



North Santa Clara Resource Conservation District

An independent special district of the State of California

(408) 288-5888

1560 Berger Drive, Room 211, San Jose, CA 95112

www.rcdsantaclara.org

PARTNERSHIP AGREEMENT

Effective Date: May 4, 2023

This Partnership Agreement (“Agreement”) by and between North Santa Clara Resource Conservation District (“District”) and WeTree, a 501(c)(3) non-profit corporation dba The Institute for Historical Ecology (“IHE”), is for implementation of the *Redwood Habitat Suitability Analysis Project*, a partnership project (“Project”) approved by the District’s Board of Directors at its May 4, 2023 meeting.

A. Term. This Agreement is effective as of May 4, 2023 and is scheduled to expire upon District’s determination that the Project has been completed, estimated to be on or before June 30, 2024.

B. Scope of Work.

1. District is responsible for:
 - a. Providing up to \$10,000.00 for consultant and publication costs for the Project (Exhibit A).
 - b. Coordinating with IHE as needed to complete the Project.
2. IHE is responsible for:
 - a. Completing the Project as set forth in the Partnership Proposal (Exhibit A).
 - b. Executing an agreement for services with the chosen consultant.
 - c. Providing in-kind staff time of approximately forty (40) hours to manage the Project, coordinate the work, and publish the results.
 - d. Submit results to the California Fish and Wildlife Journal and/or another publication mutually agreed upon with the District.
 - e. Preparing and submitting invoices for payment by the District.
 - f. Preparing a final Project Report to the District.
 - g. Coordinating with the District as needed to complete the Project.

C. Invoices and Payment.

1. IHE shall provide a detailed invoice of consultant expenses, including supporting documentation, to the District for payment within 90 days after incurring the expense.
2. At IHE’s request, District may reimburse the consultant directly, provided that the consultant has provided a completed W-9 to the District.

D. Indemnity.

1. District shall waive all claims and recourse against IHE, including the right to contribution for loss or damage to persons or property arising from, growing out of or in any way connected with or incident to this Agreement, except claims arising from the concurrent or sole negligence of the IHE, its officers, agents, employees, and/or consultants.
2. IHE shall waive all claims and recourse against District, including the right to contribution for loss or damage to persons or property arising from, growing out of or in any way connected with or incident to this Agreement, except claims arising from the concurrent or sole negligence of the District, its officers, agents, and/or employees.

E. Nondiscrimination.

The parties and parties' consultants shall not discriminate against any person on the basis of sex, race, religion (creed), color, national origin, age, ancestry, sexual orientation, disability, medical condition, or marital status in the performance of Project activities included in the scope of work.

F. Liability.

District assumes no responsibility for assuring the safety of IHE officers, agents, employees, consultants, and/or volunteers during Project implementation and completion.

G. Waiver.

Any failure by a party to enforce its rights under this Agreement, in the event of a breach, shall not be construed as a waiver of said rights; and the waiver of any breach under this Agreement shall not be construed as a waiver of any subsequent breach.

IN WITNESS HEREOF, the parties hereto have executed this Agreement as of the effective date listed above.

Signed: Stephanie Moreno

Stephanie Moreno, Executive Director
Guadalupe-Coyote Resource Conservation District
888 N 1st Street, Suite 204, San Jose, CA 95112
408-288-5888
smoreno@gcrcd.org
www.rcdsantaclara.org

Signed: Richard Lanman, MD

Richard Lanman, M.D., President
WeTree dba Institute for Historical Ecology
556 Van Buren, Los Altos, CA 94022
650-776-9111
ricklanman@gmail.com

Re: Guadalupe-Coyote Resource Conservation District (GCRCD) Partnership Agreement Request
To: Susan Hare, Board President, Stephanie Moreno, Executive Director
From: Rick Lanman, President, Institute for Historical Ecology
Date: April 30, 2023

Request: \$10,000 for analysis of the areas in Santa Clara County suitable for planting redwoods

