

**EXHIBIT A
PROPOSAL COVER PAGE**

Proposal Type

- Concept Proposal for Demonstration Projects and Processes

Organization Name (Lead Applicant)

Sonoma Ecology Center

Organization Type

- Federally recognized Indian Tribe
- California State Indian Tribe
- Public agency
- Local or state agency/special district
- Resource Conservation District
- Non-profit organization
- Public utility
- Other: _____

Sonoma Ecology Center

Contact Name/Title

Name: Raymond Ballar

Title: Biochar Projects Manager

Email: raymond@sonomaecologycenter.org

Phone Number (include area code): 707 291-3240

Organization Address (City, County, State, Zip Code):

P.O. Box 1486 Eldridge, CA 95431

Authorized Representative (if different from the contact name)

Name: Richard Dale

Title: Executive Director

Email: richard@sonomaecologycenter.org

Phone Number (include area code): 707 996-0712

Certification of Authority

By signing below, the person executing the certificate on behalf of the proposer affirmatively represents that s/he has the requisite legal authority to do so on behalf of the proposer. Both the person executing this proposal on behalf of the proposer and proposer understand that the NCRP is relying on this representation in receiving and considering this proposal. The person signing below hereby acknowledges that s/he has read the entire Request for Proposals document and has complied with all requirements listed therein.

Official Authorized to Sign for Proposal



Signature

3-13-20

Date



Statement of Qualifications

North Coast Resource Partnership Grant
Concept Proposal for Biochar Demonstration
Falk Forestry Carbonator 500 Test Project

Sonoma Ecology Center (SEC), Grant Applicant

www.sonomaecologycenter.org

The Sonoma Ecology center is a 501c3 with a 30-year track record in environmental education, restoration and research activities, as well as grant management.

SEC works to address challenges related to water supply and quality, open space, rural character, biodiversity, energy, climate change, and a better quality of life for all residents. Since 1990, we've worked to increase appreciation and stewardship of Sonoma Valley's natural heritage and create measurable benefits in areas of land, water, climate change and biodiversity.

Vision

We envision a future where people, land, water, and wildlife thrive.

Mission

Our mission is to work with our community to identify and lead actions that achieve and sustain ecological health in Sonoma Valley.

Partial list of biochar and biomass management related projects:

- 1) Produced and hosted 2012 USBI Biochar Conference at Sonoma State University
- 2) Reduced pollution and educated groups of farmers and air districts about the advantages of biochar through conservation burning training (Gallo, Constellation Brands, Jackson Family Wines, Cakebread Cellars; South Coast AQMD, Monterey APCD, San Luis Obispo APCD, Santa Barbara APCD);
- 3) Managed Conservation Innovation Grant (CIG) biochar production and field trials;
- 4) Managed biochar production system for RFFI;
- 5) Researched available pyrolysis and gasification technologies for RFFI;

- 6) Managed CA DWR water conservation grant project;
- 7) Co-founded California Biochar Association;
- 8) Assisted Del Norte County landowner qualify for NRCS Conservation Stewardship program to produce biochar in kilns from fuels reduction materials;
- 9) Assisted local forester select the best technology for his unique situation: Carbonator 500, promoting the machine to local government agencies and land managers;
- 10) Assisting Bay Area tree service company select a technology to convert material they generate that is currently landfilled into biochar, grant writing assistance;
- 11) Assisting Mendocino RCD and All Power Labs site and run eight 25KW gasifiers to convert partially burned materials from the Redwood Complex fire into electricity and biochar;
- 12) Working with CAPCOA on emissions testing protocols for small-scale biochar production techniques;
- 13) Designing and hosting *Scaling Biochar* Forum in September

Admin expenses: 13% of total grant

Raymond Baltar, MBA Sustainable Enterprise / Project Manager

Director, Sonoma Biochar Initiative www.sonomabiocharinitiative.org

Raymond has served as Biochar Projects Manager at SEC since 2015, and has been Director of the Sonoma Biochar Initiative since 2010. He managed biochar projects for the Redwood Forest Foundation in 2017 and 2018 and is currently helping to manage a CalFire funded biomass power/biochar production project in collaboration with the Mendocino County RCD and All Power Labs. Raymond co-managed an NRCS Conservation Innovation grant in 2013-2014 and is currently project manager for a Department of Water Resources grant on Using Biochar to Conserve Water in California Agriculture.

