

## Regenerative Riverscape Agroforestry Design Charrette

In support of the Skykomish Bio-Cultural Restoration Field Station

**May 1, 2025 Reiner Farm**

Paul Cereghino (TCD) & Snohomish Conservation District

**Rendezvous Location** - <https://maps.app.goo.gl/VoFCby89MmhB6oBR9>

We will gather at 9:00 at the rendezvous so we can consolidate vehicles for easier site access.

**Please bring water and your own brown-bag lunch**

We will adjust the schedule based on the flow of work. If you come late please call.

|             |                                                                                                                                                                                                                                             |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>0900</b> | <b>Rendezvous</b> - We'll meet just outside the site (see link above) so we can carpool onto the Reiner Farm property. We will do introductions and introduce the context.                                                                  |
| <b>1000</b> | <b>Assessment of Pond Woodland</b> - Hosts will describe what is known about the site. All participants will have a chance to explore. We will then gather and share observations about the site, and briefly explore target conditions.    |
| <b>1100</b> | <b>Assessment of Dry Field</b> - we'll walk to the dry field site, and complete an assessment here like at the Pond Woodland.                                                                                                               |
| <b>1200</b> | <b>Lunch</b> - we'll regroup at railroad camp and eat lunch, and have slightly-structured conversations about the field station concept and purposes and potential functions of biocultural restoration in riverscapes.                     |
| <b>1230</b> | <b>Design Concept</b> - we'll break into 3-5 person groups, distributing the most experienced participants and dispersing organizational affiliations. Small groups will be responsible for developing a conceptual design                  |
| <b>1315</b> | <b>Charrette</b> - each group will have 5 minutes to pitch their concept, and will then get 10 minutes of questions and comments (more listening and less responding).                                                                      |
| <b>1400</b> | <b>Design Documentation</b> - taking information from the charrette, each group will modify their concept and record the essential elements. Ideally someone in the group will be able to assist with topographic and elevation renderings. |
| <b>1430</b> | <b>Close</b> - Return to vehicles, then discussion & feedback--so that people who need to get going can get going.                                                                                                                          |
| <b>1530</b> | <b>Depart</b>                                                                                                                                                                                                                               |

The territory of bio-cultural restoration is very large. We are designing plantings for the social context being developed around Biocultural Restoration Field Stations. That effort is experimental and evolving.

**Definition** - *Biocultural restoration is the science and practice of restoring not only ecosystems, but also human and cultural relationships to place, such that cultures are strengthened and revitalized alongside the lands with which they are inextricably linked.* (SUNY Environmental Science & Forestry)

**Design Assumptions** - in the absence of a culture of native ecosystem stewardship, we are jumping ahead to design and installation, while aiming to backfill social structures designed for their ability to do the work..

- **We are designing as if we have long-term tenure at this site** - this is not necessarily true, because we are doing work on the site as guests of the Tulalip Tribes. At some point, the Tribe may not want continued collaborative management at this site. We expect that any results created on this site remain the property of Tulalip Tribes, that we may share with their ongoing consent.
- **We design as if we will have the right amount of labor available at the right time** - we are installing and managing as if we have a perfect stewardship community, while aiming for low-input production. We, of course, are struggling to build enduring relationships between people and the site. We aim to use these design contributions to strengthen that possibility.
- **We design as if people will value the production of cultural products** - harvest and use of native materials is by no means guaranteed. We focus on specific most-likely-to-be-valued products, assuming that if these products are available, someone will value them. Our focus is on producing 1) materials for restoration propagation (seed, divisions, and cuttings) and 2) materials for household-community harvest (greens, berries, mushrooms, medicinals, fiber, whips, poles, dyes)
- **We design as if we were limited to native species** - there are many opportunities to integrate non-native species into ecologically useful buffers, and there are many useful, naturalized and non-invasive species already in the landscape. If there are particularly interesting niches for low-maintenance non-native species, that can always be noted, however designs focus on native plant communities consistent with industry standards.

