COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Last Updated: May 2021

Colorado Water Conservation Board

Water Plan Grant Application

Instructions

To receive funding for a Water Plan Grant, applicant must demonstrate how the project, activity, or process (collectively referred to as "project") funded by the CWCB will help meet the measurable objectives and critical actions in the Water Plan. Grant guidelines are available on the CWCB website.

If you have questions, please contact CWCB at (303) 866-3441 or email the following staff to assist you with applications in the following areas:

Water Storage & Supply Projects	Matthew.Stearns@state.co.us
Conservation, Land Use Planning	Kevin.Reidy@state.co.us
Engagement & Innovation Activities	Ben.Wade@state.co.us
Agricultural Projects	Alexander.Funk@state.co.us
Water Sharing & ATM Projects	Alexander.Funk@state.co.us
Environmental & Recreation Projects	Chris.Sturm@state.co.us

FINAL SUBMISSION: Submit all application materials in one email to *waterplan.grants@state.co.us* in the original ile formats [Application (word); Statement of Work (word); Budget/Schedule (excel)]. Please do not combine documents. In the subject line, please include the funding category and name of the project.

Water Project Summary

Name of Applicant	Drylands Agroecology Research
Name of Water Project	Phase II Dryland Research Expansion
CWP Grant Request Amount	$ 340,000 (This would support completion of this project phase. However, elements of this phase can be initiated with any smaller amount of funding you are able to provide.)
Other Funding Sources [redacted]	$ Matching Funds to 50,000 - Ktisis Capital
Other Funding Sources [redacted]	$ 25,000 - LadyBug Foundation
Other Funding Sources [redacted]	$ 90,000 (over 3 years) - Tumbleweed Fund
Applicant Funding Contribution	$ 30,000 In Kind
Total Project Cost	$535,000

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Applicant & Grantee Information
Name of Grantee(s) Drylands Agroecology Research
Mailing Address 12191 N Foothills Hwy, Longmont CO 80503
FEIN 82-2651409
Organization Contact Nick DiDomenico
Position/Title Co Executive Director
Email nick@dar.eco
Phone 303-880-2765
Grant Management Contact Amy Scanes-Wolfe
Position/Title Community Outreach & Research Coordinator
Email ascaneswolfe@gmail.com
Phone 303-834-5235
Name of Applicant (if different than grantee)
Mailing Address
Position/Title
Email
Phone

Description of Grantee/Applicant
Provide a brief description of the grantee's organization (100 words or less).
Drylands Agroecology Research is a non-pro it organization dedicated to restoring the earth and our communities through regenerative agricultural design. Using keyline design, agroforestry, drought resilient seed and stock breeding programs, and careful livestock integrations, DAR designs farm systems that reverse deserti ication, sequester carbon, enhance biodiversity, support marginalized communities, and produce an agricultural yield. These implementations are embedded within a research and educational program to document and scale successes. DAR has completed its pilot project and is in the process of scaling its implementations and research.

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Type of Eligible Entity (check one)	
	Public (Government): Municipalities, enterprises, counties, and State of Colorado agencies. Federal agencies are encouraged to work with local entities. Federal agencies are eligible, but only if they can make a compelling case for why a local partner cannot be the grant recipient.
	Public (Districts): Authorities, Title 32/special districts (conservancy, conservation, and irrigation districts), and water activity enterprises.
	Private Incorporated: Mutual ditch companies, homeowners associations, corporations.
	Private Individuals, Partnerships, and Sole Proprietors: Private parties may be eligible for funding.
X	**Non-governmental organizations (NGO):** Organization that is not part of the government and is non-pro it in nature.
	Covered Entity: As de ined in Section 37-60-126 Colorado Revised Statutes.

Type of Water Project (check all that apply)	
X	Study
	Construction
X	Other

Category of Water Project (check the primary category that applies and include relevant tasks)	
	Water Storage & Supply - Projects that facilitate the development of additional storage, arti icial aquifer recharge, and dredging existing reservoirs to restore the reservoirs' full decreed capacity, multi-bene icial projects, water sharing agreements, Alternative Transfer Methods, and those projects identi ied in basin implementation plans to address the water supply and demand gap. *Applicable Exhibit A Task(s):* ***Note:*** *For Water Sharing Agreements or ATM Projects - please include the supplemental application available on the CWCB's website.*
	Conservation and Land Use Planning - Activities and projects that implement long-term strategies for conservation, land use, water ef iciency, and drought planning. *Applicable Exhibit A Task(s):*
	Engagement & Innovation - Activities and projects that support water education, outreach, and innovation efforts. *Applicable Exhibit A Task(s):*
X	Agricultural - Projects that provide technical assistance and improve agricultural ef iciency. *Applicable Exhibit A Task(s): Completion of Agroforestry Swales & Windbreaks, Drought Resilient Grain Trials, Livestock Integration, Research Program, Personnel*
	Environmental & Recreation - Projects that promote watershed health, environmental health, and recreation. *Applicable Exhibit A Task(s):*

	Other	Explain:

Location of Water Project	
Please provide the general county and coordinates of the proposed project below in **decimal degrees**. The Applicant shall also provide, in Exhibit C, a site map if applicable.	
County/Counties	Boulder County
Latitude	40.20
Longitude	105.25

Water Project Overview

Please provide a summary of the proposed water project (200 words or less). Include a description of the project and what the CWP Grant funding will be used for speci ically (e.g., studies, permitting process, construction). Provide a description of the water supply source to be utilized or the water body affected by the project, where applicable. Include details such as acres under irrigation, types of crops irrigated, number of residential and commercial taps, length of ditch improvements, length of pipe installed, and area of habitat improvements, where applicable. If this project addresses multiple purposes or spans multiple basins, please explain.
The Applicant shall also provide, in Exhibit A, a detailed Statement of Work, Budget, Other Funding Sources/Amounts and Schedule.

Framework: DAR is committed to researching and scaling dryland agricultural systems and is seeking support for the next phase of growth (see page 1 of the appendix). Initial implementation will take place from 2022-2023.

Implementation:
This phase involves continuing agroecology trials on our af iliate properties by:

- Completing agroforestry swales & windbreak plantings with a variety of edible and Nitrogen- ixing trees and shrubs (see pages 4-5 of the appendix for existing species information)
- Setting up appropriate electric fencing and infrastructure for introducing livestock into the systems (see page 10 of the appendices for an example rotational scheme)
- Expanding drought resilient grain trials and breeding, including the introduction of perennial wheat (Kernza™)

Research Program:
The goal of this program is to track metrics across all af iliate properties to understand how well systems are functioning (see page 2 of the appendix for details). The following metrics correlate with the increased ability of systems to retain water: water in iltration rate, soil organic matter percentages, bulk density, water holding capacity, changing crop yields over time, and growth & survival rates of agroforestry trees/shrubs by species.

Appropriate Personnel:
We will develop appropriate personnel to execute this phase, including advisory, design, operations, outreach, administrative, and installation support.

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Measurable Results		
To catalog measurable results achieved with the CWP Grant funds, please provide any of the following values as applicable:		
	New Storage Created (acre-feet)	
	New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive	
	Existing Storage Preserved or Enhanced (acre-feet)	
	Length of Stream Restored or Protected (linear feet)	
	Ef iciency Savings (indicate acre-feet/year OR dollars/year)	
45	Area of Restored or Preserved Habitat (acres)	
	Quantity of Water Shared through Alternative Transfer Mechanisms or water sharing agreement	
	Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning	
900	Number of Coloradans Impacted by Engagement Activity	
	Other	Explain: Improvement in the system's ability to retain water (see metrics tracked in our research program in Appendix B)

Water Project Justi ication
Provide a description of how this water project supports the goals of Colorado's Water Plan, the Analysis and Technical Update to the Water Plan, and the applicable Roundtable Basin Implementation Plan and Education Action Plan. The Applicant is required to reference speci ic needs, goals, themes, or Identi ied Projects and Processes (IPPs), including citations (e.g. document, chapters, sections, or page numbers). The proposed water project shall be evaluated based upon how well the proposal conforms to Colorado's Water Plan Framework for State of Colorado Support for a Water Project (CWP, Section 9.4, pp. 9-43 to 9-44;)

The problem the CWP has identi ied is that as increasing agricultural transfers to M&I are necessary to support growth, this will create increasing agricultural water gaps and detract from the rural agricultural economy and food security.

Chapter 6 pg 38 sums up this trend directly: "Using past trends as a baseline, the South Platte Roundtable reexamined potential loss of irrigated lands in the South Platte Basin, and estimated a range of 10 to 20 percent loss, and could be as much as 50 percent under one of the scenarios described in the BIP.100 These anticipated declines are primarily due to agricultural-to-municipal transfers…" This is particularly true in the Cooperative Growth, Adaptive Innovation, and Hot Growth Scenarios. "The No-and-Low-Regrets actions indicate that the basin needs a minimum of 44,000 acre-feet of additional agricultural transfers."

