You're Invited to the
2023 Philmont Land Management Symposium
August 21-25, 2023

August 21	August 22	August 23	August 24	August 25
Arrivals and Check-In 5:00 pm – Reception 6:15 pm – Dinner Fireside Chat	Breakfast **Soil to Dirt Sessions** Lunch **Bonita Creek Case Study: Stream Restoration** Reception, Dinner, and Fireside Chat	Breakfast **Pre-Fire Mitigation and Mapping Session** Lunch **Field Trip: Crater Lake and Bonita Creek Stream** Reception, Dinner at Cimarroncita, and Fireside Chat	Breakfast **Post-Fire and Planting Sessions** Lunch **Field Trip: Deer Lake Planting sites** Reception, Dinner, and Fireside Chat	Breakfast Free Day at Philmont or Depart any time

Biographies and Presentation Descriptions

Ray Archuleta
(Tuesday, August 22, Morning Session)

Ray Archuleta is a Certified Professional Soil Scientist with the Soil Science Society of America and has over 30 years' experience as a Soil Conservationist, Water Quality Specialist, and Conservation Agronomist with the Natural Resources Conservation Service (NRCS). During his tenure with the NRCS Ray served in New Mexico, Missouri, Oregon, and North Carolina.

Ray received his AS degree in Livestock Science from Northern New Mexico College and a BS degree in Agricultural Biology plus 30 hours of graduate work in soil related courses from New Mexico State University. He served in the Peace Corps for two years in Guatemala as a Livestock Specialist.

After his retirement from the NRCS in 2017, Ray founded Understanding Ag, LLC, and Soil Health Academy, to teach Biomimicry strategies and Agroecology principles for improving soil function on a national scale. Ray also owns and operates a 150-acre farm near Seymour, Missouri that he operates along with his wife and family.

Healing the Soil in Public and Private lands:

By applying "Biomimicry principles" that emulate nature's forms, processes, and systems-landowners and managers can greatly reduce cost and time.

Seth Mangini
(Tuesday, August 22, Afternoon Session)

Seth Mangini is a geoscientist and Ph. D. Candidate at Montana State University. He began his conservation career as a seasonal staff member at Philmont and went on to earn an MS at Montana State and work for the US Forest Service before returning to MSU for his doctorate. He is studying stream morphology in semi-arid climates, how human land-use influences it, and what the implications are for the responsible management of wetland and riparian areas. His research looks at both restoration and geomorphic processes in wetland systems. He is overseeing an EPA 319 restoration project on Philmont's Bonito Creek as part of his research.

Understanding the timing and impacts of arroyo erosion in a wet meadow system, regional context and potential for restoration

Seth is studying the morphology and sedimentary history of a rare wet meadow – fen wetland system, Bonito Creek. Wetlands in the watershed are being lost due to arroyo formation (riparian erosion due to channel incision). Geologic evidence has shown that arroyo cutting and filling is a cyclic process in semiarid climates, but the timescales and forces which control these cycles are not fully understood. This study is examining the geomorphic processes, timing, and drivers of wetland formation and erosion. Seth is also studying how the erosional cycles of other watersheds in the area compare to Bonito Creek to determine what drives watershed evolution regionally. A chief goal of this study is to understand appropriate goals for management and restoration.

Bonito Creek Restoration Site Visit
(Wednesday, August 23, afternoon field trip)

Participants will visit the Bonito Creek restoration project to see how process-based restoration practices can be implemented at a watershed scale.

Doug Cram Ph. D.
(Wednesday, August 23 morning session)

Doug Cram is an Associate Professor and Extension Forest and Fire Specialist at New Mexico State University. For the last 25 years, he has focused his research and extension efforts on forest and rangeland management in the arid Southwest with a particular focus on wildland fire interactions within these systems. A key area of interest is training New Mexicans on how to use prescribed fire on private lands. He recently wrote a book chapter on prescribed burning in the West. He received a Bachelor of Science in wildlife science (New Mexico State University), a Master of Science in forest science (Oklahoma State University) and a Doctorate of Philosophy in Range Science (New Mexico State University).

Southwest Forest Management

Fire suppression and exclusion policies in western forests have created unique ecological conditions and management challenges as a result of increased conifer densities from piñon-juniper woodlands to mixed-conifer forests. Climate change, particularity in the southwest, has exacerbated these challenges. Consequently, forest managers charged with natural resource stewardship are faced with the threat of stand replacement wildfire over large spatial areas particularly during dry and windy seasons. This lecture will cover ecological and management implications for Southwest forests characterized by increased conifer densities relative to pre-settlement conditions.

Brian St. George
(Thursday, August 23 Tee-off Session)

Brian St. George has been with the BLM for more than 20 years. Over the past 3 years, he has been the Deputy Assistant Director for Resources and Planning. Prior to that, St. George served as Deputy State Director for Resources in Colorado since 2014. He started with the BLM in 2000 where he served as a Natural Resource Specialist in the BLM's National Science and Technology Center in Lakewood, Colorado. He then served in various roles as a Planning Coordinator, Branch Chief for Planning, and Field Manager of the Gunnison Field Office before becoming Deputy State Director. St. George also spearheaded the BLM's implementation of major conservation plans across seven western states while serving as the BLM's National Sage-Grouse Planning Lead.

Resilient landscapes are nature's infrastructure.

They sustain numerous communities and economies. Resilient public lands are critical to the BLM's ability to manage for multiple use and sustained yield, which is the essence of our mission.
The Bipartisan Infrastructure Law and the Inflation Reduction Act present a once-in-a-generation opportunity for transformational, durable ecosystem restoration that will significantly address climate change, sustainably protect sensitive ecosystems and support underserved local communities.

Owen Burney Ph.D "
(Thursday, August 24, mid-morning presentation and afternoon site visit)

Dr. Owen T. Burney is a Professor at New Mexico State University and Director of the John T. Harrington Forestry Research Center in Mora, NM. Dr. Burney's primary research and professional interests are connected to the entire reforestation pipeline from seed to nursery systems to out-planting activities. Dr. Burney's research program is specifically focused on developing climate-smart seedlings within the reforestation pipeline to inform future actions by providing data, information, and understanding about: 1) seed source selection to ensure genetic material from more climate resilient stock; 2) nursery practices that create climate-smart seedling characteristics that will improve survival and growth; 3) best practices for micro- and macro-scale site selection; and 4) integrating monitoring data to improve outcomes through an adaptive management framework. He holds a Bachelor of Science from the University of Georgia, a Master of Science from Oregon State University, and a Doctor of Philosophy from Purdue University.

"After the Fire: Challenges to the Reforestation Pipeline

Reforestation of disturbed landscapes such as post-fire environments offers many environmental benefits such as carbon sequestration, soil stabilization, watershed protection, and wildlife habitat, among others. However, current reforestation efforts in the United States, especially the western region, are inadequate resulting in an ever-growing landscape in need of trees. In New Mexico and Arizona, reforestation needs are currently estimated to be between 300,000 to over 1 million acres, which would require between 90 to 300 million seedlings, well below the state's current production capacity of 300,000 seedlings per year. To address these reforestation needs in New Mexico and across the United States, significant investments will need to be made into the entire reforestation pipeline (i.e., seed collection/storage, nursery programs, out-planting efforts, and post-planting activities).