**To support developing Open Knowledge Networks, we are using the Salish Sea Restoration Platform as a vehicle for organizing and storing information. As typical for OKNs these pages can always be improved.**

- [Cereghino 2023](#) offers a framework describing riverscape agroforestry.
- [Regenerative Riverscape Agronforestry Design Charrettes](#) page describes this effort, including materials from the 2023 design charette. We have reduced the number of sites, and reduced the pre-assessment to make the process more streamlined.
- [Reiner Farm](#) page stores place-based information for that site.
- [Biocultural Restoration](#) page has a few links.
- [Vegetation and Revegetation](#) page has a large number of more general links to resources
- [Skykomish Bio-Cultural Restoration Field Station](#) page provides resources generated for and by field station activities at Reiner Farm Buffer.

**Regenerative Agroforestry Design Charrette**  
**Skykomish Biocultural Restoration Field Station**  
**May 1, 2025**

Host: Paul Cereghino, Thurston Conservation District

The following language and concepts are being offered to colleagues participating in this charrette in the hopes of working toward shared conceptual language.

This is not an expert workshop, but is rather a community-of-practice event, where we each bring our expertise.

[The Eight Season Year](#) is an exercise in exploring the biocultural meaning of seasons.

**Description of Scale**

- **Landforms** - a surface with a similar pattern of physiographic processes, which often controls vegetation structure and composition - **Lower Skykomish Floodplain**
- **Sites** - the area being managed, usually defined by property lines - **Reiner Farm Buffer**
- **Patches** - an area under management, with a relatively uniform pattern of physical conditions, natural vegetation, and treatment - **Design Charrette Sites**

**Vegetation Ecology Concepts**

- **Gradients** - patterns of moisture, soil, nutrients, or light levels that vary systematically.
- **Structure** - the distribution of canopy among various strata of vegetation.
- **Composition** - the species present within the structure.
- **Phenology** - The timing of emergence, maturation, and senescence of plant parts over the year.
- **Succession** - a theory that describes the evolution of vegetation structure and composition over time after a disturbance, developed using space-for-time observations.
- **Disturbance** - cyclic or episodic physical damage to plant parts - e.g., fire, flood, herbivory, wind, limb-fall, often defined by intensity and a spatial pattern.
- **Stress** - an absence or excess in growing conditions reducing growth rate - e.g., light, nutrients, warmth, oxygen, water.
- **Plant Strategies** - various systems for describing how plants allocate resources to anticipate and cope with disturbance or stress (with varied strategies causing succession)
- **Assembly** - a more complex approach to describing composition as a function of filters on dispersal, recruitment, and survival, with attention to preemption.

**Treatment, Designs, Successional Design?**

A treatment is a series of phased actions generally revolving around the introduction of new individuals into a plant community (propagation). We propose three parts to a treatment.

- **Disturbance** - Some process by which a vacant niche is created in vegetation. Typically tillage or herbicide, but also including temporary covering, mulching, fire, or application of animals, and potentially adding biochemical amendments (fertilizers, teas, etc.)
- **Propagation** - adding propagules, commonly bare-root or potted stock, but also including cuttings, divisions, or seed.

- **Aftercare** - some treatment that aims to improve survival and growth of propagules: mowing, watering, spot grub
- **A Design** may include multiple treatments over time with the goal of shifting the structure and composition of vegetation. A “successional design” anticipates shifting composition over time, mostly through the development of canopy and changing light and moisture levels, potentially incorporating episodic disturbance events (fire, gap creation, harvest, etc).

### Types of Treatments?

A treatment may approach a patch or site in different ways. We have observed four types.

- **Biodiversity Introduction** - where a species that could thrive but is absent is added to a site by identifying the best patches for reintroduction. The most common current example is understory plantings of conifers.
- **Canopy Modification** - where a treatment aims to change the canopy, either by canopy removal or by the introduction of canopy species.
- **Full Revegetation** - where disturbance and planting aim to completely alter composition and structure.
- **Weed Control** - where a treatment is focused on removing specific species from the composition, perhaps with incidental disturbance planting (see below)

### General Queries

- We can always develop more complicated and expensive treatments; how can we do less?
- What is the right timing for an action that maximizes success given a particular treatment/site?
- How can you minimize the energy required for a treatment (reducing heavy equipment, hauling materials, number of passes)?
- What is the smallest viable propagule for each species, and what does viability depend on?
- How can a harvest be designed as a treatment with a desired effect in a successional design?

