

Biochar Opportunities in the Southwest: Extension Workshop

An interactive virtual workshop about ecosystem services and entrepreneurial opportunities using forest biochar in the Four Corner States.

April 7, 2021 4:00-5:30pm MDT

April 8, 2021 9:00am-12:30pm and 4:00-5:30pm MDT

April 9, 2021 9:00am-12:30pm MDT

Registration Link:

<https://arizona.zoom.us/meeting/register/tZctde6vqj4oG9UBBWlhZZgxn5915AoQIE50>

Speakers' Biographies:

Tom Miles, Executive Director, United States Biochar Initiative

Thomas R. Miles is the president of T.R. Miles, Technical Consultants, Portland, Oregon, a biomass energy consulting firm, which designs, develops, installs, and commissions systems for processing wood, agricultural, and urban residues. Innovative biomass systems include pyrolysis, gasification, and combustion, sizing, drying, densification, handling, modification of boilers and gasifiers to improve efficiency and emissions, and systems to recycle nutrients. He has developed heat and power systems in developing countries. His knowledge of ash transformations in biomass led to recycling nutrients using pyrolysis of residues to biochar which can improve soil health and sequester carbon. He has sponsored and hosted online discussions of biomass energy and biochar since 1994. He is past chairman of the International Biochar Initiative and Executive Director of the US Biochar Initiative.



Deborah S. Page-Dumroese, PhD, Senior Scientist & Research Soil Scientist, USDA Forest Service, Rocky Mountain Research Station



Debbie is a senior scientist and research soil scientist with the USDA Forest Service Rocky Mountain Research Station. Her career has focused on measuring changes in long-term forest productivity and soil sustainability associated with land management, wildfires, and slash pile burning. For the last 12 years she has worked on using biochar on forest, range, and mine sites to increase water retention, vegetation growth, or improve soil health.

**Nathaniel Anderson, Ph.D., Research Forester, USDA Forest Service,
Rocky Mountain Research Station**



Nate Anderson is a Research Forester with the Rocky Mountain Research Station of the U.S. Forest Service in Missoula, Montana, where he studies forest resources management and economics. He has conducted biomass and biochar research since 2009, working on a wide range of projects including two USDA-NIFA Biomass Research and Development Initiative (BRDI) projects, the Bioenergy Alliance Network of the Rockies (BANR), and the Mid-Atlantic Sustainable Biomass for Value-added Products Consortium (MASBio), among others. Nate has a PhD in Forest Resources Management from the State University of New York College of Environmental Science and Forestry, an MS in Conservation Biology and Sustainable Development from the University of Maryland, and a BS in Biology from Bates College.

Darren McAvoy, Forestry and Wildland Resources Specialist, Utah State University Extension



Darren McAvoy is an Extension Assistant Professor of Forestry at Utah State University and a Fellow of the Society of American Foresters. He directs the Utah Forest Landowner Education Program and chairs the Utah Biomass Resources Group. He was formerly a Consulting Forester and prescribed fire specialist at Inland Forest Management in Sandpoint, Idaho. He was a sawyer on the Montana based Flathead Hotshot Crew and is a veteran of the 1988 Yellowstone Fires. He holds a M.S. in Communications from Utah State University and a B.S. in Forestry from Colorado State University.

**Dr. Catherine Brewer, PhD, John Kaichiro Nakayama and Tome Miyaguchi Nakayama
Endowed Professor, Associate Professor, Department of Chemical & Materials Engineering,
New Mexico State University.**

Dr. "Catie" Brewer received a B.S. in Chemistry from Indiana University of Pennsylvania and a Ph.D. in Chemical Engineering and Biorenewable Resources & Technology from Iowa State University. Prior to joining the faculty at New Mexico State University in 2013, she completed a postdoc at Rice University. Her graduate and post-graduate research focused on biochar characterization and engineering for soil and water remediation application. Her current interests include thermochemical biomass conversion (pyrolysis, hydrothermal liquefaction, torrefaction), products from alternative crops (guar, guayule, hops, hemp), management of desert soils, and biosystems engineering.



Laura Wolf, MS, Wood Utilization and Innovations Program Specialist, USDA Forest Service, Rocky Mountain Region, State & Private Forestry and Tribal Relations

Laura Wolf is the Wood Utilization and Innovations Program Specialist for the Rocky Mountain Region covering Colorado, Kansas, Nebraska, South Dakota, and Wyoming. She graduated from UC Berkeley with a bachelor's degree in Integrative Biology and a minor in Forestry and Natural Resources. She has a master's degree in Environmental Science and Management from the Bren School at UC Santa Barbara. Her area of study was Conservation Planning, and her research focused on the climate vulnerability of an endemic oak species on the Channel Islands off the coast of southern California. Before permanently joining the Forest Service, she was a Pathways intern on the Plumas National Forest in northern California.



Eva Stricker, Director of Carbon Ranch Initiative



Eva is an ecologist with interests in how plant-microbe interactions in soil affect biogeochemical cycling such as nitrogen and carbon. She has a background in curriculum development for learners of all ages and backgrounds, for example through a science communication fellowship with the Explora Museum and a teaching assistantship that built ecology and evolution labs for the University of New Mexico Department of Biology. She has only newly been investigating on-ranch trials of biochar additions so can speak of the barriers and questions that she has had that may be familiar to other new users.

Tyson Nicoll, Arizona Log & TimberWorks, CEO



Tyson Nicoll graduated in 2015 from Brigham Young University-Idaho with a degree in Agricultural Business. He worked two years in a trainee program for a large Midwest agricultural company. Over three years ago while completing a master's degree in accounting Tyson returned home to eastern Arizona to work for Arizona Log & TimberWorks which is a family-owned business. One of his major responsibilities is to research and learn about biochar including its uses and potential markets in the Southwest. TimberWorks is in the planning process to operate a biochar plant to utilize waste from their operations, two local sawmills, and low value wood from local national forestlands.

