Biochar On Site

# Char Talk

WITH JOHN WEBSTER, KELPIE WILSON & KORINA STARK

Friday, APRIL 18, 2025
12:00-1:00 PM CST

MINNESOTA BIOCHAR INTITIATIVE

Host - Jim Doten

BiocharOnSite.org

This conversation was recorded.
The recording and a PDF of presentation
were shared to participants via email.

BiocharOnSite.org

# Kelpie Wilson

Author of The Biochar Handbook, Chelsea Green, June 2024

Manufacturer of Ring of Fire Biochar Kiln®

Teacher, Practical Biochar Course at Regenerative Living Online

Chair of the US Biochar Initiative (USBI) Biochar in the Woods Committee

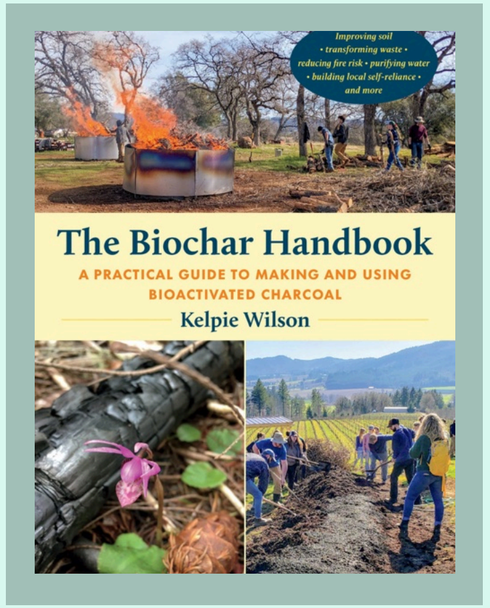
Biochar Consultant since 2012 – technology assessment, market analysis, biochar kiln development, workshops and training, biochar kiln manufacturing and sales

Project Developer for International Biochar Initiative 2008-2012

Executive Director (and other roles) Siskiyou Regional Education Project (forest protection advocacy) 1991 - 2003

BS in Mechanical Engineering, CSU, Chico

Home Gardener feeding two families




RING OF FIRE BIOCHAR KILN®
WILSON BIOCHAR, LLC
RING OF FIRE.EARTH

RingOfFire.Earth

WilsonBiochar.com

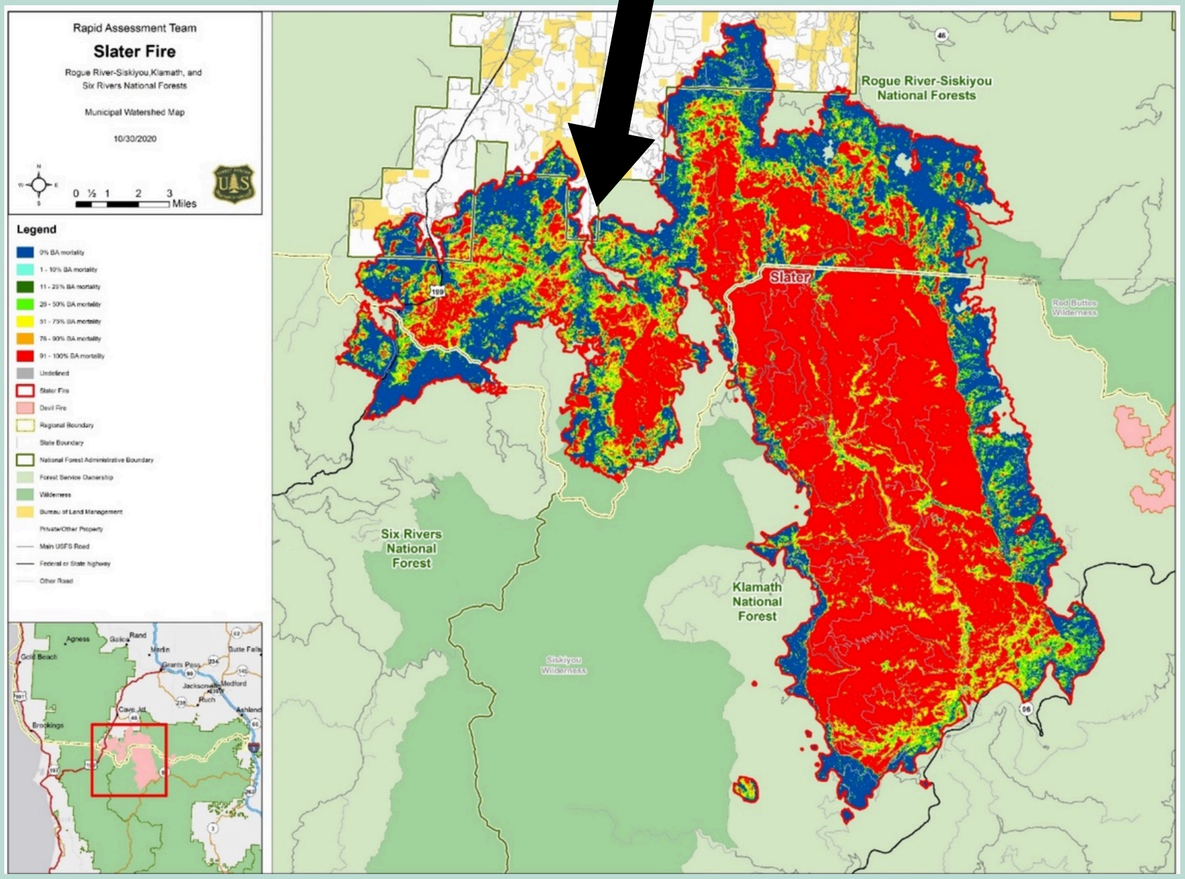
PRACTICAL BIOCHAR
REGENERATIVE LIVING

# Three Kinds of Biochar

- **Market biochar** that includes all of the possible uses of biochar that someone will pay for, including soil amendments and products
- **Subsistence biochar** that is biochar that farmers, gardeners, and homesteaders make for their own use
- **Stewardship biochar** that is produced on site, on the land, for use in place to solve various environmental problems

# Megafires are de-foresting the West

I live here




## 2020 Slater Fire

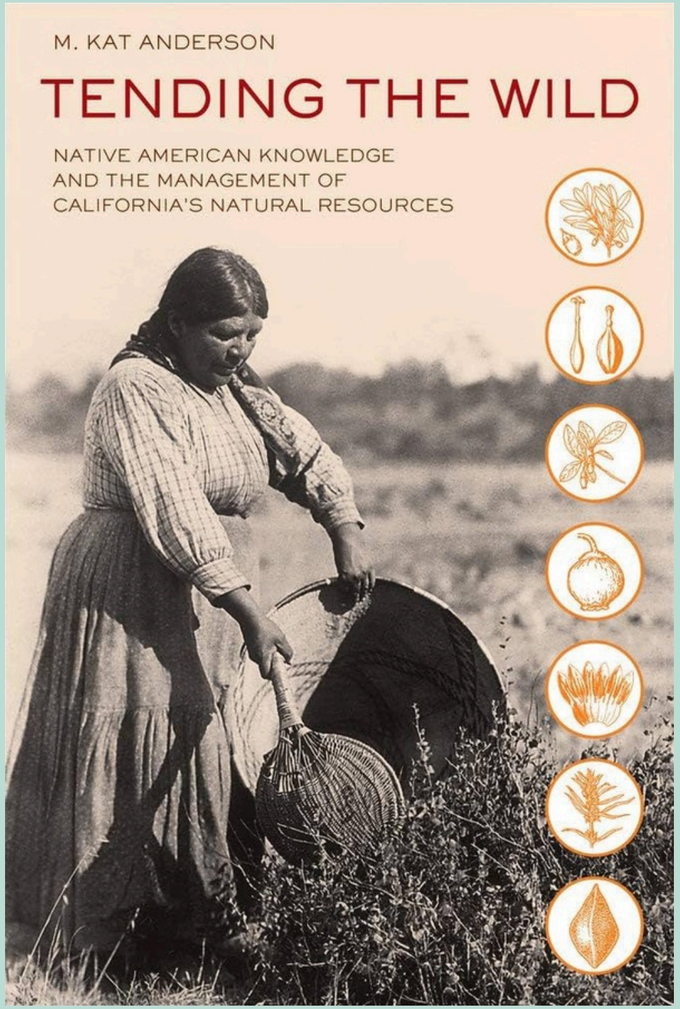
## 157,000 Acres

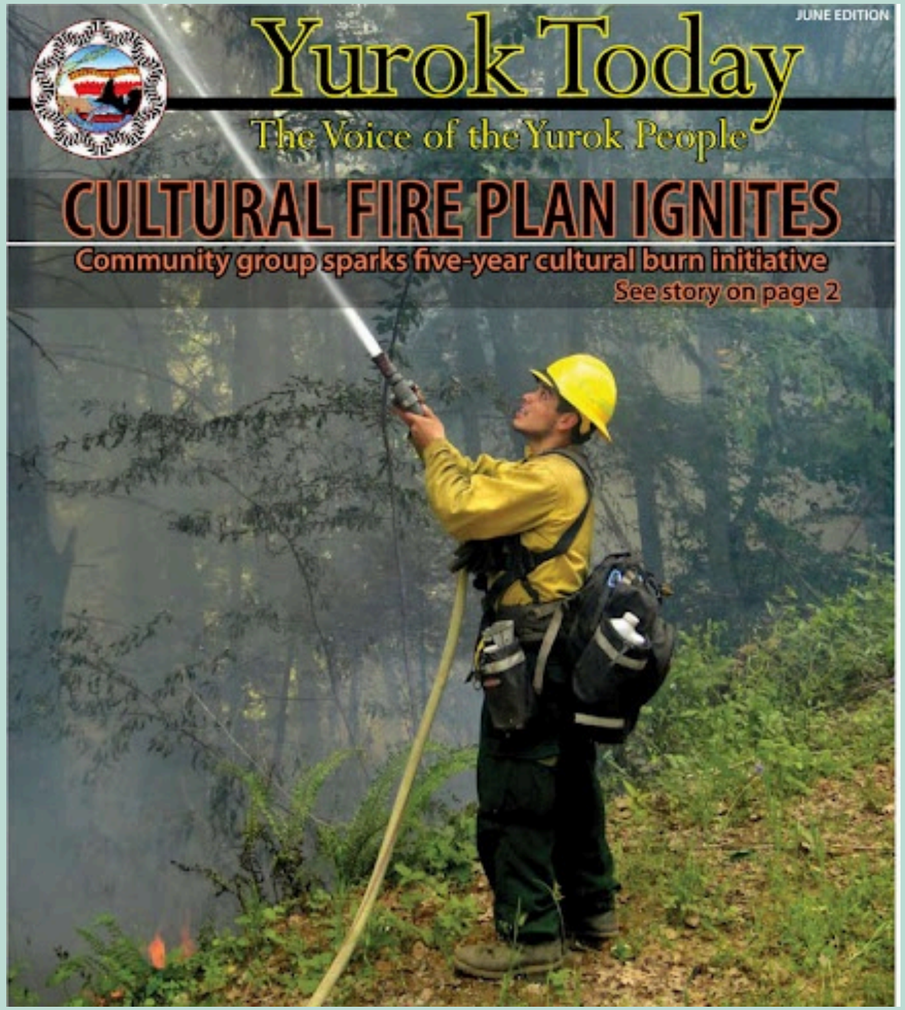
PRACTICAL BIOCHAR
REGENERATIVE LIVING

# Forests need to burn

- Aggressive fire suppression has created dangerous, unhealthy conditions
- Some forests have not seen any fire in more than 100 years
- Before Europeans came, forests burned every 10–20 years.

