Tab 1

Significance. This paper is an introduction to Rainmaking with Trees and Strategic Watering, via a report on The NorthWest Projects: 2024. Part two will cover "Securing Forests." Rainmaking with Trees is a science-driven approach to watering trees to attract and catalyze precipitation, primarily rainfall. I will explain its process in detail in the upcoming paper, "Rainmaking with Trees," part three in this series. This paper on "Strategic Watering" covers my work August 9 through September 28, 2024, when I conducted a geo-strategic rainmaking with trees experiment at regional scale, which was designed to interrupt and ramp down fire season for the forests of the Pacific Northwest and California. My strategic watering effort, "The Northwest Projects: 2024," delivered the following top three outcomes. This paper is intended to explain and defend these claims and introduce several new ideas for ending forest fire forever. The Northwest Projects 2024 —

1. **Brought exceptionally-low probability rains** to Oregon, Washington, Northern California, and Idaho, in the least-likely summer ever.
2. **Dropped temperatures well-below average** at my primary sites starting three days after I began watering, during the hottest year in history.
3. **Broke fire season.** About 77% of Oregon's catastrophic 2024 fires occurred before I got my first rain on August 17, in the middle of "peak" fire season.

Figures 1A and 1B show what happened:

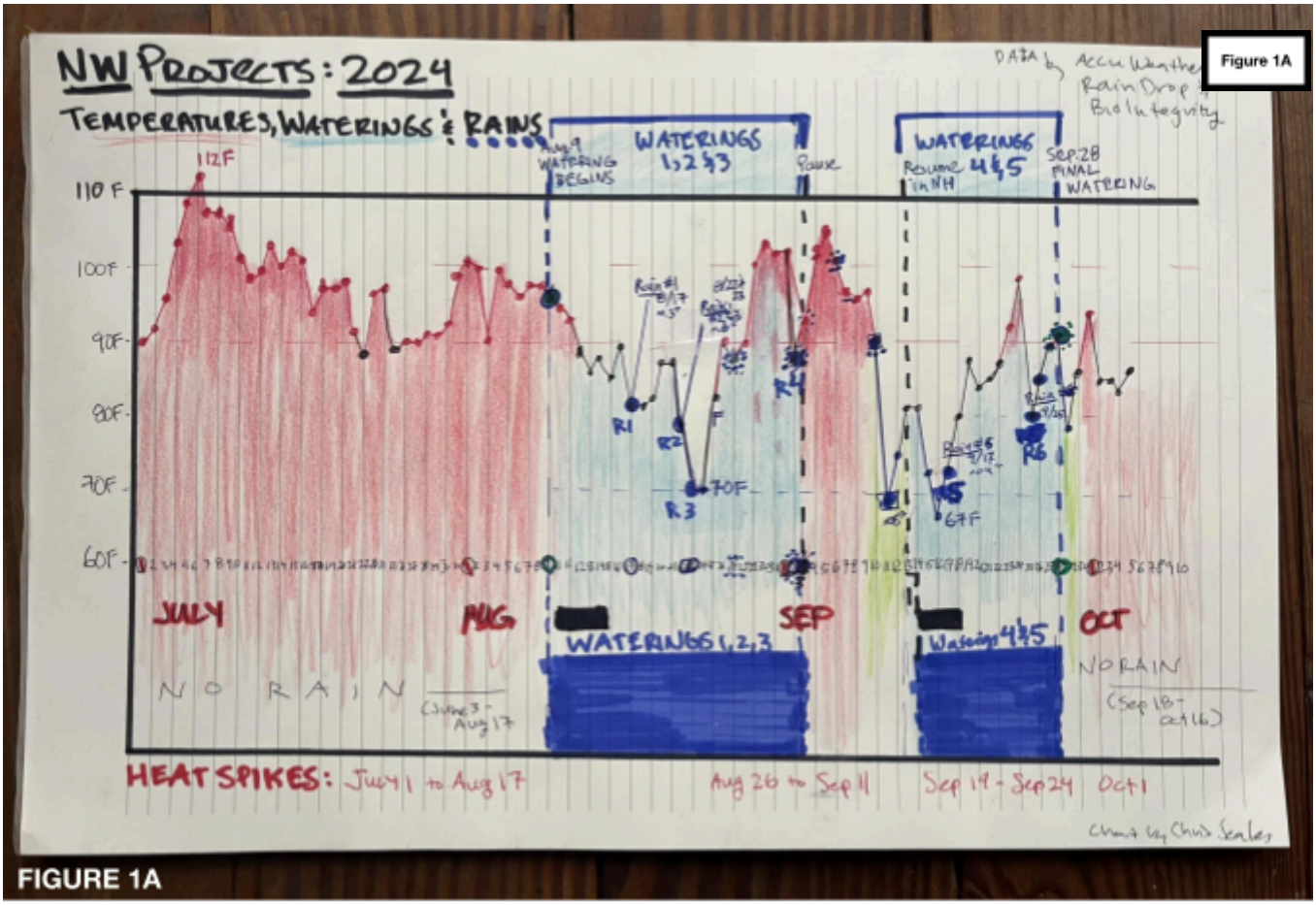


Figure 1A. My practitioner's graph of "what happened," July through mid October, re: The Northwest Projects: 2024. This is a calendar graph, dots are days, with 4 layers. Red pencil: The Umpqua National Forest region's high temperatures. Blue marker: days I did strategic waterings around the Umpqua NF. Blue pencil: below average cool days over the Umpqua after i started watering. Green pencil: cooling preceding my watering. Blue dots: days I got rain over my primary hub. ("R1" = rain #1, R2 - rain #2, etc.).

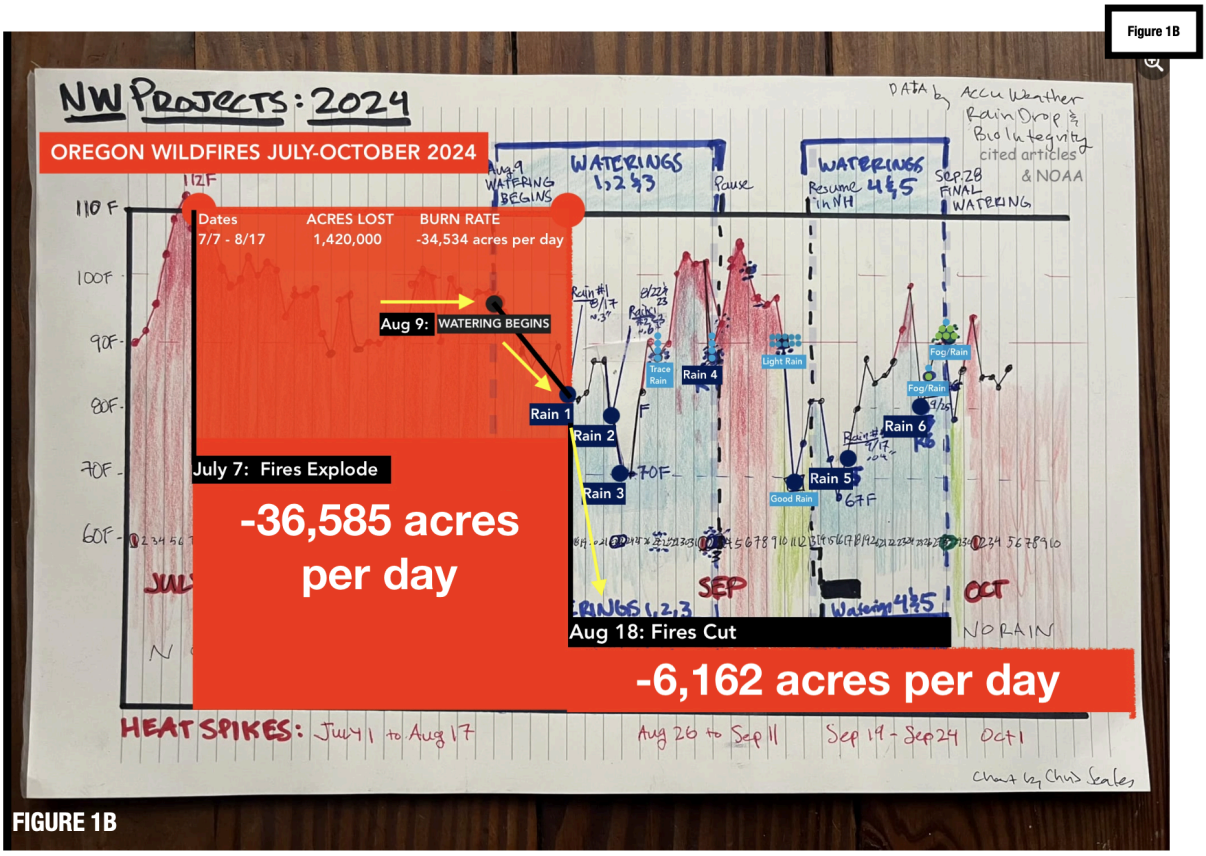


FIGURE 1B

Figure 1B. Same graph as 1A with a fifth layer added, the state of Oregon's average wildfire burn rate, July 7 to late October. Oregon fires exploded July 7. My first rains came in the middle of peak first season on August 17.

Ending Forest Fire Forever, part 1: Strategic Watering

Contents

Main Ideas. In the following I give an introduction to how I do "rainmaking with trees" and "strategic watering" to eliminate forest fire at varying scales, call for a greater focus on Forest Moisture Circulation (FMC), report on my most recent regional rainmaking project, share my concept for an FMC assessment and communication tool, and outline how all of this could be leveraged to end forest fire forever, this decade, in the USA.

I. Abstract

Trees are the rainmakers, or rather, forests and stomata are responsible for the overwhelming majority of evapotranspiration over landscapes and when healthy will bring and even trigger rainfall to fall.(1) At least that's what I derived from the breakthrough research of Makarieva, Ellison, Fu, Wright, Pöhlker, Jasechko, Lawrence, Keys, and many others, et al. "Rainmaking with Trees", my invention, is the reverse engineering of what their research teaches combined with tools from the exceptionally well-documented "permanent agriculturalists," Lawton, Mollison, and Holmgren. From these pioneers I derived the audacious idea that humans can simply, strategically-hydrate large trees to catalyze large-scale rainfall; that **we can water forests to restore moist circulation at large scale; and that if employed regionally we can move moisture over large landscapes with small stimulations** (water inputs). The fact that "Rainmaking with Trees" and its regional application, "Strategic Watering," have proven so powerfully-beneficial is my good luck. However, from the very beginning I've approached forest-rainmaking with a fascination for what forest moisture circulation science teaches, that undeveloped bio/eco infrastructures are the best resources for drought and fire prevention, especially on land. Contrary to popular doctrine, trees simply need water to fight fire. They are exceptionally capable at optimizing self-hydration and ecosystemic moisture-sharing, which then eliminates fire and fire risk. "Can today's forests do the job?" That's kind of where The Northwest Projects (NWP) started. The following paper shares my story and some data, re: my tenth regional-scale, strategic watering effort, The NorthWest Projects: 2024. My goal is to share this information. I am a self-taught researcher / advocate / practitioner of these sciences who has figured out how to extinguish forest fires with a few thousand gallons of water. This paper is a short introduction to the opportunities awaiting anyone who wants to see wildfire and drought resolution occur quickly and efficiently, and in ways that benefit all life on a landscape.

Figure 2

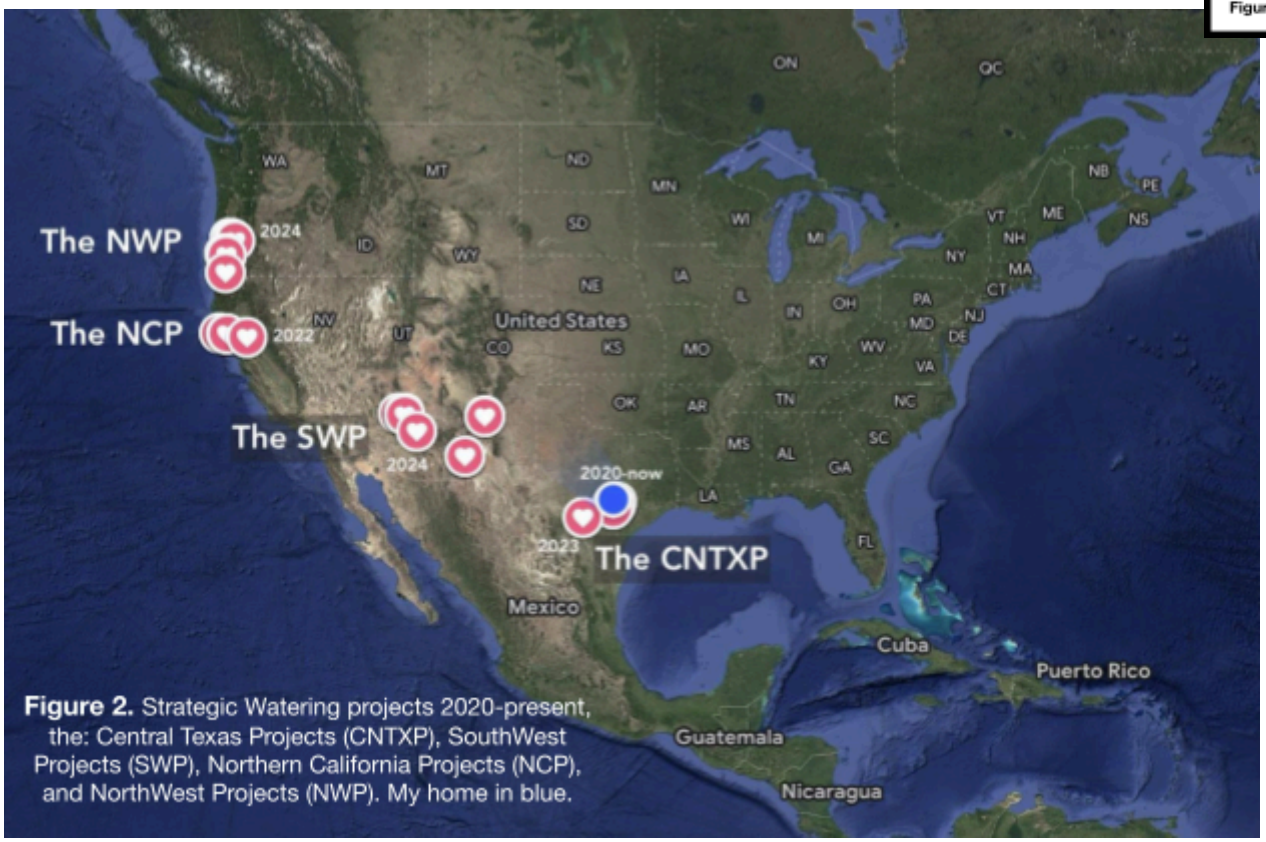


Figure 2. Strategic Watering projects 2020-present, the: Central Texas Projects (CNTXP), SouthWest Projects (SWP), Northern California Projects (NCP), and NorthWest Projects (NWP). My home in blue.