Heather Nobert, Forest Product Marketing Coordinator, Nebraska Forest Service

Heather Nobert is the Forest Products Specialist for the Nebraska Forest Service. Her work in biochar began in 2013 as a graduate student at West Virginia University where she investigated the use of biochar in mine land remediation. In her role at the Nebraska Forest Service, she focuses on integrating biochar into agricultural applications such as its use for manure management and animal feed. Heather believes biochar is the best natural solution for climate change mitigation. She also serves on the board of the U.S. Biochar Initiative.



Gordon West, CEO and Product Development Director, Trollworks, New Mexico



Gordon West is a former building contractor and woodworker, and logger/wood products innovator. Founder of Gila WoodNet and Trollworks in Silver City, NM, he has been working for 20+ years to create a sustainable economy utilizing liability biomass from forest restoration work and wildland/urban interface thinning. A complementary suite of biomass-based products includes Chipcrete (a porous cement-bound chip wall building system), Zerosion (a blown-on cement-bound porous erosion control system), mulches and composts (Johnson-Su fungal dominant compost), and Biochar+Energy Systems (a continuous process small scale modular biochar making boiler).

Kelpie Wilson, Wilson Biochar Associates



Kelpie Wilson is a mechanical engineer, nature lover and biochar consultant. Throughout the 1990s, she was a forest protection advocate with the Siskiyou Regional Education Project. After learning about biochar in 2007, she worked as a project develop for the International Biochar Initiative, where she managed the multi-stakeholder process to create the first set of standards and testing guidelines for biochar. Since 2012, she has been a consultant helping biochar companies, NGOs and government agencies understand biochar markets and production technologies. She pioneered development of the Flame Cap Kiln biochar technology for use by forestry contractors, arborists and farmers, and presents many workshops each year bringing this technology to end users. She is a founding board member of the US Biochar Initiative, and she lives in rural Oregon, where she makes biochar compost and grows a large organic vegetable garden.

John Webster, Owner, GO Biochar



John Webster is a Utah native with a passion for biochar as carbon sequestration. His company, GO Biochar, is dedicated to the production of biochar for improving environmental resilience. GO Biochar serves all growers - from home gardeners to farmers and municipalities alike. Because we face extreme drought conditions in the Southwest, GO Biochar focuses on scale production of biochar-based turf care products to significantly mitigate waste of valuable water resources, and improve sod performance. GO Biochar consulting services include a portable pyrolyzer available for on-site

deployments. Our pilot program allows organizations and government agencies to remove challenges and barriers so they can engage in proof-of-concept projects. We can help from concept to completion. GO Biochar is a proud sponsor of the Utah Biomass Resources Group.

Doug Cram, Associate Professor and Extension Forestry and Fire Specialist, New Mexico State University.



Dr. Doug Cram is an Associate Professor and Extension Forestry and Fire Specialist in the Extension Animal Sciences and Natural Resources Department at New Mexico State University. His research and Extension efforts focus on management of forests, rangelands, and riparian areas with a particular interest on the interaction of fire within these systems.

Tony Cheng, Professor and Extension Forestry Specialist, Colorado State University

Dr. Tony Cheng is Director of the Colorado Forest Restoration Institute and Professor and Extension Specialist in the Department of Forest & Rangeland Stewardship at Colorado State University. In his capacity as director of CFRI and Extension Specialist, Tony oversees programs and projects to co-produce and apply locally-relevant scientific information with land managers and stakeholders to achieve forest restoration and wildfire hazard reduction goals in Colorado and the Interior West. Born and raised in eastern Washington's Palouse country, Tony has a PhD in Forestry from Oregon State University, a MS in Forestry from the University of Minnesota, and a BA in Political Science from Whitman College in Walla Walla, WA.



**Christopher Jones, Extension Agent, Agriculture & Natural Resources Programs,
University of Arizona Gila County Cooperative Extension**



Chris Jones is a Cooperative Extension Agent at the University of Arizona. He is responsible for Agriculture and Natural Resources programs in Gila County. He conducts Extension programming in forest health, watershed, and horticulture education. Chris' mission at the University of Arizona Cooperative Extension is to improve lives, families, communities, the environment and economies through applied research and education in Arizona and beyond.

Presenter Resources:

- United States Biochar Initiative: <https://biochar-us.org/>
- USDA Forest Service Rocky Mountain Research Station:
 - <https://www.fs.usda.gov/rmrs/people/ddumroese>
 - <https://www.fs.usda.gov/rmrs/people/nathanielmanderson>
- Utah Biomass Resources Group: <https://ubrg.usu.edu/>
- Brewer Biomass Thermochemical Processing Research Group: <https://wordpress.nmsu.edu/cbrewer/>
- USDA Forest Service Wood Innovations: <https://www.fs.usda.gov/science-technology/energy-forest-products/wood-innovation>
- Quivira Coalition Carbon Ranch Initiative: <https://quiviracoalition.org/carbon-ranch-initiative/>
- Arizona Log & TimberWorks, Inc.: <https://azlogs.com/>
- Great Plains Biochar Initiative: <https://nfs.unl.edu/great-plains-biochar-initiative>
- TrollWorks, Inc: <https://www.troll.works/>
- Wilson Biochar Associates, Inc: <https://wilsonbiochar.com/>
- GO Biochar, Inc.: <https://gobiochar.com/>