This trend is reiterated in Chapter 5, page 13, which suggests the decrease in irrigated acres will be most profound in the South Platte Basin, with up to 35% of irrigated acres removed.

Chapter 3, page 13 suggests that agriculture is the dominant water user and accounts for 85 percent of total water diversions. As more water is diverted to M&I uses, the expectation is that this will have a negative effect on rural communities, open spaces, wetlands, and recreation areas, as well as the local economy and food security.

DAR's work supports the Colorado Water Plan because we are pioneering agricultural systems that thrive with little or no irrigation and therefore free up water for M&I and environmental uses while the agricultural economy continues to thrive. It also allows non-irrigated lands to be revitalized and productive agricultural acres to grow.

In Chapter 6.2, the Colorado Water Plan Explicitly lists these goals related to shortages and declining irrigated acres:

- "Ensure that agriculture remains a viable economic driver in Colorado by supporting food security, jobs, and rural communities while protecting private property rights."
- "Meet Colorado's agricultural needs."
- "Implement ef iciency and conservation measures to maximize bene icial use and production."
- "Protect and enhance Colorado's natural resources, and provide ecosystem services"

Chapter 5 Pg 40 also advocates the development of multi-purpose projects that simultaneously support agriculture, community water needs, environmental needs, and recreation. DAR's work designs systems that support both agriculture and ecological health, while providing agritourism bene its as well.

DAR already embraces the water conservation techniques you suggest and goes further to innovate additional solutions for water conservation.

Chapter 6, Pg 93 outlines the techniques already advocated for water conservation: "'Agricultural water conservation' describes the water resulting from on-farm practices that reduce the amount of bene icially consumed irrigation water during the production of an agricultural commodity. The amount of such water can be measured as a reduction in historical consumptive use. Examples of non-structural, agricultural water conservation practices include changes in crop type, reduction of crop area, de icit irrigation, and soil health improvements that reduce evaporative loss. Because agricultural water conservation is a reduction in historical consumptive use, it is the only irrigation ef iciency practice that can be marketed to other bene icial uses."

Chapter 6, Page 96 expands on soil health improvement methods to speci ically cite mulching, drip irrigation, and "soil health" practices as cultivation techniques for reducing evaporative losses.

DAR embraces these by:

- Exploring new, drought-resilient crop types including small grains and high-value perennial fruit and nut crops, all of which also support livestock and require very little water
- Designing systems that are never or very rarely irrigated
- Improving soil health by increasing the ability of the systems to store water and support soil life, revegetating denuded areas and rarely leaving soil bare, and building fertility and microbiological health with careful livestock management

DAR is taking these conservation methods one step further by using less adopted methods like contour swales, agroforestry, and intensive livestock management to further lower agricultural water needs.This falls under the water conservation and reuse goal in Chapter 6 pg 59: "Seek creative options for improving agricultural irrigation conservation and ef iciency."

DAR promotes low tech, low cost water storage in the most accessible container around - the soil - which will also rehydrates underground aquifers and supports environmental health

Chapter 3, Page 14 discusses how use of alluvial groundwater and aquifers offer opportunities to expand sustainable water use. By recharging groundwater, DAR's systems support this goal. Chapter 3 also expands upon opportunities for water storage infrastructure to enhance water use ef iciencies and supply reliability. DAR's methodologies provide a very low-infrastructure alternative (storage in soil) that supports the same aims.

DAR's implementations will give working lands the ability to buffer the effects of drought, looding, and climate change.

Chapter 4 pages 4-6 outline how variability of falling water creates problematic lood and drought conditions. Chapter 7 also speaks to the importance of drought and lood resilience. The South Platte basin goals & measurable outcomes (Chapter 6 pg 25) include meeting community water needs throughout Colorado by "assuring strong drought protection programs through broad development of protection plans and dedicated reserves potentially including storage, interruptible service agreements (ISAs), water banks, water use restrictions and nontributary groundwater, among others."

DAR develops farming systems that are inherently drought and lood resistant, as there is infrastructure to slow, spread, and sink water in both events. Moreover, the ability of these landscapes to retail water would, over a large acreage, help prevent looding.

In the analysis and technical update, on page 14, there was a discussion that, with climate change, snowmelt is likely to happen as much as one month sooner, followed by hotter and drier summers. This creates a very problematic situation for farmers relying on late season irrigation from mountain snowmelt. It becomes increasingly important to design systems that do not rely on late-season irrigation. DAR's implementations are capable of soaking up signi icant moisture from spring precipitation events and holding it well into summer.

Contribution to ATMs by designing systems that will be more productive with irrigation but continue to thrive without it if water is periodically leased elsewhere or shared between farms.

Chapter 6 pg 100 outlines basin implementation plans that include the successful implementation of ATMs, which provide alternatives to water being transferred out of agricultural systems for good. DAR's implementations could provide an ATM here, in which water is shared between several farms (or farms and municipal uses) and supports enhanced growth when it is available on each farm, but the farm continues to survive and produce without irrigation as well.

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Research

DAR's work is research focused, which will maximize the usefulness of its findings to other landowners and water conservationists and is also a stated goal of the CWCBP on pg 101: "The CWCB will continue to work with research institutions in Colorado to advance agricultural conservation and efficiency."

Related Studies

Please provide a list of any related studies, including if the water project is complementary to or assists in the implementation of other CWCB programs.

Soil water holding capacity buffers crop yields:
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0160974

Agroforestry as a tool for rehydrating rocky, desertifying landscapes:
https://www.cabdirect.org/cabdirect/abstract/20203126592

Documented ecosystem services of agroforestry in Southern Africa:
https://www.ajol.info/index.php/ajest/article/view/135037

Essence of keyline design for rehydrating landscapes:
https://www.cabdirect.org/cabdirect/abstract/19540603672

Case study of keyline design with bean crop: https://www.mdpi.com/2071-1050/13/17/9982

Considerations for using animals to enhance grassland water retention and productivity:
https://academic.oup.com/jas/article-abstract/93/6/2626/4703397

Using animal integration to help crop residues enhance soil health & productivity:
https://www.sciencedirect.com/science/article/abs/pii/S0308521X14000651

Previous CWCB Grants, Loans or Other Funding

List all previous or current CWCB grants (including WSRF) awarded to both the Applicant and Grantee. Include: 1) Applicant name; 2) Water activity name; 3) Approving RT(s); 4) CWCB board meeting date; 5) Contract number or purchase order; 6) Percentage of other CWCB funding for your overall project.

N/A

Taxpayer Bill of Rights

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The Taxpayer Bill of Rights (TABOR) may limit the amount of grant money an entity can receive. Please describe any relevant TABOR issues that may affect your application.
N/A

Submittal Checklist	
X	I acknowledge the Grantee will be able to contract with CWCB using the Standard Contract.
X	Statement of Work(1)
X	Budget & Schedule(1)
N/A	Engineer's statement of probable cost (projects over $100,000)
X	Letters of Matching and/or Pending 3rd Party Commitments(1)
X	Map (if applicable)(1)
X	Photos/Drawings/Reports
X	Letters of Support (Optional)
X	Certi icate of Insurance (General, Auto, & Workers' Comp.) (2)
X	Certi icate of Good Standing with Colorado Secretary of State(2)
X	W-9(2)
N/A	Independent Contractor Form(2) (If applicant is individual, not company/organization)
Water Sharing Agreements and Alternative Transfer Methods ONLY	
	Water Sharing Agreements and Alternative Transfer Methods Supplemental Application(1)

(1) Required with application.
(2) Required for contracting. While optional at the time of this application, submission can expedite contracting upon CWCB Board approval.

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Water Plan Grant - Exhibit A

Statement Of Work	
Date:	**11/2/2021**
Name of Grantee:	**Drylands Agroecology Research**
Name of Water Project:	**Drylands Agroecology Research Phase II**
Funding Source:	

Water Project Overview:

Phase II of research implementation is focused on extrapolating successes from the Elk Run Farm pilot project to 50 acres on two af iliate farms by:

1. Completing implementations that will provide valuable data on the drought resilience of various species of agroforestry stock, yields of various drought-resilient grains, the effect of intensively managed livestock on soil health, and how well the integrated systems are retaining water.
2. Implementing a comprehensive research program to track the effects of design implementations on the landscape's ability to retain water by measuring such metrics as water in iltration rate, soil organic matter percentages, bulk density, water holding capacity, changing crop yields over time, and growth/survival rates of agroforestry trees and shrubs.
3. Facilitating successful implementation and setting the stage for scaling the land stewardship and research program by developing appropriate personnel.

