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## The Impact of USU Extension on Sustainable Natural Resources and Ecosystems

Justen Smith  
justen.smith@usu.edu

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## **The Impact of USU Extension on Sustainable Natural Resources and Ecosystems**

*Outcomes and Impact Quarterly: Special Edition*

Lead Contact: Justen Smith

### **Primary Critical Issue: Climate Change and Management of Natural Resources**

The natural resource base of any economy is critically important to the economic and aesthetic environments for that area. Decisions and policies related to climate change and natural resource use lead to complex economic and social issues and concerns. The efficient management of natural resources is a primary concern for all individuals, and this is particularly true for Utah where natural resources are used for a variety of economic and social benefits. USU Extension addresses the issue of climate change and the management of natural resources through the Sustainable Natural Resources program. The goal of this Extension program is to provide non-formal education to residents, stakeholders, and organizations to promote, facilitate, and strengthen environmental stewardship and sustainable natural resource use in Utah. This project primarily focuses on forest management, water conservation, and stewardship of public lands. The project targets adults and youth, and the desired long-term outcomes are to (a) equip residents with the competency to effectively engage in natural resource conservation and preservation, and (b) facilitate partnerships between community members and public and private stakeholders to strengthen natural resource conservation and enable sustainable resource use.

### **USU Water Quality Extension Education**

*USU Extension Faculty Contact: Hope Braithwaite*

Visitation to Utah's public lands has increased over the past decade. While outdoor recreation is beneficial to individuals' physical and mental health and the economy, it has led to an increase in garbage ending up on trails, parks, neighborhoods, and our waterways. National parks have documented more graffiti and litter during the coronavirus pandemic. In the western United States, over 1,000 tons of microplastics (or more than 123 million plastic water bottles) are deposited annually into protected lands. Educating the public on litter pollution and its effects on natural ecosystems, human health, and public lands is only part of the solution. Utah State University (USU) Extension found ways to involve the public in hands-on remediation of litter pollution is an important step to creating long-term solutions and stewardship of our public lands. Pack It Out Utah was created to combat the increase in garbage due to a surge in visitation to recreational public lands. The cleanup was a week-long event encouraging people across the state of Utah to take initiative and be good stewards of our watersheds and public lands by collecting trash that would otherwise negatively impact our landscapes, waterways, wildlife, and public health.

During its pilot year in 2020, Pack It Out Utah registered 352 individuals who contributed to the removal of more than 870 pounds of trash in seven (7) out of ten (10) major watersheds in Utah. Between 2021 to 2022, USU WQE and partner organizations were able to host local clean-up events for volunteers. People could also register and participate on their own or in small independent groups. There were 12 local clean-up events which played a significant role in the

increase of participation and garbage cleaned up. Pack It Out Utah registered over 570 participants who removed more than 10,730 pounds of trash in seven (7) out of ten (10) major watersheds in Utah. To date, Pack It Out Utah volunteers have removed more than 11,000 pounds of trash from Utah's public lands and waterways. Volunteer hours were valued at \$42,924 with 1,504 hours based on a volunteer hourly rate of \$28.54.

The Pack It Out Utah cleanup has been well-received by state, local, and nonprofit partners. The increase in participation since its inception in 2020 indicates residents' perceptions toward the benefit of the event as they continue to volunteer their time and energy on the cleanup. Pack It Out Utah partners indicated that USU WQE resources and assistance were well-prepared and helpful. An increased effort to inform local and state news outlets to spread awareness of the event will be prioritized in upcoming years. Additionally, USU WQE plans to expand Pack It Out Utah's reach to include more southern and central Utah partners and locations and to increase the number of in-person cleanup events.

### **Forecasting and Adapting to Drought**

*USU Extension Faculty Contact: Erin Rivers*

The western United States is experiencing an unprecedented megadrought that has persisted for the entirety of the 21st century. The nexus between extreme water scarcity and mounting pressures on water supplies in Utah highlights the urgent need to connect Utahns to emerging research and management perspectives on drought outlooks, planning, and conservation. In response, USU Extension provided a forum to connect stakeholders and the public with important information about drought at the Spring Runoff Conference. The Spring Runoff Conference convened university experts, federal and state agencies, natural resource managers, and community members to share cutting-edge research on drought forecasting and conservation practices and community strategies for adapting to drought through water-efficient practices.

The 2022 Spring Runoff Conference convened a diverse group of stakeholders. During five (5) hours of educational activities facilitated by USU Extension, there were also 12 presentations from two (2) federal agencies, and four (4) state agencies. A post-event survey was conducted to evaluate the short-term outcomes of the conference. Survey results ( $n = 45$ ) described changes in participants' knowledge and intentions to adopt water conservation practices after conference attendance. A majority of participants (74%) reported knowledge gain in one or more topics about drought as a result of attending the conference. Notably, about 40% of participants indicated they gained knowledge about federal, state, and local drought response and perspectives, 49% indicated they gained knowledge about the impacts of drought in the Colorado River, and 47% indicated they gained knowledge about innovations in forecasting drought. As a result of the conference, about 36% of participants reported they intend to use water optimization practices, 55% reported they intend to consider the collection and use of graywater, and 70% reported they intend to encourage community response to drought through everyday practices.

Providing education through a conference format is an effective strategy for USU Extension to engage stakeholders and clientele. USU Extension plans to continue planning and implementing the Spring Runoff Conference annually to provide a forum for agency professionals, Extension faculty, and the public to connect and share resources for managing water quality and improving

water efficiency. Creating and sustaining synergy between community needs, state agency management priorities, and USU research is essential to foster a coordinated response to the growing water challenges in the state for a sustainable water future.