US Biochar Initiative Newsletter

December 2021

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HAPPY HOLIDAYS
By Tom Miles, Executive Director

Thanks to our sponsors and all who attended the **Business of Biochar** symposium. In the coming weeks, we will provide a link for those who want to view the recordings. It was a good gathering of research, entrepreneurs, buyers and investors. We heard many suggestions for advancing the industry and learned about the emerging carbon markets. Let's build on our progress across the globe.

USBI promotes biochar in forums for natural resource managers, agronomists, farmers, foresters, engineers, and contractors. In 2022, we will launch a series of workshops on biochar topics in different regions of the country. Join us in January for our first workshop, **Biochar in the Woods.**

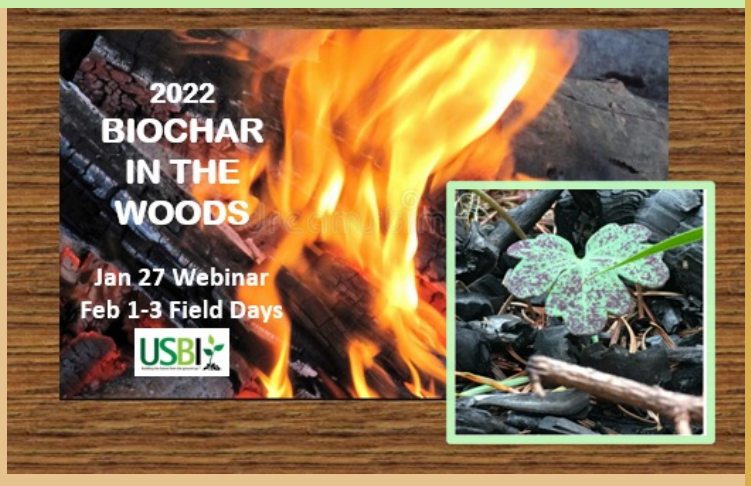
Thank you all for your support, stay safe, and enjoy. **Happy Holidays!**

BIOCHAR IN THE WOODS 2022

Learn how to use biochar for forest resilience and carbon sequestration.

Jan 27 (Online Webinar)
Feb 1-3 (Field Days - free)

REGISTER HERE



Who Should Attend? Forestry contractors, arborists, workforce supervisors, forest land owners, and staff from environmental NGOs and natural resource agencies who supervise forestry workers, or develop biochar forestry projects and programs.

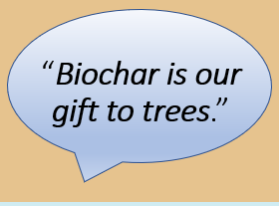
This exciting program offers a combination of live, online, and in-field presentations and demonstrations on making and using biochar in place in the forest. You will learn about biochar kiln operation, opportunities to improve forest soil health, biochar and the redwoods, logistics and economics, environmental impacts, development, and more! **Find detailed speaker information here**

Our Gift to Trees

By Kelpie Wilson, USBI Board Member

In the western US, climate change, drought, and a century of fire suppression have created a wildfire crisis that threatens ecosystems and communities. As forests go up in smoke, we are also experiencing the loss of one of our most important natural carbon sinks, at a time when we must rely more and more on natural climate solutions to drawdown carbon.

Excluding fire from landscapes has created the current dangerous fuel loading conditions. Fire exclusion has also deprived forest soils of natural biochar. The amount of charcoal generated by wildfire depends on fire intensity, fire return interval, vegetation type, and fuel loading, but researchers estimate that 10-50% of the carbon found in forest soils is charcoal. Periodic, low-intensity, safe fire provides a regular input of biochar and minerals to rejuvenate forest soils. When we make biochar in the woods from material that is too expensive to haul out for any other use, we are helping to improve forest resilience. Biochar is a form of biomimicry that restores important soil components and helps retain water.



Forests need our help. Biochar is our gift to trees. Please join me and 15 other presenters to learn about our work developing cost effective methods and systems for making biochar at The Biochar in the Woods Workshop. Events takes place online on January 27 and in-person (at locations near Chico, California) on February 1-3. **Here's more information and a registration link.**

SCROLL ALL THE WAY DOWN TO SEE THE LATEST!

MEET A BIOCHAR PRACTITIONER

KAI HOFFMAN KRULL

Forest Health Manager
San Juan Islands Conservation District
Washington

Q How did you get started with biochar?