Project Objectives:

- Continue scaling drought resilient design techniques from the pilot project to a broader acreage to provide a stronger research base
- Develop a rigorous research program to track how well systems are retaining water and providing other ecosystem services, so that this information can support future implementations and other regional projects
- Streamline processes to set the stage for expanded implementation, research, and education to help scale these practices

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Tasks
Task 1 – Completion of Agroforestry Swales & Windbreaks
Description of Task:
Complete the swale installation and agroforestry plantings at DAR's af iliate properties, Yellow Barn and Metacarbon Farms. See the appendix for Yellow Barn Farm's full design concept (pages 8-10) and a map of the proposed planting area at Metacarbon Farm (page 11). Note: Included in the budget are different price points for purchasing or renting the equipment for this project. Owning equipment will not only pay for itself within the next decade in new implementations, it will also provide an income opportunity for renting out equipment. The prices of equipment are listed new because the pandemic has created a shortage of used equipment, but used equipment will be purchased if possible. The projected budget includes purchase of a tractor (the most used piece of equipment) and rental of everything else.
Method/Procedure:
Winter/Early Spring ● Complete detailed design concepts for the new sites at Yellow Barn and MetaCarbon Farms ● Use a laser level to mark contour lines at regular intervals on the appropriate hillsides ● Use a mini excavator to dig out swales on contour ● Use a tractor to ill the basins of the swales with irst compost and then local hardwood wood chip mulch to accumulate water in the soil prior to spring planting Spring ● Plant bare-root stock of various fruit and N- ixing trees and shrubs approximately every 18" in the basins of these swales, adding mycorrhizal fungi inoculant in each hole (this planting is led by staff but relies heavily on volunteers) ● Use a water truck to water in the bare root seedlings ● Protect each seedling with a plastic tree guard and stake ● Seed a drought resilient cover crop or native prairie mix into the bare soil of the berm
Deliverable:
Report on linear feet of swales dug and quantities of each tree and shrub species planted

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Tasks
Task 2 – Drought Resilient Grain Trials
Description of Task:
Use a combination of pigs, chickens, and a chisel plow to prepare the soil for planting. Use either a grain drill or broadcasted seed incorporated by harrow to plant various drought resilient grains at the appropriate time of year at Yellow Barn Farm in the alleyways between the established agroforestry swales.
Method/Procedure:
Amaranth, Hopi Blue Corn, Grain Sorghum. Each of the following will be planted in late spring in one or more alleyways between contour swales at the Yellow Barn Farm and lood irrigated shortly thereafter and one more time in early summer (ditch rights permitting). Soil preparation for each of these will take place in 2022 and involve a rotation of pigs, chickens, and fallow followed by chisel plowing and seeding. Target seeding date is Spring 2023. **Turkey Red Wheat, Cereal Rye.** These will be fall-planted in 2022 after an initial rotation of pigs and chickens in early 2022. If irrigation water is available, the seed will be lood irrigated; if not, seeding will be timed before a signi icant precipitation event is expected. All of these annual grains will be included thereafter in periodic rotations of pigs, chickens, fallow, and grain. **Kernza.** This will be seeded in a number of different ways to provide points of comparison: 1. Spring 2022 - following rototilling of an existing unamended pasture 2. Fall 2022 - following pig, chicken, and chisel plow preparation 3. Spring 2023 - following pig, chicken, and chisel plow preparation Native wild lower seed will be broadcast over portions of the 2022 plantings in late November. Once the Kernza and wild lowers are suf iciently established, rotational grazing by sheep will be introduced to the system (sometime in 2023).
Deliverable:
Report on methodology, seeding rates, yields, and qualitative observations

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Task 3 – Livestock Integration
Description of Task:
Set up appropriate mobile electric fencing, shelter, and water for sheep to be rotated through perennial pastures and Kernza ields and pigs and chickens to be rotated through annual grain ields. Acquire additional sheep as necessary.
Method/Procedure:

See the appendix (page 10) for a sample order of animal rotation. The solar charger and grounding rod will be set up at each new location along with electric fencing. The animals in question already have appropriate shelters/coops that can be moved along with them as well.
Deliverable:
Provide an accurate schematic for quantities of animals and how they were rotated through the pastures and on what timeline.

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Task 4 – Research Program
Description of Task:
Expand the existing research program to include the thorough collection of metrics on the pilot farm and af iliate properties to discover how well the systems are retaining water, sequestering carbon, supporting biodiversity, and producing agricultural yields. See page 2 of the appendix for a list of the metrics that are being tested and what they indicate about system health.
Method/Procedure:

Our irst priority, which is in progress, is to develop a partnership with CSU and ind students interested in supporting this research program.

Soil Testing: Soil testing procedures were developed in conjunction with Bryan Reed of Mesa State University to test changing depths of soil horizons, soil organic matter percentages, macronutrients, water in iltration rates, water holding capacity, bulk density, and soil microbiology pro iles.

Samples have been collected at the adjacent open space as a baseline and on four locations at Elk Run Farm (forest garden, grain ields, and two different locations on the dryland pastures above and below the check dam system). See page 3 of the appendix for this data. With funding, the goal is to expand this research to include samples at 15 locations between Elk Run, Yellow Barn, and Metacarbon Farms. Soil microbiology samples will be collected once annually and physical & chemical samples twice annually.

Tree & Shrub Data: Every fall before leaf-shed, a survey will be conducted to count the number of surviving individuals of each species in each swale at each site to track survival rates. Additionally, the height of a representative sample of individuals of each species in each swale (where present) will be collected at this time, to track average growth rates of different species in different conditions. See Appendices D-E for data from this year's preliminary count (which was incomplete and likely slightly inaccurate as leaf shed had already commenced, making identi ication dif icult). This process will be led by staff and supported by trained volunteers.

Agricultural Yields: Yields of each grain crop will be weighed and recorded after the harvest. (Eventually, fruit and other yields will also be tracked, but this will not be appropriate until trees are more established).

Deliverable:

Raw & summarized research data collected, including soil test results, species counts & survival rates, species growth rates, and crop yields.

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Task 5 – Personnel
Description of Task:
Organize labor for implementation of this phase of research and systematize processes to facilitate the expansion, within 3-5 years, of land stewardship and educational programs.
Method/Procedure:

All personnel will be hired as independent contractors. The following are groups of tasks that need to be accomplished by a combination of the Executive Directors and support contractors:

Advisors: to provide advice on non-pro it management, strategic planning, technical skills, accounting, etc...

Vision & Direction: executive management, visioning, and direction with the support of senior advisors

Design: designing both initial concepts for new properties and continuing to observe and reiterate design for systems within existing af iliate properties; re ining and directing the vision of the organization as a whole

Operations: organizing all the logistics necessary to implement and monitor projects; managing project installation and stewardship; keeping necessary records and documentation; monitoring and sorting emails and taking phone inquiries; coordinating the research program

Outreach: fundraising by connecting with potential donors and partner organizations; recruiting and managing volunteers; organizing tours, events, & classes; creating promotional materials as necessary; grant writing; organizing partnerships with indigenous and underserved communities

Administration: keeping paperwork up to date, paying bills, accounting and bookkeeping

Installation: as-needed support with equipment operation, planting, mulching, etc… A mix of paid contractors and volunteer support.

Deliverable:
Summary of work completed

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Budget and Schedule

This Statement of Work shall be accompanied by a combined Budget and Schedule that re lects the Tasks identi ied in the Statement of Work and shall be submitted to CWCB in excel format.

Reporting Requirements

Progress Reports: The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of issuance of a purchase order, or the execution of a contract. The progress report shall describe the status of the tasks identi ied in the statement of work, including a description of any major issues that have occurred and any corrective action taken to address these issues.

Final Report: At completion of the project, the applicant shall provide the CWCB a Final Report on the applicant's letterhead that:

- Summarizes the project and how the project was completed.
- Describes any obstacles encountered, and how these obstacles were overcome.
- Con irms that all matching commitments have been ful illed.
- Includes photographs, summaries of meetings and engineering reports/designs.

The CWCB will pay out the last 10% of the budget when the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and inal payment has been issued, the purchase order or grant will be closed without any further payment.

Payment

Payment will be made based on actual expenditures and must include invoices for all work completed. The request for payment must include a description of the work accomplished by task, an estimate of the percent completion for individual tasks and the entire Project in relation to the percentage of budget spent, identi ication of any major issues, and proposed or implemented corrective actions.

Costs incurred prior to the effective date of this contract are not reimbursable. The last 10% of the entire grant will be paid out when the inal deliverable has been received. All products, data and information developed as a result of this contract must be provided as part of the project documentation.