# Traditional ecological knowledge shows the way to make our forests healthy again



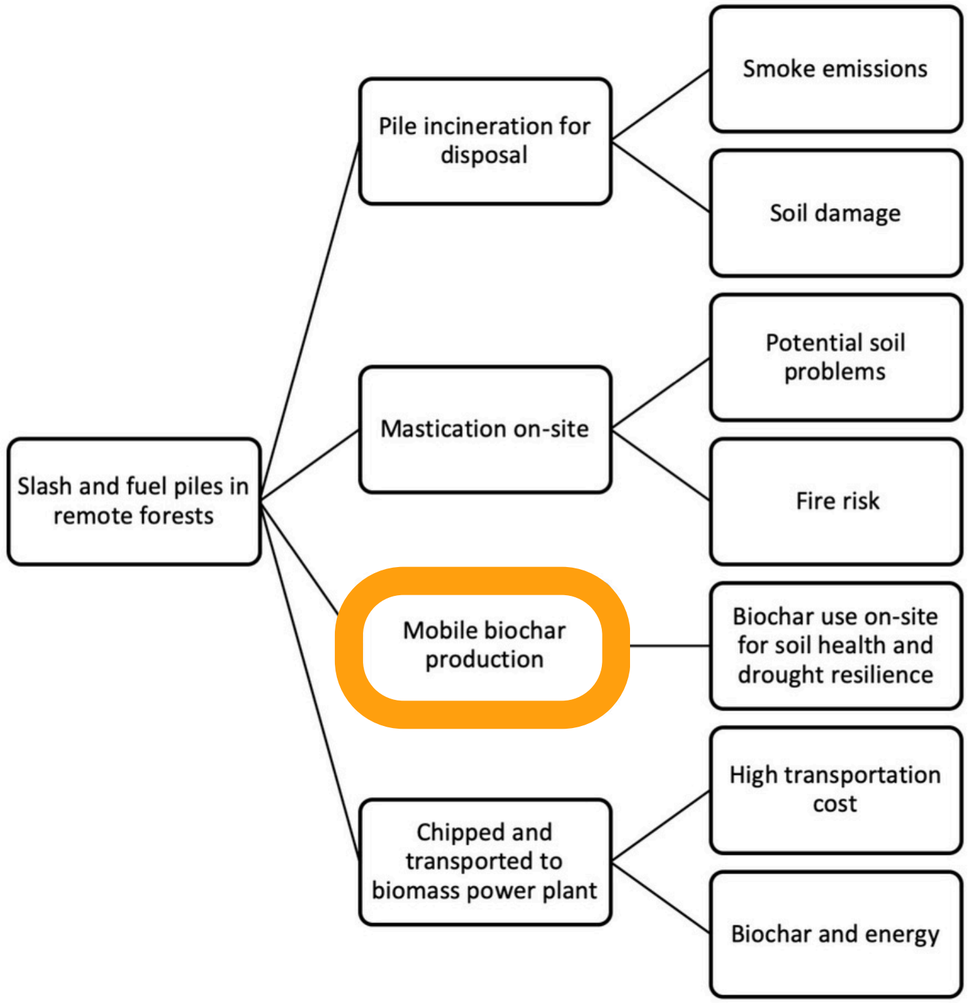



# But we need to reduce fuel loads first

Before we can return to traditional cultural burning we need to remove thick undergrowth first.

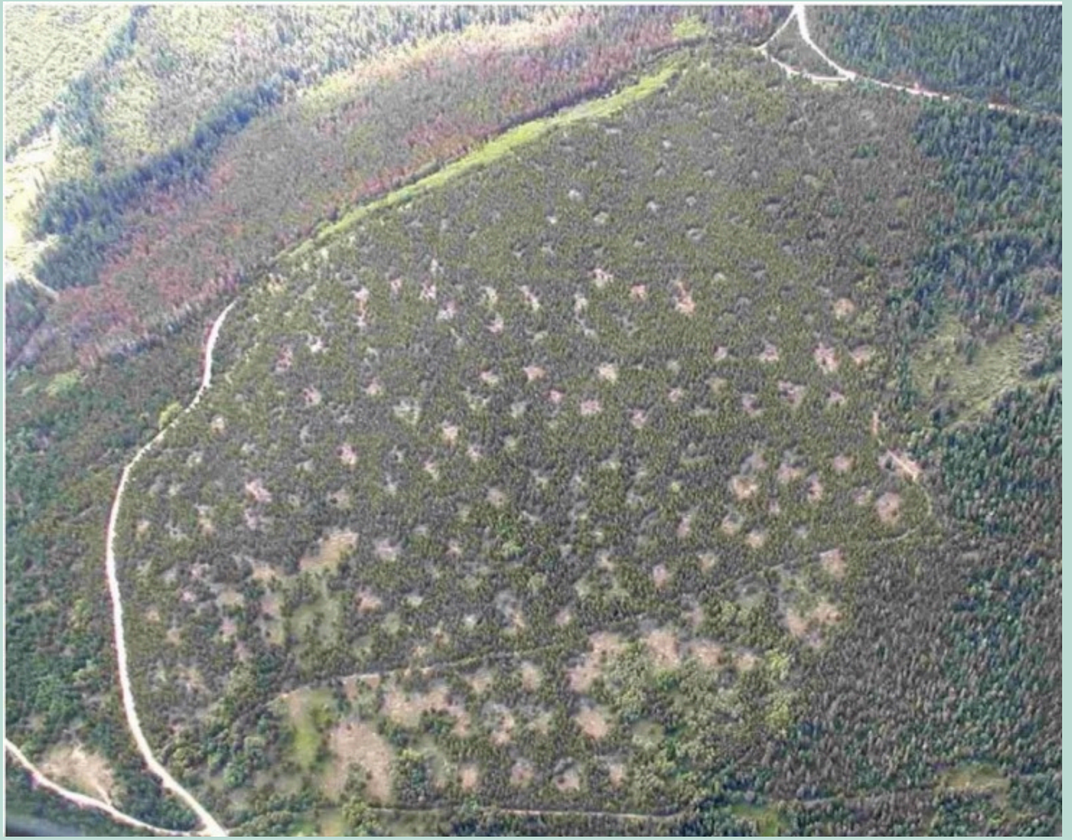
This is a huge job!

# Fates of Forest Slash:



# Current Practice: Pile Burning to Ash

Smoke can be intense



Burn pile scars are long-lasting

# Conventional Burn vs. Biochar Burn

- Conventional Burn: Flame under cold biomass makes smoke
- Biochar Burn: Light on top – heat transfers to pile by radiation
- Flame on top burns smoke

# A Typical Job: Light all the piles

# Burn till you have a heap of glowing coals

IF WE DO NOTHING, IT ALL BURNS TO ASH AND LEAVES A BURN SCAR, DESTROYING THE ORGANIC SOIL UNDERNEATH

# Spray and rake thin to lose heat

# 15 gallons of biochar for the garden

Another five gallons left for the forest soil

# Biochar Conservation Burn Saves Soil

Conventional Burn is hot, sterilizing soil. Nothing will grow for a long time.

---

Biochar Burn is cooler and char protects the soil. New life sprouts in the spring.

# Native seed planting – where there is char, there is germination

# Biochar holds moisture in soil

Biochar burn pile treatment with Oregon Department of Forestry, December 2022



Soil moisture in untreated areas vs. biochar patches. Five samples in each type measured in January 2025.

- **Average soil moisture in untreated areas: 3.5%**
- **Average soil moisture in biochar patches: 5.6%**

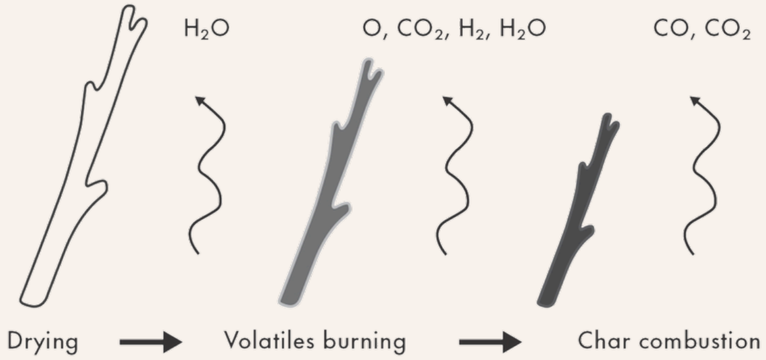
# Flame Carbonization – A form of Pyrolysis

## Making biochar in an open flame

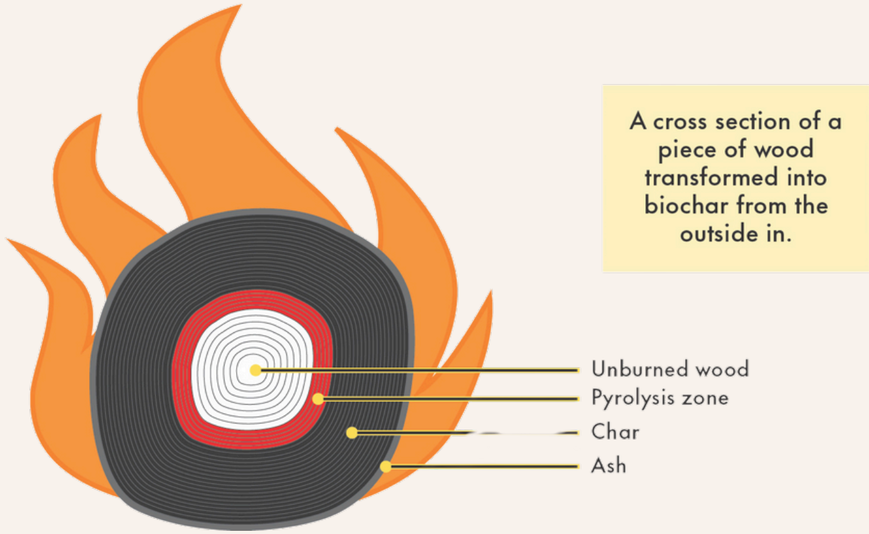
Drying

Devolatilization

Char combustion




Don't forget! To make char, the process must be stopped before ash.




A cross section of a piece of wood transformed into biochar from the outside in.