A I have always been interested in forests and climate change. I grew up in Spokane and loved the outdoors. In college, I studied environmental journalism and took graduate level courses at the Yale School of Forestry. But after graduate school, I was feeling a strong need to apply the knowledge I learned in the academy to hands- on forestry. There seemed to be a big disconnect between the academic world and the realities of implementing regenerative practices on the ground. I purchased undeveloped land here on Washington state's San Juan Islands to homestead and made a big mess felling trees to clear it for a small farm. Some of the local farmers stopped by and said: "What have you done, son?" They were the ones who first told me about biochar. I made a call to Dr. Tom DeLuca, a biochar researcher who taught at the University of Washington at the time, and he ended up working with me and Dr. Si Gao on a series farm biochar trials.

Q Is that collaboration with Dr. DeLuca still going on?

A Yes. We are just finishing up a project looking at the impacts of biochar on forest soils and the growth characteristics of tree saplings. We have found that biochar improves the water holding capacity of our forest soils and also reduces soil basal respiration rate which means that the biochar is helping to stabilize the other, more volatile carbon in the soil. There will be a final report out soon.

Q You have some big biochar forestry projects going on now. How did that come about?

A We have a great need for fuels reduction to address ongoing drought and wildfire threats in San Juan County. In 2020, the San Juan Islands Conservation District launched the Islands Conservation Corps (ICC) to create and train an ecology workforce. This is hard work, so we need

people. What we are doing meets a lot of different conservation objectives such as oak woodland restoration. It also helps protect our communities from wildfire. The electric company, OPALCO, also supports our efforts to clear vegetation along utility corridors — work that we do in partnership with forestry contractor Rainshadow Consulting.

Q What have you been learning?

A My biggest learning this year has been the art of coordinating people. I am getting to experience this fascinating intersection between environmental science and human psychology. Our crew has done an incredible job of coming together as a community, and it's a powerful example of how human synergy also fosters the best work in ecology. Our crew balances field time with taking courses at Western Washington University's College of the Environment, Huxley College. They are studying forest restoration, GIS, biostatistics and things like that. We had 70 applicants for the program and chose only 10. The students get a stipend and 20 free college credits. With this program, they are gaining many valuable skills in chainsaw work, burning practices, planting, riparian zone restoration, all in coordination with their academic coursework. We are bridging that gap between the university and the field.

Q What techniques are you using to make biochar in the woods?

A We use the Conservation Burn Technique. We make standard size burn piles, about 5 feet in diameter. By next year we will have as many as 1,500 piles on different preserves across San Juan County. We light them on the top to get a good flaming combustion going that reduces smoke. Then, we put out the coals at the end to save the char. We have a 1,300-gallon water truck and we use a combination of spraying water and raking. For very remote sites we have five-gallon backpack pumps. One backpack pump can extinguish two piles.

Q What's coming up next for you?

A Next year the ICC program will launch a Master of Arts in Ecological Restoration from Huxley College, so we have opportunities for more research. We are excited to formalize more research in conservation burn practices, and develop a replicated treatment system to get reliable data. We will try separating size classes, different densities, and using a teepee style construction with different angles. We want to weigh some feedstocks so we can get an estimate of biochar production efficiencies. We are also working with DNR to document our practices so that DNR can specify Conservation Burn as a practice. This could lead to reduced permitting costs over conventional burns for those who use the practice.

Read more about Kai Hoffman-Krull and the Islands Conservation Corps here

Hear more from Kai at the USBI Biochar in the Woods Online Webinar and Field Days on January 27 and February 1-3, 2022. **Register here**.

In this season of good cheer, help us continue serving you and still keep USBI dues-free.

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BIOCHAR EVENTS CALENDAR

January 24-27 *Compost 2022 Austin, TX* This US Composting Council Annual Meeting will focus on biochar-amended composts which are emerging as popular products for homeowners and landscapers. Presentations will range from foundations of composting, financing, and the carbon economy to operations and markets, including talks on the USCC Guide to Accepting or Rejecting Compostable Product. Attendees will also have an opportunity to tour a large-scale facility. Here's the **registration link** and more **program information.**

January - February *USBI Biochar in the Woods Seminar Live Webinar (January 27) and Field Days (February 1-3).* This exciting program offers a combination of live, online, and in-field presentations and demonstrations on making and using biochar in place in the forest. Click here for more details and **registration.**