Performance Measures

Performance measures for this contract shall include the following:
(a) Performance standards and evaluation: Grantee will produce detailed deliverables for each task as speci ied. Grantee shall maintain receipts for all project expenses and documentation of the minimum in-kind contributions (if applicable) per the budget in Exhibit C. Per Water Plan Grant Guidelines, the CWCB will pay out the last 10% of the budget when the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and inal payment has been issued, the purchase order or grant will be closed without any further payment.
(b) Accountability: Per Water Plan Grant Guidelines full documentation of project progress must be submitted with each invoice for reimbursement. Grantee must con irm that all grant conditions have been complied with on

each invoice. In addition, per Water Plan Grant Guidelines, Progress Reports must be submitted at least once every 6 months. A Final Report must be submitted and approved before inal project payment.
(c) Monitoring Requirements: Grantee is responsible for ongoing monitoring of project progress per Exhibit A. Progress shall be detailed in each invoice and in each Progress Report, as detailed above. Additional inspections or ield consultations will be arranged as may be necessary.
(d) Noncompliance Resolution: Payment will be withheld if grantee is not current on all grant conditions. Flagrant disregard for grant conditions will result in a stop work order and cancellation of the Grant Agreement.

Summary of Costs by Task	**Costs**								
Completion of Agroforestry Swales & Windbreaks	133050								
Drought Resilient Grain Trials	6460								
Livestock Integration	16400								
Research Program	3135								
Personnel	370,000								
Overhead	5955	Insurance, vehicle maintenance, incidentals, etc...							
Total (with tractor purchase only)	**535000**								
Additional Cost of Equipment Purcahases (minus rental fee)	117,200								
Total with All Equipment Purchases	***652200***								
Task: Completion of Agroforestry Swales & Windbreaks	**Cost**	**Notes**							
Skid Steer Rental	5400	$2700/month, once in 2022 and once in 2023					**Alternative: Pur**	Kubota Skid Stee	60,000
Mini Excavator Rental	5400	$2700/month, once in 2022 and once in 2023						Kubota Mini Exca	68,000
Kubota Mid-Sized Tractor Purchase	58,000	Purchase because cost of rental and transportation is huge, use is frequent, and it could be rented out; a used tractor will b							128,000
Compost	4000								
Mulch	1000	Contingency; mostly free mulch from arborists							
Bare Root Stock	49500	15000 bare root starts over two years at an average of $3.30 each							
Tree Protection	9750	15000 plastic tree gaurds at 65 cents each							
Total Cost	**133050**								
See Task 5 for Labor									
Task: Drought Resilient Grain Trials									
Tractor & Equipment Rental (chisel, seed, disk)	2000	Local farmer has offered to do this for us and use a method that has worked at his farm							
Grain Seed	1750								
Amaranth	$800	4 lbs from High Desert Seed (enough for 1 acre)							
Hopi Blue Corn	$650	25 lbs from True Leaf Market (enough to seed one acre)							
Sorghum	$60	10 lbs from Pawneed Buttes Seed Company (enough for 1 acre)							
Turkey Red Winter Wheat	$180	90 lbs from Wood Prairie Farm or Aspen Moon Farm (enough for 1 acre)							
Winter Rye	$60	110 from Pawnee Buttes Seed Company (enough to seed 1 acre)							
Kernza	$400	From a Land Institute supplier ($8/lb at 10 lbs per acre over 5 acres)				How many acres is Metacarbon?			
Native Wildflower Seed	$560	From Western Native Seed (10 lbs, which will cover .5 acres)							
Total Cost	**6460**								
See Task 3 for Related Livestock Infrastructure									
Task 3: Livestock Integration									
Transporting new flock	1000								
Additional Sheep	5000	15-20 sheep							
Chargers, Grounding Rods, etc...	2000								
Electro Net Fencing	6000								
Polywire	2400								
Total	**16400**								

Task 4: Research Program		
Soil Testing Fee - physical & chemical	630	Ward Labs: Fifteen samples collected between three properties twice annually at $20/test plus shipping
Soil Testing Fee - microbiology	2505	Earthfort Labs: Fifteen samples collected between three properties once annually at $167/test plus shipping
Total	**3135**	
Task 5: Personnel		
Advisors	20,000	Non-profit, accounting, technical, strategic, etc...
Vision & Direction	30,000	
Design	40,000	
Operations	100,000	
Outreach	60,000	
Administration	40,000	
Installation	80,000	
Total	**370,000**	
Schedule		
Winter/Early Spring 2022	Begin preparing the soil at Yellow Barn Farm for grain planting with intensive livestock rotation	
	Connect with CSU and/or recruit volunteers to make a plan for the expanded research program	
	Dig and mulch swales for spring agroforestry plantings & dig windbreak basins	
	Contract necessary personnel for projects	
	Order or acquire necessary materials for spring projects	
Spring/Early Summer 2022	Plant bare root agroforestry stock in prepared swales and windbreak depressions	
	Plant Kernza on 1-2 acres of mechanically prepared soil	
	Continue pig/chicken rotations at Yellow Barn Farm	
	Introduce sheep onto the pastures at Yellow Barn Farm	
	Collect spring soil health data at all sites	
Summer/Fall 2022	Seed pastures (prepared by livestock) at Yellow Barn farm to plant winter wheat and rye	
	Seed 1-2 acres of additional Kernza on land prepared by livestock	
	Collect fall soil health data	
	Collect data on agroforestry species heights and survival rates	
	Harvest and document yields of annual grain	
Winter 2022-23	Dig and mulch any remaining swales	
	Seed native wildflowers in 1/4 acre of each of the Kernza plots	
	Continue livestock rotations	
Spring/Early Summer 2023	Plant agroforestry stock in any remaining swales at Yellow Barn & Metacarbon	
	Plant grain in all planned areas at the Yellow Barn Farm	
	Continue intensive livestock rotations	
	Collect spring soil health data at all sites	
Summer/Fall 2023	Harvest Kernza and wildflower seed and document yields	
	Harvest annual grains and document yields	
	Introduce sheep into the Kernza rotation	
	Collect fall soil health & agroforestry data	
Winter 2023	Project reporting	

City of Boulder
Climate Initiatives

Date: November 30th, 2021

TOPIC: Endorsement of Dryland Agroecology Research Foundation Proposal to the Colorado Water Conservation Board

Dear Colleagues
The City of Boulder has a long history of both active efforts in environmental conservation, protection, and climate action. In 2017, we began to formally intersect our land conservation work with our climate action efforts through the launch of a new set of initiatives around management of our open space and agricultural lands to capture and store atmospheric carbon. From the outset of this work, we have worked to consider how the capture of carbon into soils and living systems could also support efforts to enhance the health and productivity of these systems.

It is in this context that we have been watching and more recently starting to work actively with the Drylands Agroecology Research Foundation. As stewards of thousands of acres of dryland living systems, we are acutely aware of the challenges these systems face due to climate change and other disruptive forces. It is clear that in many cases conventional land management practices that have been in use for decades may no longer be sustainable as we face increased temperatures and climatic extremes of both drought and inundation.

We strongly support this proposal by DAR to the Colorado Water Conservation Board. We believe the strategies they are developing and testing in using agroecology strategies to manage and hold water in our landscapes are extremely important. We are watching closely to see which of these approaches we can apply to our own lands as well as support the exploration of applying these practices to other public and private lands.

We hope you will prioritize this important body of work. Please contact us if we can be supportive of this effort in any way.

Sincerely,

Brett KenCairn
Senior Policy Advisor for Natural Climate Solutions

Drylands Agroecology Research
Water Plan Grant Appendices

Table of Contents

Phased Growth Plan

Phase 1: Complete	**Priorities**	**Status**
Elk Run Farm Pilot Project	Transform parking lot into healthy, water retentive topsoil	Complete
	Dig and plant dryland swales in degraded eastern pastures	Complete
	Trial small grain crops for drought resilience	Complete
	Demonstrate diverse forest gardening with gray water & well irrigation	Complete
	Develop pig, chicken, and sheep rotations to improve soil health	Complete
	Create soil testing schedule to document soil improvements throughout	Complete
	Collect data on agroforestry stock growth & survival rates	Complete
	Achieve 90% household food self-sufficiency (a complete diet)	Complete
	Connect with and honor local indigenous communities	Complete
	Establish relevant tours, workshops, and educational offerings	Complete
Phase Two: Commenced		
Scale successful techniques to affiliate properties	Site assessment and design	Complete
(Yellow Barn and Metacarbon Farms)	Contour swale installation and planting	Initiated: 33% Complete
	Livestock integrations	Awaiting Funds
	Drought resilient grain trials	Awaiting Funds
	Develop an expanded research program	Awaiting Funds
	Purchase earthmoving equipment for use and to rent out	Awaiting Funds
	Develop appropriate personnel for expansion	Awaiting Funds
Phase Three: 3-10 Years		
Scale research efforts to twelve new partners	Build relationships with potential land partners	Initiated
	Site assesment and design with new research potentials	Awaiting Funds
	Implementation of designs & data collection	Awaiting Funds
	Develop bioregional nursery for agroforestry stock & grain seed	Awaiting Funds
	Develop a training and certification program for land stewardship	Awaiting Funds