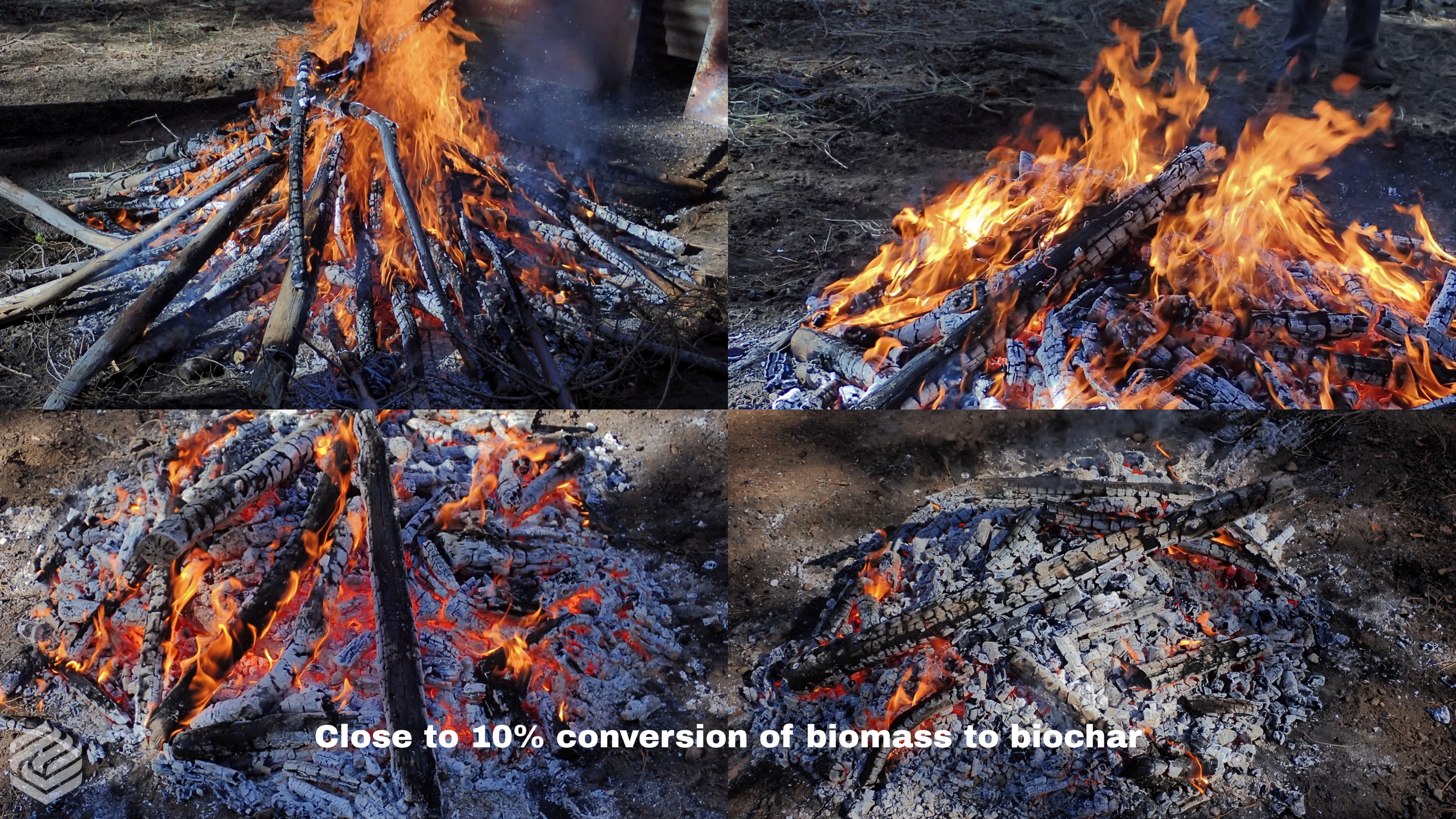
- Biomass burns in 3 stages.
- To make char, stop the process before it goes to ash
- Small pieces char more efficiently than large pieces

PRACTICAL BIOCHAR
REGENERATIVE LIVING
WILSON BIOCHAR

It takes time for heat to penetrate into a large log

# Building better piles: Tipi Style Piles are best

1. Stack larger logs around a compressed pile of smaller stuff
2. Helps big logs dry faster
3. Big logs fall inward as they burn, keeping the pile together
4. Big logs hold in heat for faster, cleaner, more efficient burn


Close to 10% conversion of biomass to biochar

# A Flame Cap Kiln converts 15%-20% of wood into biochar

# Citizen Science program leads to development of a new NRCS practice – Biochar Production from Woody Residue

Flame Cap Kilns and Flame Carbonization techniques were developed under NRCS Conservation Innovation Grant

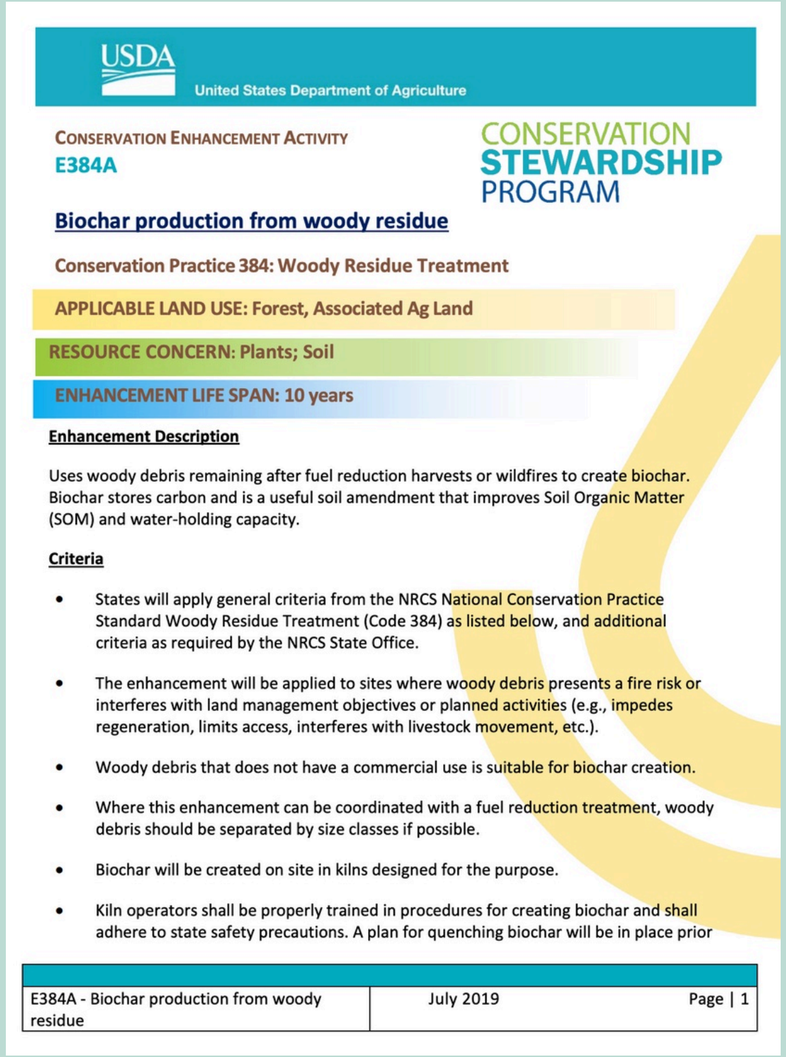
Grantee Name: South Umpqua Rural Community Partnership
Project Title: **On-Farm Production and Use of Biochar for Composting with Manure**

UBET: Umpqua Biochar Education Team

**Jim Long – founder of UBET**

*In Memoriam, 1935-2016*

***"He surveyed the area, saw where he could contribute, and did so."***



USDA United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY
E384A

CONSERVATION STEWARDSHIP PROGRAM

**Biochar production from woody residue**

Conservation Practice 384: Woody Residue Treatment

APPLICABLE LAND USE: Forest, Associated Ag Land

RESOURCE CONCERN: Plants; Soil

ENHANCEMENT LIFE SPAN: 10 years

**Enhancement Description**

Uses woody debris remaining after fuel reduction harvests or wildfires to create biochar. Biochar stores carbon and is a useful soil amendment that improves Soil Organic Matter (SOM) and water-holding capacity.

**Criteria**

- States will apply general criteria from the NRCS National Conservation Practice Standard Woody Residue Treatment (Code 384) as listed below, and additional criteria as required by the NRCS State Office.
- The enhancement will be applied to sites where woody debris presents a fire risk or interferes with land management objectives or planned activities (e.g., impedes regeneration, limits access, interferes with livestock movement, etc.).
- Woody debris that does not have a commercial use is suitable for biochar creation.
- Where this enhancement can be coordinated with a fuel reduction treatment, woody debris should be separated by size classes if possible.
- Biochar will be created on site in kilns designed for the purpose.
- Kiln operators shall be properly trained in procedures for creating biochar and shall adhere to state safety precautions. A plan for quenching biochar will be in place prior

E384A - Biochar production from woody residue | July 2019 | Page | 1

# Umpqua Biochar Education Team (UBET)

We made 70 cubic yards of biochar during the two year project.

NRCS Conservation Innovation Grant 2015 - 2017

PRACTICAL BIOCHAR
REGENERATIVE LIVING
WILSON BIOCHAR

# The Oregon Kiln

Dimensions: 5 foot top base; 4 foot bottom base, 2 feet high

# The Ring of Fire Kiln from Wilson Biochar

Made in the USA. Manufactured in Jackson County, Oregon


RingOfFire.earth

**Limited time! Get your Ring of Fire Biochar Kiln for $1,995 – including shipping to most domestic locations!**

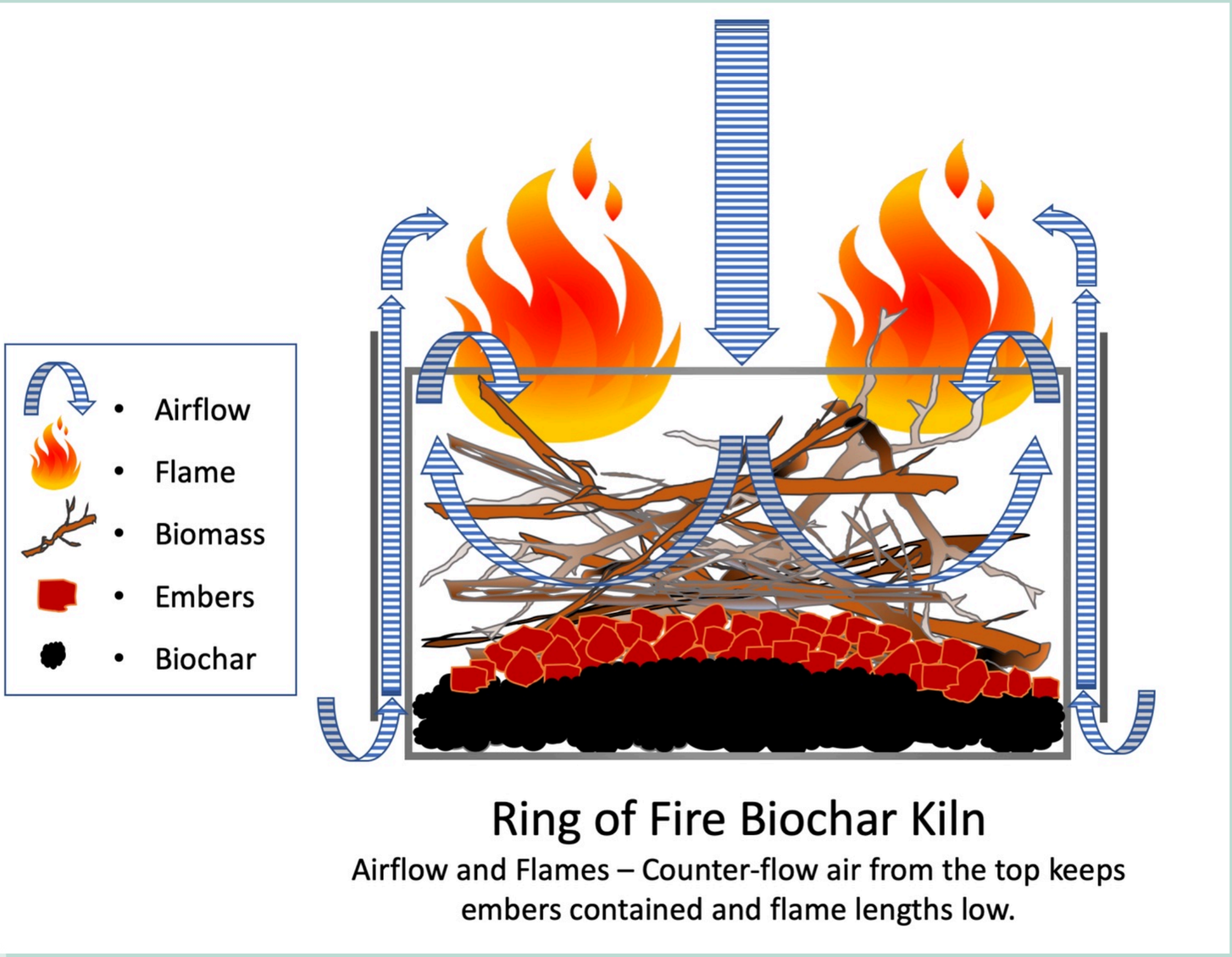
- Efficient, low-smoke biochar production
- Portable & easy-to-use - quick assembly
- 12 panels that fit in the back of an SUV
- 7.5 foot diameter ring with 5.3 cy volume
- Makes 2-3 cubic yards of biochar in 4-5 hours of burn time
- Perfect for farmers, foresters, & landowners
- Turn slash piles into soil-building, water-holding Biochar