II. FMC

Forest Moisture Circulation ("FMC")—the most overlooked and under known fire, weather and climate resolution resource on the planet, is the basis of everything I'm working with to bring rain to droughted forests. Forests are essential for moving moisture over large landscapes, they move more of it through the air than any other land-based resource. Here's how I currently understand FMC.

FMC is almighty. Ellison, et al (2017), found that "**Forest, water and energy interactions provide the foundations**… **for cooling terrestrial surfaces and distributing water resources.** Forests and trees must be recognized as prime regulators within the water, energy and carbon cycles." And Makarieva / Gorshkov (2007) found, "Precipitation over extensive natural forests… points to the existence of **an active biotic pump transporting atmospheric moisture inland,**" meaning: forests move moisture across the continents by themselves. How? **Via transpiration**, the respiration and exchange of water vapor amongst plants, which is substantial. Jasechko, et al (2013) explains, "Transpiration is by far the largest water flux from Earth's continents, representing 80 to 90 percent of terrestrial evapotranspiration… The dominance of transpiration water fluxes in continental evapotranspiration suggests… water resource forecasting should prioritize improvements in simulations of biological fluxes rather than physical fluxes."

Transpiration is most-concentrated and most-equipped in moist, warm forests. Here's a quote from 2017 on how Trees in the Amazon make their own rain through transpiration, "All you can see is water vapor, but you don't know where it comes from." The researchers on this breakthrough study thought it possible forests were releasing enough moisture to build low-level clouds. *They are*. In fact, Wright, et al (2017), found that not only do moist rainforests make clouds, they make rain because of their superlative trees' abilities to influence the atmosphere. A prior study, on how the Amazon *seeds* its own rain, Pöhkler, et al (2012), stated, "Our findings suggest that the primary emission of biogenic particles (from the forest) directly influences cloud condensation, the microphysics of cloud formation, and precipitation over the forest." These studies confirmed for me: warm, moist **forests can make rain**, they have more than one strategy for doing so, and hydrated FMC is the key activator.

"Trees in the Amazon make their own rain" (2017) science.org

Superlative trees work best. Pan, et al (2011), grounded me in the understanding that large, undisturbed, mature, moist, warm forests are the most powerful and biologically-productive ecosystems on Earth, be they tropical, temperate or boreal forests, low elevation, high elevation or in-between.

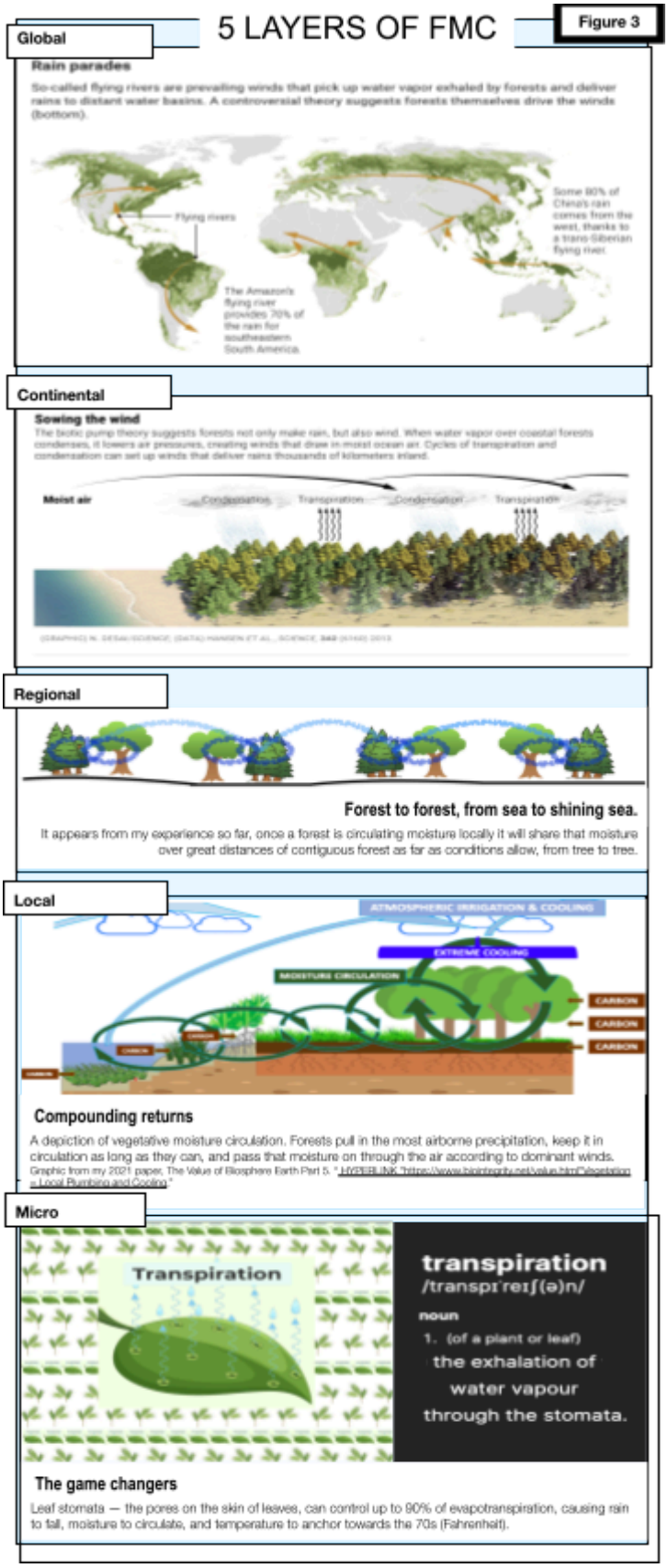
The mechanisms are tiny. The mechanisms for FMC, rainmaking, and Strategic Watering success are primarily leaves on large trees in warm forests, optimally-hydrated for natural behavior-occurrences;

imitating the Amazon. These ideas stated here lay out my framework for Rainmaking with Trees and Strategic Watering.

The 5 Layers of FMC (Figure 3)

Cumulatively, I think of Forest Moisture Circulation in five, mutually, self-interested layers, analogous to our own body-constructs of intelligent tissues interacting in myriad ways at varying scales, constantly seeking balance. 1, **Micro** (Leaf to Leaf). "Stomata" are the pores in leaf skin. According to Jasechko (2013), stomata can influence up to 90% of Atmospheric Evapotranspiration over our landscapes when hydrated. Forest Moisture Circulation's cooling, moisture-sharing, cloud-making, fog-making, rain-attraction and rainmaking abilities are greater than any other land biome type and mostly-powered by leaves. 2, **Local** (Tree to Tree). I work at this layer. FMC *depends* on hyper-local, under canopy, moist air supply and circulation; the capacity at which a grove can share moistened air from tree to tree. 3, **Regional** (Grove to Grove) denotes tree grove to tree grove moisture sharing, "daisy-chaining over the landscape." The bigger the trees, the more contiguous, the better. 4, **Continental** (Forest to Forest) pertains to airborne moisture movements from the coasts, inland, across the lands according to continental-scale forest infrastructure shape, quality, extent, prevailing winds and geolocation. 5, **Global** (Atmosphere to Forest) pertains to the patterning and interactions between atmospheric rivers, atmospheric moisture, and forests.

A sincere thank you to all the researchers and journalists who educated me on this science. More citations here.



III. Rainmaking with Trees

See more in my YouTube collection: "Rainmaking with Trees."

An introduction. In Rainmaking with Trees (RMT) I create a moist, cold cell on a landscape for cold, moist atmospheric convection by slow-watering large trees in or near a forest. Wright, et al, 2017 described this for me in reverse — "Isotopic fingerprints in atmospheric moisture unequivocally identify rainforest transpiration as the primary moisture source for shallow convection during transition. This shallow convection moisture pump depends on high transpiration rates during late dry season, affirming the potential for climate and land use changes to alter or disrupt wet season onset." I read: "***Humans have the potential to encourage rain during drought by increasing transpiration rates in forests.*** *Forests have the power to drive the atmosphere to transition from dry to moist to raining."*

So I began experimenting during the Covid summer of 2020. By then I had derived that putting small amounts of water at the right pace (raindrops) on the right anatomical locations of a tree could restore its transpiration field, as I call it, rapidly, and thus could probably empower that tree's ability to convert the atmosphere. To bring rain, I was watering like raindrops to achieve ultra-fine atmospheric moisture- and biogenic-particle release, exchange, circulation, and build-up amongst my trees. Ultra-fine moisture release and the "perfect" redistribution of that moisture are reliable byproducts of freshly-rehydrated FMC, I logically assumed, because that's survival from a plant's perspective. From there, the science implied to me that big trees in coordinated groves could perhaps be watered to catalyze their networked ability to attract rain systems and/or trigger rainfall. At first I watered the largest old-growth deciduous trees I could find in central Texas, my home, by lightly spraying their stomata with my thumb as the controller on a garden hose. My very first efforts were immediately successful, bringing unforecast rain in 45 minutes each of the first two days I tried. After that about 50/50, my efforts were infrequent. Since Summer 2022 I've carried out hundreds of serious waterings, documenting 100+ claimed rains.

Since September 2022 I have been taking a small set of RMT techniques on the road. These techniques have worked consistently-well in each of the regions pictured in Figure 2 (page 3), bringing low probability and/or un-forecast rain to droughted forests in USDA hardiness zones 6a, 6b, 7a, 7b, 8b, 9a, and 9b, ranging in elevation from 85 feet (California, 2022) to 6,200+ feet (Arizona, 2024). My current understanding is that Rainmaking with Trees depends on assessing a tree, forest and region's FMC-capacity conditions, e.g.: ***lush, dry, coastal, desert, edge, isolated, mature, urban, damaged,*** then overlapping those observations with scientific knowledge on an area's rainfall deficits, drought level, and regional FMC flows, then finding the best locations and following the gentle watering steps detailed elsewhere in my content. These real time bio/eco characteristics, overlaid on the five layers of FMC (Figure 4) guide everything: geo-location, forest selection, siting, grove and tree selection, how to water, and how much water to use per tree.

For The Northwest Projects: 2024, I estimate at least 85% of my water delivery was done via 5-gallon trickle-buckets. The rainmaking itself occurs naturally as a grove "comes online" and enlivens its surrounding forest through the rehydration process. At present, it seems roughly 250" diameter's worth

of standing trees (eg. ten 25" diameter trees) with abundant canopy development, slowly rehydrated with at least 200 gallons of freshwater per 18" of trunk (totaling perhaps 2,775 gallons of trickle watering for an entire grove over several days) will radically enhance micro, local and regional FMC. This simple "deep re-hydration" model (I've invented) for trees and forests, should create local and downwind moist circulation effects which generate net positive atmospheric moisture accumulation across the rehydrated FMC area. Scale and quality of that precipitation depends on the quality of the criteria stated above. I've published a few reports and a host of YouTube videos on Rainmaking with Trees. Please visit those for more information, process, and examples. The upcoming paper, "Rainmaking with Trees" will explain everything in more detail.

IV. Strategic Watering

Strategic Watering seeks to maximize continental FMC. Strategic Watering (also my invention) looks at a forest infrastructure's moisture flows at varying scales, and locates a Rainmaking with Trees project or projects inside a FMC hub or conduit, such as the Eugene, Oregon area (shown in Figures 5, 6, and 10), or at the edge of a large forest system where prevailing wind activity is reliably beneficial. Choosing the right location depends on goals, the shape of the given forest, its proximity to active airborne moisture flows, dominant winds, and water availability. While rainmaking with trees focuses on addressing each tree's individual hydration needs in a grove or groves, Strategic Watering focuses on locating and aligning a RMT project according to regional, continental and global FMC flows.

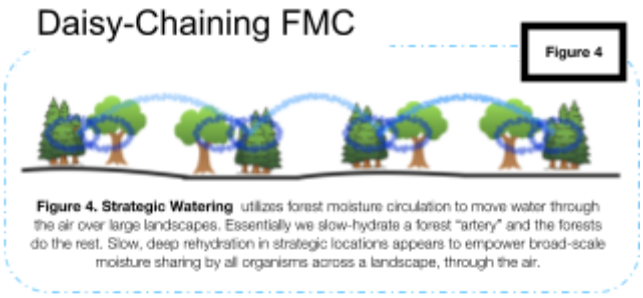


Figure 4. Strategic Watering utilizes forest moisture circulation to move water through the air over large landscapes. Essentially we slow-hydrate a forest "artery" and the forests do the rest. Slow, deep rehydration in strategic locations appears to empower broad-scale moisture sharing by all organisms across a landscape, through the air.

Figure 5: Pacific Northwest FMC. My model for moisture flows I can connect to and with, via Strategic Watering across the forests of the Pacific Northwest.