Research Program Metrics

	Desired Outcomes					
Indicators	Soil Fertility	Water Retention	C Sequestration	Biodiversity	Production /Profit	Education
Soil Organic Matter %	X	X	X		X	
Soil Water Infiltration Rates		X			X	
Soil Water Holding Capacity		X			X	
Soil Bulk Density		X			X	
Soil Macronutrients	X				X	
Soil Microbiology Profile	X	X	X	X	X	
Tree/Shrub Survival Rates (by species)	X	X	X	X	X	
Tree/Shrub Growth Rates (by species)	X	X	X		X	
Grain Crop Yields (by area planted)	X	X			X	
Food Waste Diverted from Landfill (lbs)			X		X	
Livestock Feed Costs (relative to #)	X				X	
Wildlife Species Observed				X		
Number of Pollinators Observed				X		
Attendance: Classes, Workshops, Tours						X
Number of Schoolchildren Visiting						X

Elk Run Farm Research Program Data

Elk Run Pilot Farm Physical and Chemical Soil Data

Location (10/10/20)	O Layer	A Layer	E Layer	OM	N (KCl Nitrate PPM)	P ppm	K ppm	Infiltration	Water Holding Capacity	Bulk Density	pH
Open Space	0.5"	2"	0	2.70%	2.0	19.8	283.0	0:53	25%	1.5	7.7
Forest Garden	1.5"	7.5"	2"	7.60%	21.0	186.0	341.0	0:15	30%	1.16	7.6
Staple Grain	1.0"	1.75"	1.75"	7.60%	48.0	185.0	733.0	0:15	30%	1.53	7.8
South Pasture	1.0"	2.25"	0	X	X	X	X	1:30	35%	1.28	7.3
North Pasture	0.5"	2.25"	0	6.40%	29.0	210.0	1268.0	0:18	36%	X	7.3
Location (5/1/21)	O Layer	A Layer	E Layer	OM	N	P	K	Infiltration	WHC	Bulk Density	pH
Forest Garden	1.5"	8"	2"	21.2	81.9	190.3	756	0:06	49	1.21	7.6
Staple Grain	1.75"	3"	1"	13.3	74	196.6	808	0:06	57	1.63	7.3
South Pasture	1.0"	2.5"		4.3	12	20.6	804	0:15	38	1.46	7.6
North Pasture	0.5"	2.46"		13.1	55.3	128.8	836	0:11	0.5	1.33	7.3
Location (10/28/21)	O Layer	A Layer	E Layer	OM	N	P	K	Infiltration	WHC	Bulk Density	pH
Forest Garden		7"	1.75"	22.2	62.1	344	224	0:04	26%	0.55	7.5
Staple Grain		4.5"	1.25"	26.2	149	505	242	0:37	23	1.44	6.9
South Pasture		1.75"	4.25"	5.8	31	179	662	0:54	25	2	7.1
North Pasture		2.0"	1.25"	5.7	22.4	131	655	1:11	33%	1.02	7.1

Elk Run Farm Soil Microbiological Data

Location (10/10/20)	Total Fungi µ/g	Total Bacteria µ/g	Actinobacteria	Flagellates/g	Amoebae/g	Ciliates/g	Nematodes/g
Open Space	393	417	5.97	479	1443	29	0.14
Forest Garden	1031	407	39.67	8894	71200	89	22.77
Staple Grain	172	271	1.41	7067	34054	71	0.95
South Pasture	X	X	X	X	X	X	X
North Pasture	235	376	2.39	4806	48068	48	0.15
Location (10/28/21)	Total Fungi µ/g	Total Bacteria µ/g	Actinobacteria	Flagellates/g	Amoebae/g	Ciliates/g	Nematodes/g
Forest Garden	901.87	601.25	X	77028.82	23183.9	0	40.91
Staple Grain	555.07	402.45	X	54237.67	5432.77	0	7.77
South Pasture	741.41	399.22	X	48058.66	0	0	10.33
North Pasture	248.71	316.55	X	4810.76	0	0	3.12

Summary of Elk Run Tree & Shrub Height Data October 7-8th, 2021

Average Height (Inches) by Alleyway

Species	L1	L2	L3	L5	L6	L7	L8	L9	N1	N2	N3	N4	N5	Average
Antonovka Apple	29.88	34.18	33.8	25	30.2	28.3	24.75	19.8	18.33	14.68	16.39	19.56	21.26	**24.32**
Bartlett Pear	19.88	22.4	25.25	27.8	36	31	21.91	13.38	23.5	22.93	32.54	17.67	22.4	**24.36**
American Plum	29.5	29	31.67	18.5	26.58	34.5	--	--	26.13	28	26.5	--	--	**27.82**
Manchurian Apricot	44	30	43.67	14	24	--	--	--	30.63	18.5	21.33	--	--	**28.27**
Hazelnut	12	--	22	13	16.25	17.5	6.67	8.33	6.14	3	6.25	14.5	--	**11.42**
Golden Currant	--	--	--	--	34	38.5	32	--	23	--	10	17.33	22	**25.26**
Red Mulberry	--	--	--	15	17	22.67	--	--	20	19	13.33	--	--	**17.83**
Elderberry	--	--	--	26	--	21.5	--	15	11.5	--	9	--	--	**16.6**
Nanking Cherry	--	--	--	--	--	--	--	--	19	12	11.33	--	--	**14.11**
Siberian Pea Shrub	27.5	50.87	49.4	36.67	38.41	36.84	--	--	33.44	24.5	36	--	--	**37.07**
False Indigo	46.3	56.67	55	39.67	37.4	48.23	32.29	30.88	33.11	29.83	26.25	40.27	27	**38.68**
Honey Locust	--	--	--	47.33	37.25	26	--	--	14.83	--	13.73	--	--	**27.83**
Average Height (apple, pear, plum, pea shrub, indigo)	**30.61**	**38.62**	**39.02**	**29.53**	**33.72**	**35.77**	**26.32**	**21.53**	**26.9**	**23.99**	**27.54**	**25.83**	**23.55**	

Agroforestry Data Yellow Barn & Metacarbon Farms

Yellow Barn Farm Species Survival Rates by Swale October 18th, 2021 (planted spring 2021)

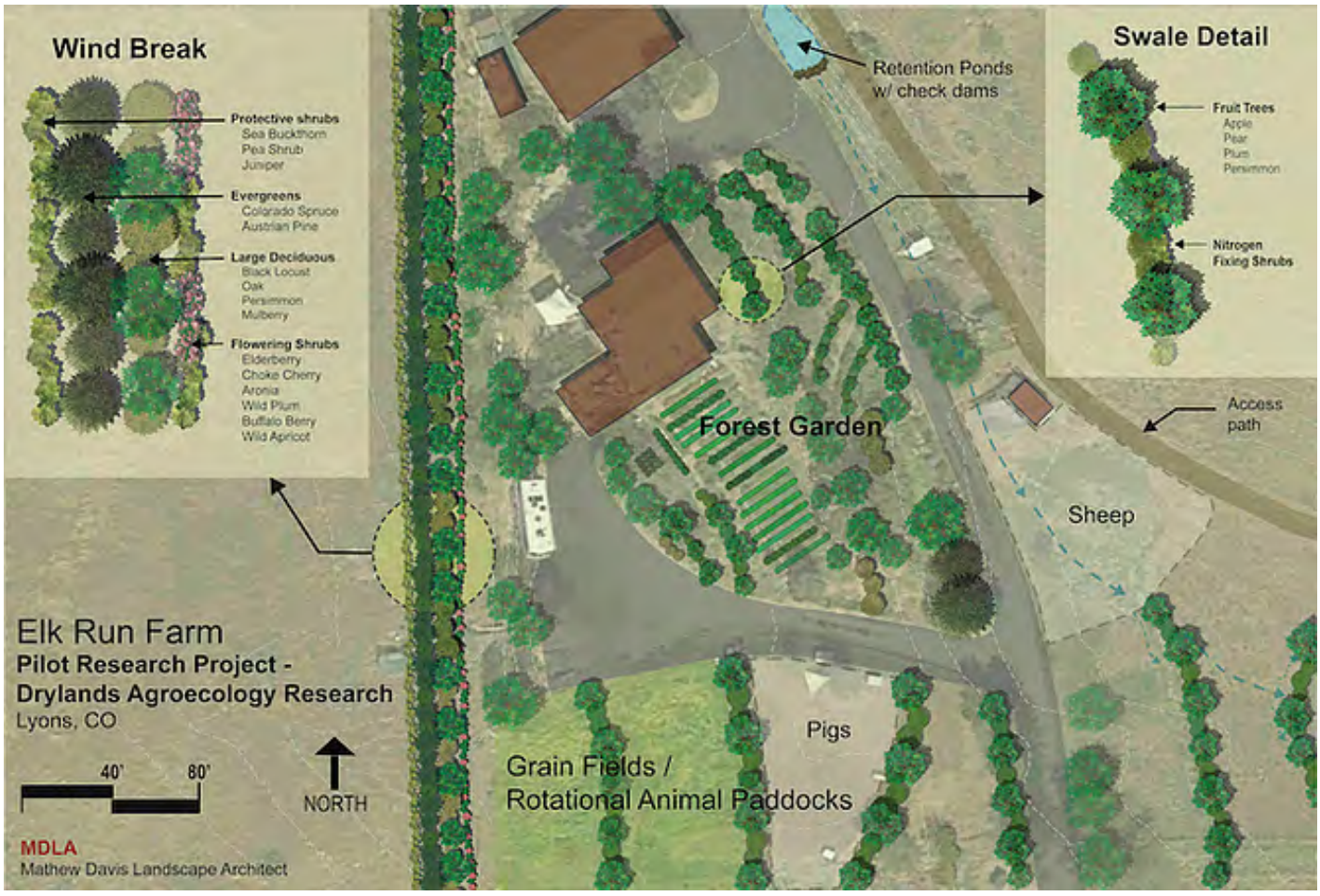
Species	S6	S5	S4	S3	S2	S1	Total
Actinova Apple	65	55	74	52	92	98	436
Manchurian Apricot	12	8	5	18	26	26	95
American Plum	6	6	11	0	5	17	45
Nanking Cherry	9	27	17	20	28	13	114
Elderberry	10	26	21	0	22	7	86
Golden Currant	1	3	16	18	4	0	42
False Indigo	63	53	55	78	73	69	391
Siberian Peashrub	4	15	61	0	51	92	223
Dormant (unrecognizable)	6	0	10	5	4	12	37
Total Living	176	193	270	191	305	334	1469
Dead	58	110	42	48	87	48	393
Total Planted	234	303	312	239	392	382	1862
Proportion Dead	0.25	0.36	0.13	0.2	0.22	0.13	0.21

