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UCSB Doctoral Student Named Canon National Park Science Scholar

Carl Legleiter, a graduate student in geography at UC Santa Barbara, was one of eight students nationwide to be named a 2006 Canon National Park Science Scholar.

The prestigious doctoral fellowships are awarded annually to future leaders in science and conservation and support innovative research on scientific problems critical to the national parks.

Canon, U.S.A., Inc. established the Canon National Parks Science Scholars Program in cooperation with the American Association for the Advancement of Science (AAAS) and the U.S. National Park Service to help train the next generation of conservation scientists.

The fellowships are designed to advance related research in the biological sciences, physical sciences, social and cultural sciences, and in technology innovation.

Legleiter, who was selected in the technology innovation category, will receive \$80,000 over three years to study river channel change in the Lamar River watershed of Yellowstone National Park.

His research focuses on the relationship between the form of a river and the flow and sediment transport processes that create and modify that form.

He plans to use the award to purchase much-needed equipment for the project.

Legleiter has compiled a series of photographs and digital images covering a 50-year record of channel change in the watershed to establish a baseline for interpreting the effects of climate change on its dynamic river systems.

To facilitate his analysis, he has developed new remote sensing techniques to characterize river systems at broader scales than would be feasible using ground-based surveys.

By emphasizing the spatial structure in this manner, he hopes to gain insight into the mechanism that links the form of the channel to the flow field and the movement of sediment.

The remote sensing and geostatistical techniques that Legleiter is developing could potentially become powerful tools for characterizing stream condition and change and might be particularly useful in the context of river restoration, where scientists and managers are seeking to understand and recreate linkages between physical processes shaping river channels, and in biological utilization of the resulting habitat, according to the award citation.

The study area contains some of Yellowstone's most important habitat for native cutthroat trout, which have declined elsewhere in the park due to disease and invasive species.

Because the rivers are largely free from human influences, channel response to changes throughout the watershed is relatively easy to document and interpret.

The research could also yield insight into the types of changes that might occur on other rivers in the mountainous West under altered climatic conditions.

Legleiter has been conducting research in Yellowstone since 1999, when he was an undergraduate at Montana State University.

The author of 10 research articles, he holds an M.A. degree in geography from UCSB, and has been advanced to candidacy for his Ph.D.

The National Park Service preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations.

About UC Santa Barbara

The University of California, Santa Barbara is a leading research institution that also provides a comprehensive liberal arts learning experience. Our academic community of faculty, students, and staff is characterized by a culture of interdisciplinary collaboration that is responsive to the needs of our multicultural and global society. All of this takes place within a living and learning environment like no other, as we draw inspiration from the beauty and resources of our extraordinary location at the edge of the Pacific Ocean.