For example, in the Northwest Projects: 2024 my aim was to send multiple rains across the forests of Oregon, Washington, California and Idaho. My largest total area yet, it actually worked quite well. Figure 5 shows my concept of the macro FMC resource available for that purpose in blue dots, which simply trace forested areas. All of my strategic watering efforts since 2022 utilize this simple mapping technique to visualize FMC-extent potential. Each project has been a great success. In basic terms, Strategic Watering occurs this way:

1. Determine forest connectedness.
2. Determine relevant moisture flows.
3. Determine goals and watering locations.
4. Conduct the rainmaking with trees process.
5. Get FMC and rain over large landscape area.

V. NorthWest Projects' Summary

I got multiple rains in the midst of compounding, worsening extremes, at the least likely time of year.

The Northwest Projects: 2024 (NWP) was my tenth, regional-scale Strategic Watering effort. From August 9 through September 28, 2024, I took my rainmaking techniques to Oregon and carried out 66 forest grove waterings across eight coordinated sites to bring at least six highly improbable rains (Figure 14). Total water consumption was approximately 32,750 gallons. My first rain, August 17, 2024, cut Oregon's burn rate about 77% in the middle of peak fire season bringing roughly **0.35" of rain** on average (roughly 950,400,150 gallons total) to a generalized area of 100,000 acres over my watering sites and fire-prevention zones. The US National Interagency Fire Center had predicted "above normal significant fire risk" for August, not rain. I was able to help bring/stimulate at least five more rains, Aug. 22 - Sep. 25. These helped sustain the August 17 burn rate cut through the rest of August, the hottest in Oregon's history, then September, the hottest in Oregon's history, and then October's historic national drought.

Figure 6

Figure 6: NWP Sites. Series, 1, 2 and 3's waterings were conducted in the Eugene, OR area. Series 4 waterings in the New Hope, OR, area. Series 5 waterings were carried out in the Roseburg, OR area.

My second and third rains, August 22 and 23, 2024, brought our biggest gains, cumulatively: about **0.54" rain** on average (roughly 1,466,361,660 gallons) to a generalized area of 100,000 acres over my sites and priority one zones. Probability for each of these first three rains was less than 10% (Figure 14, page 20). 8-day forecasts did not see them coming. I documented four, **additional minor rain events** over my watering areas 8/24, 8/27, 9/1 and 9/2, which did not show on my Raindrop rain gauges. These minor events, collectively, I claim as "Rain #4." They represent the continuation of substantial FMC activity.

My waterings appear to have brought **remarkable cooling** throughout the process, too. It's easy to see the relationship between watering and cooling on the log and temperature graphs shared in this paper's Addendum (pg. 18-37). Ie., once I *started* watering temperatures dropped below average and hovered there. Likewise, once I *stopped* watering temperatures rose. This is not uncommon in my experience.

The Pacific Northwest got slammed by extreme heat during the last week of August, during Watering Series #3. My waterings at that time appear to have helped knock back that heat wave on September 2. Overall, cooling and precipitation frequency are greatest in the Eugene area where I did the first four weeks of watering.

I had to take an 11-day break 9/3-9/14. During that time the greater Pacific Northwest got hit by the second hottest heat wave of the summer, However, this time, rather than exploding into wildfire catastrophe, the forests held steady and then brought rain. FMC prevailed. The natural system self-watered on 9/10 and 9/11. This indicated to me that the Eugene region was in good shape.

I restarted waterings 9/14, bringing our fifth claimed rain on 9/17. But this one was small. By mid-September the atmosphere was acting differently. This was about the time a national drought rolled over the USA as successive hurricanes Helene, Milton, Wilton, and Rita flooded the Southeast and Gulf Coast.

Our last claimable rain came September 25, also small. But combined these light rains helped keep fires across the entire NWP area from escalating. Rains 5 and 6 brought a total of only about **.11" rain** on average (roughly 298,697,190 gallons total) to a generalized area of 100,000 acres over my sites and fire-prevention priority zones. I continued watering until completing the project plan, Sept. 28. During the last three days of The NWP I documented a fourth small rain that didn't chart in the gauges as well as two heavy fogs; lots of uncanny, local precipitation.

RAINS SYNOPSIS — Figure 7

RAIN	Date	Watering Sites	H2O Input	Average Rainfall Recv'd Across These Sites
1	8/17	1,2,3	9,500 gallons	0.35
2	8/22	1,2	2,000 gallons	0.10
3	8/23	Na	0	0.44
4	9/2	1,2,4,5	9,500 gallons	Trace
5	9/17	6	10,000 gallons	0.05
6	9/25	7,8	8,000 gallons	0.05
	TOTALS	66 Strategic Waterings	33,000 gallons input	0.99

Figure 6. NWP Harvest. Rains I'm claiming wouyld not have fallen without my strategic watering.

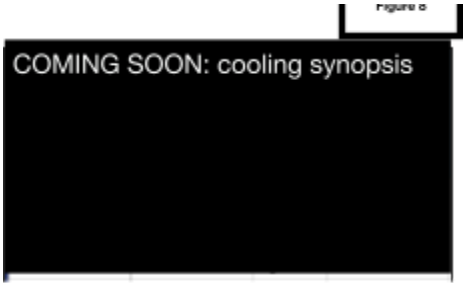


Figure 7. UNCANNY Cooling. The cooling waves…

Green plants don't burn. Though my September rains were small, they were probably instrumental in maintaining Oregon's much lower burn rate through the September/October national drought. All in all, the NWP was a massive success, kicking fire season's butt in the nick of time. I achieved about 90% of stated goals (next section). Had the rains come in early October as they typically do we would have had another huge, simple success story. They instead came generously in late October, after the national drought, and the NWP target areas finished 2024 with their best rainfall totals since at least 2020.

NWP Watering Schedule, Use, Yields, and Highlights

Figure 9 (next page) Shows the summary graph of the work I did. Watering efforts were broken up into 500 gallons per watering "session," for all but one. Each watering "series" begins a new cycle of watering sessions trying to attract or catalyze rain. I use food grade, 5-gallon buckets with tiny, trickle-holes. I place each bucket as close to the trunk of the superlative trees in my groves as I can. Then I wait for the buckets to drain. After 85-95% of my total water is used, per tree, I start moistening each trunk with gentle pouring. I saturate the bark wherever I can reach it, 360°. In some instances I wet the the lower canopy by flinging small amounts of water from a bucket up into the leaves (the lighter the better, about 1/2 gallon per fling usually works best).

FIGURE 9: NWP Watering Schedule / Use / Yields / Highlights

Watering Schedule & Locations

(500 gallons per location / watering session)

Series 1: Eugene area

8/09 - Pleasant Hill
8/10 - Pleasant Hill & Dexter Lake
8/11 - Pleasant Hill & Dexter Lake
8/12 - Pleasant Hill, Dexter Lake, Eugene-1
8/13 - Pleasant Hill & Dexter Lake
8/14 - Pleasant Hill & Dexter Lake
8/15 - Pleasant Hill & Dexter Lake
8/16 - Pleasant Hill, Dexter Lake, Eugene-1
8/17 - Pleasant Hill & Dexter Lake; Rain #1

Series 2: Eugene area

8/21 - Pleasant Hill & Dexter Lake
8/22 - Dexter Lake & Pleasant Hill; Rain #2
8/22 - Rain #3

Series 3: Eugene area

8/26 - Pleasant Hill & Dexter Lake
8/27 - Pleasant Hill & Dexter Lake
8/28 - Pleasant Hill & Dexter Lake
8/29 - Pleasant Hill & Dexter Lake
8/29 - Pleasant Hill & Dexter Lake
8/31 - Pleasant Hill & Dexter Lake

66 waterings over 40 watering days.
32,7500 gallons freshwater distributed.

Series 3 (continued)

9/01 - Pleasant Hill, Dexter Lake, Eugene-2
9/02 - Pleasant Hill, Dexter Lake, Eugene-2; Rain #4
9/03 - Dexter Lake

Break

9/04 - 9/13 - Drizzle 9/6 & 9/10, Rainfall 9/11

Series 4: New Hope area

9/14 - New Hope
9/15 - New Hope & New Hope
9/16 - New Hope & New Hope
9/17 - New Hope, New Hope, New Hope; Rain #5
9/18 - New Hope
9/19 - New Hope
9/20 - New Hope, New Hope, New Hope
9/21 - New Hope

Series 5: Roseburg area

9/23 - Melrose
9/24 - Roseburg & Melrose
9/25 - Roseburg, Roseburg, Melrose; Rain #6
9/26 - Roseburg
9/27 - Melrose
9/28 - Roseburg & Melrose.

Watering	Total Waterings	Water Investment	Average Rain over NWP sites	Approximate Probability	100,000 Acre Water Yield
Series 1	19	9,500 gallons	0.35"	6%	+950,000,000 gallons
Series 2	4	2,000 gallons	0.11" & 0.44"	7%-8%	+1,400,000,000 gallons
Series 3	19	9,500 gallons	3 trace rains	9%-11%	dampened heat wave
Break	0	0	0.24"	15%	+400,000,000 gallons
Series 4	14	7,000 gallons	0.05"	16%	+130,000,000 gallons
Series 5	10	5,000 gallons	0.05" ++	20%	+130,000,000 gallons

+2 billion gallons (total)

Noteworthy Events

8/09 - NWP waterings begin
8/16 - I predict 1st rain
8/17 - We get 1st rain (0.4" average)
8/22 - 2nd rain (0.04" average)
8/23 - 3rd rain (0.3" average)
8/26 - Cottage Grove fire suddenly at 90% containment; 138% reduction in top 10 nearby fires
8/27 - Brief drizzle on site (not tabulated)
8/31 - Area firefighters "going home"
9/02 - 4th rain (trace rain over Eugene/Springfield)
9/03-9/14 - Break / truck in the shop
9/09 - Eugene's trees making large fruit
9/11 - NWP areas bring own rain (0.24" average)
9/12 - Seven fewer fires than 9/11
9/14 - 18 fewer fires than 9/11. I start Series 4.
9/16 - 36 fewer fires 9/11
9/17 - 5th rain (0.05" average); California suddenly shifts to cool weather, their fires start to disappear.
9/24 - Idaho's fire alley nearly under control
9/25 - 6th rain (0.05" average)
9/26 & 9/27 - Trace rain over both sites
9/28 - Heavy fog, NWP concludes.

VI. NorthWest Projects' Detail

I created and executed the NWP plan according to the strategic values shared in this paper. I have been utilizing the same values, strategies, and methods since 2022. Each of my nine prior regional efforts has restarted FMC at micro to continental scale and brought unforecast rains during critical droughts. Every project has the same basic goals, the first four shown below, plus their own stretch goals and vision.

Figure 10

Figure 9. NWP Strategy. I located in the center thoroughfare for the Pacific Northwest's overall forest moisture sharing and attempted to stimulate mass-scale FMC and rainfall. It worked.

Goals

1. Run the experiment. Can we get rain?
2. Get rain.
3. Put out fires. Eliminate wildfire conditions.
4. Eliminate target fires. Reverse drought.
5. Not a single new fire in Southwest Oregon after 9/1 for the rest of 2024.
6. No new fires in NWP forests after 9/30, rest of the year.
7. No new fires in the SouthWest Projects forests after 9/30, rest of 2024.
8. Continued improvements in all NWP & SWP areas.

Vision

To see the forests of the NWP come back online as a robust, moisture-circulating landscape. This is not going to happen in one year. My aim is to stimulate FMC such that it prevents potential disaster during the 2024 fire season, as soon as I can get there, then do more with more people in 2025.

Fire and Rain Outlook

Oregon alone lost +1,200,000 acres to wildfire in July 2024 (source), by far the most ever. The region was overflowing with wildfire. On August 1, 2024, the National Interagency Fire Center August Fire Outlook foresaw "above average… high fire danger" and "expanding and/or intensifying drought for all service areas" for the next four months (source). The locals I spoke with all said, "We don't get rain in August, sometimes not 'til October."

Local Conditions

When I began watering August 9, conditions were dire. The forests were jagged and damaged, extremely dehydrated and under duress. Clear-cutting is still mainstream in Oregon so there were enormous gaps in standing forests all over. Extreme weather has also recently become year-round in southwest Oregon further damaging, destroying and dehydrating trees, and people were still cutting fire breaks and burning droughted forests rather than watering trees to fight fire. I later learned parts of southwest Oregon and some of my target forests were more than 60% behind on rainfall each of their last few years (source). At the macro scale, La Niña never came, it was the hottest summer ever, and global moisture circulation is broken for the first time in history (source). There are lots of reasons rains should not come.

Plan

1. **6 Weeks of Work.** Do six weeks of Strategic Watering in the Pacific Northwest during August and September.
2. **Three Priority Areas.** Southwestern Oregon forests are exceptionally influential on FMC across Oregon, California, Washington and Idaho. It was imperative to focus on reversing drought in the region shown in the red triangle Figure 11, not only because of that region's importance to West Coast FMC, but also because the greatest concentration of forest fires in the country were in that region at that time. So I chose the Eugene area, top of the red triangle. That region gave me the best chance of getting FMC and rain to all priority zones. IE: Priority 1, the red triangle. Priority 2: the forests of the West Coast. Priority 3: the interior forests of the Pacific Northwest USA.
3. **Water, Assess, Continue.** If I was able to bring rain I would then pause for a couple of days to observe and assess impacts. If my waterings didn't bring rain after two to three weeks of daily waterings, I would still pause and reassess. After reassessment I would move or adjust my location(s) to whatever I understood to be best for project goals and continue.

Figure 11

Figure 10. Priority Zones. I put first priority on the area roughly inside the red triangle, then on the forests up and down the West Coast, and then on the interior forests of the Pacific Northwest.