PRACTICAL BIOCHAR
REGENERATIVE LIVING

# Ring of Fire Process

Production Process:

1. Initial Loading
2. Lighting
3. Continual Loading
4. Quenching and Unloading

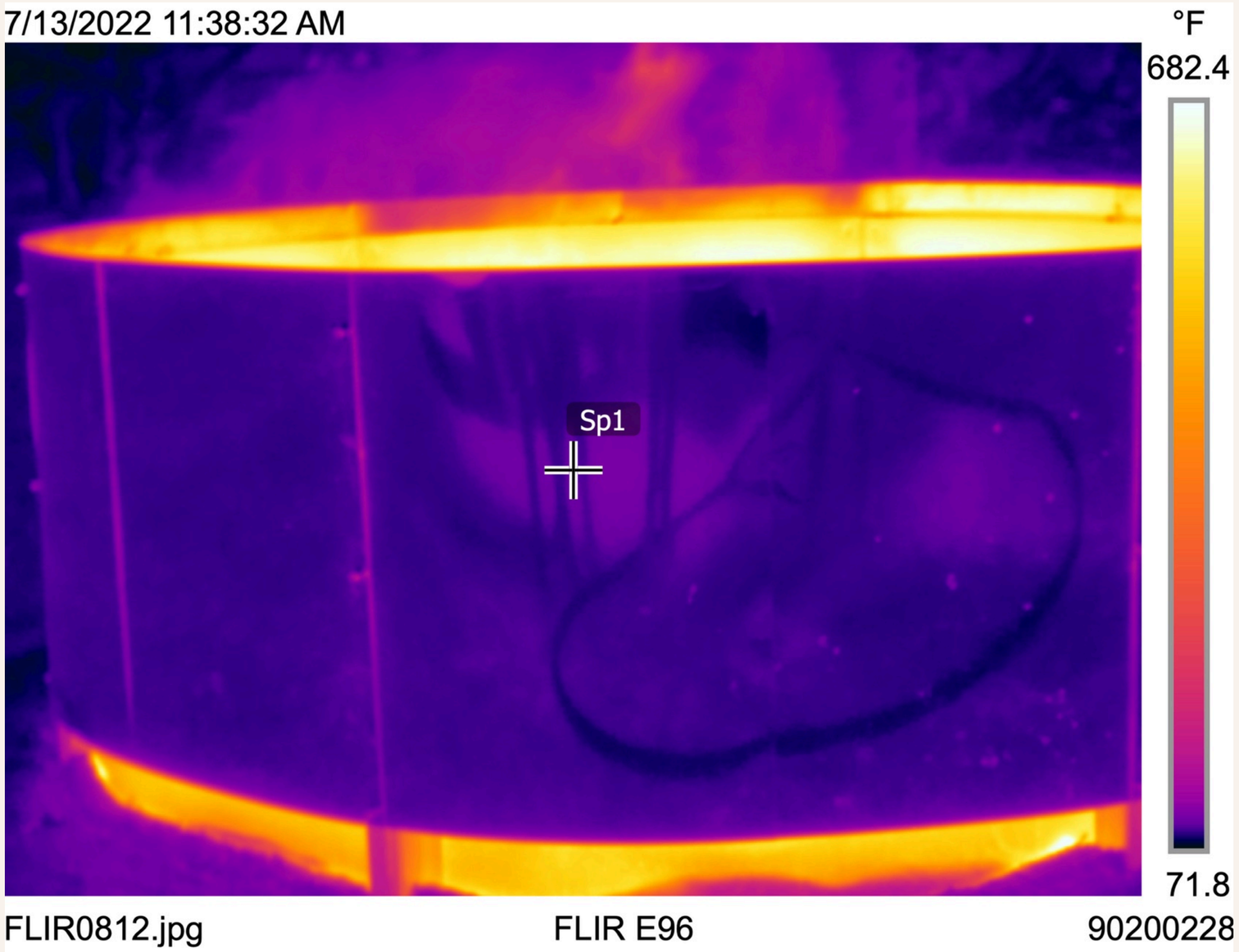



Ring of Fire Biochar Kiln

Airflow and Flames – Counter-flow air from the top keeps embers contained and flame lengths low.

# How the Ring of Fire Works


Ring of Fire Kiln
Burns Smoke
PRACTICAL BIOCHAR
REGENERATIVE LIVING
WILSON BIOCHAR




# Heat Shield Improves Efficiency

PRACTICAL BIOCHAR
REGENERATIVE LIVING
WILSON BIOCHAR

# Big Box in Utah

Big Box Kiln designed by Darren McAvoy for Utah State University – with 25 cy capacity

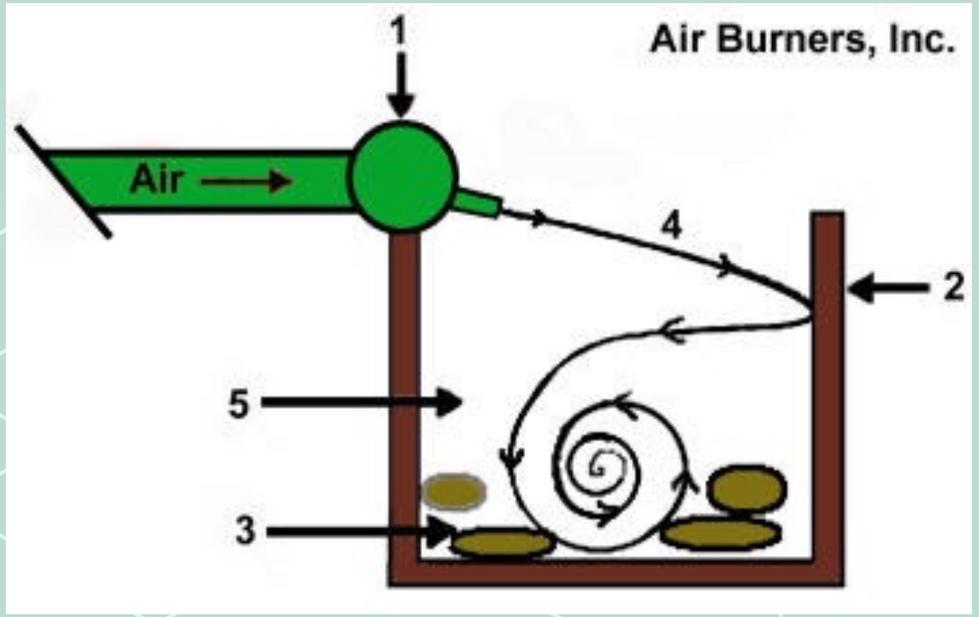

darren.mcavoy@usu.edu 435-797-0560 - www.usu.edu/ubrg


BB12 kilns adopted in
Utah, Colorado, California, Montana, Texas, Wisconsin,
New York, Massachusetts (Harvard University), Alaska
Minnesota, Alberta, Saskatchewan, Indonesia, Ireland


PRACTICAL BIOCHAR
REGENERATIVE LIVING
WILSON BIOCHAR

# Air Curtain Burner – active counterflow

- Active countercurrent flow using a blower
- Designed for complete incineration, not biochar
- To make biochar, turn off the blower



# Biochar On Site Technologies – Results from USFS General Technical Report – We looked at 8 different methods:

## Conservation Burn Piles

Hand piles

Machine piles

## Flame-cap Kilns

Ring of Fire Kiln®

Oregon Kiln

Utah Big Box Kiln

## Air Curtain Burners

Tigercat 6050

CharBoss®

Burnboss®


From: Wilson, Kelpie; Bekker, Wihan; Archuleta, James; McAvoy, Darren; Page-Dumroese, Deborah. 2024. Mobile biochar production by flame carbonization: Reducing wildfire risk and improving forest resilience. Gen. Tech. Rep. RMRS-GTR-439. Fort Collins, CO: U.S. Department of Agriculture, Rocky Mountain Research Station. 91 pp. https://doi.org/10.2737/RMRS-GTR-439.


# Mobile Biochar Production USFS General Technical Report

Comprehensive technical analysis of the opportunity to make biochar on site for forest health

From: Wilson, Kelpie; Bekker, Wihan; Archuleta, James; McAvoy, Darren; Page-Dumroese, Deborah. 2024. Mobile biochar production by flame carbonization: Reducing wildfire risk and improving forest resilience. Gen. Tech. Rep. RMRS-GTR-439. Fort Collins, CO: U.S. Department of Agriculture, Rocky Mountain Research Station. 91 pp. https://doi.org/10.2737/RMRS-GTR-439.

# Scaling OUT biochar production:
# Who is using the Ring of Fire Kiln?


| Ring of Fire Kilns Customer Distribution US and Canada - Q4 2020 to Q1 2025 | |
|---|---|
| Commercial Timber Company | 2 |
| Contractor/Arborist | 32 |
| Federal Agency | 4 |
| Fire Agency | 7 |
| Municipality | 2 |
| NGO | 20 |
| School | 16 |
| Small Farm | 82 |
| Small Woodland | 46 |
| State Agency | 11 |
| Tribe | 5 |
| Watershed Group | 14 |
| **Total Customers** | **241** |
| Total Kilns Sold | 343 |

# Grayback Foresty implements NRCS-funded Biochar Project

PRACTICAL BIOCHAR
REGENERATIVE LIVING

# Napachar – Biochar Service Business for Vineyards

Napachar.com

In 2024, Napachar turned more than 50 acres-worth of dead grape vines into more than 250 cubic yards (50 dry tons) of high quality biochar. Estimated 100 tons of CO2 sequestered. instagram.com/napa.char

# Bureau of Land Management makes biochar

Photos courtesy of Ashley Durham, Bureau of Land Management, Dillon, MT

# Illinois Valley Conservation District

Ring of Fire Kiln loaner program. Kilns available to local residents who want to manage fuels on their properties.