Metacarbon Farm Species Survival Rates by Swale October 18th, 2021 (planted spring 2021)

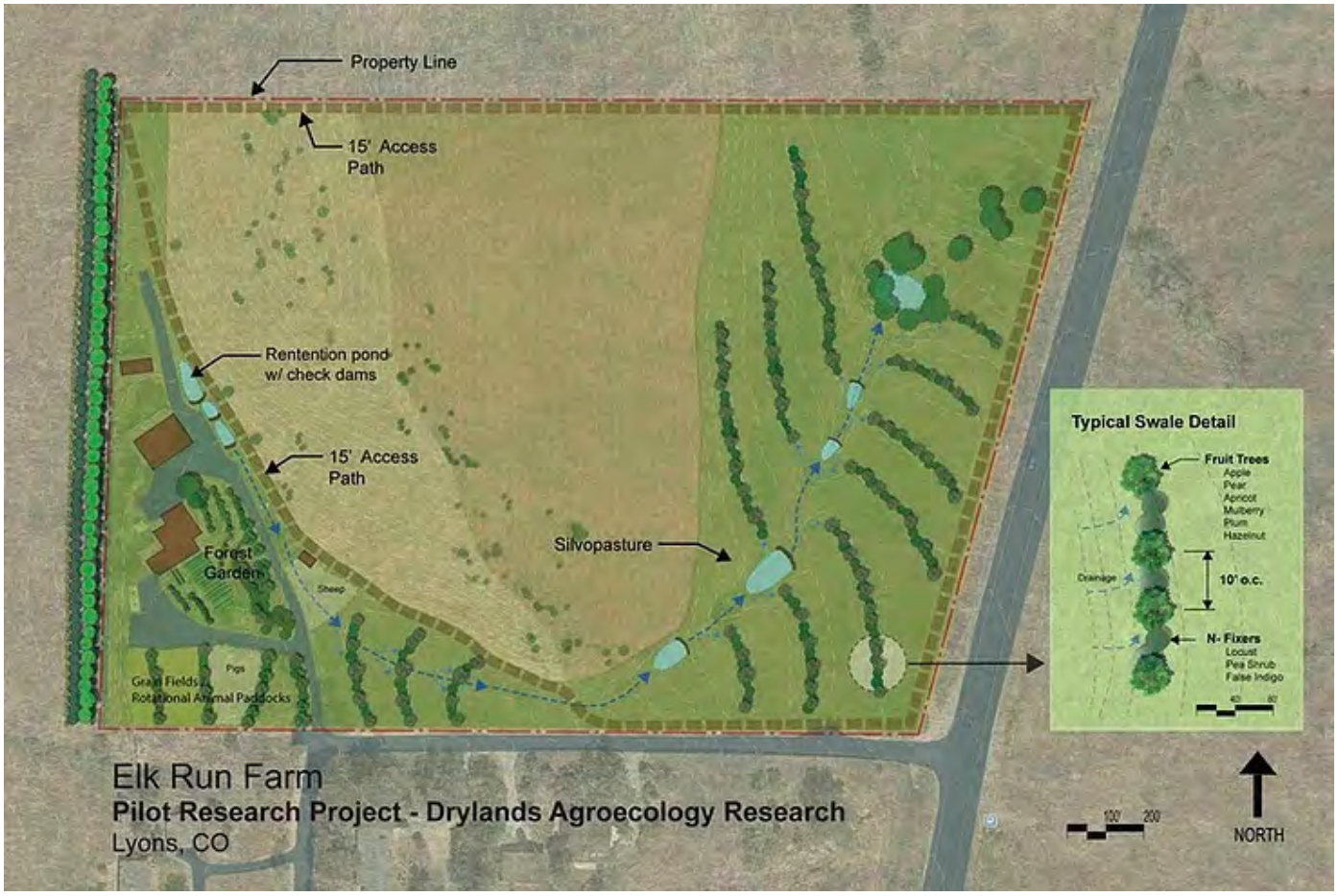
Species	S1	S2	S3	S4	S5	S6	S7	S8	Total
Actinova Apple	17	22	22	24	25	23	22	25	180
Bartlett Pear	15	18	18	9	15	16	16	15	122
Manchurian Apricot	4	9	5	9	13	14	3	4	61
American Plum	0	0	5	3	1	1	1	4	15
Nanking Cherry	3	1	4	4	5	8	2	2	29
Golden Currant	2	3	2	2	3	3	4	4	23
False Indigo	3	1	11	9	11	11	12	5	63
Siberian Peashrub	12	17	16	22	18	14	12	9	120
Lilac	0	0	0	0	0	0	12	10	22
Conifer	0	0	0	0	0	0	1	0	1
Dormant	0	0	1	0	1	0	1	0	3
Total Living	56	71	84	82	92	90	86	78	639
Dead	6	11	13	11	8	9	12	11	81
Total Planted	62	82	97	93	100	99	98	89	720
Proportion Dead	0.1	0.13	0.13	0.12	0.08	0.09	0.12	0.12	0.11

Design Concepts and Pictures from Elk Run Farm Pilot Project

Design Concept & Photographs: Zones 1 & 2



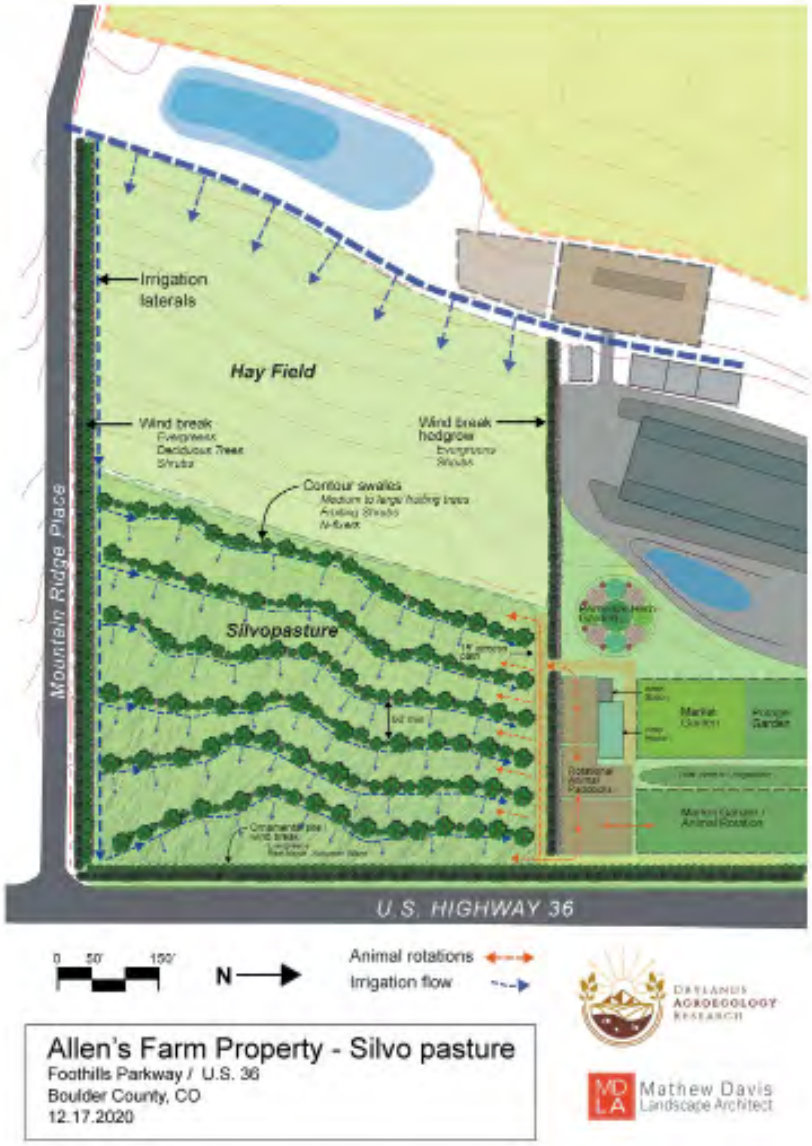
Design Concept for Dryland Swales & Paddock Rotations