Reality

I ended up staying put in the Eugene area for all of Strategic Watering Series 1, Series 2 and Series 3. I did nineteen 500-gallon watering sessions at Sites 1 and 2, each, and augmented the work during that time with three and a half watering sessions at Sites 3, 4 and 5 in Eugene. These first several weeks of the NWP went almost perfectly, bringing abundant rains. Unfortunately, I had to take a break at the beginning of September, smack in the middle of the summer's second hottest extreme heat wave. When I came back and began Series 4 eleven days later at Site 6 near New Hope, Oregon, I chose the bottom-left corner of the red triangle's base. I chose to water one grove here, twice a day, to try and bring more rain from the Pacific for the whole region, similar to August. That might have been a mistake. We received a slight 0.05", but I observed FMC effects continuing to build for days afterward–greening, blossoming and cooling. I conducted the final waterings, Series 5, near Melrose, Oregon, Site 7, and in Roseburg, Oregon, Site 8. These sites were about halfway up the west side of the red triangle. We got minimal rain but maximum FMC again, this time in the form of precipitation. Thus, I suspect the slight September rains are best explained by the unprecedented 46-state drought overtaking the USA at that time. The system acted like it was in "Exceptional" drought (stage 4), even though the US Drought Monitor showed Moderate (stage 2).

Heat Battles

There were four heat waves affecting the NWP, two before I arrived, two during. The first heat wave, July 1 to July 20, was most extreme. The second, July 31 to August 11, came to an end 48 hours after I started watering. That pattern continued.

Watering Series 1, 2, & 3

Series 1: 8/9 to 8/17 I work with Sites 1, 2 and 3 in the Eugene, Oregon area. I began watering Friday 8/9 with 0% chance of rain in the forecasts. Temperatures dropped 2 days later and stayed down for 16 consecutive days. We get the first rain 8/17. That series events has its own report, it brought more rain. For **Series 2** I watered Sites 1 and 2 on 8/21 and 8/22 to help get rainfall on 8/22 and 8/23. Eugene's high temperature was 67F on 8/23, 17F below average. **Series 3:** 8/26 to 9/3 I watered Sites 1, 2, 4 and 5. The second hottest heat wave of the summer came rushing in around 8/26. It appears we knocked it back on 9/2, after getting trace rains over Eugene that morning.

Taking a Break | 9/3 to 9/14

September 3, I did the final watering session for Series 3, but the weather felt weird; not building towards rain. Low and behold the next day, 9/4, kicked off the second hottest week of the year for Oregon. This continuation of Heat Wave #3 mirrored the early July catastrophe, which caused Oregon's highest burn rate in history. This time, however, it appears Oregon's forests were able to self-water (bring rain without my rehydration/stimulation) to prevent a catastrophic fire resurgence. This indicated to me things were working well in the Eugene area, I no longer needed to water there. The rains that came naturally during that period made sense according to my understanding of FMC science and my experience: hydrated FMC cycles moisture to exchange and attract more moisture, "self-watering."

Watering Series 4

Series 4: 9/14 to 9/22. I started strategic watering again on Saturday 9/14 at Site 6 outside New Hope, Oregon. Our multiple August rains plus the self-watering rains had me thinking–*We're almost home now! We'll be pairing with natural atmospheric flows in October, when fire season typically ends*. The SouthWest Projects had gone *so* well, first half of the summer, I thought we might put out all of the fires in the enormous NWP area by 10/1. Then by 9/17, when we did get rain, it was light. That was weird again. I expected more. By 9/19 I'd made notes of super-drought overtaking most of North America.

Watering Series 5

Series 5: 9/23 to 9/28 I located in the Roseburg, Oregon area and watered Sites 7 and 8. Another super heatwave took hold 9/22 running until at least 10/5. That extreme heat combined with the national drought, 9/19 until about 10/22, caused our final rain on 9/25 to also be small in my opinion. I think this partly because our final rain was followed by three hyper-local precipitation events the next three mornings: light rain, light fog and heavy fog. This indicated to me the FMC system was trying to instigate rain the atmosphere just did not contain. Thankfully, despite legendary drought and heat, the burn rate stayed low until fire season officially ended in late October.

Final Assessment

What would have happened when the late August heat wave arrived if there had been no rain?

One interpretation of my impacts is that we saved the day—me, the waterings, and the trees. What would have happened if the 8/17, 8/22, and 8/23 rains had *not* come? What would have happened when the super-intense late August heat wave arrived if there had been no rain, as expected? We cooled the area, got rain yet again in a new biome, squashed the second half of fire season, and accomplished about 90% of goals. I think we won the war—preventing forest fire catastrophe across the West 'second half of fire season, but BioIntegrity's greater mission, eliminating all drought-caused forest fires, has a long way to go. When I drove out of Oregon on October 4 smoke was pervasive from Crescent Lake, Oregon, to the bottom of California. End to end for 100s of miles, all I saw was *drought* and people burning the only things that can reverse drought: plants.

It's currently impossible to get an accurate picture of wildfire status from any single resource in the USA. No offense. There are great fire monitoring services but they lack consistency in updating, which fires they choose to report, and how they represent status (including whether or not it's burning). Authoritative summaries are hard to find and fires often disappear from maps, apps and archives without explanation, all pages deleted. Modern wildfire info is helpful for seeing shapes and locations, but inconsistent on details. That said, NWP Goals 5, 6 and 7 were not achieved entirely, I don't know to what degree. The late August/September extreme heat wave rebooted fire season, but this time any new wildfires that appeared quickly disappeared and the overall burn rate stayed low. A few Priority 1 fires kept smoldering after the NWP concluded. Why? These fires, at the center-east edge of "the red triangle", received less than 0.5" total during the NWP and had the worst rain deficits before I arrived. But again, the burn rate here stayed low.

By my count on September 29, InciWeb showed roughly 25,000 acres of Oregon wildfires uncontained, 65,000 acres of Washington fires uncontained, 110,000 acres of Idaho fires uncontained, and 0 acres of California uncontained, a total of about 200,000 acres were still burning across the NWP greater area, I think, when I headed back home. After several weeks of national drought, mid-September into late-October, prolific rains begin arriving around 10/21 over Priority 1 areas. Since that time the NWP Priority 1 zone have had their wettest Fall in years; receiving above average precipitation from late October through December. Forest-"refilling" after rainmaking is common, in my experience thus far.

Connected Outcomes

Importantly, my Strategic Watering techniques appear to have once again shifted the landscape's inclination to circulate moisture, cool itself, attract rainfall, stay moist, manage heat waves, and self-water (attract and/or catalyze more rain). I have seen these outcomes in each of my previous, regional Strategic Watering projects. My understanding of the NWP's "unbelievable" outcomes is simple. I am rehydrating FMC where it's most effective. FMC & the atmosphere do the rest according to forest scale, geo-location and conditions. Thus, my conclusions:

1. Anyone can do this. I am simply trickle-watering forests back into hydrated functionality. The "technology" is landscape circulation, perhaps life's most pervasive aspect.

2. I restarted regional FMC at a most critical time in Oregon and triggered FMC across Washington, California and Idaho as hoped.

3. This cooled Oregon and beyond. After I began watering August 9, only three days out of 40 were above average hot in Eugene and half of all days ended up being 5F to 17F below average. Eugene became the epicenter of some epic cooling for the NWP priorities 1, 2 and 3.

4. That brought in rains. I'm claiming six of eight gauge-captured rains that took place during the NWP total time period were direct responses to my waterings. These rains fell over mulitple states and millions of acres. The "Log" at the end of this paper shows images of each rain and provides more detail.

5. Thus, we nearly knocked-out fire season. The August 17 rain cycle cut Oregon's burn rate from roughly 36,585 acres a day, July 7-Aug 17, to 6,162 acres a day, Aug 18-Oct 28, by stopping and eliminating standing fires and new ignitions, and helping to slow existing fires across the NWP region.

6. My solution is superior. I spent very little money and used about one and a half swimming pools' worth of water. More than $750M was spent in Oregon on firefighting this summer. Their methods are effective but destructive, making both the Timber Industry and America's future worse in the short term. My costs were about $2K on water for my tanks and fuel for my truck to stimulate FMC that hydrated fire-prone forests, communities, ranches, and grasslands.

Lessons Learned


Chris Searles getting his first rain in Oregon, 8/17/24.

I was lucky, I think, that FMC still works this well in this part of the world. Forests today are over harvested, too damaged, and too far behind on rainfall. I see this locally, regionally and globally. The requisite moment is now to get forests back online circulating moisture and bringing rain to our lands, planetarily. Watering Series 4 and 5 did not restore FMC momentum like we had picked up in August. Light rains, a little fog and some prolific greening came, but next time I'll stay longer and keep watering, as I did in Eugene. Here are two new concepts I am 99% sure will guide all future work, I learned and confirmed in hindsight of The NWP.

#1. Don't leave until Self-Watering. (Whenever possible.) Forests are "self-watering" when they attract and/or catalyze rain on their own, after my waterings, in a droughted area. On reflection, I've seen the most durable drought reversal occur in projects where rainfall comes again without my help (after I have gotten the rain cycle re-started). I was not thinking this during the NWP. I had a plan: *six weeks of waterings according to what I know works and let's see what happens.* I stuck to that, but now I wonder if I had stayed with the New Hope waterings for one or more additional weeks what kind of Fall we might have seen over the NWP area. This is a tricky aspect to gauge, but next time I'm in a similar situation I will probably stay longer. Stakes are high now.

#2. Rain Deficit > Landscape Drought. Rainfall *deficit* is more imporant than "*drought*" as shown on the US Drought Monitor, at present. Based on my experience and recent use of the Rainfall.farm app, trees and forests are least capable of FMC (most fire prone) when they are too hot and in deep rainfall deficit. "Deep rainfall deficit," meaning: more than 50% behind on rainfall for the last 365 days and short on rainfall year-on-year for the last several years. Want to know why trees are breaking, uprooting, and catching fire more often today? Rain deficits. Years of dehydration reduce any organism's overall function until rehydration and recovery. I'm not sure how the US Drought Monitor sources info, but if that resource were to show a map of compounded rainfall deficits, year on year since 2010 or 2015, I reckon we'd see more than 80% of North American forests standing in "deep dehydration" today. This currently unseen, underappreciated phenomenon explains why Oregon's state fire climatologist predicted a mild summer 7 days before Oregon's worst fires in history exploded. We need to see this layer and act accordingly.

Wrapping Up

The Drought Challenge is: Things Preventing FMC (Weather & People). I have collated dozens of articles on what I was up against preceding my arrival. The damages and extremely-deep dehydration currently present in Oregon's forests is shocking. Finding these forests rigid, ragged, and hardly-circulating was the wrong kind of awesome. There are logical reasons. The last 150 years of unintentional FMC-capacity removal, the recent years of damaging weather, year round, the rain deficits, the heat, these are the things are making the state of Oregon more fire-prone and its Timber less marketable. "We don't even cut the Doug Firs anymore," I was told by a lumber grader. They shatter or they're too dry to sell. We can turn that around. On the positive side — I was battling Low FMC during the hottest summer on record after the worst July fires in Oregon's history and yet we flipped the script. My "experiment", The NorthWest Projects: 2024, appears to have cooled the region dramatically. That brought rain on cue straight to my sites, outside of the forecasts, repeatedly. Those rains helped prevent cut and helped sustain a wildfire ramp-down through traditional fire season and the four, unexpected, additional weeks of drought occurring into October. My FMC empowerment strategy appears to have benefitted the entire USA West Coast and interior Oregon, and to a lesser degree the forests of Idaho and Montana, as I designed and hoped for. On the negative side — I missed stretch goals 5-7, though there area nuances as to what degree. The second hottest heat wave of the summer, which unfortunately coicincided with the break I had to take, 8/26 to 9/10, ignited some new fires, but also emphasize the efficacy of Strategic Watering. In my opinion the project went great up until the last two weeks. The biggest failure: I was unable to extinguish all fires in my Priority 1 zone before concluding the NWP. Maybe if I had been able to water the first two weeks of September we could have avoided that and done better overall. The largest of nearby fires had gone out quickly after 8/17, but several kept going. After officially finishing the NWP on 9/28 I stayed in Oregon through 10/3, observing and assessing from the Oakridge area. Everything was just weird/bad or suddenly good and thus totally confusing at the time. It's a super-resilient system in extreme crisis, now, is my humble opinion as to what I saw. In the end, we experienced exceptional cooling, game changing rains, a sudden reduction in the burn rate, which held, and the dramatic muting of two heat waves, against extreme odds. That is what I was shooting for.

VII. Uncanny, Synchronistic Events

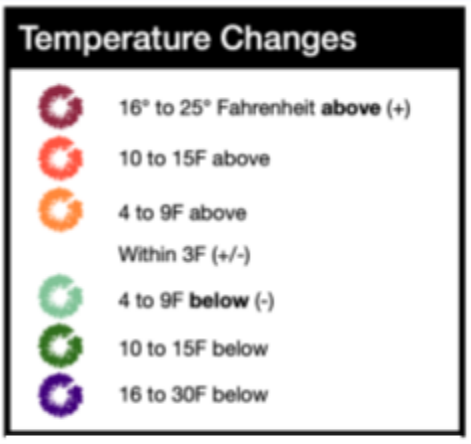
Events that synchronized with my waterings that "should not have happened" during fire season:

1. Cooling
2. Cold Waves
3. Rains during fire season
4. Build-ups (clouds, etc.)
5. Drought reversal
6. Wrong Forecasts
7. Wrong Outlooks
8. Burn-rate cut (during peak fire season)
9. Burn-cut duration (not ticking back up)
10. Patterns of rain attraction
11. Rain deficit reversal
12. Eugene did best
13. No rain, no fire?