Hourly billing rate: \$85 an hour.

Collaborative Partner: Jackson Family Wines (JFW)

<https://www.jacksonfamilywines.com>

“As a multigenerational family-owned and -led wine company, Jackson Family Wines crafts exceptional wines from world class wine estates in winegrowing regions across the globe. Within the U.S., the Jackson Family owns and farms about 14,000 acres of estate vineyards and produces wines across 25 winery locations, with a home base in Sonoma County, California. Quality, stewardship and multigenerational thinking are the motivational forces behind our decision making. Today, the company's mission is to cultivate an enduring heritage of excellence by producing exceptional wines rooted in climate-smart farming practices and proactive natural resources management.”

See attached Letter of Commitment for additional information about how JFW properties were severely affected by the Kincade Fire. They plan to harvest

materials from the fire zones and process it in the carbonator, then use the biochar produced back on their agricultural, forested, and rangeland properties.

Billing rates vary depending on position. Quotes for work outlined shown in budget line items. Quote from *Atlas Tree* to harvest and stage 2,400 tons of biomass: \$108,000; and to operate Carbonator for 1 month to process this material: \$49,000 plus \$4725 for diesel fuel.

Collaborative Partner: Dan Falk Forestry
Forester RPF #2901

Dan Falk is a 5th generation timber and cattle rancher who grew up on the Harold Richardson Ranch on the northern Sonoma Coast. Dan graduated from Humboldt State University, where he majored in Forest Production. He holds three forestry-related licenses: Registered Professional Forester; Licensed Timber Operator, and General Engineering Contractor. He manages all forestry operations on the 8,000-acre Richardson Ranch, as well as a small mill on the property.

Dan purchased the first and only Carbonator 500 to be operated in California in 2019, which he uses to process un-merchantable biomass waste and produce biochar. He is currently blending the biochar with compost and is beginning to spread out the mixture on pasture and rangeland on the ranch, where his brother runs both cattle and sheep.

Billing rates vary depending on position. Quotes for various tasks are shown in budget line items of the budget and are based on timber harvesting and staging of 2,400 tons of biomass (\$120,000) and processing costs (fuel to run the Carbonator's conveyer system and fans, labor, excavator use, water truck for safety, biochar processing, etc.) for one month: \$55,000 plus \$4725 for diesel fuel.



March 10, 2020

To Whom it May Concern:

Jackson Family Wines, Inc. is pleased to provide this letter of commitment to supply 2,400 tons of biomass over a one-month period from Jackson Family properties impacted by the Kincaid fire in support of a collaboration with Sonoma Ecology Center. Our intent in supporting this grant is to learn more about how to leverage a cutting-edge technology (the ROI Carbonator 500 machine) to produce biochar for our internal vineyard operations, while concurrently supporting our clean up efforts from the 2019 Kincade Fire. Our match funding commitment for labor and materials to supply 2,400 tons of biomass is approximately \$88,000.

The Kincade Fire ignited just above our Alexander Mountain Estate in the Alexander Valley. Within hours, the wildfire burned through the 5,500-acre Alexander Mountain Estate property, which included vineyards, home sites, many other structures, and approximately 4,000 acres of northern California habitat. Over the next two weeks, the fire burned additional Jackson Family Wines properties in the Chalk Hill and Knights Valley regions where homesites, structures, vineyards and habitat were impacted, totaling nearly 6,000 acres.