Yellow Barn Farm Design Concept & Photographs

Full Property Design Concept

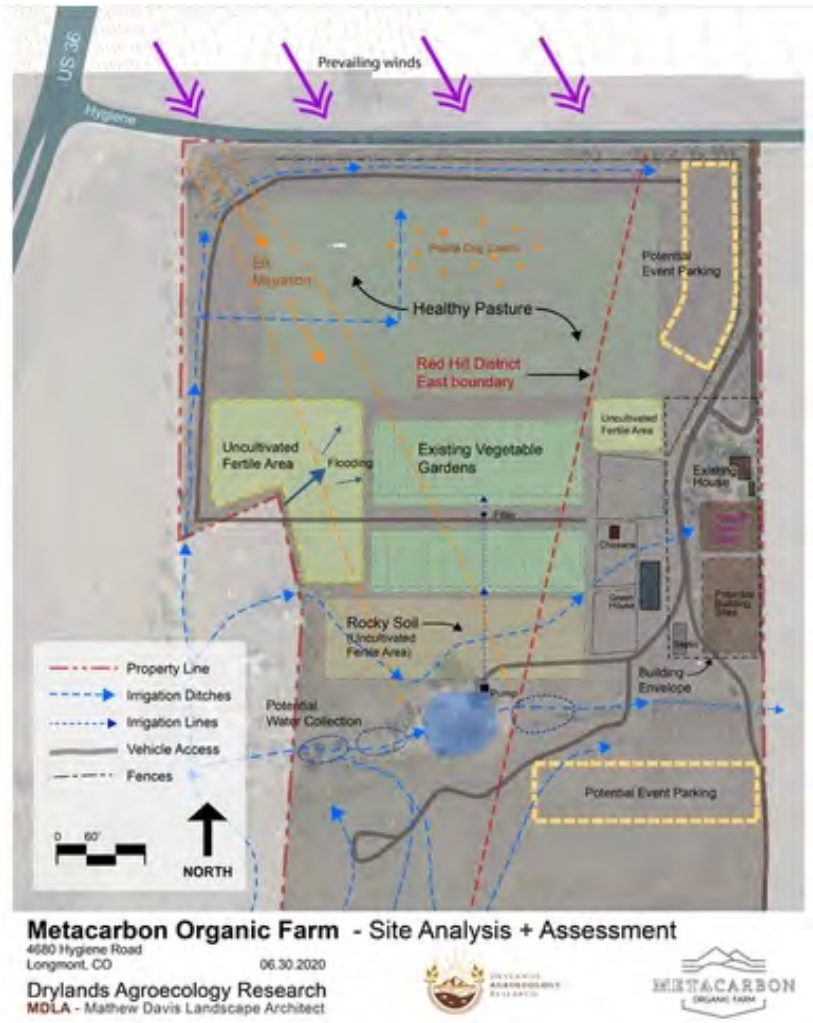
Silvopasture (Planted Spring 2021)



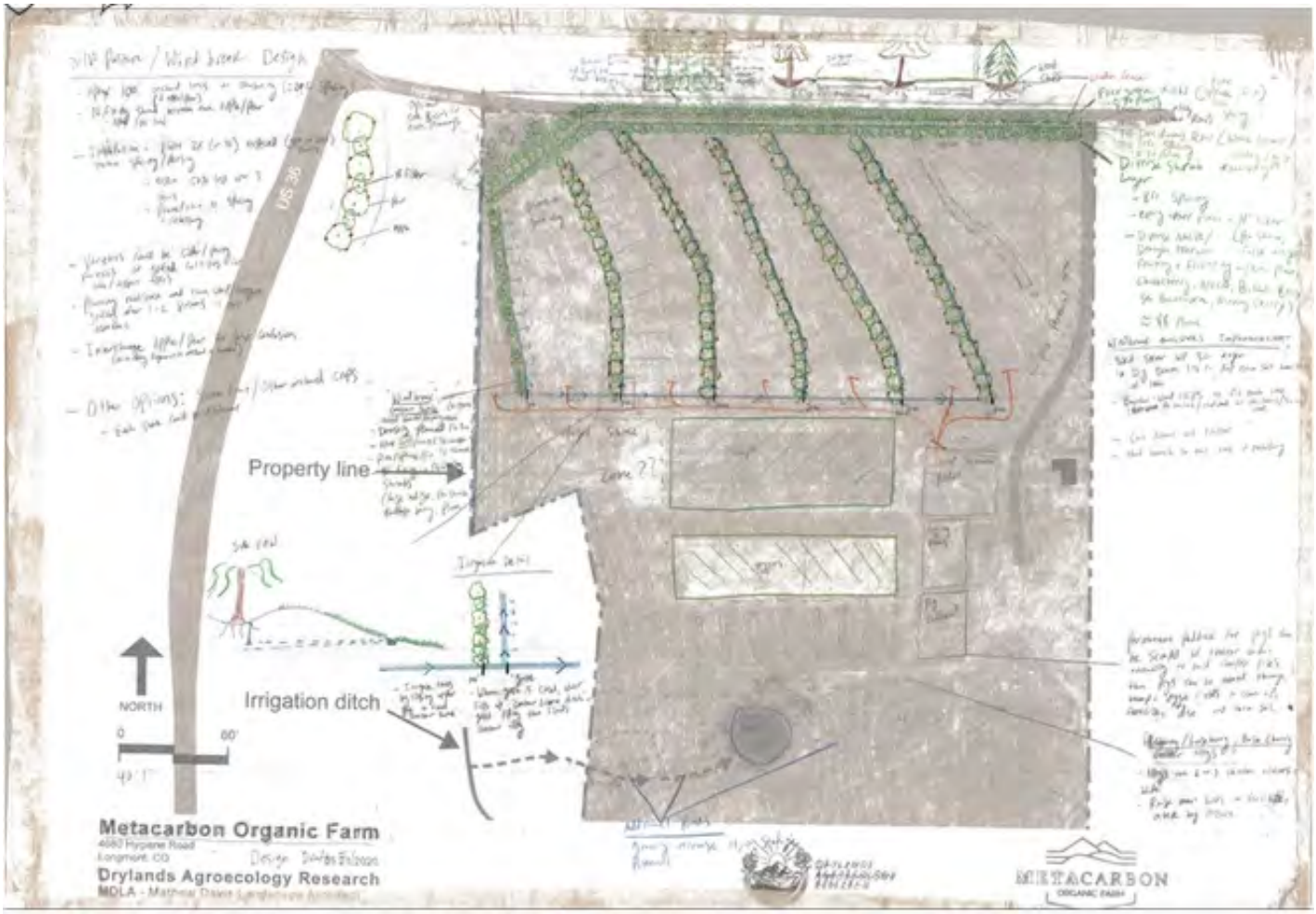
Example Livestock & Grain Rotational Scheme Yellow Barn Farm

Metacarbon Design Concepts & Pictures

Site Analysis



Design Concept for First Phase



Letter of Support: Ktisis Capital

KTISIS CAPITAL

November 29, 2021

Dear Colorado Water Conservation Board:

I am writing this letter in support of Drylands Agroecology Research (DAR) as it submits its application and proposal in response to the RFP put out by the Colorado Water Conservation Board.

Introduction & Context:

My name is Anna Baeten and I serve as the COO & Managing Director of Ktisis Capital, a philanthropic advisory firm with a specific focus on justice oriented philanthropy. In this capacity, I serve as the lead philanthropic consultant for Reweaving the Web, a philanthropic project housed within the Peterffy Foundation. Reweaving the Web is committed to the conservation and healing of the Earth through the support of organizations working to develop healing, reciprocal, and regenerative relationships between humans and all of our planet's beings.

Reflections from Reweaving the Web:

Reweaving the Web has been involved with DAR since its inception and we have watched it grow from an idea to an actualized, flourishing, and rapidly growing organization. We provided one of the original operational seed grants for the expansion and completion of their current farm and "outdoor laboratory" space and watched with joy as they have actualized proof of concept on their land near Boulder, CO.