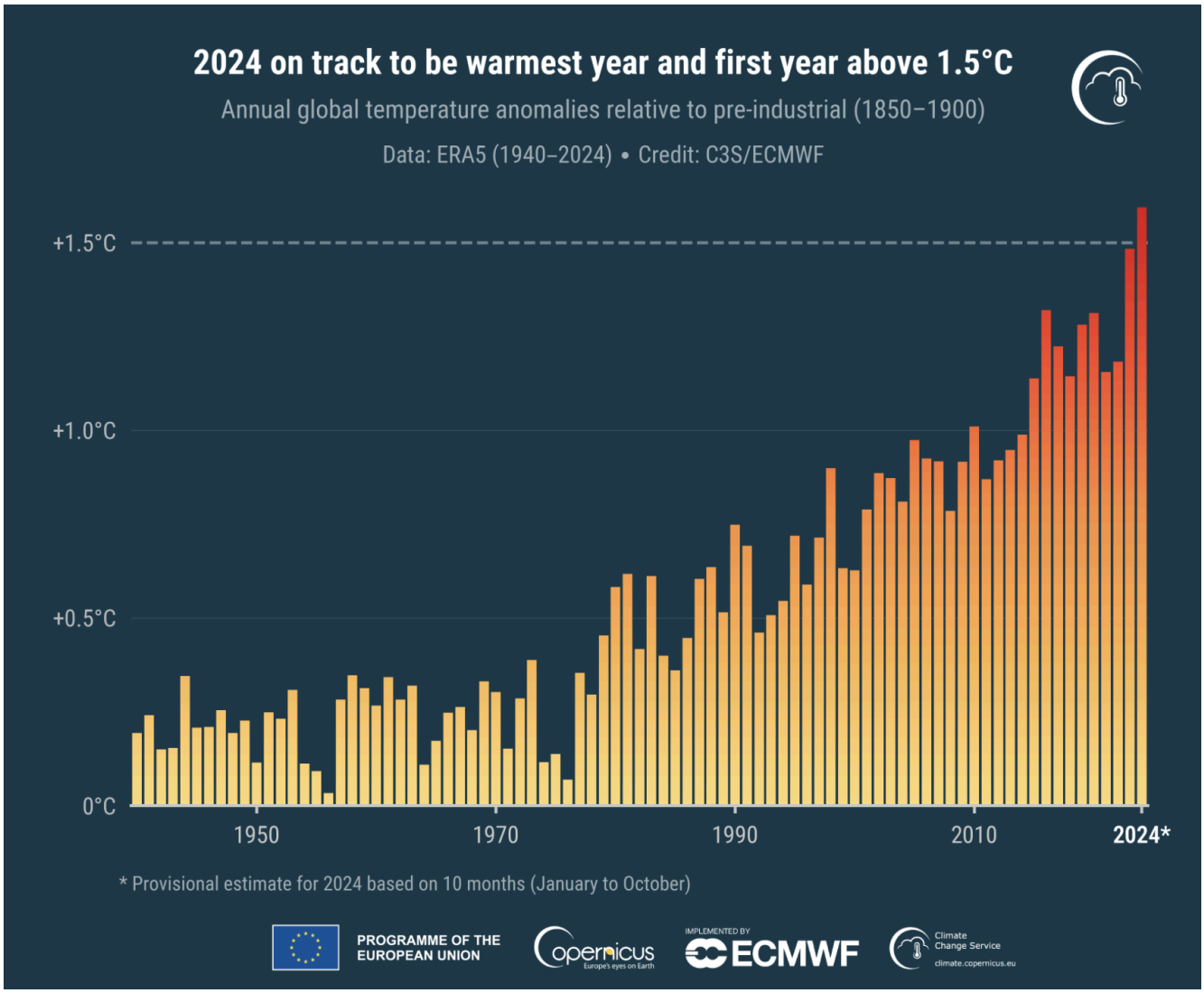
Each of these things would be unusual during a normal summer, this was Oregon's hottest summer and worst fire season ever. We truncated that. Here's more detail.

1. Cooling.

"All of a sudden," large-scale atmospheric cooling always precedes rainmaking via trees. Build-up time to cooling depends on the level of dehydration affecting each of the five FMC layers. The cooling that took place during the NWP matches my watering days very closely. The Accuweather monthly temperature graphs, page 18, show daily high temperatures for my three site areas: Eugene, Roseburg, and New Hope. Exceptional temperatures, above and below average symbols (shown in key to the right), and NWP watering series markers are added by me. I also added average temperatures, according to WeatherSpark. It's clear from studying these graphs that when I water the temperature drops. It should perhaps also be pointed out that "no one" was predicting the intensity and duration of cooling we got August 12 to 28 and September 11 to 27, also observable in the graphs. From the rainmaker's perspective, as soon as I start watering I'm watching for heat to dissipate or suddenly vanish. I've learned because it always happens. Thus, I interpret sudden, unexpected cooling as more often than not an FMC pulse hydrated by me. When I began a project, it's hot. As I water, cool days mount. As cooling intensifies I know rain is headed our way.



See temperature graphs



2. **Cold Waves' intensity and duration.**
   Again, this is a reliable part of the build-up process. But, in the hottest summer on record, in the middle of peak fire season, after the worst start to fire season in Oregon's history, when no one was predicting cooling or cold and La Niña still hadn't come … I don't think there is a meteorological explanation for this uncanny shift—timed so well with my work, other than my work. In addition, the intensity and length of the temperature drops that took place (Eugene, for example had 1 day 17F below average and 20 days 10 or more degrees below average out of 40 watering days), and the number of below-average cool days relative to my waterings are all and each uncanny.

3. **Big Rains during Fire Season.** Yes, the fact rain happened at all is super uncanny. Except after more than 50 documented projects, I have to come to expect these outcomes after the process outlined in sections II-IV are carried out unless "the sky", the overhead and process steps outlined in sections II-IV are carried out. This works consistently for me unless "the

Uncanny Cooling

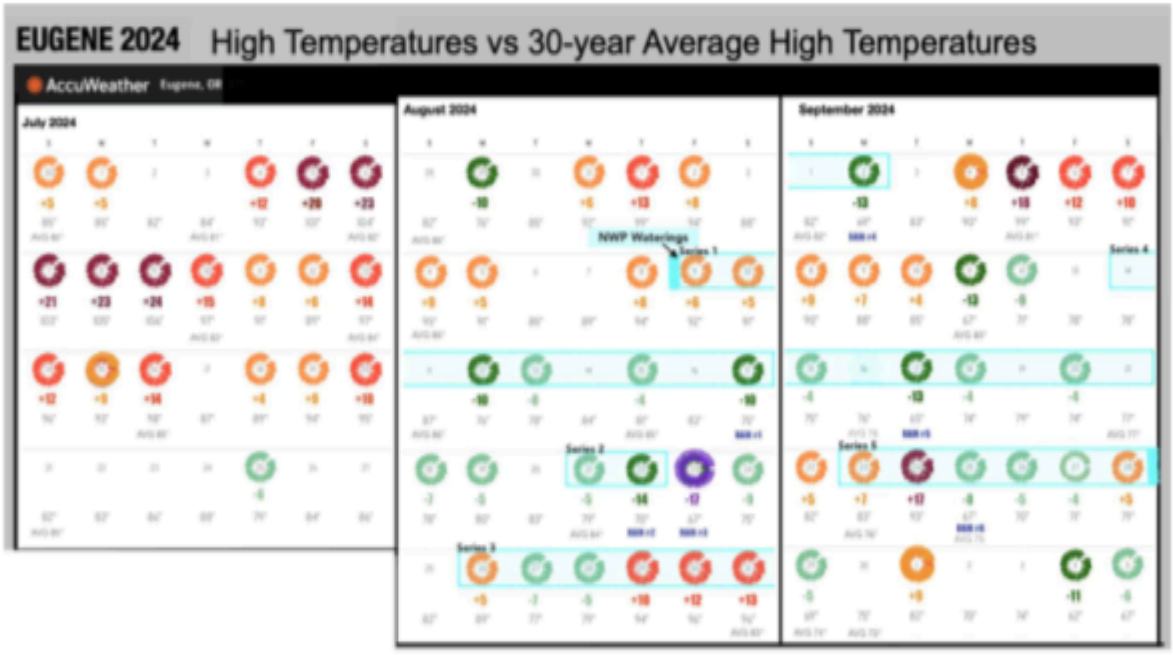
NWP Markers

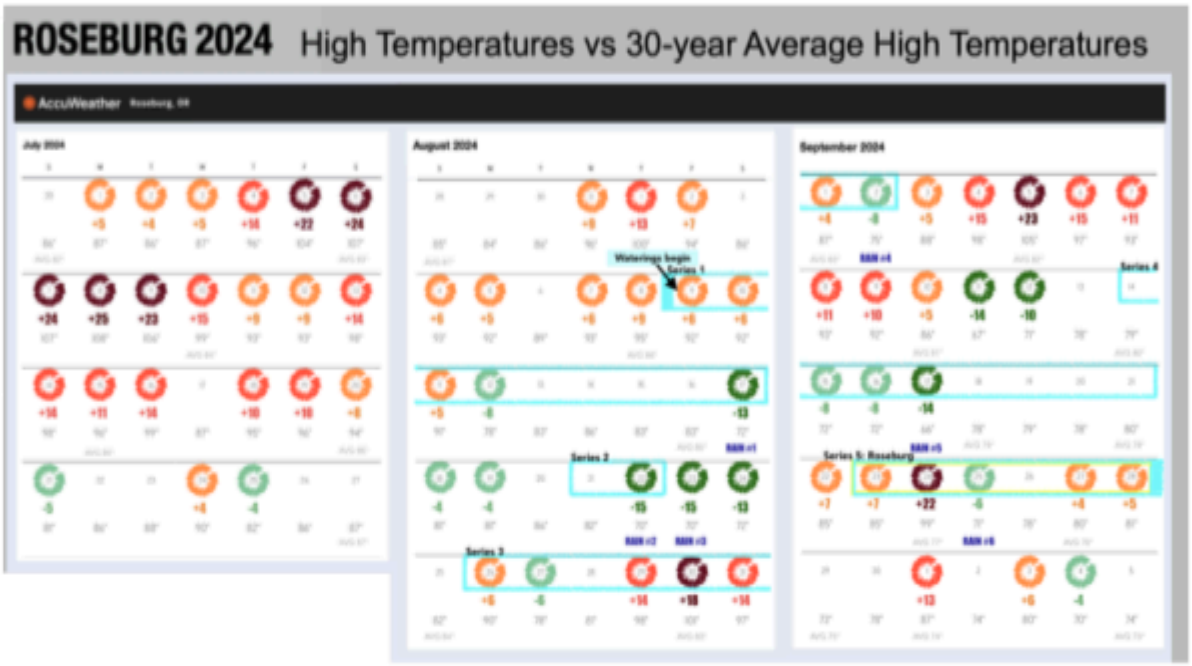
Series __	Watering set
	Watering days
RAIN	Claimed rain

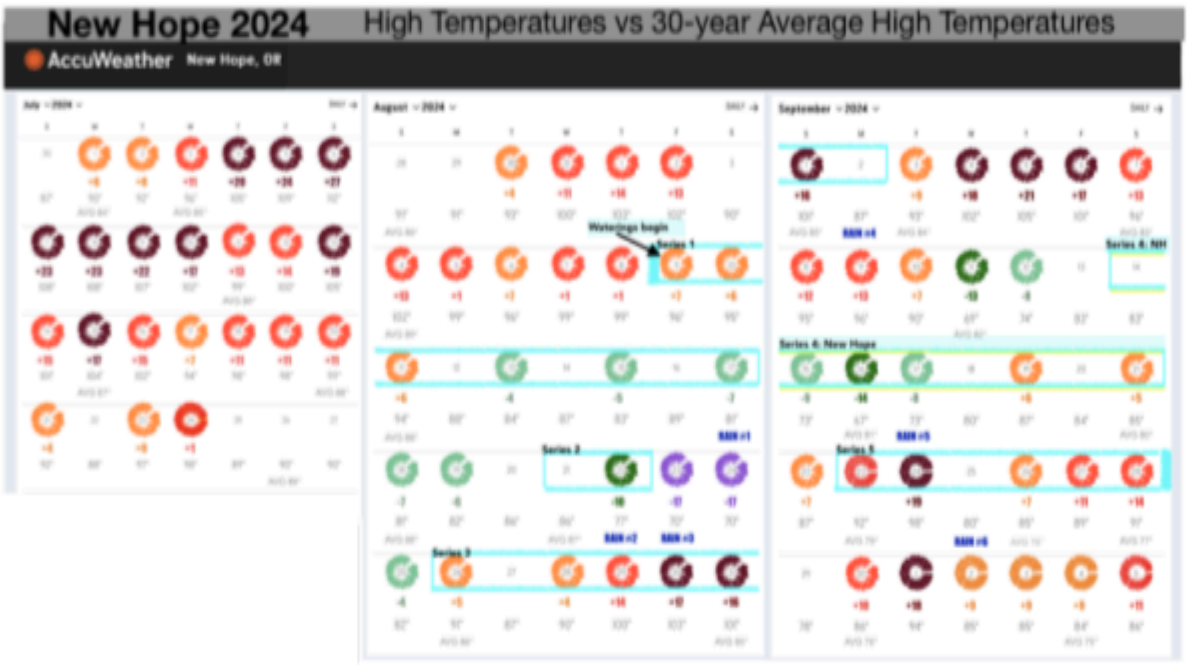
Temperature Changes

- 16° to 25° Fahrenheit **above** (+)
- 10 to 15F above
- 4 to 9F above
- Within 3F (+/-)
- 4 to 9F **below** (-)
- 10 to 15F below
- 16 to 30F below

Figure 13 Uncanny Cooling. I strategically-water, temperatures drop and stay down until I stop or a heat spike.