Purpose: Coast redwoods (*Sequoia sempervirens*) are historically native to the Santa Cruz Mountains, but their current range has been drastically reduced by logging, conversion of lands to ranching, and development. California's redwood trees are better for long-term sequestration of atmospheric carbon than any other tree species in the world.¹ Therefore, restoring/planting redwoods could help to slow or stabilize global warming, as well as providing ecosystem services including air and water filtration, flood control, soil health, wildlife habitat, and climate resilience benefits.² However, before county and state agencies begin replanting redwoods in our county, it would be helpful to understand where the most suitable habitat is today, based on today's warming climate, soil conditions, etc. Although historic maps of the historic range of redwoods might be helpful as a guide to current restoration efforts, these are conflicting (see Addendum of three conflicting maps).³ Faced with a similar dilemma, the Turtle Island Restoration Network has mapped the lands in Marin County ideal for redwood habitat, based on a scientific GIS analysis, although this work is unpublished.⁴ I propose that GCRCD fund approximately \$10,000 for a similar analysis for Santa Clara County. We have a local expert, Christopher Potter PhD, of CASA Systems 2100, LLC, in Los Gatos, who has recently published on the methods required for this type of analysis in California Fish and Wildlife, a peer-reviewed scientific journal.⁵ Dr. Potter has local knowledge based on his recent analysis and publication of the impact of the CZU fire on Santa Cruz County's redwood forests.⁶

Proposal: The Institute for Historical Ecology (a 510(c)(3) dba WeTree, Inc.) proposes that the GCRCD partner with it to contract for the analysis of suitable habitat for redwood planting in Santa Clara County. Dr. Potter proposes to use a combination of Machine Learning models (see his above referenced paper attached for an example) with the weighted spatial layer approach that Turtle Island applied to generate new rating maps of potential redwood planting habitat in the Santa Cruz Mountains. He would use GIS layers that are upgraded from those cited in the Turtle Island report - including recent satellite images of tree water use, canopy density, and evergreen percent cover, plus USDA soil type properties including depth, moisture holding capacity, and parent material. It would be a much-refined methodology, trained by the current location of coast redwood stands in the State Parks.

Budget: Tallying the hours required, Dr. Potter would estimate a budget of \$10K for Santa Clara County alone, plus another \$10K if we wanted to add San Mateo and Santa Cruz Counties which we would not opt for at this time. The role of the Institute of Historical Ecology would be to coordinate the work and submit the results for publication in the California Fish and Wildlife

Journal. This would be an in-kind contribution from the Institute for Historical Ecology estimated at 40 hours @ \$500/hour or \$20,000 total. The project would take 3-4 months to complete analysis and submit a manuscript for publication, with acknowledgement of the GCRC for funding.

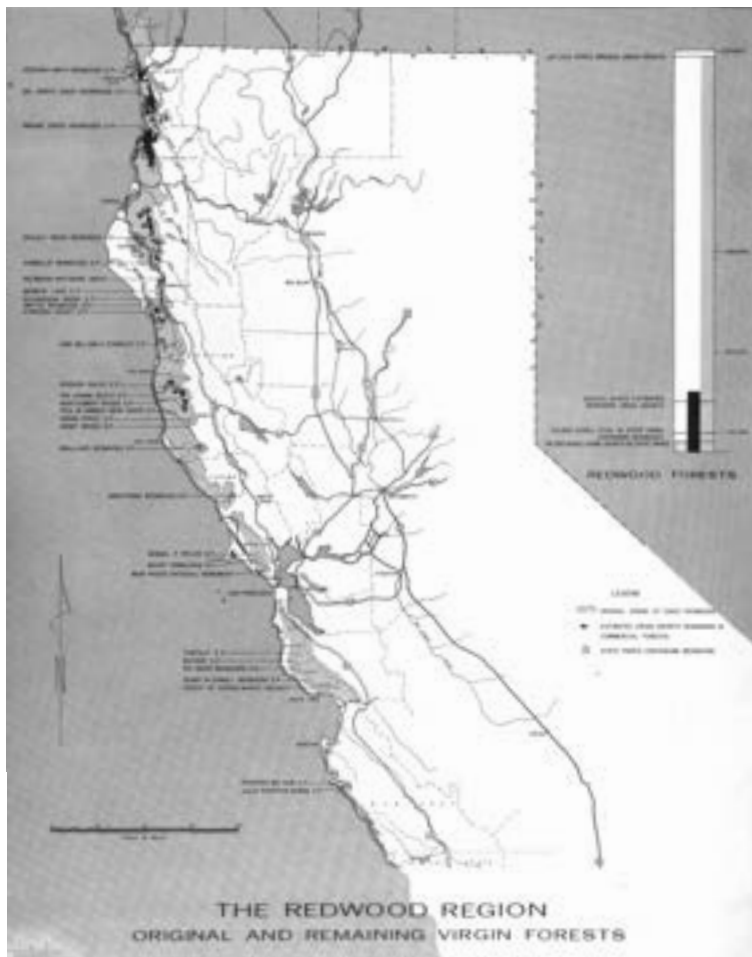
Equity and Inclusion:

Although this proposal doesn't immediately engage underserved and diverse communities, it sets the stage to apply for future grants for redwood planting and could engage organizations such as the Conservation Corps which provides opportunities for employment of underserved groups. Also, future redwood forests would provide aesthetic value to all our County's families and communities.

Addendum I:

Three conflicting maps of the historic distribution of coast redwoods in Santa Clara County follow:

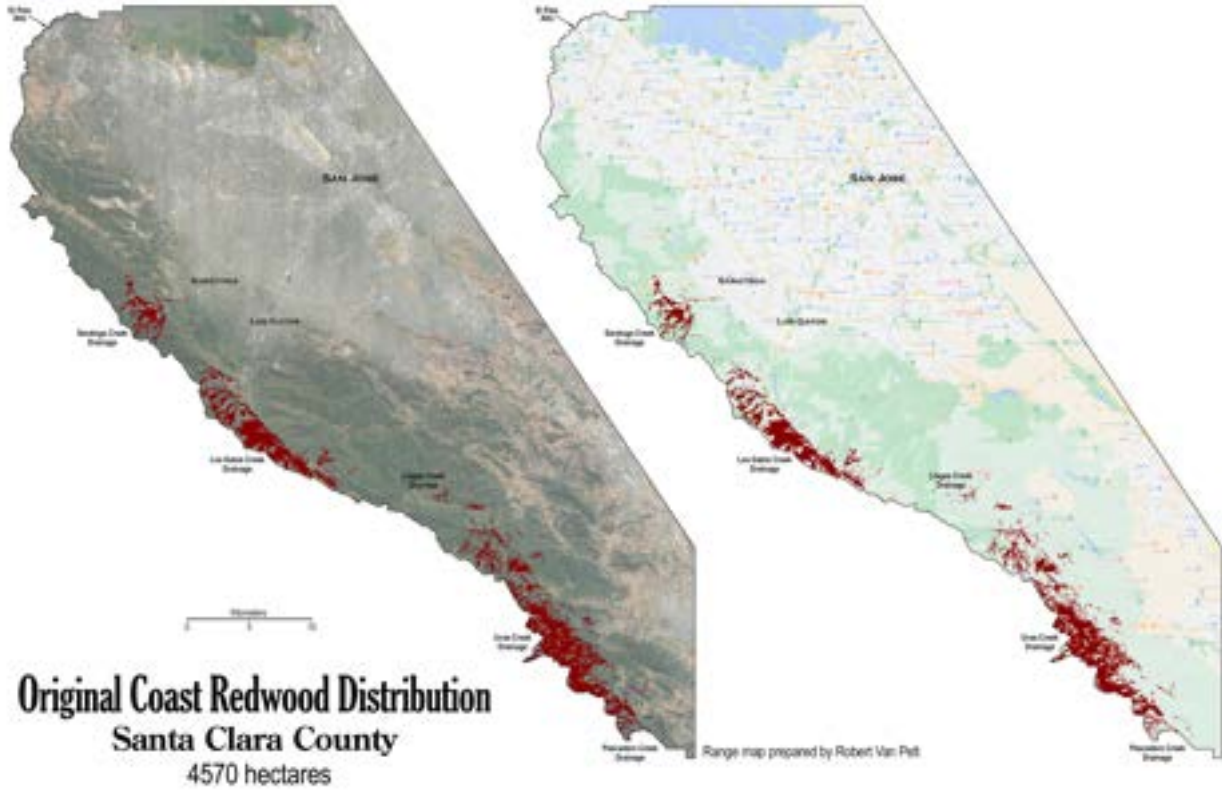
- 1. National Park Service 1964 Historic California Redwood Forest Map from The Redwoods- A National Opportunity for Conservation and Alternatives for Action**



