Caspar Creek Experimental Watersheds Celebrate 50 Years of Research

FORT BRAGG, Calif. – While international attention focused on the dismantling of nuclear weapons in Cuba and the formation of British rock sensation, the Rolling Stones, a major scientific endeavor was underway among the redwoods on the Jackson Demonstration State Forest, just south of Fort Bragg, Calif. In November 1962, stream water began to flow over two gaging weirs constructed on the North and South Forks of Caspar Creek.

Researchers and forest managers from the U.S. Forest Service Pacific Southwest Research Station (PSW) and the California Department of Forestry and Fire Protection (CAL FIRE) had chosen Caspar Creek and its surrounding watershed as the site for a major long-term study of logging effects on streamflow, sedimentation, and salmon habitat.

Over the past 50 years, the Caspar Creek study has provided a continuous record of streamflow, sediment, and rainfall that has been used by researchers around the globe to expand our understanding of watershed science. Major experiments at the site showed the effects of 1970s road construction and tractor logging on water quality and measured the cumulative effects of 1990s clear-cutting on downstream flows and sediment loads. During these experiments, researchers also studied many parts of the system in more detail, measuring such things as fog drip, channel changes, and juvenile salmon survival and growth. Findings have contributed to the design and modification of forest practice rules, and study results are used by foresters in northwest California to predict changes in peak flows after logging and to help reduce logging-related sediment. Methods developed at Caspar Creek are now used internationally to monitor water quality.

Current research includes modeling the potential effects of climate change on aquatic habitat and water resources; evaluating the long-term effects of selective logging on dry-season flows; and documenting the effects of road decommissioning on sediment production.

According to PSW scientist Dr. Leslie Reid, “Much of our understanding of watershed-scale forest hydrology comes from research in experimental watersheds because they provide a setting where we can isolate and observe the effects of particular management activities.”

PSW watershed manager Elizabeth Keppeler notes that Caspar Creek is a particularly important research site because of its 50-year record. “Sustainable forest management relies on understanding the interactions between disturbance, recovery, and environmental change, and many of these interactions take a very long time to become visible,” she says. “Caspar Creek is one of only a few experimental watersheds that provide this long-term perspective.”

Additional information about past and ongoing research at Caspar Creek can be found at http://www.fs.fed.us/psw/topics/water/caspar/. In addition to PSW and CAL FIRE, cooperators include the Americorps Watershed Stewards Project, California Department of Fish and Game, and university...
faculty. A 100-year Memorandum of Understanding between PSW and CAL FIRE was signed in 1999, providing for continuation of the cooperative Caspar Creek project throughout this century and ensuring that the Caspar Creek Experimental Watersheds will continue to provide information for the benefit of all.

Headquartered in Albany, Calif., the Pacific Southwest Research Station develops and communicates science needed to sustain forest ecosystems and other benefits to society. It has research facilities in California, Hawaii and the U.S.–affiliated Pacific Islands. For more information, visit www.fs.fed.us/psw/.