As a multigenerational family-owned and -led wine company, Jackson Family Wines crafts exceptional wines from world class wine estates in winegrowing regions across the globe. Within the U.S., the Jackson Family owns and farms about 14,000 acres of estate vineyards and produces wines across 25 winery locations, with a home base in Sonoma County, California. Quality, stewardship and multigenerational thinking are the motivational forces behind our decision making. Today, the company's mission is to cultivate an enduring heritage of excellence by producing exceptional wines rooted in climate-smart farming practices and proactive natural resources management.

Since formalizing our sustainability efforts in 2008, our forward-thinking wine business has become the wine industry's leader in environmental stewardship and social equity. Under the leadership of Katie Jackson, SVP of Corporate Social Responsibility and second-generation proprietor, Jackson Family Wines is the largest generator of on-site solar energy within the U.S. wine industry, an early adopter of carbon reduction strategies, a pioneer in exploring vineyard carbon farming and sequestration trials, and an innovator in water conservation and reuse. Our climate action leadership is guided by a shared global urgency to accelerate the implementation of mitigation and adaptation to elevate and amplify scalable climate solutions. From this perspective, we are excited to participate in this innovative demonstration project to pilot combining waste wood reduction with biochar production and its subsequent important use in carbon sequestration on our properties.

Best Regards,

A handwritten signature in blue ink that reads "LeeAnne Edwards". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

LeeAnne Edwards
Senior Vice President, Real Estate
Jackson Family Wines, Inc

Falk Forestry, Inc.
P.O. Box 98
Stewarts Pt. Ca. 95480

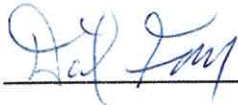
March 13, 2020

Letter of Commitment
Sonoma Ecology Center
NCRP Concept Proposal:
Falk Forestry Carbonator 500 Test Project

Dear NCRP Reviewers,

I am hereby committing to provide \$100,000 in match funding to supply 2,400 tons of material to be processed by the Carbonator 500 if the scaled version of this grant project gets funded. We will be leasing the Carbonator 500 to Jackson Family Wines and also providing training to their staff on the machine's operations.

We are excited to be part of this project and we have the capability to supply the equipment, staffing and other materials needed to operate the Carbonator at our Mill location and make the project a success.



Signed 3-13-2020 Date

Dan Falk
Falk Forestry, Inc.
707 367-0312

NCRP DEMONSTRATION PROJECT AND PROCESSES CONCEPT PROPOSAL BUDGET AND SCHEDULE

Project Name: Falk Forestry Carbonator 500 Test Project / Sonoma Ecology Center / 707 291-3240