2. Save the Redwoods Historic Coast Redwood Range Santa Clara and Santa Cruz Counties



3. **Robert Van Pelt PhD Map of Original Coast Redwood Distribution, Santa Clara County**, Professor, School of Environmental and Forest Sciences, College of the Environment, University of Washington



Addendum II: Article on Coast Redwoods as the Best Tree Species for Carbon Sequestration:

YaleEnvironment360

*Published at the
Yale School of the Environment*

https://e360.yale.edu/digest/california_redwoods_co2_storage

E360 Digest

July 7, 2016

California's Redwood Trees Are Best in the World at Storing CO₂

California's ancient redwood trees store more carbon dioxide per acre than any other forest in the world, including tropical rain forests like the Amazon, according to [new research published in the journal *Forest Ecology and Management*](#).



California redwood trees.

The findings are the result of a seven-year study by scientists at Humboldt University and the University of Washington. Redwoods store 2,600 metric tons of carbon per hectare (2.4 acres), more than double the absorption rate of the Pacific Northwest's conifer trees or Australia's eucalyptus forests, the study found. The main reason redwoods surpass all others in CO₂ storage is their longevity, the scientists said. "The story of carbon is huge," Robert Van Pelt, a scientist

at Humboldt State University and co-author of the research, [told *The Mercury News*](#). “The carbon part of a redwood may be more important than the lumber part in the coming decades.”

References for this proposal:

1. Van Pelt R, Sillett SC, Kruse WA, et al: Emergent crowns and light-use complementarity lead to global maximum biomass and leaf area in Sequoia sempervirens forests. *Forest Ecology and Management* 375:279–308, 2016
2. Domke GM, Oswalt SN, Walters BF, et al: Tree planting has the potential to increase carbon sequestration capacity of forests in the United States. *Proc Natl Acad Sci USA* 117:24649–24651, 2020
3. The National Park Service: The Redwoods- A National Opportunity for Conservation and Alternatives for Action 1964 National Park Service [Internet]. Washington, DC, USA, United States Department of the Interior, 1964 Available from: https://books.google.com/books/about/The_Redwoods_a_National_Opportunity_for.html?id=h-QowAEACAAJ
4. GIS Analysis of Historic Redwood Range in Marin County [Internet]. Olema, Ca, USA, Turtle Island Restoration Network, 2017 Available from: <https://seaturtles.org/historicredwoodrange/>
5. Potter C, Alexander O: Machine learning to understand patterns of burn severity from the SCU Lightning Complex Fires of August 2020. *California Fish and Wildlife Journal* 108:108–120, 2022
6. CASA Systems 2100, Potter C: Impacts of the CZU Lightning Complex Fire of August 2020 on the forests of Big Basin Redwoods State Park [Internet]. *California Fish and Wildlife Journal* 109, 2023 [cited 2023 May 1] Available from: <http://www.doi.org/10.51492/cfwj.109.1>






TIHE_Agreement_Redwood Habitat Analysis w attachments_053023_Final

Final Audit Report

2023-06-13

Created:	2023-06-12
By:	ED Moreno (smoreno@gcrd.org)
Status:	Signed
Transaction ID:	CBJCHBCAABAAAdcnIkZ_dkZ72q1Xf9F6DyBnGi7qz6eMW

"TIHE_Agreement_Redwood Habitat Analysis w attachments_053023_Final" History

-  Document created by ED Moreno (smoreno@gcrd.org)
2023-06-12 - 10:19:09 PM GMT- IP address: 76.127.64.132
-  Document emailed to Richard Lanman (ricklanman@gmail.com) for signature
2023-06-12 - 10:20:31 PM GMT
-  Email viewed by Richard Lanman (ricklanman@gmail.com)
2023-06-13 - 2:54:24 AM GMT- IP address: 66.249.88.35
-  Document e-signed by Richard Lanman (ricklanman@gmail.com)
Signature Date: 2023-06-13 - 4:17:56 PM GMT - Time Source: server- IP address: 104.50.140.112
-  Agreement completed.
2023-06-13 - 4:17:56 PM GMT