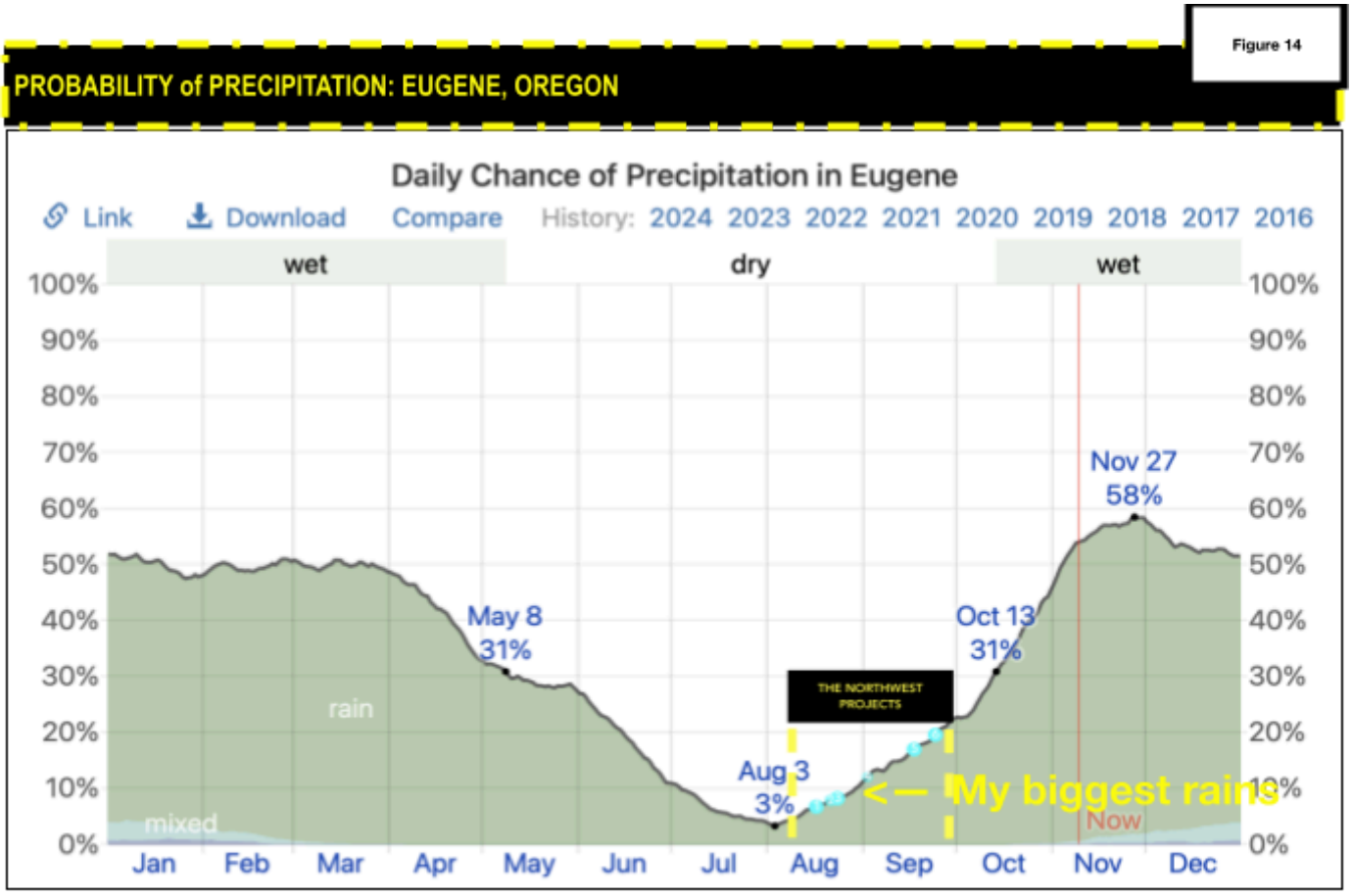
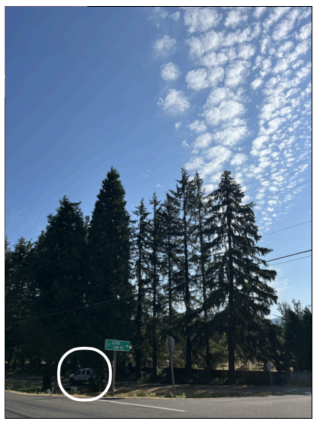


Figure 14. Rainfall probability for Eugene, Oregon, our primary hub. I am claiming six rains that fell over Eugene Aug. 17, 22, 23, Sept. 2, 17, and 25. There were at least three additional rains during this period for a total of 10 rains with probabilities ranging from roughly 6% to about 20%.

for two weeks or more over my site area. According to WeatherSpark.com the rains that fell over Eugene had 6% to 20% probability for the time of year they fell. I was *trying* to get rain at "the wrong time of year", during peak fire season, because of that exact emergency. "Fire season" by definition means inadequate rain. The NWP got started August 9, game-changing rains arrived August 17, 22, 23, 24*, 27* and September 2*, 10, 11, 17, 25, and 26* at varying scales across my target regions. *Iindictates trace rains I have documentation of not in the gauge record.

4. **Similar Build-up Phenomena.** During the NWP's strategic rehydration process I saw the same types of improvements I have come to expect in every build-up to rain process. Ie., I arrive to an empty, motionless sky and brittle, motionless, scratchy vegetation and get started. From the very first waterings there will be near-instantaneous increases in hyperlocal air circulation. Some watered trees will suddenly sway, cool air surging in and around. Before long, usually at least a day, unexpected clouds appear over the site, the region gets cooler, and the meteorological forecast start to shift. Then, more or less: circulation changes, hazes, air moistening



Watering #4, Series #1 of The NWP.

(softening of air quality), light quality improvements (less glare, more golden color), shade quality improvements (richer, deeper darkness), air, soil and vegetation-quality softening, vegetation greening / darkening / color and/or tensile strength gains, large to giant cloud systems, and occasionally fogs and/or trace precipitation all appear at varying moments before the rains arrive in variously richer degrees as progress towards rain increases. I presume this is more evidence of FMC buildup as **there is no logical explanation for such moisture-centric improvements without rain other than FMC, is there?** I certainly can't think of another explanation as to why I keep seeing the same kaleidoscopic patterns, "build-up phenomena," repeatedly at different times of the year working with diverse forest infrastructures in southeastern Missouri, south and central Texas, southwestern and central New Mexico, central and northwest Arizona, northern California, and now southwestern Oregon at varying elevations. My extensive photo and video archive (100+G) just from the NWP contains that record to the best of my ability. As implied, I interpret these changes to be driven by my strategic rehydrations. Metaphorically it appears I'm hydrating a forest artery, it does the rest. I can't predict how or to what intensity rains will occur, but I can tell you once I get a grove or pair of groves slow-watered into a lush state (meaning cool, moist, soft and gently circulating such air), rains will appear at one scale or another and the transformational activities listed above will have taken place.

Watering #14, Series #1 of The NWP.

5. **Drought Reversal during Drought Season.** Here is another super uncannily-timed and super-unlikely event, which substantiates everything I set out to do. Drought receded over my Priority 1 and 2 zones during the NWP. Again, this is the opposite of what was forecast, not historically

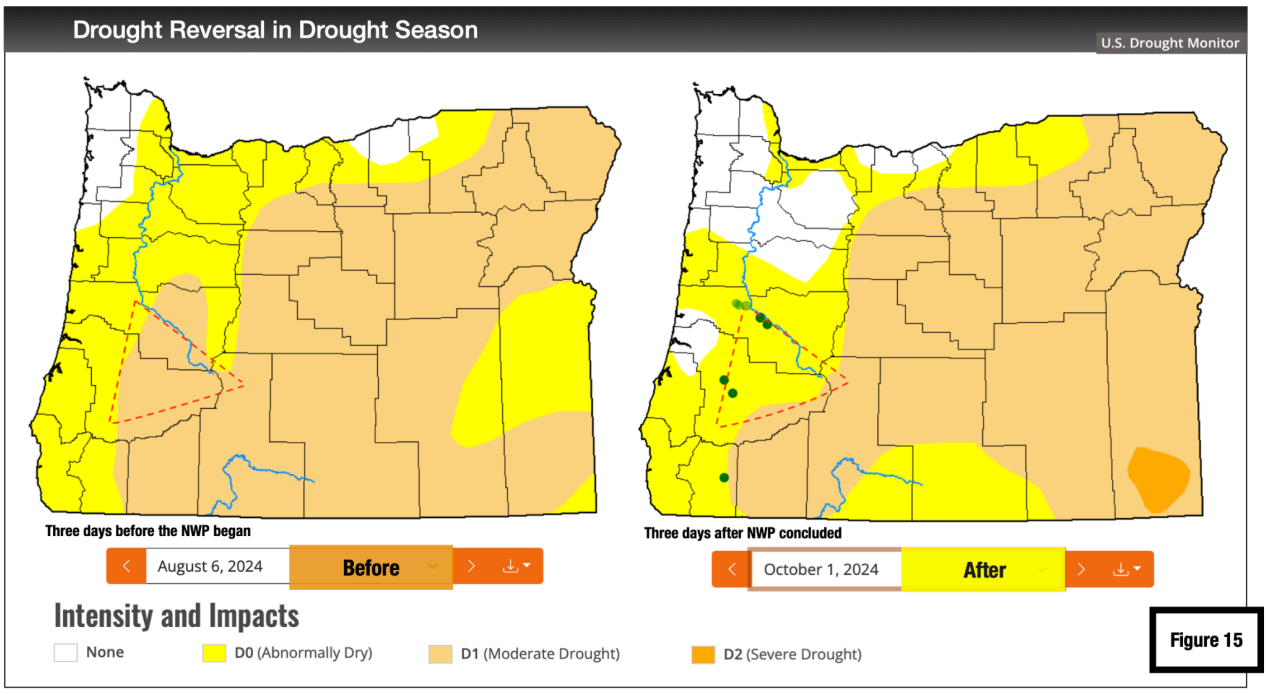


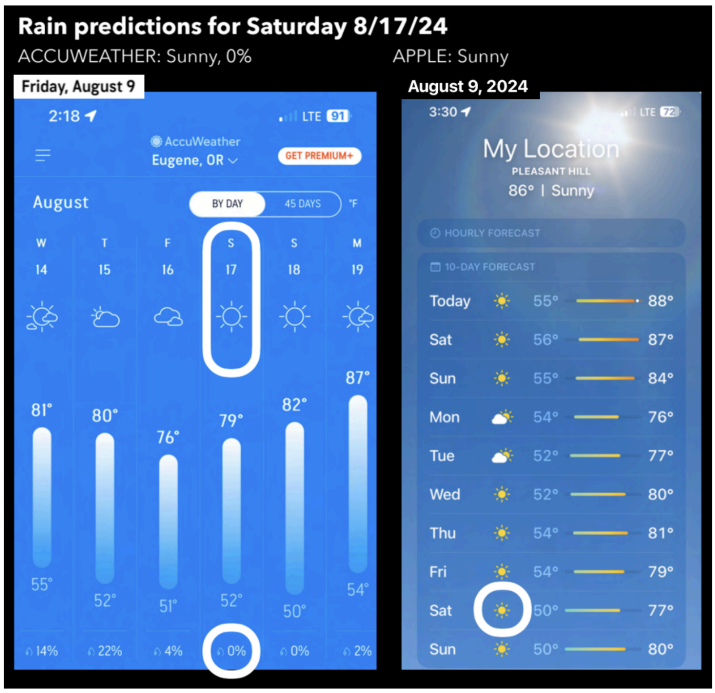
Figure 15

normal, a welcome surprise during the hottest/worst fire summer in Oregon's history, during peak fire season. See image previous page. More in Supplementals.

6. **Wrong Fire Outlooks.** On June 25 Oregon's "state fire-weather meteorologist" predicted "below normal fire activity in July." A week later the worst heat and fires-explosion in Oregon's history erupted. About 1.5 million acres burned between July 7 and August 17, more proof Oregon's farms, grasslands, and forests are more fire prone than the drought monitor currently shows. Thus, an awful August was predicted by The National Interagency Fire Center, seeing "Above normal fire danger," and a drought that would "expand and/or intensify." On August 3rd, climate scientist Dr. Daniel Swain said in the New York Times, "Every dimension of this fire season looks challenging from here on out. We have months to go." By contrast, NOAA climate.gov's long-range forecast for August and September for my site areas was "equal chances" above or below heat and precipitation. Farmer's Almanac said "hotter than normal".

About 75% of Oregon's catastrophic 2024 fires occurred before I got my first rain, August 17, in the middle of "peak" fire season.

7. **Wrong Weather Forecasts.** "Hot with a 0% chance of rain." **There was 0% chance of rain on my Apple and Accuweather forecasts 8-days prior to the first rain.** Similarly, for each rain event after that. Forecasting is an area for more academic study. I use apps and occasionally the National Weather Service website to help me confirm I'm effecting atmospheric activity. These resources do not reliably predict rain, however. Day to day, minute to minute, and week to week forecasts from various vendors "cover all the bases" of reasonable possibilities, often, and then change. There's too much variation in what's predicted reported amongst the vendors to derive a consistent picture. In my experience, no single resource gets it right even 80% of time, and their are too many nuances to list as to how they differ and overlap from there. I have two to five daily forecast snapshots in the archive, from AccuWeather and Apple, for anyone to review.



8. **Burn Rate Cut.** The first half of this year's fire season burned at record rates in Oregon. More than 1.5 Million acres were torched July 7 to Aug 17, 2024. During that time rate of loss was roughly 36,585 acres per day. After the August 17 rain, burn rate dropped to around -6,162 acres per day. The NIFCC had expected "Above Normal" danger all the way through September in their 8/1 outlook. Instead, on 9/1 they wrote,

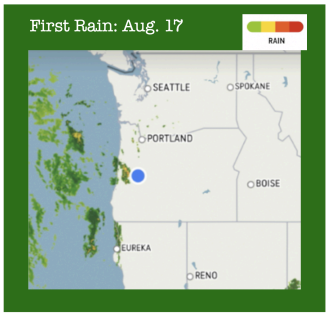
> "All previous Public Service Areas listed with above normal significant fire potential have been returned to normal for September... Rain and cooler conditions took the edge off fire season to date and returned conditions to near or below average."