Major Tasks	Task Description	NCRP Task Budget	Funding Match *	Total Task Budget	Scaled NCRP Budget **	Start Date	End Date
Project Administration/SEC	The Sonoma Ecology Center will sign sub-grantee agreement(s) for work to be completed on this project. Develop invoices with support documentation, provide ongoing fiscal oversight	\$21,112	\$0	\$21,112	\$28,454	7/1/20	6/15/21
Project Management/SEC	General project oversight, complete project reporting (150 hours @\$85/hr)	\$12,750	\$0	\$12,750	\$14,875	7/1/20	6/15/21
Biomass Harvesting/ JFW/Atlas Tree	Cost to harvest and stage 2,400 tons of onsite biomass	\$20,000	\$88,000	\$108,000	\$20,000	7/1/20	10/31/20
Move Carbonator/From Falk Forestry	Move the Carbonator from Falk Forestry Mill location to Jackson Family Wines (JFW) vineyard location	\$9,000	\$0	\$9,000	\$9,000	11/29/20	11/29/20
Rental Fee to Falk Forestry for Carbonator	Lease Carbonator to Jackson Family Wines/Includes 3 to 5 days training of Atlas Tree Crew	\$30,000	\$0	\$30,000	\$30,000	12/1/20	1/15/21
Carbonator Fuel	Diesel fuel for fans, conveyers	\$3,000	\$1,725	\$4,725	\$3,000	12/1/20	1/15/21
Process Biomass/Jackson Family Wines, Atlas Tree	Atlas Tree quote to operate Carbonator for 1 month (15 day allowance for holidays)	\$49,000	\$0	\$49,000	\$49,000	12/1/20	1/15/21
Move Carbonator/Back to Falk Forestry	Move the Carbonator from JFW back to Falk Forestry Mill	\$9,000	\$0	\$9,000	\$9,000	1/16/21	1/16/21
Biomass Harvesting/ At Richardson Ranch, Falk Forestry	Cost to harvest and stage 2,400 tons of onsite biomass on Richardson Ranch	\$0	\$0	\$0	\$20,000	1/20/21	2/20/21
Process Biomass/ At Richardson Ranch, Falk Forestry	Operate the Carbonator 500 for 1 month at Richardson Ranch	\$0	\$0	\$0	\$55,000	1/20/21	2/20/21
Carbonator Fuel	Diesel fuel for fans, conveyers	\$2,000	\$2,725	\$4,725	\$2,000	1/20/21	2/20/21
Mileage/SEC	Mileage Sonoma to Geyserville (100 RT)	\$500	\$0	\$500	\$500	7/1/20	6/15/21
Data Collection and Reporting	Data collection, performance measures, and project reporting of outcomes/lessons learned (\$2000 JFW, \$1000 SEC)	\$3,000	\$0	\$3,000	\$4,000	7/1/20	5/1/21
Project Closeout	Final submission of documents & invoices, final meeting with project partners	\$2,500	\$0	\$2,500	\$2,500		6/15/21
Total NCRP 2020 Demonstration Project Request		\$161,862	\$92,450	\$254,312	\$247,329		

NCRP DEMONSTRATION PROJECT AND PROCESSES CONCEPT PROPOSAL BUDGET AND SCHEDULE

Project Name: Falk Forestry Carbonator 500 Test Project / Sonoma Ecology Center / 707 291-3240

*** List the sources and status of matching funds:**

Jackson Family Wines Biomass Procurement Costs/Atlas Tree (Approx. 2,400 tons): \$88,000

Jackson Family Wines Fuel Contribution: \$1,725

Falk Forestry Biomass Procurement (Approx. 2,400 tons): \$102,725 (if scaled project is funded)

Project scalability information for the reviewers: If the initial budget is funded the Carbonator 500 would be placed for a month at a Jackson Family Wines location east of Geyserville to process materials harvested from burned areas of the Kincade fire. Jackson Family Wines has expressed an interest in leasing the Carbonator for an additional month, at their own expense, should our proposal be funded, and the data gathered during this continued demonstration would be available in the final grant report. If the scaled budget is funded we would add a month of processing at the Richardson Ranch on the Sonoma Coast, and an additional \$100,000 in match funding would be available from Falk Forestry for forest thinning operations at that location.



North Coast Resource Partnership

Exhibit C

Sonoma Ecology Center Concept Proposal for Biochar Demonstration Project: Falk Forestry Carbonator 500 Test Project

Project Description

This demonstration project will provide a unique, transportable air curtain burner style biomass processor — the Carbonator 500, produced by Tiger Cat Equipment — to demonstrate our ability to process approximately 15 tons/hour of forestry biomass while also converting some of this material to biochar. Depending on which project scale is funded, we will operate this unique machine for one month at one or two different locations in Sonoma County—one on property owned by Jackson Family Wines east of Geyserville that was severely impacted by the Kincadee fire and the other on Richardson Ranch near the Sonoma Coast.



Carbonator 500 in Operation

Registered Professional Forester Dan Falk in 2019 purchased a Carbonator 500 machine to process fuels reduction and logging slash materials on his family's 8,000-acre Richardson Ranch; to date this is the only such machine currently being operated in California. For our demonstration effort this unit will be moved to property owned by Jackson Family Wines to process materials harvested there from the Kincade Fire. If supplemental funding is available a second one-month demonstration will take place back at Richardson Ranch.