# Howard Eco Works

**Lori A. Lilly, CEP, CBLP** · 1st
Founder and Executive Director at Howard ...
1d · Edited ·

Yesterday I had the pleasure of leading a great community #biochar burn at the Claymont Retreat Center in Charles Town, WV with Kelpie Wilson 's Ring of Fire kiln. It was a great demonstration of the value of integrating biochar production with land management and invasive species management strategies. Claymont has 300 acres of land that they steward and were very excited about the potential to add this to their ecological management toolbox. Howard EcoWorks was also using the opportunity to produce a video - stay tuned! Thank you to folks from Center for Watershed Protection, Chesapeake Bay Trust, West Virginia DEP, Potomac Valley Audubon Society and private landowners that attended! Special kudos to my husband Dave Sigrist who is always my best ...more

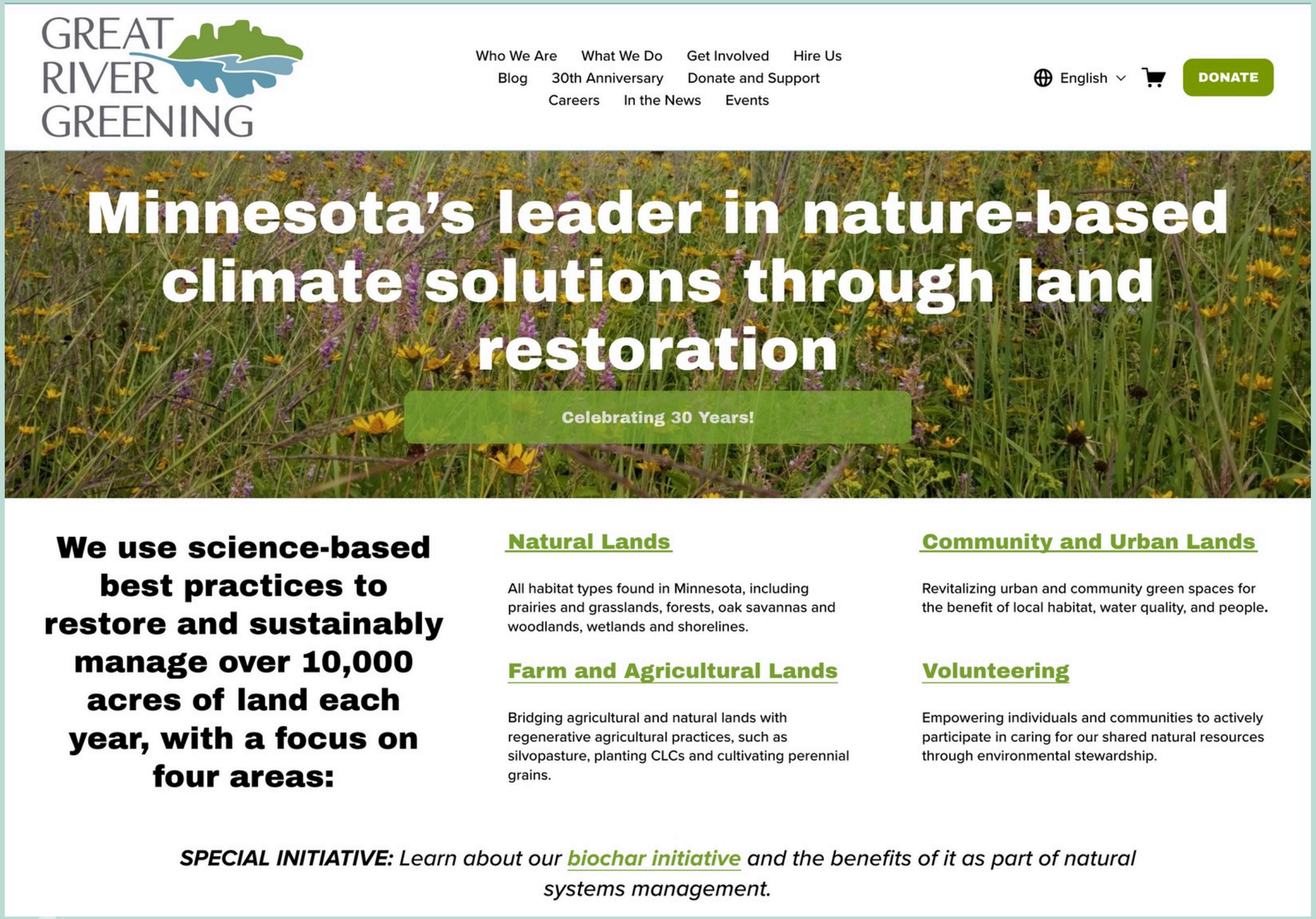
Paul Sturm and 8 others

Like Comment Repost Send

Add a comment...

HOWARD ECOWORKS

## Maryland ecological restoration group uses biochar kilns




**Great River Greening**

# Minnesota ecological restoration group uses biochar kilns

ON-DEMAND SERVICES BY TRAINED CREW: Hire our Greening Solutions crew! Working with your schedule, our trained crew implements the process efficiently and effectively.


# Milestone:

- Most municipalities hesitate to allow burning in city limits
- Nevada City, CA is doing a test of the Ring of Fire Kiln
- Ring of Fire is safe, clean and quiet, compared to chippers
- Also cheaper!
- And makes biochar!

Oregon Department of Forestry Crew assembles Ring of Fire kiln

# Addressing Barriers to Biochar On Site

- Demonstrate benefits of BOS
- Develop workable permitting systems
- Find funding to pay for the work
- Train and employ the BOS workforce
- Build robust networks to capture opportunities

# Measuring Emissions

# Flame carbonization emissions much lower than conventional burn piles and wildland fires

**Table 9—**Emission factors (grams per kilogram dry biomass) for wildfires, burn piles, flame-cap kilns, and air curtain burners.

| Type | PM10 | PM2.5 | Nitrous oxide (NOx) | Methane (CH4) | Carbon dioxide (CO2) | Carbon monoxide (CO) | Source |
|---|---|---|---|---|---|---|---|
| Wildland fire | — | 23.2 | 2.00 | 7.3 | 1,600 | 135.0 | Urbanski 2014 |
| Burn pile, flaming | 4.0 | — | — | 1.0 | — | 28.0 | Springsteen et al. 2011 |
| Burn pile, smoldering | 7.0 | — | — | 8.5 | — | 116.0 | Springsteen et al. 2011 |
| Burn pile, dry | — | 4.5 | — | 1.1 | 1,785 | 29.0 | Aurell et al. 2017 |
| Burn pile, wet | — | 18.0 | — | 5.7 | 1,689 | 82.0 | Aurell et al. 2017 |
| Slash pile burn | 4.4 | 3.9 | 2.50 | 4.5 | 1,690 | 65.3 | Puettmann et al. 2020 |
| Flame-cap kiln | 1.3 | — | 0.14 | 2.6 | 780 | 2.6 | Puettmann et al. 2020 |
| Large air curtain burner | — | 0.6 | — | 0.7 | 1,808 | 1.3 | Susott et al. 2002 |
| BurnBoss® air curtain burner | 2.1 | — | 1.00 | 0.3 | — | 7.1 | Montrose Air Quality Services 2023 |

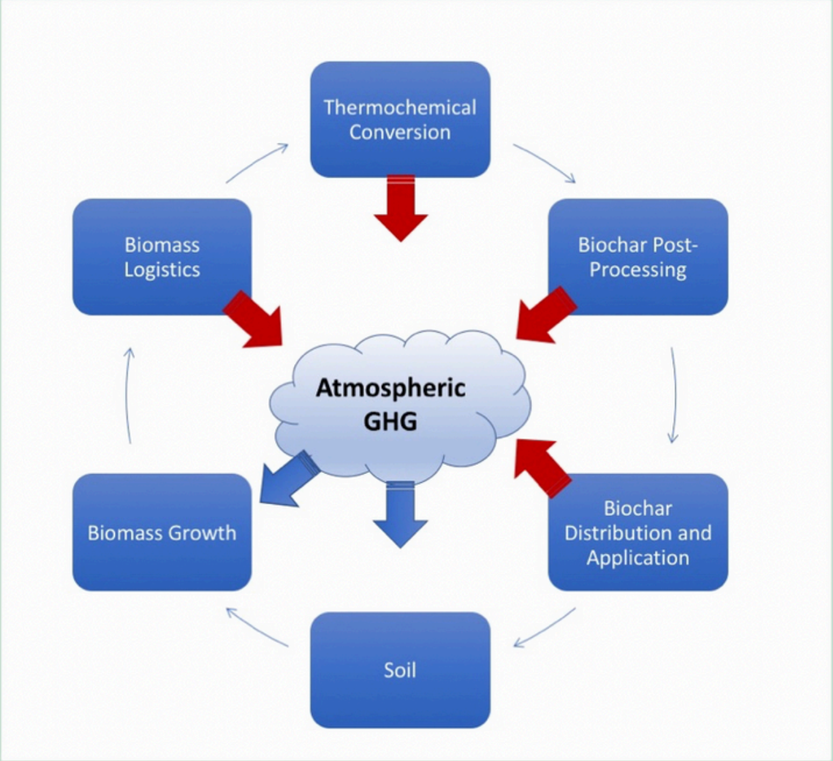
— Indicates no data.

From: Wilson, Kelpie; Bekker, Wihan; Archuleta, James; McAvoy, Darren; Page-Dumroese, Deborah. 2024. Mobile biochar production by flame carbonization: Reducing wildfire risk and improving forest resilience. Gen. Tech. Rep. RMRS-GTR-439. Fort Collins, CO: U.S. Department of Agriculture, Rocky Mountain Research Station. 91 pp. https://doi.org/10.2737/RMRS-GTR-439.

# What is the total Carbon Footprint? Life Cycle Assessment is Required

WASTE TO WISDOM

**LIFE CYCLE ASSESSMENT OF BIOCHAR FROM POST-HARVEST FOREST RESIDUES**

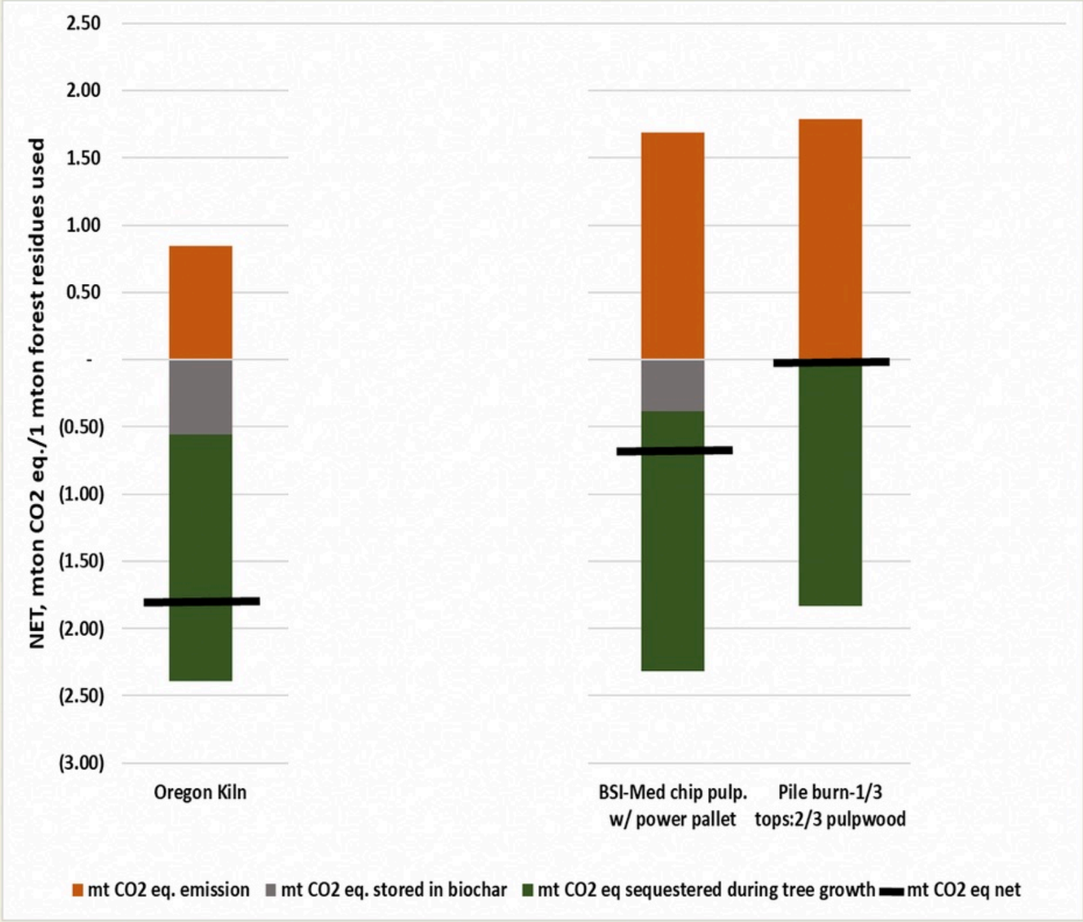



Puettmann, M., Wilson, K., & Oneil, E. (2017). LIFE CYCLE ASSESSMENT OF BIOCHAR FROM POST-HARVEST FOREST RESIDUES. *Waste to Wisdom: Subtask*, *4*.