"Below average" means safer than normal.

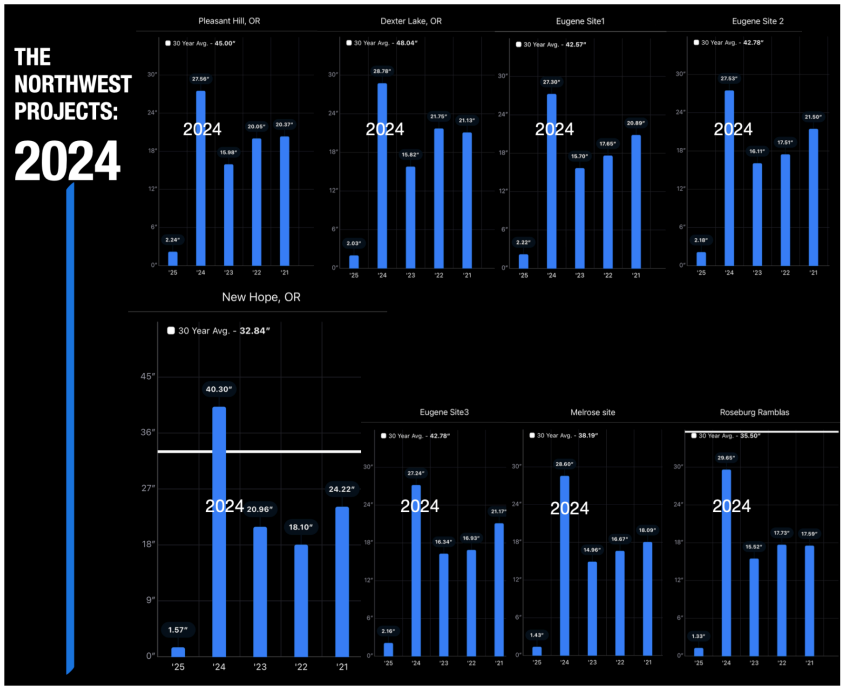
9. **Burn Rate Cut-Duration.** By late August it looked like we had hit it out of the park on getting rain and FMC to my Priority 1, 2A, and 3 areas. Then the extreme heat resurged. The August 26 heat wave, which I thought was knocked back on September 2, came roaring back September 4 and raged until September 10. A fourth long heat wave, September 22 to October 5, ushered in the national drought, which endured until about October 21 over the region. Total acres burned by August 17 was +1.5 Million, total acres burned by end of fire season October 25 was just +1.9 Million. Once the fires got knocked down in mid-August they stayed down for +10 weeks.

Once the burn rate got knocked down, it stayed down.

10. **Patterns of Rain Attraction.** My watering sites appear to be a center or endpoint of attraction in each of the rains I claim. It's as if these unseasonal rains come right to us during the NWP, during a time of global drought. Uncanny. See the "Log" (last section of the report) for rain pattern collages, and some photos, from the rain events.



11. **Rain Deficits Reversing.** Interestingly, each of the NWP sites and my Priority 1 region ended up having their best rainfall year out of the last four because of rains that started falling after the October drought ended. This is a familiar post-project phenomenon. *It <u>appears</u>*, to me, that after we get breakthrough rain, forests more often then not make it through weeks of drought without additional fire and then start refilling as soon as moisture is available again from the sky. Perhaps it's a pattern.



12. Eugene did best. I did about 2/3rds of total watering 12 to 18 miles from Eugene at my sites ***Pleasant Hill*** and ***Dexter Lake***. According to Accuweather immediately after the NWP concluded on 9/28, during the period 9/29 to 10/5 Eugene had one above average hot day, two below average cool days, and one extremely cool day (11F below average). Whereas New Hope had three above average hot days, two extremely hot days, one exceptionally hot day (18F above average) and zero cool days. The Eugene area sites received a grand total of 20,750 gallons. New Hope, by contrast, received just 7,000 gallons. The Eugene area got about three times more water than New Hope in that period and even though New Hope had been more recently watered and is closer to the ocean it had 84% more hot days than Eugene. This is relatively true across the region. Why did Eugene do better? The answer is blowing in the wind.

Eugene had the **most cool days.**

13. No Rain, No Fire? Yes, highly improbable rains came right to us while the rest of the USA cooked in August, but then our rains pretty much stopped over Oregon 'middle of September. We had consistent precipitation production with my waterings, but rain volume was low. Why? Here's what I think. My September workbreak unfortunately coincided with the second most intense heat wave of the summer. That knocked us back. I also made a locational mistake by using the US Drought Monitor in September, rather than Raindrop's Rainfall Deficit monitor, which later showed me the New Hope area (week 5 waterings) was challenged by both unusually heavy rains upwind–meaning less drought demand and rain attraction upwind of our site, as well as a 30%-50% rainfall deficit each of the previous four years on site–which means less FMC capacity on site than I realized. Furthermore, at New Hope I watered one site twice a day, rather than two sites once a day. I wanted to test that. I am now pretty sure two sites / two poles is best for achieving Strategic Watering goals. Then by the time I got to Roseburg/Melrose (week 6 waterings), most of the 48 United States were in drought. There just wasn't moisture in the air over the USA except where there were hurricanes. This unprecedented, national drought during rain and snow season lasted up to 16 weeks in some places. Worst of all, 2024 is the year global atmospheric moisture circulation broke "for the first time." Rainy season is currently unreliable, globally. To overcome that we need to strategically resoil and water our forests and lands. Summing up, I have only experienced no rain during Strategic Watering once before, when I specifically located in the heart of a Stage 4, Exceptional Drought, the worst level. In that project, July/August 2023, we got rain on site but only FMC over the greater area of hundreds of square miles of Central Texas. That FMC successfully muted wildfires regionally, but I had to relocate to a less-dehydrated forest region, and water two poles, to actually bring rain. The last two weeks of the NWP were very similar. Nonetheless, September 27 to October 21, zero rainfall fell over the NWP areas yet the fire season ramp-down held strong.

VIII. Methods

It is not the goal of this paper to provide quantifications. I don't have the equipment or the training. I'm ready to be tested and invite anyone join me or take on the techniques shared here to see and measure for themselves. There are numerous aspects of FMC, Rainmaking with Trees, and Strategic Watering in need of measuring, mapping, and deeper engagement. At present, I can elaborate a little more about the qualitative elementsI use. Please consider the following a list of specific areas I'm familiar with in need of measurement, from multiple layered, in situ and historical perspectives. Here are the qualitative I find most guiding during the rainmaking and strategic watering processes.

My Qualitative Analysis Tools

- Leaf size, color and moisture-content
- Vegetation and soil aromas
- Wind direction and temperature
- Vegetation posture, hardness & shade quality
- Micro-climate air pressure
- Transpiration/FMC exchanges (in-canopy cold blasts, "nature's air conditioner")
- FMC activity in surrounding forest infrastructure
- Air moisture quality and temperature (not humidity) locally and regionally
- "Transpiration dome" development (over-canopy light diffusion)
- Transpiration fog (in-canopy precipitation)
- Local cooling
- Satellite-based forecasts
- Radical forecast changes
- Cold days
- Various forms of uncanny precipitation build up (clouds, blossoming) before rain
- Rainfall movements across hydrated and unhydrated landscapes
- Rainfall movements across forested and unfrosted landscapes
- Total extent of FMC from point of hydration (where I am) to a distant landscape (e.g. Idaho)
- My own ground-based forecasts
- Drought and water deficit footprint and impacts
- Effects of slow rehydration on a tree in deep water deficit

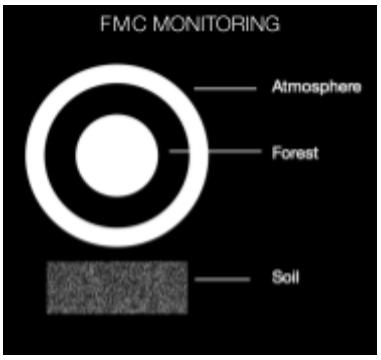
Data I follow and collect:

- Forecasts - for the month ("Outlooks")
- Forecasts - during process (phone apps)
- Drought monitor and weather records
- News media, re: conditions
- News media, re: current events
- Videos & photos showing process and changes on site

Tools I use:

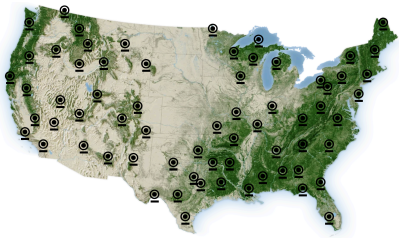
- Mapping apps
- Fire records apps
- Weather apps
- Drought apps
- Information acquired on site
- Freshwater containers
- 5-gallon buckets
- Nontoxic hoses
- Rugged truck
- Physical labor & observation
- Repeat 3 to 4 hour watering sessions at a given site, per each series
  Conversations with locals

IX. A New Tool



"Forest Moisture Circulation Monitoring." In this paper I've tried to introduce not only the concepts of Rainmaking with Trees and Strategic Watering, as well as report on my 2024 effort, The Northwest Projects. I've also tried to introduce the Civilization-critical concept of FMC, Forest Moisture Circulation. FMC capacity—*how much water is in the proverbial tank of a forest and how well that ecosystem can circulate that water,* is determined by these three primary elements:

1. Forest moisture condition.
2. Atmospheric moisture condition.
3. Soil moisture condition.



In the tool diagram to the right the forest is at the center because it is our focal point. The atmosphere surrounds the forest because in reality it touches both living elements: soil and forest. Soil is at the bottom because of its foundational role. Aridity levels could easily be shown in each domain with colors and shading, like any weather graph, to depict the content / state of the moisture within that domain. Land colors might shift from black and deep green (lush) to speckled blue (raining) to grey-white (too dry). Likewise the sky ring might go have a clear blue base tone and add white to grey to dark blue pixels depending on atmospheric moisture type and density (heavy rain, light fog, etc.).

X. The $25M Solution

A "benestrophe" is the opposite of a catastrophe. We have a benestrophic option here: restoring FMC to end forest fire (at least). I believe two or three small teams for the continental USA focused on strategic watering, securing forests (restoring soil biology where it's most beneficial to the whole landscape; paper #2 in this series) and spreading the word can easily position all USA forest systems to exit this era of drought within five years. Two teams of 12, including a manager, an admin, and social media manager, plus nine roaming waterers and educators, doing what I did, coordinated together can turn the world around. One team moves West to central USA the other moves East to central USA. A third team could work with Hawaii, Alaska and US territories.

Watering Trees to Fight Fire. Based on what I've done and seen, and what I think the NWP's outcomes demonstrate, we humans can simply water trees slowly and carefully to catalyze large-scale rainfall and FMC. If we combine small waterings, around 200 to 300 gallons per superlative tree, with strategic locationing we can stimulate self-restoration of moist air circulation across the five layers of FMC. This process kills fires and can bring rain, which will then be shared by the other life on a given landscape over large distances, as far as it can travel. Our opportunity is simple and enormous: rehydrating, recapacitating and rewilding landscapes.

####

Addendum: Project Log.

Thanks for reading this report. The Project Log provides images and more detail as to what I was dealing with and thinking about during The NorthWest Projects: 2024 (NWP). It begins July 1 and ends October 5. Please note high temperatures shown in the left column next to each date. Same color key as before.

Chris Searles, 2025

Temperature	Date	Notes
	July	
	1	Heat wave starts, lasts til 7/25 in New Hope (3+ weeks)
	3 to 5	The heat wave spikes for about seven days then broils for ten more (of the 3+ weeks)
	7 & 17	NUMEROUS CATASTROPHIC (FAST) & LONG-LASTING FIRES ERUPT
		CGL1 begins 7/17; is -12,000 acres by 7/31 & 7% contained (loss rate = +850 acres/day)
		+1,490,000 acres torched by 8/17 (six and four weeks later)
	25 to 30	The system cools impressively, the fires rage
	31	A lesser heat wave returns, the region is HOT through 8/11
		The area I'm watering, Eugene, OR, is out of high heat *by* 8/11
	CGL1	Begins 7/17; is -12,000 acres by 7/31 & 7% contained (loss rate = +850 acres/day)
	August	
	8	CGL1 now -17,000 acres (-770 acres/day)
	9	**SW begins** in the Eugene area.
	10	Waterings #2 & 3.
	11	Waterings #4 &5.
	12	**Regional Cooling** begins — a systemic shift; **regional temperatures shift to "Below Average" for next 3 weeks. 13 of next 22 days are 4°F to 17°F below average.** Waterings #6, 7 & 8.
	13	Waterings 9 & 10.
	14	CGL1 RAGING, now -21,000 acres (-750 acres/day) / 14% contained. Waterings 11 & 12.
		Local news showcases "foggy day" (I'm about 30 miles away)
	15	Waterings 13 & 14.
	16	Waterings 15, 16 & 17.
	17	**RAIN #1.** I put in 9,250 gallons total. Waterings 18 & 19 take place before this rain comes.
		HOW MUCH RAINFALL?
		CGL1 receives approximately 0.28", nearly shutting it down.
		That's about 7,603.1 gallons per acre x 25,000 acres = **190,077,500 gallons.**
		Eugene received approximately 0.44".
		That's an additional 11,947.76 gallons per acre x 28,452.8 sq. Acres = 190,078,000 gallons.
		Regional ROIs