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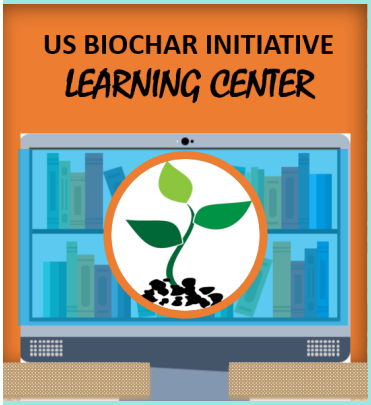
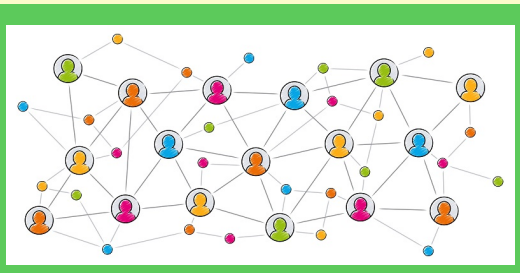




USBI WELCOMES THE HAMAKUA GROUP TO THE DIRECTORY!

The Hamakua Group is a wholesale Hawaii-based wholesaler that distributes biochar for local farm soils application, long-term crop yield increase, and carbon sequestration. With a **USBI biochar directory listing**, customers can find your products or services SO much more easily.

BIOCHAR NEWSLINKS

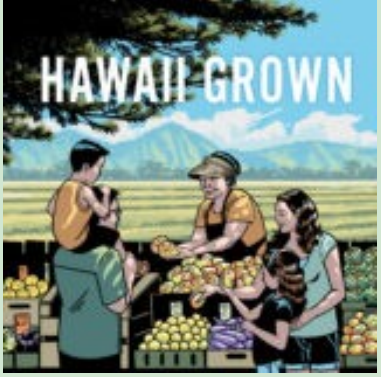
➤ **Biomass to Biochar: Maximizing the Carbon Value.** A collaborative effort between individuals from industry, universities and government has resulted in a report, Biomass to Biochar: Maximizing the Carbon Value. Despite the growing number of studies on biochar, a number of technical, economic and policy barriers have prevented biochar from realizing its full potential. This roadmap proposes strategic investments to address these barriers.

In Central Washington, biochar from orchard waste is applied to a commercial orchard during tree planting to improve soil health - just one biochar application addressed by the roadmap. »

➤ **Betting on Biochar to Drawdown Carbon.** Investors are increasing interested in companies like Carbo Culture that trust nature to do the job. Henrietta Moon explains how Carbo Culture makes biochar for carbon drawdown, and the exciting new opportunities in climate investment.

➤ **Biochar Is Egg-Zactly What Hawaii Needs.** To reduce its dependence on imported eggs, Hawaiian chickens need to lay more eggs. A new facility of about 200,000 chickens sold its first 900 dozen eggs last week. Covered in solar panels, the facility's water comes directly from its own well and the chicken manure is turned into biochar to be returned as nutrients for farmers across the state.

➤ **No More Baby Steps: How Society Can Adapt to a Changing Climate.** Just under two years after the University of British Columbia Board of Governors declared a climate emergency, researchers convened to share their work. Dr. Mark Johnson's research focuses on increasing the amount of carbon stored in soil



every year through the use of biochar.

. ➤ **Canadian Climate Corp Contemplates Carbon for Permaculture.** Gregoire Lamoureux of Kootenay Permaculture is teaching young Climate Corp members how to analyze a forest site for growing perennial native berries and herbs. “The permaculture approach is not to clear the land and plant whatever you want,” Lamoureux says, but [work with] what is already there that we want to conserve.” The next step will be learning how to make biochar.

Gregoire Lamoureaux (center) trains members of the Youth Climate Corps at the Bannock in Bloom site in British Columbia, Canada.

➤ **Re-learning Self-Reliance in Menominee Country.** Indigenous chefs and their fans reviving native food traditions have discovered biochar in ancient garden beds used to grow flint corn. Pre-colonization, the Menominee lived across central Wisconsin, but when the Menominee were forced off that land and confined to their current territory, a lot of agricultural land was lost.

➤ **The Wonders of Hemp Include Biochar.** Heather Grab is Senior Lecturer at Cornell University’s School of Integrative Plant Science in New York where she teaches and mentors students in the Hemp Science Master’s Program. Biochar is just one of the amazing products she can produce from hemp.

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