**Report available at WilsonBiochar.com**

# GHG Impact of Biochar Production


Oregon Kiln




Puettmann, M., Wilson, K., & Oneil, E. (2017). LIFE CYCLE ASSESSMENT OF BIOCHAR FROM POST-HARVEST FOREST RESIDUES. *Waste to Wisdom: Subtask*, *4*.

# CHARR App for reliable data and to unlock Carbon or other forms of Funding

Whether in carbon markets, insurance risk assessment, government funding disbursements, or product lifecycle analysis, organisations require credible, transparent, and auditable data to demonstrate environmental and social outcomes.

The CHARR App helps teams on the ground by providing guidance on what data to collect, when, how and where, which helps these teams focus on their work and not worry about what data they need to collect.


Use the CHARR app for Digital Monitoring, Reporting and Verification (D-MRV) to:

- track all your biochar production data for
  - Ring of Fire
  - Conservation Burns
  - Also custom D-MRV Protocols for clients with new technologies
- Generate reports
- Use reports for compliance with certifications
  - Organic or Biodynamic Farming
  - Carbon Certifications
- Unlock carbon funding via
  - Carbon markets
  - Federal, State, county or municipal level
  - Grant funding

PRACTICAL BIOCHAR
REGENERATIVE LIVING

# Biochar On Site (BOS) Network

## Join us!

- Monthly On-line Meetup
  - First Wednesday at Noon Pacific
- New website: BiocharOnSite.org

PRACTICAL BIOCHAR
REGENERATIVE LIVING
WILSON BIOCHAR

# Program Vision & Infrastructure

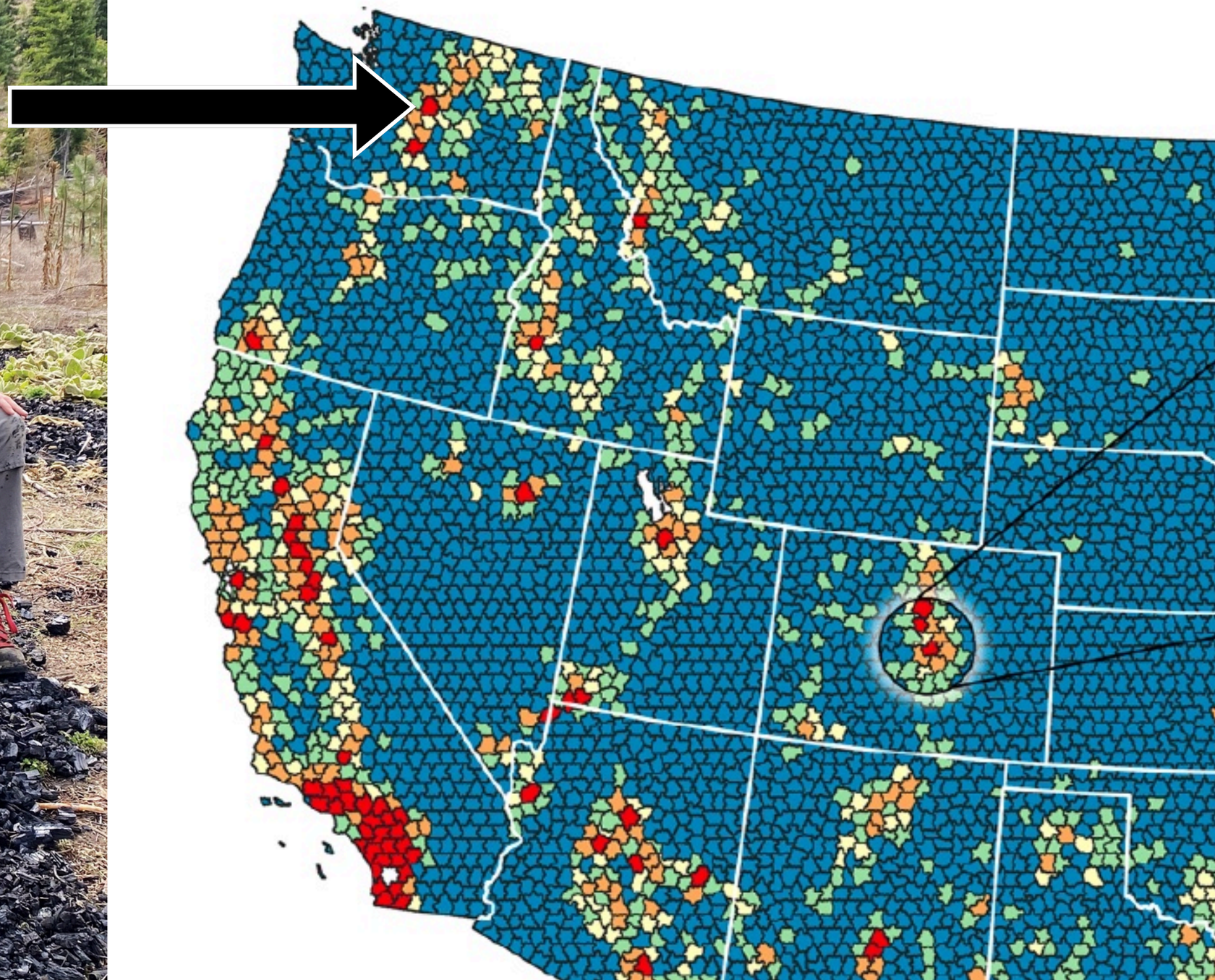
Korina Stark
Program Director

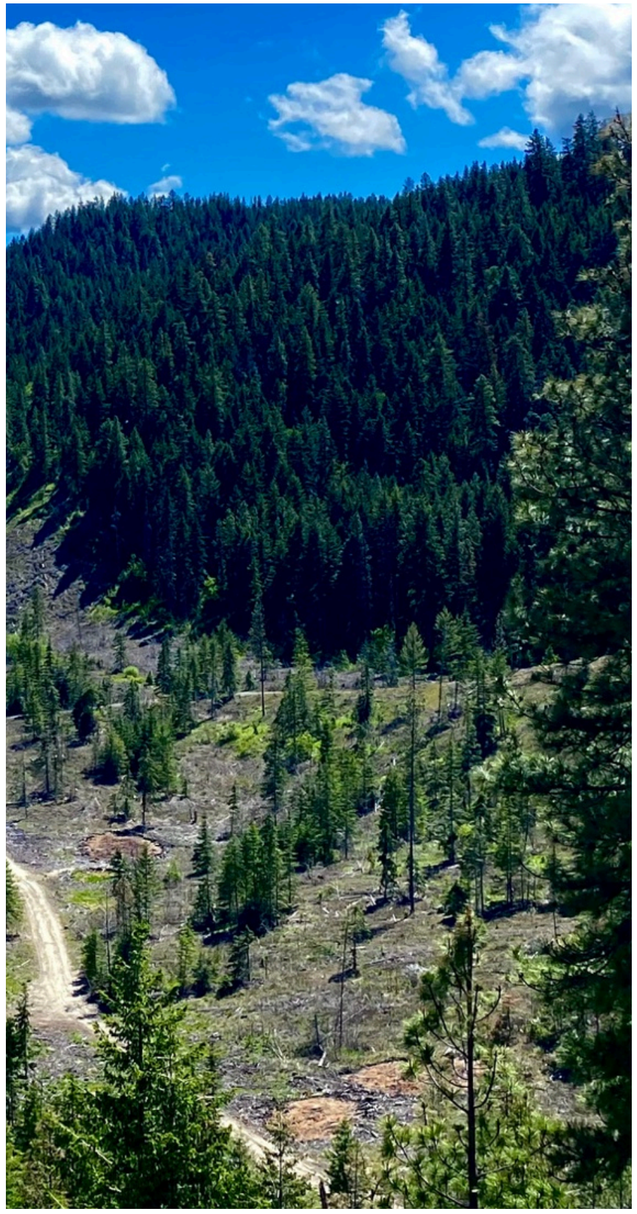
## What we're building together

- What's a Community of Practice?
- Mission, Vision & Values
- Current & Evolving Tools
- How to Join, Participate & Contribute

Biochar On Site

BiocharOnSite.org





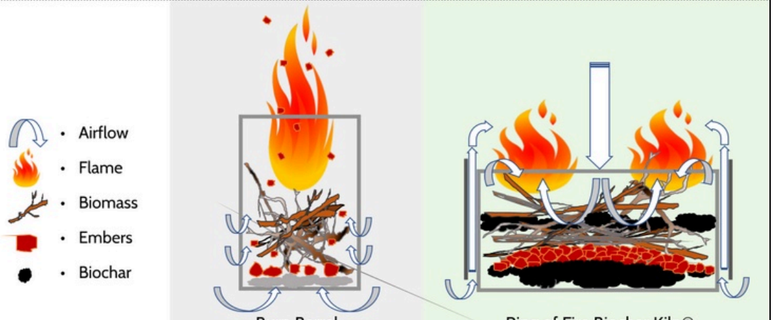
House Environment & Energy

**February 19, 2024, 1:30 pm - House Hearing Rm C and Virtual**


## Are Flame-cap Kilns the same as Burn Barrels? **NO.**

A quick explainer in support of SSB 6121

| Six key differences to know about: | Burn Barrels | Flame-cap Kilns |
|---|---|---|
| #1 - What is the intent of use? | Get rid of **trash** and convert it to **ash**. | Create as much high quality **biochar** as possible.<br>Biochar, in addition to sequestering carbon, is a high-value soil amendment. |
| #2 - What inputs are put into the vessel? | Typically **trash** - which could include anything, including plastics.<br>This a big part of why they're illegal. | **Clean biomass** from forestry or agricultural activity, such as wood, brush, and crop residue - the same materials that are regulated as part of **legal** open pile burning.<br>There's a big incentive to use clean material that will positively impact the quality of the biochar. |
| #3 - What are typical designs of these vessels? | Tall & narrow, typically using a 55 gallon drum.<br>**Air holes** around bottom and base. | Wider than tall, **purpose-built** for biochar production.<br>**Completely sealed around the bottom** by soil or metal. |
| #4, 5 - What impacts do air flow and flame caps have on carbon sequestration, air quality, and emissions? | With **co-current** air flow, **sparks and embers** from incinerating trash rapidly move from the bottom, up and out of the burn barrel, thanks to the constant supply of **fresh air through the bottom**.<br>Oxygen & carbon meet, join as $CO_2$ and escape with other **greenhouse gasses** like **methane**. | With **counter-current** air flow, the fire burns at the **top of the kiln** creating a **vortex**; **little oxygen** makes its way inside.<br>Low oxygen + high temperatures enable **pyrolysis**, where **durable biogenic carbon** manifests in **biochar** and collects at the bottom of the kiln.<br>The **flame cap burns off combustibles** like methane, plus most smoke & embers resulting in a cleaner burn and lower emissions. |
| #6 - How does the process end? | When the people doing the burn believe that the burn barrel is safe to leave.<br>Spoiler alert: it's often still burning. | When the flames have subsided and hot coals remain, the biochar is **quenched with water to stop the burn** and then raked out to cool it quickly, **ensure there are no hot spots**, prevent the transition to ash, and maximize the volume of valuable biochar from the batch. |




Illustrations courtesy of wilsonbiochar.com

**Burn Barrel**
Airflow and Flames – air from the bottom transports embers out of the barrel

**Ring of Fire Biochar Kiln®**
Airflow and Flames – Counter-flow air from the top keeps embers contained and flame lengths low.