As part of my role with Reweaving the Web, I have personally had the privilege of providing organizational and executive coaching support to Nick DiDomenico and Marissa Pulaski, the co-executive directors of DAR, and can speak to not only to DAR's successful organizational journey from ideation to actualization, but also to the character, integrity, and work ethic of the two co-executive directors. They lead with a humble reverence to both the land and the wisdom of those around them and they actively seek out both guidance and collaborative influence from their partners, mentors, supporters, as well as the visitors to their farm space. While their commitment, drive, and straight up grit is unparallelled, Nick and Marissa represent a unique balance of personality and skill sets that serves DAR exceptionally well.

As a coaching resource to both Nick and Marissa, I have been privy to strategic conversations and decision making around the growth of DAR. It is noteworthy that they approach every project and opportunity carefully through the lens of DAR's vision and mission. They are diligently committed to DAR's integrity and mission alignment as they consider its growth and potential impact. In plain terms - they do not apply for every grant, they will not take money from any donor, and they will not sacrifice the trajectory of DAR's mission by chasing a dollar.

This is why they (and I) are so excited about the opportunity presented by the Colorado Water Conservation Board. CWCB, and more specifically the RFP to which DAR is responding, could not be more aligned with the mission of DAR. Global climate disruption cannot be addressed without rapid, intense, and specifically focused attention to scalable regenerative agriculture, systemic agricultural change, and water conservation strategy. We literally need to change the underlying systemic paradigm around how humans interact with the land as it pertains to agriculture, horticulture, animal husbandry, landscape design, water use, and earthworks.

It is without hesitation that I, both as an individual and as a representative of Reweaving the Web recommend DAR as a recipient of CWCB's generous funding initiative. Organizationally, Reweaving the Web is committed to the continued support of DAR as it grows in both scale and impact.

Please feel free to reach out to me directly if you have any questions or would like further clarification to anything that I have presented.

With Hope for a Better Future,

Anna Baeten
COO & Managing Director
Ktisis Capital
anna@ktisiscapital.com

Letter of Support: Ladybug Foundation

LADYBUG
FOUNDATION

November 29, 2021

Colorado Water Conservation Board
1313 Sherman Street, Room 718
Denver, CO 80203

To whom it may concern,

Ladybug Foundation is honored to be a supporter of Drylands Agroecology Research Foundation (DAR).

We appreciate that they not only embody the principles of regenerative agriculture, but that they do so by challenging us all to embody it without relying on infinite resources. We appreciate that they harness the power of community – from planting a seed to harvest, it's all about community, all about lifting others. Their "cross-pollination" to other organizations and community members including indigenous, elders and youth is so meaningful, so important.

Supporting DAR and witnessing their growth is an exciting privilege. Our annual investment in DAR has more than doubled this year and this is a testament to our confidence in Nick and Marissa's ability to shepherd their vision to fruition.

Their work continues to inspire and we are full of gratitude to be their partner.

With warm regards,

Cindi Dietrich
Executive Director

Letter of Support: Tumbleweed Fund

Tumbleweed Fund

November 30, 2021

Drylands Agroecology Research
12191 N Foothills Highway
Longmont, CO 80503

Dear Ms. Scanes-Wolfe,

We're pleased to announce approval for the grant request for Drylands Agroecology Research. The Tumbleweed fund is happy to award $30,000 each year for the next three years. Funds will be distributed at the beginning of each calendar year of 2022, 2023 and 2024.

We believe that your work and research will strengthen the sustainable farming community in our county, the region and beyond. Your commitment to healing the land, practicing sustainable agriculture, form agribusinesses and empower our community will help to fortify our region's leadership in the industry. Research in water-scarce landscapes will guide the future of regional agricultural practices and lead to better outcomes for the planet.

We hope that our grant will be the impetus for other donors and grantors to get behind this project. Enabling and educating more people about responsible practices in farming will help to propel our food system in the much-needed direction of regeneration and sustainability. The opportunity to impact the way we treat our land, especially on the scale that can be made possible by your organization, brings us great excitement. We look forward to seeing that impact come to fruition in 2022 and beyond.

Sincerely,

Miles A Golson

Letter of Support: Boulder County

Boulder County

1325 Pearl Street • Boulder, Colorado 80302 • Tel: 303.441.4565
P.O. Box 471 • Boulder, Colorado 80306

Sustainability, Climate Action & Resilience

To whom this may concern:

This is a letter of support from Boulder County's Office of Sustainability, Climate Action, and Resilience (OSCAR) for Drylands Agroecology Research's pursuit of the Colorado Water Conservation Board grant. Boulder County has a commitment through strategic plans and ballot initiatives to support the growth of local and sustainable food systems. Translated into action our Sustainable Food and Ag Fund has distributed over $600,000 to support projects ranging from cover cropping, multi seasonal growing, sustainable grazing, educational workshops, improved soil health, and so much more.

Drylands Agroecology Research (DAR) is a unique resource to Boulder County pursuing a much-needed form of agriculture healing for our vulnerable lands of the high desert plains. DAR has already demonstrated their knowledge and value through several complete agroforestry projects in our community. In fact, I have seen firsthand how DAR farm systems are designed to reverse desertification, while supporting regeneration and enhancing biodiversity. The changes are quite remarkable to witness here in Boulder County with DAR farm systems and solve a host of environmental concerns.

Boulder County looks forward to supporting and partnering with DAR as they act, replicate, collaborate, monitor, evaluate, and educate via applied grant funding.
If funded, we have no doubt this project will support the long-term scalability of agroecology with within the rocky mountain range.

Best of luck in your review of applications!

Warm Regards,

Susie Strife, PhD
Director of the office of Sustainability, Climate Action & Resilience
Boulder County
303-709-0293
sstrife@bouldercounty.org

Certificate of Liability Insurance

ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 07/26/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Candace Hladek, CISR	
ALINK Insurance Services - Colorado Springs Branch 2407 W. Colorado Avenue Colorado Springs, CO 80904 License #: 385592	PHONE (A/C, No, Ext): (719)473-6262	FAX (A/C, No): (719)473-3764
	E-MAIL ADDRESS: Candi@ALINK2ins.com	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A: Acuity	14184
INSURED	INSURER B:	
Drylands Agroecology Research Foundation 12191 Foothills Hwy Longmont, CO 80503	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES CERTIFICATE NUMBER: 800237769-119015 REVISION NUMBER: 2

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			ZH0422	10/19/2020	10/19/2021	EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 100,000
							MED EXP (Any one person)	$ 5,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	X POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB / OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB / CLAIMS-MADE						AGGREGATE	$
	DED / RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						PER STATUTE / OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	N / A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER	CANCELLATION
Evidence of Insurance	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE

(CFH)

Certificate of Good Standing: CO Secretary of State

OFFICE OF THE SECRETARY OF STATE
OF THE STATE OF COLORADO

CERTIFICATE OF FACT OF GOOD STANDING

I, Jena Griswold, as the Secretary of State of the State of Colorado, hereby certify that, according to the records of this office,

Drylands Agroecology Research

is a

Nonprofit Corporation

formed or registered on 08/30/2017 under the law of Colorado, has complied with all applicable requirements of this office, and is in good standing with this office. This entity has been assigned entity identification number 20171662922 .

This certificate reflects facts established or disclosed by documents delivered to this office on paper through 11/18/2021 that have been posted, and by documents delivered to this office electronically through 11/22/2021 @ 10:57:47 .

I have affixed hereto the Great Seal of the State of Colorado and duly generated, executed, and issued this official certificate at Denver, Colorado on 11/22/2021 @ 10:57:47 in accordance with applicable law. This certificate is assigned Confirmation Number 13600908 .

Jena Griswold

Secretary of State of the State of Colorado

**********End of Certificate**********

Notice: A certificate issued electronically from the Colorado Secretary of State's Web site is fully and immediately valid and effective. However, as an option, the issuance and validity of a certificate obtained electronically may be established by visiting the Validate a Certificate page of the Secretary of State's Web site, http://www.sos.state.co.us/biz/CertificateSearchCriteria.do entering the certificate's confirmation number displayed on the certificate, and following the instructions displayed. Confirming the issuance of a certificate is merely optional and is not necessary to the valid and effective issuance of a certificate. For more information, visit our Web site, http://www.sos.state.co.us/ click "Businesses, trademarks, trade names" and select "Frequently Asked Questions."

W-9

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give Form to the requester. Do not send to the IRS.

Print or type. See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
Drylands Agroecology Research

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☑ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.
12191 North Foothills HWY

Requester's name and address (optional)

6 City, state, and ZIP code
Longmont CO 80503

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number
			–			–				

or

Employer identification number
8	2	–	2	6	5	1	4	0	9

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here Signature of U.S. person ▶ *m DiDomenico* Date ▶ 11/30/21

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*