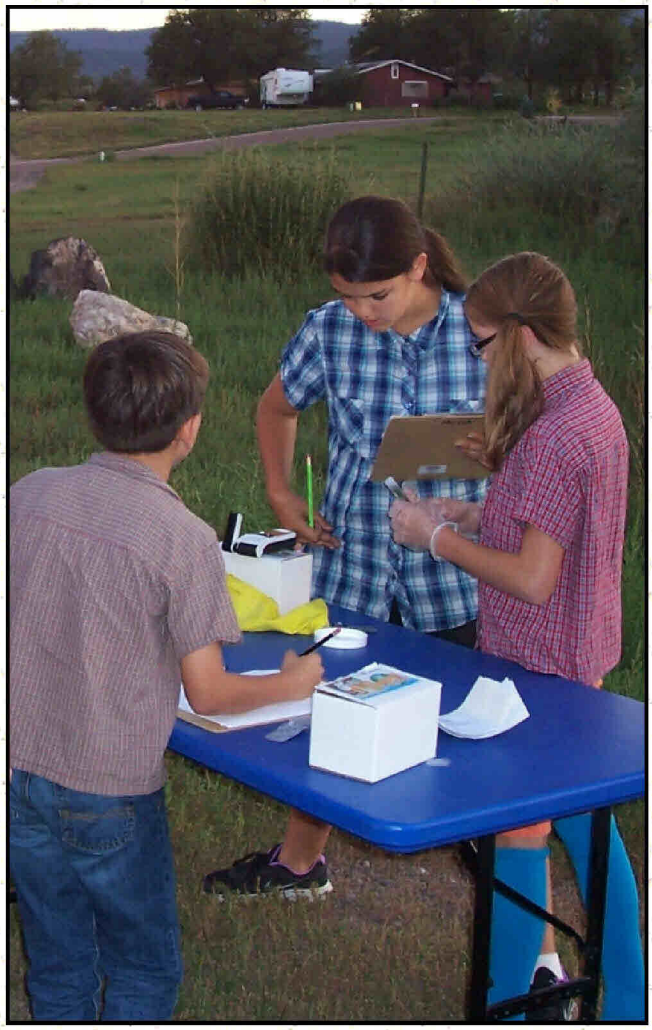


"Our Science, Technology, Engineering and Math class is looking forward to testing and observing the effects of the Wallow Fire in our local waterways."

Lisa McCall, Science Teacher

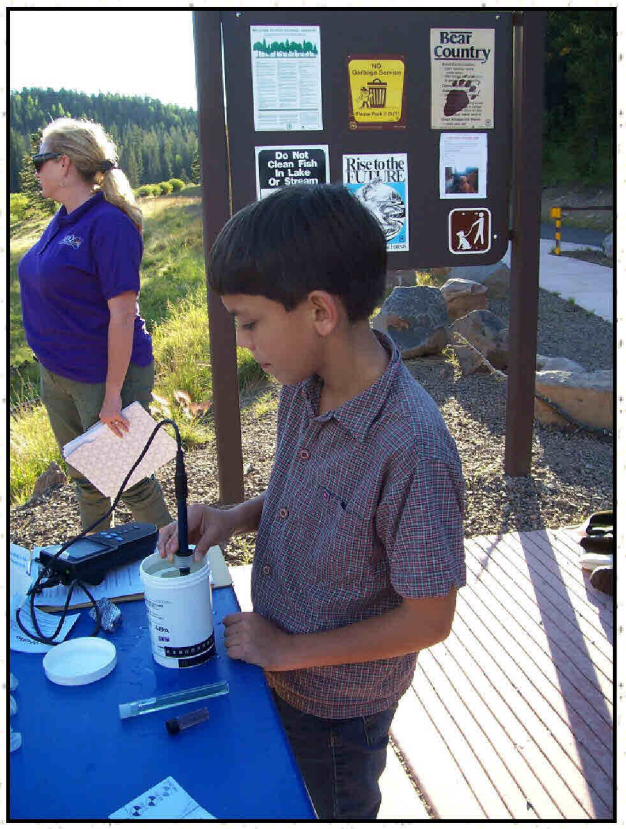
Round Valley Middle School

ADEQ representatives Julie Finke and Byron James were on hand to assist the students.



Sampling was conducted during the afternoons of September 20 and 22. One day was covered by a reporter for the *White Mountain Independent* newspaper.

Test kit sample results were checked with hand-held meters.



While water quality differences were subtle during the days of the tests, the sites furthest downstream (South Fork and Eagar) exhibited the highest pH and turbidity readings, and lowest dissolved oxygen estimates.

At the final stop, the students compared and contrasted their upstream sampling results and visual observations with their downstream data, and discussed their findings and conclusions. They also learned more about non-point source pollution and measures to protect Arizona's precious surface waters.

Students test effects of Wallow Fire on Little Colorado River

Karen Warnick, White Mountain Independent

September 23, 2011

The Arizona Department of Environmental Quality (ADEQ) sponsored a water quality testing event for seventh grade Science students from Round Valley Middle School.

The events are part of the World Water Monitoring Day which was on Sept. 18. Over 212,000 people on six continents monitored their local waterways last year.

The seven students tested four sites along the Little Colorado River, several upstream of the fire and several downstream. On Tuesday, Sept. 20, they started at Sheeps Crossing and then went to a portion of the river near Eagar. On Thursday they tested water in Greer and at South Fork.

Karen Warnick — The Independent

World Water Monitoring Day - Study: Test effects of Wallow Fire on Little Colorado

Science teacher Lisa McCall of RVMS helps her seventh grade students record data about the water samples they collected from the Little Colorado River. From left: Julie Finke of ADEQ, Ashton Gilliam, Ashley Harcus and Brian Hill.

Students were divided into groups and given test kits for pH balance, temperature, dissolved oxygen and turbidity of the water. Each group created a hypothesis about the impact of the Wallow Fire on the condition of the river and used the testing to prove or disprove their hypothesis. All three groups predicted that water downstream of the fire would be more polluted than water upstream.

Other observations were made by the students about the visual conditions of the water and area such as color and clarity and whether any debris was in the water such as rocks, logs and ash.

Students found one dead fish at the Sheeps Crossing site which was entered into their data.

After the testing the students will review their data and create reports on the results. The data will be entered into the worldwide data base for water monitoring.

The event was conducted by local ADEQ employees Byron James and Julie Finke. James is the local liaison for ADEQ and Finke is the Children's Environmental Health coordinator.

Science teacher Lisa McCall prepared her students in class for the testing and coordinated the activity. "Our Science, Technology, Engineering and Math class is looking forward to testing and observing the effects of the Wallow Fire on our local waterways," said McCall.

After arriving at their location, the students prepared their test kits, donned large waders and gloves and went into the water to retrieve samples.

The samples were then run through a variety of tests and the data recorded on their worksheets. After packing up the supplies they moved on to the next location.

James said that the data collected by the students will help them in understanding water quality after the fire and how it affects fish, other wildlife and plants in the area.

Several years ago James and Finke conducted similar water testing with students in St. Johns.