The demonstration project team will collect data at each location on labor and other operational costs, volumes of materials processed and biochar produced, and other operational metrics. This information will allow us to compare and contrast a range of important operational data on the cost-effectiveness of using the Carbonator 500 as a tool for large-scale forest management along with biochar production.

The Carbonator is designed to efficiently process large volumes of biomass that does not have to be chipped while reducing smoke pollution. A specialized "wood screw" splits larger pieces such as stumps and large diameter logs into smaller pieces that burn faster within the chamber. Airflow over the top controls emissions. Biochar produced can be integrated back into the forest ecosystem, blended with compost and spread out on nearby rangelands, and/or used as a soil supplement in tree replanting activities to reduce mortality rates.

Specific Project Goals/Objectives

This project's goals may be summarized as follows:

- demonstrate the value of using this new way to manage forest slash as opposed to chipping or burning it
- document the costs of using a large air curtain burner to manage forest slash;
- record visual air emissions improvements associated with using a large air curtain burner for slash management;
- demonstrate the ability to use this machine to make biochar from forest slash materials within the thinned-forests themselves; and
- demonstrate use of some of the biochar in the forests themselves and the rest of this material in agricultural settings outside the forest.

Project Relevance to NCRP Goals and Objectives and Block Grant

NCRP is focused on finding and demonstrating better ways to manage our forests while reducing forest fire risks. This project directly addresses this objective by using a specialized biomass processor to successfully convert woody waste materials within the forests from which they have been cut while also achieving "carbon negative" progress by burying the elemental carbon ("biochar") that results from this machine's operations.

Project Expansion: Scalable, Replicable, Measurable, Innovative, Enhanced Outcomes

Scalable: Results of this project are definitely scalable, indeed rapidly so. This machine is ready to be used in additional locations for costs similar to those estimated in this initial demonstration project. After successfully demonstrating use of this machine in one or two different areas within Sonoma County, it is certainly feasible to increase the number of machines that could be used in more areas and for longer periods of time. Purchase of additional machines

would require about \$600,000 for each machine, plus operational costs at the added locations. These additional machines can process large amounts of surplus, un-merchantable woody wastes created during fuels reduction/fire safety activities while creating biochar at the same time.

Measurable: The project will measure its results by tracking the volumes of forest wood slash processed in the Carbonator 500 and the volumes of biochar first as produced and then as sequestered. Operational costs will also be tracked.

Innovative: This effort is fundamentally new. While this machine has been operating in California for several months in 2019/20, it has never before been employed in an official, documented demonstration project.

Enhanced Outcomes: Expanded use of this machine will directly enhance our ability to improve forest health while offering an alternative way to handle large volumes of materials being generated through increased fuels reduction work and utility right-of-way tree trimming, thereby reducing fire risks, sequestering carbon as a “negative emissions” strategy, and improving forest health.

Need for Project: Relevance to Forest Health and Climate Change

Improved forest health is vital throughout the US, especially in California where recent horrific wild fires have occurred with devastating results. Processing the materials thinned from these forests with minimal air emissions (due to the Carbonator’s air curtain design) is itself important for air quality improvement and climate management. Of perhaps even greater significance, producing and sequestering biochar from this forest slash provides a direct and immediate offset to ongoing carbon emissions. This demonstration effort directly illustrates effective “carbon negative” action. The IPCC has recognized biochar production as one of the least expensive and most easily scaled “natural” carbon negative activities; biochar was similarly recognized in a recent report from the Lawrence Livermore National Laboratory financed by ClimateWorks.