### Queries “Harvested” from 2022-2025 Field Stations

- **Seasonal Entry** - the right timing seems important for management that maximizes value and creates harvest opportunities. Late Spring/Early Summer (Bloom) is important for harvest of greens and mowing/mulching to reduce moisture competition and prepare planting sites (organizing biomass). Early winter and late winter propagation may each have many advantages.
- **[Syntropic Agroforestry](#)** - This system of regenerative agroforestry developed by Swiss-Brasillian Ernst Gostch appears still appears to be the most coherent and integrated approach to high-biodiversity agroforestry emulating natural ecosystems. It uses strip planting, extensive biomass plantings, and high biodiversity.
- **Incidental Disturbance Planting** - maintenance and harvest activities such as trail maintenance, layering, planting rhizomes, lifting ramets, or clearing create bare ground. In what circumstances are these opportunities to plant fast-growing, useful forbs?
- **Light Edges** - Many forest buffers have a south-facing edge (often dominated by blackberry) where energy levels may support berry and nut production. How are these niches cultivated and used?

- **Disturbance and Shoots** - Both craft and food products often involve disturbance of tops followed by shoot growth (e.g., hazel, willow, salmonberry). How can cyclic above-ground be integrated into designs?
- **Right Timing** - the windows for the most efficient native plant work are narrow (e.g., seed collection, good winter weather with daylight, shoot harvest timing). How do we hit the right timing in a modern society disconnected from the rhythms of the land?
- **Tracking and Learning** - what are the most efficient methods for creating a record of designs and treatments at a site to inform future stewards, given that we are inherently operating in a cultural context with high turnover? What pieces of information are most important for learning?
- **Input Reduction** - given that large-scale biocultural restoration will almost by definition require operating on a shoestring, how do we develop designs that minimize energy costs (equipment time, material transport, propagule size) and maximize the right timing of nuanced labor? Of particular interest, can spending more time in disturbance phase reduce aftercare and increase the biodiversity of plantings?
- **Use Time** - How can designs use the right timing and input reduction over longer periods of time to increase impact? Can you harvest and pile biomass over a couple of summers to create high quality pre-mulched planting sites in a future winter? How do we take advantage of longer-term relationships implied by biocultural restoration?
- **Temporary Drip Irrigation** - What are the most efficient ways to deploy, plant, and reuse drip irrigation on remote sites? Can we combine mobile header tanks using bladders charged by solar pumps and then released through ½" integral emitter tubing in standard lengths gathered using wheelbarrow-mounted spools and quick-couplers?
- **Design Around the Right Tools** - a worker skilled with a scythe or a good quality Japanese brush axe can do the work of ten people with loppers. In most circumstances, volunteers cannot use power tools. What are the right tools, and how does this suggest ergonomic layouts?
- **Volunteer Mobs** - A large body of volunteer labor can result in a large block of work that can lack useful nuance or even be destructive to a complex site. What kinds of designs either make use of large waves of volunteers, or support more frequent and nuanced volunteer labor?
- **Usufruct Appears Central** - Agroforestry systems take substantial upfront inputs and a decades to mature. Rights to use land are mostly based on title or lease. "Public" use does not support agroforestry. How can we develop forms of shared tenure that fit community [usufruct](#) into title-based ownership in a way that supports community investment over time. How do community groups work in synergy with private operators? Who are we prototyping for?
- **Building Social Technology** - the focus of the field station is building social behaviors that reduce the need for FTEs to produce biocultural restoration activity. If we are FTE dependent, we have capped adoption rates. How do we integrate fraternal orders, non-profits, trusts, and public agencies to create a replicable social structure that engenders biocultural restoration?

## **Design Sheet**

### **Patch:**

1. Factors driving design - what observations led you to make design decisions?
2. Site goals - describe
3. Initial Treatment (year 0)
  - a. Disturbance - how will you create vacancy?
  - b. Propagation - what species and stock size will you introduce?
  - c. Aftercare - what management will be needed to support this initial treatment?
4. Management Over Time - what tending is anticipated at this patch?
5. 10 yr Target Structure - what do you anticipate for canopy structure at year 10?
6. 10 yr Target Composition - what species will be present in each strata?
7. 50 yr Structure-Composition - how will the site evolve over 50 years?
8. Harvest - when do you anticipate harvest of what products?