



Russell L. Rustici Chair in Rangeland Watershed Sciences

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ENDOWMENT PURPOSE

The Rustici Endowed Chair in Rangeland Watershed Sciences was established in 2008 by the late Russell L. Rustici to give special recognition to the chairholder and provide financial support for his or her teaching, research and outreach efforts. Mr. Rustici was particularly concerned with research that investigates the connections between range management, water quality, hydrology and related ecosystem processes towards the protection and enhancement of California's Central Valley rangeland landscape.

RESEARCH

The Rustici Endowed Chair funding has contributed to important research findings that support sustainable rangeland management practices in California. Research funding during the past year resulted in two new research projects. The first project examined the effects of severe wildfires during the summer of 2015 on water quality within rangelands in the Putah and Cache Creek watersheds. Stream water monitoring during the winter of 2016 demonstrated severe fire effects in the first major streamflow event of the year, but the water quality approached baseline conditions by the end of the rainy season. The second new avenue of research was in collaboration with county advisors on the Central Coast examining the mechanism for enhanced production of forage in small patches within rangelands. Preliminary results indicated that soil disturbance by gophers created the patches of high productivity, primarily as the result of the soil mounds created by the gophers in providing a deeper rooting zone and more water availability. We will attempt to mimic the effects of gopher disturbance using various methods to lower the bulk density, increase infiltration and increase rooting zone volume, which we believe could greatly enhance forage production at the rangeland scale.

TEACHING

The endowment partially funded two graduate students working on rangeland hydrology and remote sensing of rangeland forage production. I continue to incorporate my research findings into both graduate and undergraduate courses that have a combined annual enrollment of about 450. In the 1016-17 academic year, I will use the endowment to partially support a group undergraduate research project examining water quality sampling design, methodologies, quality control/quality assurance, and data interpretation. There is very high demand for undergraduate internships and the group internship approach provides an efficient and stimulating environment to provide real-world skills in addressing water quality issues.

STUDENTS

Two graduate students were partially supported by the endowment this past year working on rangeland hydrology and remote sensing of rangeland forage production.

OUTREACH

During the past year, I have presented research findings at various workshops and collaborated with several county advisors and stakeholders in the cattle ranching community to provide information concerning water quality issues on California rangelands. Of particular impact was the ability to work with county advisors and ranchers on identifying the effects of soil disturbance by gophers on forage productivity. These efforts are leading to a large-scale pilot project in the upcoming year to determine whether it is possible to enhance forage productivity using mechanical soil disturbance on Central Coast rangelands.

THANKS

I am very thankful for the financial support provided by the Russell L. Rustici Endowed Chair in Rangeland Watershed Sciences. The support has allowed me to pursue research questions and extension activities that are typically not funded by other sources. It allows me to take research risks that have often resulted in "high" impact research findings that have leveraged additional support from extramural sources. I look forward to continuing research on California rangelands that Russell Rustici saw as a critical need for the sustainability of the California ranching community.