

# Learning About Creeks Inside and Out

by Kimberly Rollins

The Mono Lake Committee, community members, and the Mono County Office of Education are working to establish an Eastern Sierra Watershed Program (ESWP) in Mono County to teach local sixth-graders about creeks.

The ESWP is designed to give kids hands-on experience, outside, in small groups, where they learn about water quality, stream flow, aquatic macroinvertebrates, riparian vegetation, and fish studies through experiments and demonstrations.

Since 2001, Inyo County has received funding so that all sixth through eighth grade students have been able to complete the full-day program with curriculum specifically designed for each grade.

Unfortunately, Mono County does not have funds to support such a program, but because of volunteers, including some Mono Lake Committee staff, about 75 Mono County sixth-graders completed the ESWP this year.

Trained volunteer docents from the community spent two full days with area sixth-graders: one day at Mammoth Creek with Mammoth Elementary School and one day at Mill Creek with Lee Vining Elementary School. Spending a day out on the creek with the Lee Vining kids was truly inspiring!

## Out on the Creek

Upon arrival at the creek, students were divided into groups of around five and given a field notebook to record information, safety goggles, and gloves that they were required to wear during the experiments.

Each docent is trained to teach a specific section of the program, which is designed to be interactive and fun—the children are mobile and get first-hand experience conducting experiments.

During the water quality section, the sixth-graders took the air temperature and observed other weather conditions such as wind speed, wind direction, and sunlight. Next, they tested the pH of the creek and learned about the pH range that can sustain plant and animal life. The students then conducted chemistry experiments to test the turbidity, solids and salinity, hardness, dissolved oxygen, and nitrates in the water.

Although the docents were teaching complex ideas to the students, the kids were able to grasp the lessons through simple explanations and vivid demonstrations.

After their chemistry lesson, some of the kids got into the creek to learn about stream flow. The docent used a wooden box and gallon jugs to show the students how much one cubic

foot of water actually is: the measurement used to determine stream flow. After the kids discerned that one cubic foot is about eight gallons of water, they set up one-foot transects across a 12-foot wide cross-section of Mill Creek and using a

flow meter, measured the depth and flow at the midpoint of each transect.

The students then moved from measuring the flow of the stream to measuring the different types of aquatic macroinvertebrates in the stream. The field notebook contained diagrams of three different groups of macroinvertebrates with varying degrees of sensitivity to pollution. After collecting some specimens from the creek, the sixth-graders divided the different species into ice trays and tallied the numbers in their notebooks. After review-

ing the ratio of tolerant to sensitive macroinvertebrates, the students could properly assess the health of the stream.

Not only did the kids learn about what's going on in the stream, they also learned about the vegetation around the stream by setting up a green line transect to measure the percentage of different types of vegetation around the stream. First, the student with the most consistent stride was determined by walking both sides of a line. Whoever had the closest number of steps both times was declared the "pacer" and the length of their stride was measured. The vegetation was split into four categories; cottonwood, willow, forb, or bareground. As the pacer walked the length of the green line transect, another student recorded her number of steps. The other students walked ahead and each time they determined a change in vegetation, a student would stand there and call out the kind of vegetation when the pacer reached them. After the pacer walked the length of the green line transect, the students figured out the percentage of each plant community along the creek.

The final stage of the program is an electro-fishing study, which teaches students the different species that inhabit the stream and where the fish are most often found. A fishery biologist captures fish through electrofishing, then the students identify the fish, measure its length and weight, determine its age by a fish scale sample and discuss the relationship between a healthy stream and a healthy fishery.

Patricia Schlichting, Program Coordinator for Mono County Office of Education, said feedback from the program was positive and although the future of the ESWP in the Mono Basin is not yet determined, the Mono Lake Committee is dedicating time and resources in hopes that the program will continue to develop in 2005. ❖



Lee Vining students participating in the Watershed Project.

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