Project Location, Size, Communities Served

The initial demonstration will occur at Jackson Family Wines (JFW), a 10,000-acres forest and vineyard property in Geyserville, Alexander Valley and surrounding communities. The Carbonator would be sited at one of these two locations:

- Verite’ Vineyard – 4611 Thomas Road, Healdsburg CA 95448
- Coyote Vineyard – 5454 Thomas Road, Healdsburg CA 95448

A second scaled demonstration, if funded, will take place at the Falk Forestry Mill at the Richardson Ranch, 8,000-acre timber and livestock operations, coastal Sonoma County, 34501A Tin Barn Rd. Cazadero, CA 95421

Project Partnerships and Local/Political Support

Dan Falk, Falk Forestry, Richardson Ranch, owner of the Carbonator 500
falkforestry@gmail.com, 707 367-0312 (Letter of Commitment available by request)

Julien Gervreau, Director of Sustainability, Jackson Family Wines
Julien.Gervreau@jfwmail.com, 707 321-6904

Sonoma Ecology Center. P.O. Box 1486. Eldridge, CA. 95431
707 996-0712 raymond@sonomaecologycenter.org

See attached Letter of Commitment from Jackson Family Wines.

“As a multigenerational family-owned and -led wine company, Jackson Family Wines crafts exceptional wines from world class wine estates in winegrowing regions across the globe. Within the U.S., the Jackson Family owns and farms about 14,000 acres of estate vineyards and produces wines across 25 winery locations, with a home base in Sonoma County, California. Quality, stewardship and multigenerational thinking are the motivational forces behind our decision making. Today, the company's mission is to cultivate an enduring heritage of excellence by producing exceptional wines rooted in climate-smart farming practices and proactive natural resources management.”

Raymond Baltar, Sonoma Biochar Initiative
raymond@sonomabiocharinitiative.org, 707 291-3240

The Sonoma Biochar Initiative has been involved with education and training, policy development, consulting, and various activities supporting sustainable agriculture through biochar production and use since 2010.

Political Support Statements

“I am pleased to support the Sonoma Ecology Center’s proposal to use a Carbonator machine to manage fire-damaged forest waste in Sonoma County while producing biochar for carbon sequestration. This project is a win-win. It will remove debris from fire-prone areas and fight climate change by reducing greenhouse gas emissions.”

*Bill Dodd
California Senator
District 3*

“I am happy to support the Sonoma Ecology Center’s NCRP grant application to demonstrate the use of an innovative new biomass processor to convert some of the fire-damaged trees and slash material coming from Jackson Family Wines property damaged during the Kincadee fire into biochar.”

*Susan Gorin
First District Supervisor
County of Sonoma*

Estimated Measurable Benefits from Project

In this demonstration project we will measure many critical parameters:

1. We expect to process between 2,400 and 4,800 tons of forest slash in the Carbonator 500 machine at up to two locations
2. We expect to produce between 72 and 240 tons of biochar at up to two locations
3. Burying this amount of biochar will sequester between 252 and 840 tons of CO₂
4. We will document actual costs to operate the Carbonator for up to two one-month periods, including direct operational costs, maintenance, etc.

5. We will document the time and cost to prepare and apply the biochar back into the forest or on local rangeland or pastureland.

Relevant Scientific Studies, Plans, and Reports

Effects of biochar application in forest ecosystems on soil properties and greenhouse gas emissions: a review. (<https://link.springer.com/article/10.1007%2Fs11368-017-1906-y>)

Potential carbon storage in biochar made from logging residues: basic principles and Southern Oregon case studies.

(https://www.forestry.oregonstate.edu/sites/default/files/Biochar_pone2018.pdf)

Understanding and Using Biochar Practice Guidelines developed by the Umpqua Biochar Education Team.

(<https://drive.google.com/file/d/1qO3PmUJqZNID8wdAJCX-N3xsb5Vtd6dS/view>)

Approach to Data Collection, Performance Measures and Reporting of Outcomes from Project

— The field team will include a specialist specifically tasked with collecting and recording key data elements about ongoing machine operations

— Project office staff at Sonoma Ecology Center will be responsible for compiling relevant information on use of the biochar

— Project office staff at Sonoma Ecology Center will prepare quarterly and final reports on project outcomes and produce relevant outreach/public information materials