***Let's get SSB 6121 to the Governor's desk!***

# BIOCHAR AND BURN-PILE WORKSHOP

## PREPARE FOR WILDFIRE AND GARDEN SEASON

Join us up the Chumstick to learn how to turn your woody debris from creating defensible space or prunings into a valuable soil amendment, while also sequestering carbon, and limiting smoke in the air.

**APRIL 27TH**

Kiln Loading: 10 am
Ignition: 11 am
Burn-pile Building Session: 12 pm
Kiln Quench: 3 pm
Wrap up: 4 pm

Register here
https://tinyurl.com/biocharworkshop

- Come learn about different types of biochar kilns and their application in managing woody debris.
- Learn how to make and ignite piles from forestry/fuels reduction work that, burn cleaner and safer while producing significantly less smoke than traditional piles.

CASCADIA PRESCRIBED BURN ASSOCIATION

CASCADIA CONSERVATION DISTRICT

Wenatchee River INSTITUTE

# OUR PROJECT GOALS

## NOTICE OF FUNDING OPPORTUNITY

**The Grant:** USDA Forest Service Inflation Reduction Act (IRA) Forest Landowner Support Notice of Funding Opportunity (NOFO) 1

**It's Goal:** To support **participation** of **underserved** and **small-acreage landowners** in **emerging private markets** for **climate mitigation** or **forest resilience.**

To understand the **effectiveness** and **replicability** of using **carbon credits** from the new Climate Action Reserve US/CAN Biochar protocol as a **funding mechanism** for SFLOs' **fire resilience** and **forest health projects**, converting waste biomass to biochar to reduce emissions and enhance soil health and drought resistance.

## WEBSITE:

# Community of Practice

**A community of practice (CoP) is a group of people who "share a concern or a passion for something they do and learn how to do it better as they interact regularly".[1]**

"Introduction to communities of practice – A brief overview of the concept and its uses". Etienne and Beverly Wenger-Trayner. October 2013. Retrieved 13 June 2020.

Biochar On Site

BiocharOnSite.org

# Mission

**Our mission is to normalize the on-site production and application of biochar as a widespread practice**, using methods that are appropriate for local conditions and communities.

**Through education, innovation, community engagement and advocacy**, we aim to foster regenerative land stewardship, mitigate wildfire risks, and increase soil carbon for resilient ecosystems.

Biochar On Site

BiocharOnSite.org

# Vision

**We envision a future where biochar is produced and applied for ecological restoration in close proximity to the biomass source – on site – is executed as a widespread, normalized practice using methods that are appropriate for local conditions and communities.**

We want to facilitate biochar production that will help restore healthy landscapes, regenerate living soils, and increase the resilience of local natural ecosystems and the human economies that depend on them.

Biochar On Site

BiocharOnSite.org

# Values

**Environmental Stewardship:**

Supporting the regeneration of ecosystems and the enhancement of soil health through sustainable biochar practices.

**Climate Action:**

Enabling communities to sequester carbon and contribute to global climate goals through localized biochar production.

**Fire Resilience:**

Leveraging biochar production & application to improve the water holding capacity of soils and reduce hazardous fuel loads, especially in the Wildland Urban Interface (WUI).

**Community Empowerment:**

Generating economic opportunities in rural areas while fostering collaboration between stakeholders in forestry, ecology, agriculture, and conservation.

**Knowledge Sharing:**

Advancing education, training, and technology transfer to build a skilled, informed network around stewardship biochar.

**Innovation and Adaptability:**

Promoting adaptable, scalable biochar technologies suited to diverse landscapes and communities.

**Accessibility:**

Ensuring biochar solutions are available to all communities, promoting equitable benefits for all.

Biochar On Site

BiocharOnSite.org

# Tools

- [ ] **Fact Sheets:**
  Collateral to share with clients, community members, and policymakers that clearly & succinctly explain core concepts, technologies, and practices.
- [ ] **Decision Guides & Technical Resources:**
  Tools to facilitate estimation, project design, and implementation.
- [ ] **Collaboration & Support:**
  Providing letters of support for grant applications and project proposals, and building collaborative partnerships to advance biochar initiatives.

- [x] **Monthly Online Meetup:**
  The first Wednesday of the month, noon Pacific. Typically a focused presentation followed by discussion & sharing.
- [x] **Online/Email Forum:**
  For asynchronous Q&A, and to share information of interest.
- [x] **Event Calendar:**
  A listing of online and in-person events across the country and around the world from BOS and the community.
- [x] **Directory:**
  A listing of biochar practitioners, equipment providers, groups & organizations to help promote the communities' businesses, products & services.
- [x] **Social Media:**
  Channels to boost and promote the postings of member events, posts, and organizations, as well as to share new industry developments.

Biochar On Site

BiocharOnSite.org

# How to Join & Participate

### Step 1:

Head to https://biocharonsite.org

### Step 2:

Do all the things at right!

### Step 3:

Make a meaningful financial contribution!

### Monthly Online Meetup:

**Join us** on the first Wednesday of the month, noon Pacific and meet new biochar practitioners.

### Online/Email Forum:

**Share** an article, post a question – or answer one!

### Event Calendar:

Hosting a workshop? Giving a presentation?

**Submit your event** to get it added to the calendar and promoted through our social media channels.

### Directory:

**Add your company** or find a partner or provider near you.

### Social Media:

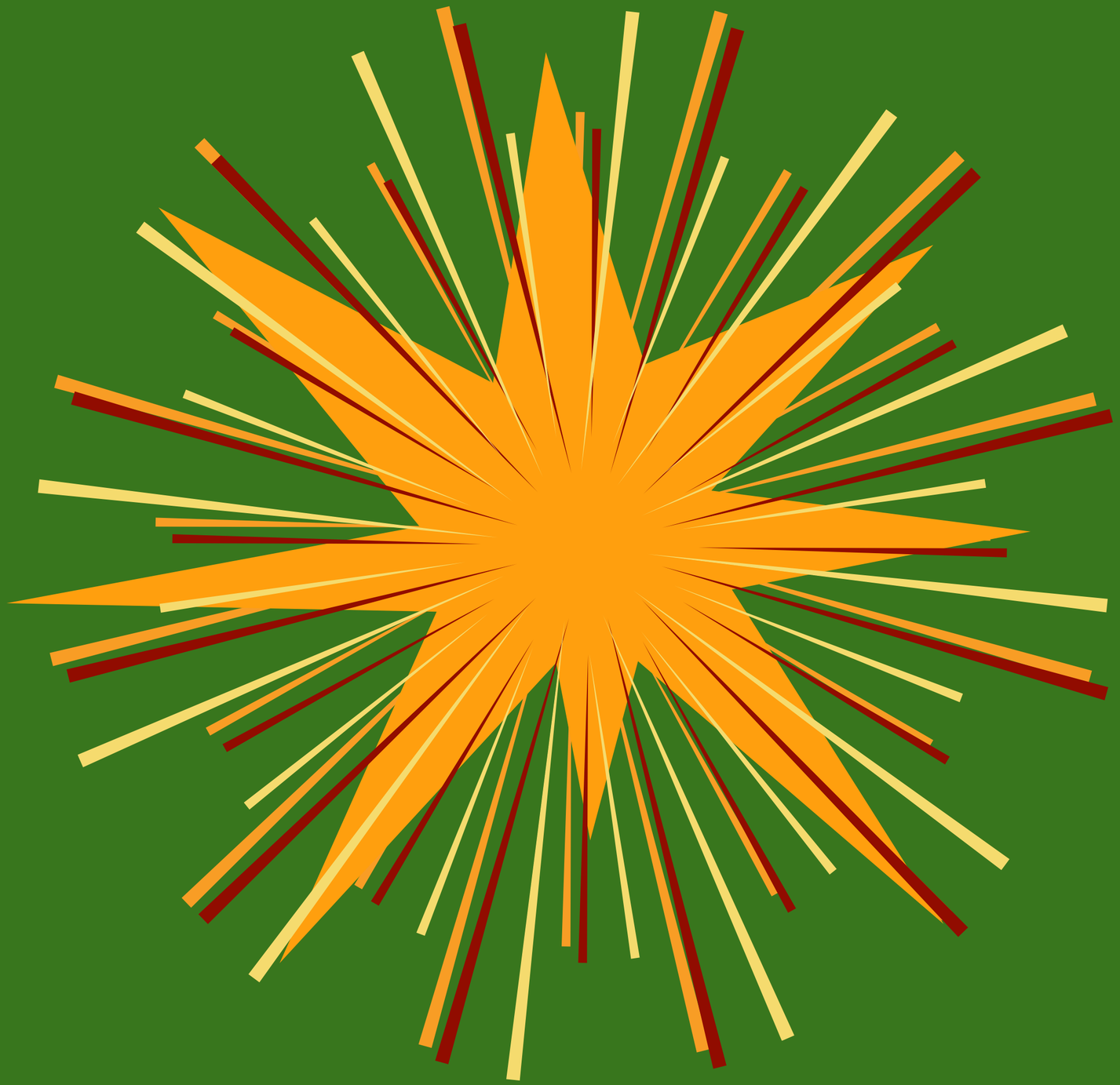
**Follow @biocharonsite** on all the channels you'd expect so we can follow you back, and tag us on your posts so we can amplify your message! #BiocharOnSite

Biochar On Site

BiocharOnSite.org


# John Webster
# BOS Comms
# & Fundraising

BiocharOnSite.org



BiocharOnSite.org


# How it started!

BiocharOnSite.org


SOIL CARBON TECHNOLOGY * GROW BIGGER PLANTS * SAVE WATER * IMPROVE NUTRIENT DISTRIBUTION * REDUCE COMPACTION * FEED THE SOIL
SOIL HEALTH
SOIL CARBON TECHNOLOGY * GROW BIGGER PLANTS * SAVE WATER * IMPROVE NUTRIENT DISTRIBUTION * REDUCE COMPACTION * FEED THE SOIL
gobiochar.com
276-BIO-CHAR

Next Summer!


GoBiochar

Connect with me on LinkedIn!
John Webster - john@gobiochar.com

biocharonsite.org

Photo: sltrib.com

# US Biochar Initiative
# DAY 1 – USDA NRCS



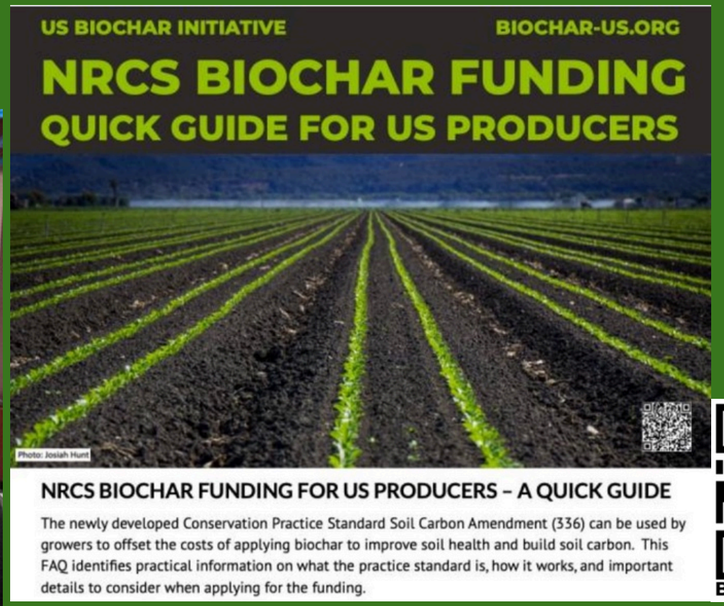

## USDA NRCS Code 336 & 808
## Soil Carbon Amendment

USDA United States Department of Agriculture
Natural Resources Conservation Service

*January 18 & 19, 2023*

https://biochar-us.org info@biochar-us.org

6 videos

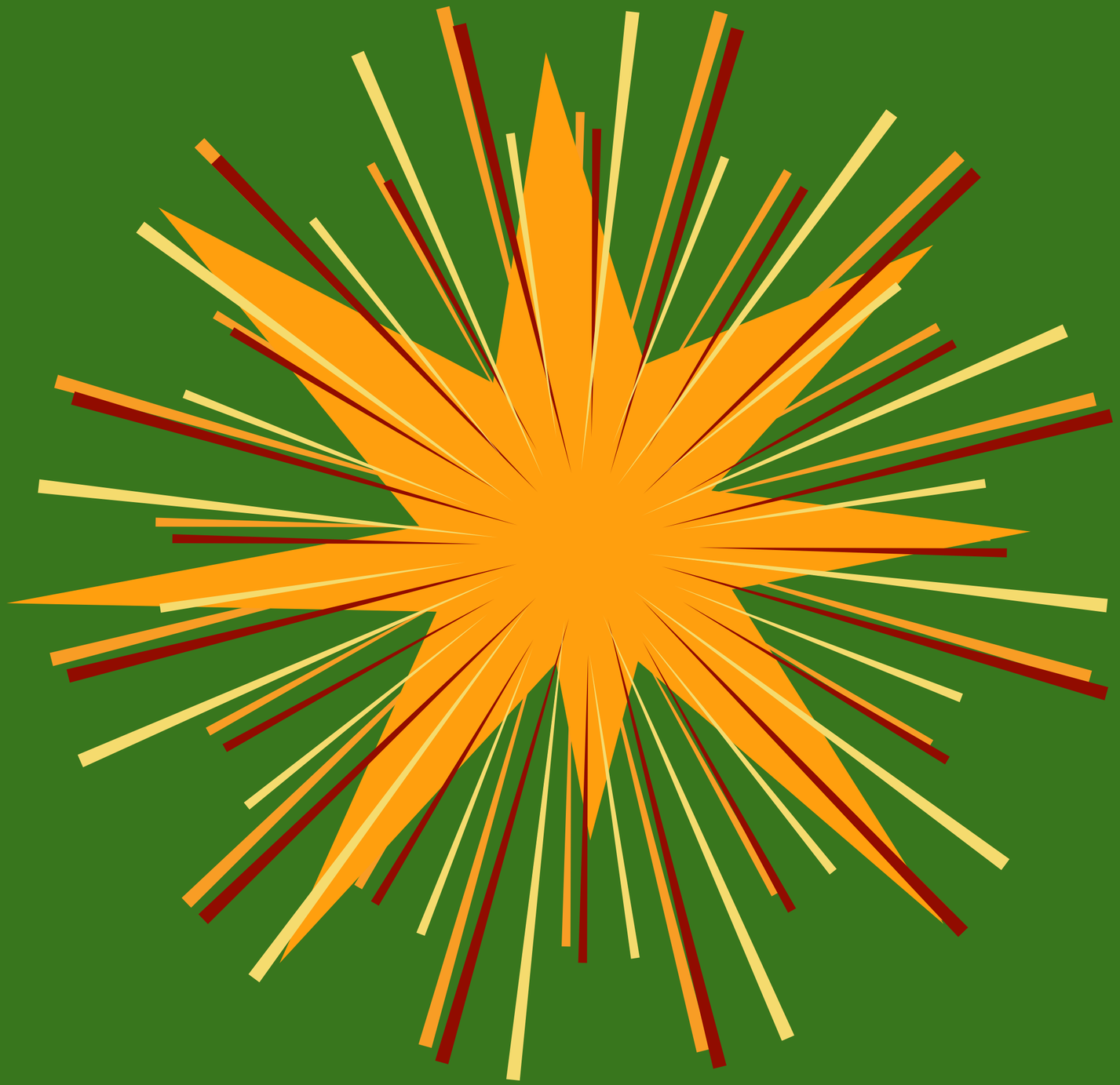
GoBiochar

Waste To Wonder



Bulk biochar sales and service.

info@gobiochar.com



BiocharOnSite.org

# Time to ignite the spark in others

Build communities of stewardship

Support healing and growth

We deliver real solutions for real needs

This is not magical thinking, this is Biochar On Site

BiocharOnSite.org

# We scale biochar widely by focusing on a legion of local practitioners

Stories are how people learn, care, and act

One video, one post, one day of service inspires ten more

We scale by showing people they can do it, too

Napachar

BiocharOnSite.org

# Get Involved

- ✅ Host a demo (we'll help!)
- ✅ Submit your story (new form + BOS map)
- ✅ Volunteer - media, outreach, fieldwork
- ✅ Get others to join our forum and meet ups
- ✅ Support your local service providers
- 💥 Whether it's fire, footage, or fieldwork - we need you in the mix!

BiocharOnSite.org

# Your Voice, Your Money, Your Events

## BOS is safe, scaleable, project ready!

Every voice, story, and dollar helps us build needed tools, trainings, and partnerships

Fund a burn kit. Sponsor a training. Talk to local community leaders.

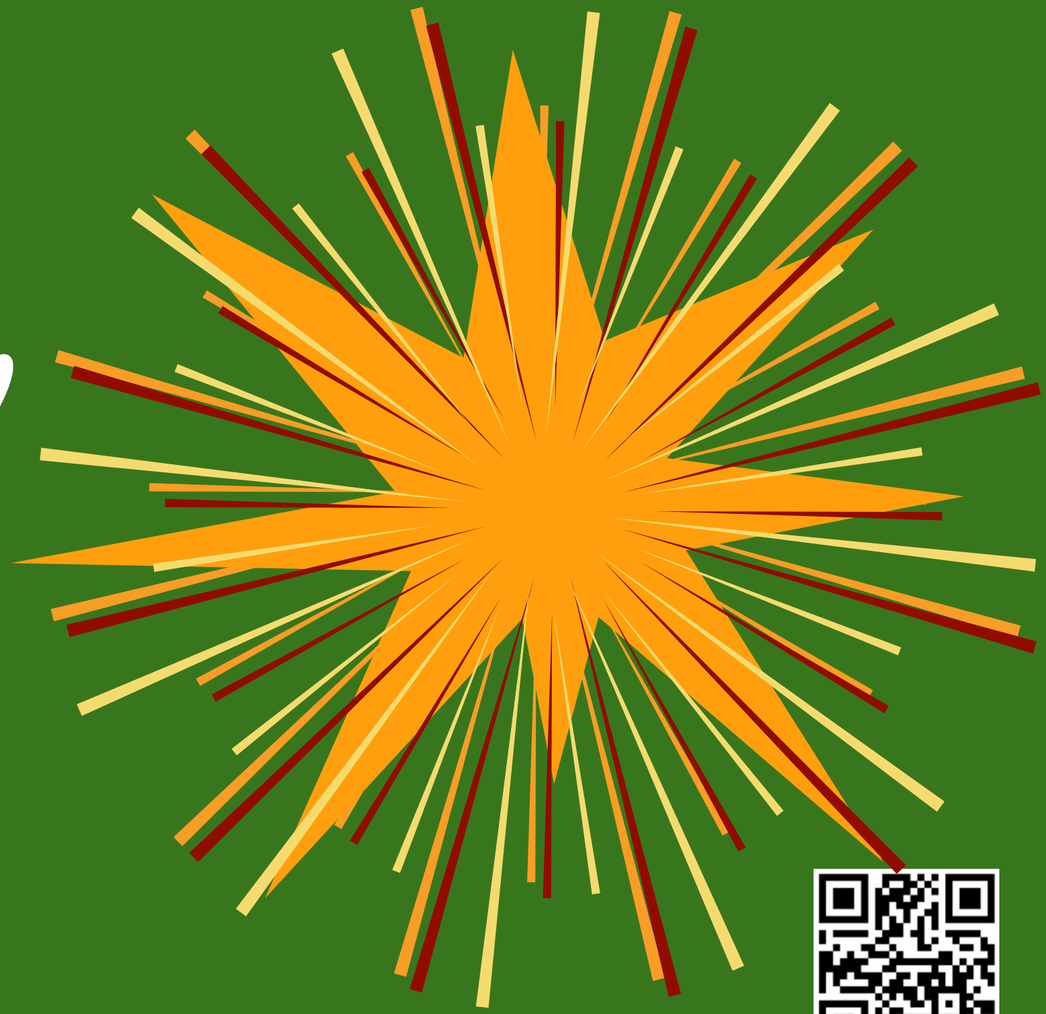
Connect to discussion options or make your meaninfully significant contribution

The land is ready. The people are ready. Let’s get to work.

BiocharOnSite.org

With power, purpose, and intent..

*Let's spark it up!*



BiocharOnSite.org

# Q & A

info@biocharonsite.org


EXTENSION
UtahStateUniversity
I ♥ biochar

# Not Just for Forest Slash

**You can carbonize old boards with no smoke!**

- Build a rick of old boards
- Light kindling on top
- Heat radiates down, igniting each layer in turn
- Starts slowly but soon all is ablaze

biocharonsite.org

BiocharOnSite.org

BiocharOnSite.org


CAT

# Keep the flame going


Terra Preta
Developments
FRANK'S CHAR
100% TASMANIAN MADE
I'M A
farmer
FOR
CLIMATE
ACTION
KON-TIKI-TAS

biocharonsite.org

biocharonsite.org

BiocharOnSite.org



# Air Burners Inc. – CharBoss ACI

BiocharOnSite.org


# Tigercat Carbonator

biocharonsite.org

BiocharOnSite.org


Kubota
FIRE
SVL
97-2

# Ignite evenly around the kiln

PRACTICAL BIOCHAR
REGENERATIVE LIVING
WILSON BIOCHAR


Link-Belt


# AIC Group – EcoChar – Phoenix 8000

BiocharOnSite.org

# A Conservation Burn is a Version of the Rick

- Light piles on top to reduce smoke emissions
- Quench piles with water to save the biochar and avoid scorching soil

charonsite.org

BiocharOnSite.org





biocharonsite.org

BiocharOnSite.org

biocharonsite.org


Biochar On Site
Community Forum

biocharonsite.org

BiocharOnSite.org

# Sam Bennett - Gardens of Fire


KUBOTA
BurnBoss

# Ryan Ramage - Valley Envrionmental

# Thank You!

info@biocharonsite.org