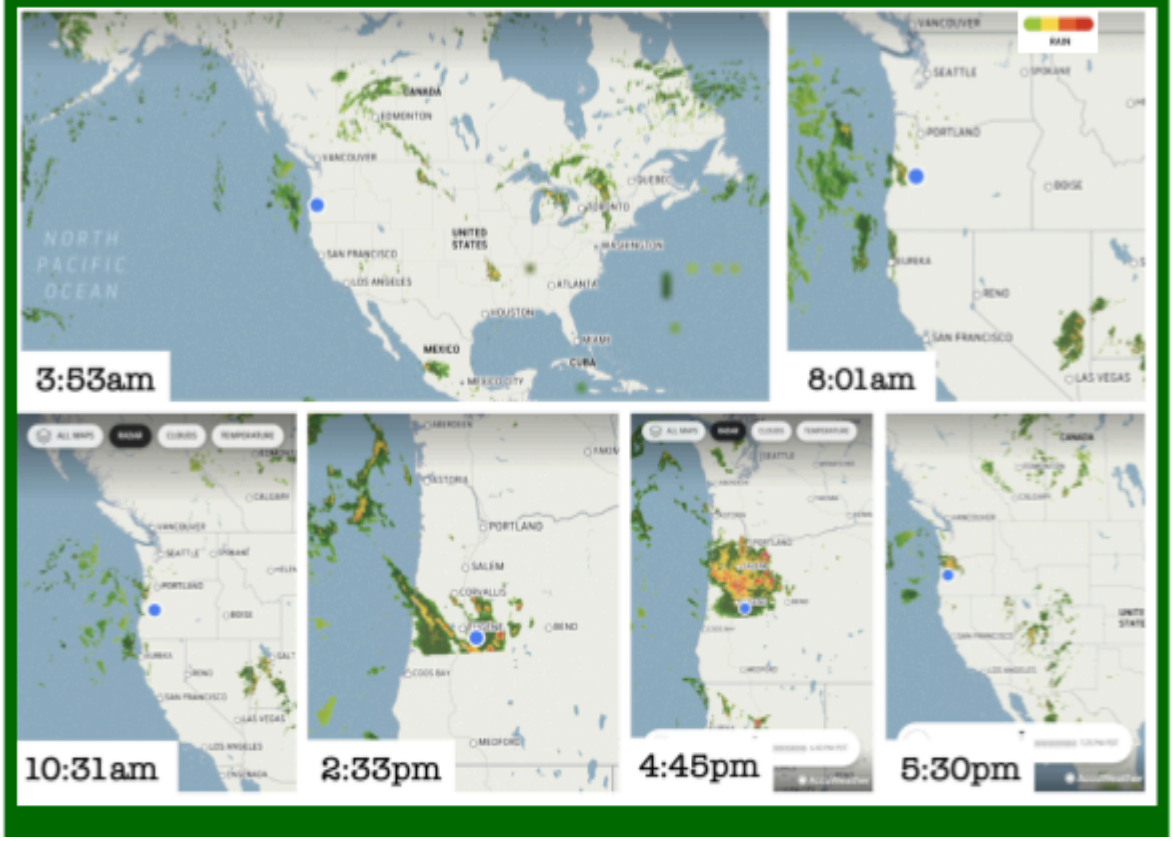
Temperature Changes

- 16° to 25° Fahrenheit **above** (+)
- 10 to 15F above
- 4 to 9F above
- Within 3F (+/-)
- 4 to 9F **below** (-)
- 10 to 15F below
- 16 to 30F below

Temperature	Date	Notes
	August	
	17 (counting rain gallons, continued)	Regional ROIs
		To get Regional returns just take the average amount of 0.32" over my three watering sites for this series and spread it across
	You get 8,689.28	4 Acres of Sites Only or 100,000 Acres
	gallons, per acre:	34,757.12 gallons H2O 868,928,000 gallons H2O
		This rain had a ~6% probability and it fell over all 7 of my target areas, averaging 0.32", went north to Portland, covered some of the driest and direst parts of Northern California, and spread rainfall and FMC eastward into NE Oregon (+1" in some places) and Idaho. Lots of perfection in targeting here. Looks like we killed the expected expansion of catastrophic fire, across all of these states, in the middle of peak fire season. Bullseye. I am amazed.
		What We Got. (More rain counting.)
		1. Massive rain ROIs: more than one billion gallons just over Oregon forests, plus unlikely rain over 4 states' forests
		2. Game-changing rains over all of my target fires in priority areas 1 & 2
		3. CGL1 is nearly halted from this day forward at around 25,250 acres!!!
		4. The August 12 regional cooling shift is the coldest, longest and most unlikely of two cold waves coinciding with the NWP. For the Eugene area (my watering area) the August 12 "cold wave" that brought this rain keeps high temperatures BELOW average for 75% of days August 12 to August 28; 12 of 16 days in the second half of August were 4 to 17 degrees F below during the hottest and driest summer in US history over my watering area. The rain pattern itself (shown here) uncannily seems to be attracted directly to my watering sites, just SE of Eugene.

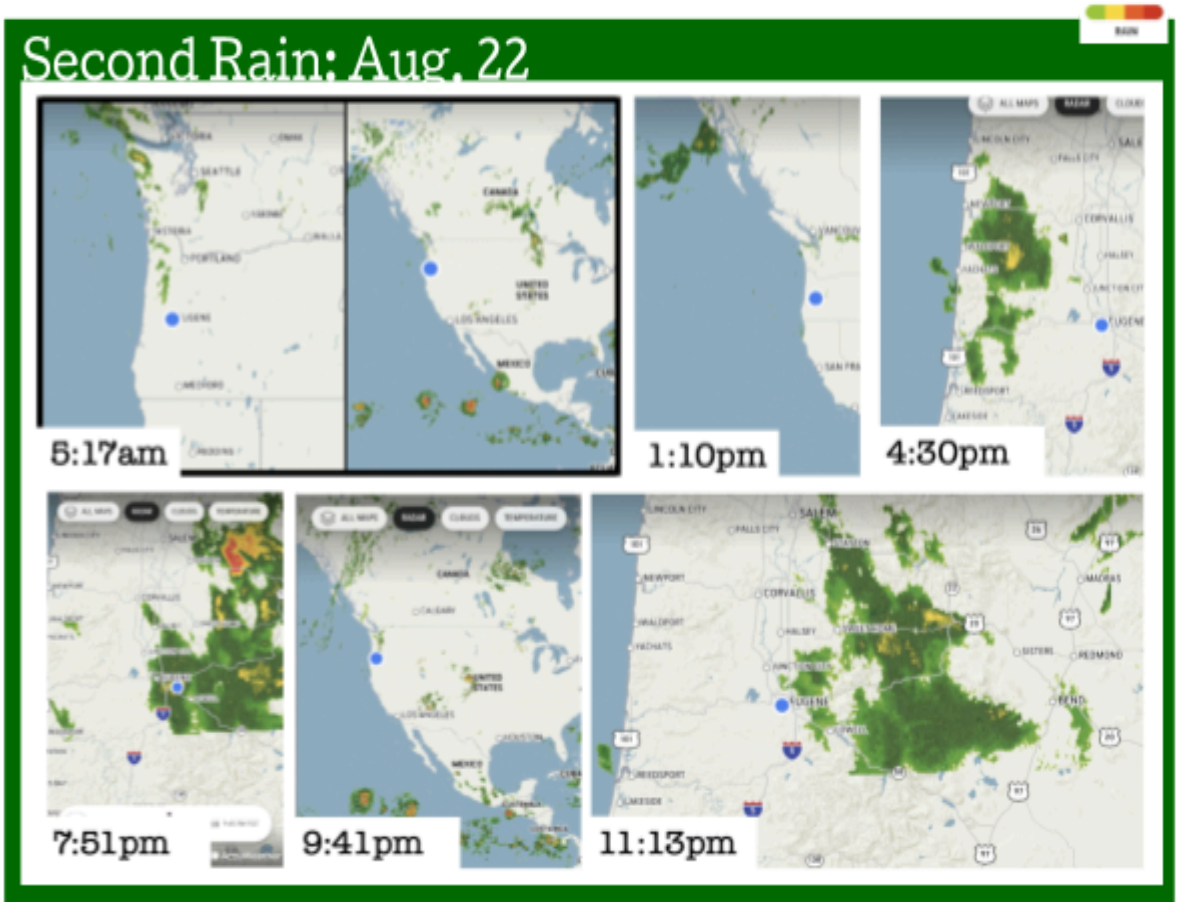
RAIN #1	Sites				Fires					
AUG. 17	EUG1	PH	DL	SUM (these 6)	SW OR	CGL1	DWD	RED	COFFEE POT	SUM (these 7)
RAINFALL	0.44	0.32	0.21	2.45	0	0.28	0.16	0.06	0.44	2.07
AMOUNTS	NH	MEL	ROS	Average (these 6)	SO WI	NO WI				Average (these 7)
Shown in inches	0.32	0.47	0.69	0.41	0.58	0.55				0.30

First Rain: Aug. 17



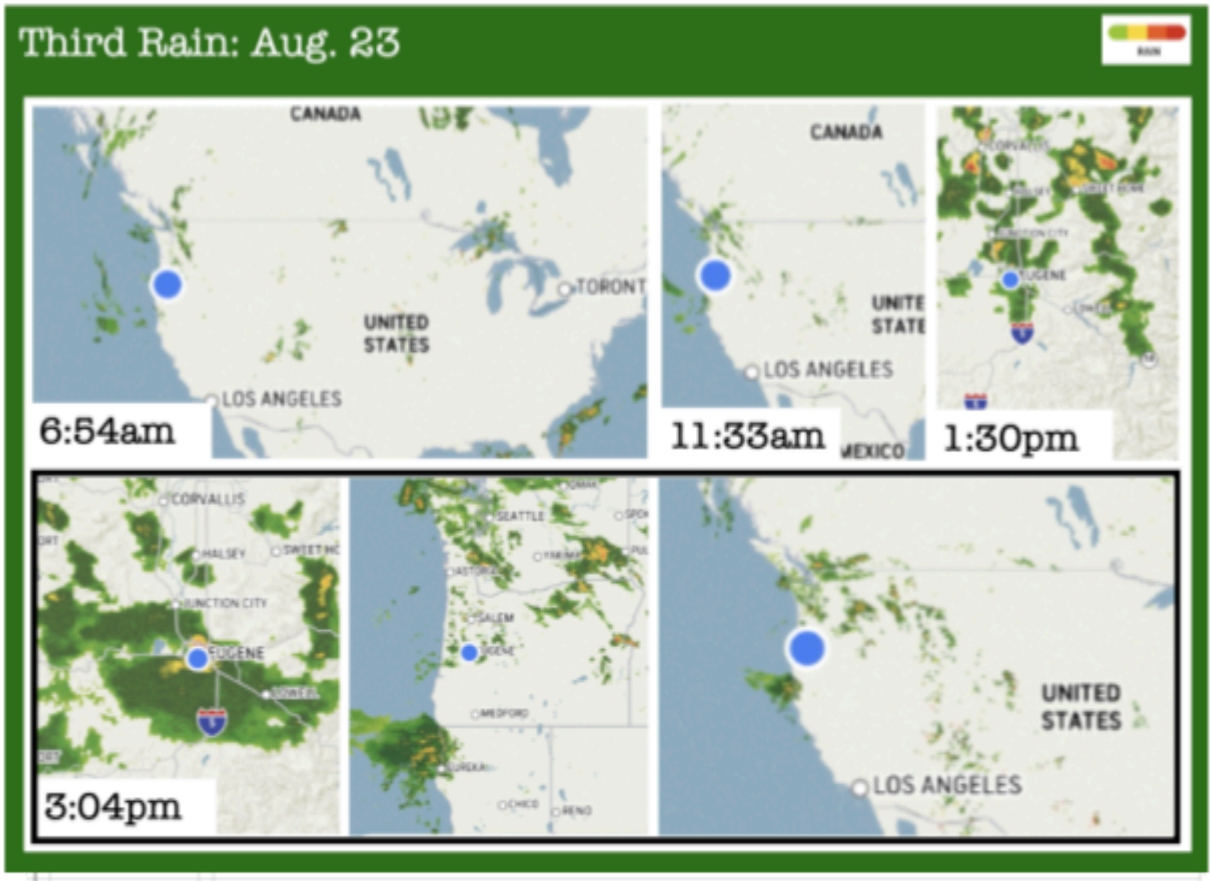
Temperature	Date	Notes
	August	What's Still Awful. (My POV+)
	17 (continued)	1. In my notes on this day, "Whole region & USA starting to Dry Out… NOW, TODAY." … Meaning, this rain looks and feels different, after it passes things still look and feel like West TX drought in Oregon to me (too damn dry for what was a rainforest until about 1950) — and, I'm watching the US not get rain all summer, thus I fear the worst for the rest of our country, the parts not getting rain, the parts without me or someone doing SW… which comes true. By early October there are never heard of fires across Ohio, West VA, New Jersey, Pennsylvania in the Fall and another weak winter. We can turn this around with SW.
		2. There are about 54 fires burning in Oregon. In my emotionally-perfect world these rains would just extinguish every fire. There are of course numerous fires in WA and ID still burning, and the area will see a serious uptick in forests when the two heat waves come roaring over. Cali forests, thank goodness, seem to be mostly getting through this summer without massive fires. The biggest wildfires are grass fires this year, it seems. The forest fires are typically litter fires, meaning: bad forest management-generated fires. We can turn all this around with simple rehydration and recapacitation of FMC.
	18	*Observe, Assess, Report, Relocate. Waterings discontinued til 8/21.* On this day I relocated my AirBNB and starting putting together a written and video report on this historic rain event.
	19	Staying in, writing report, making video, observing the satellites and local conditions, letting PNW FMC do its thing for a few days. These rains really do seem to have been transformative to fire season. The forecasts show minor rain potential Thursday and Friday.
	20	""
	21	Series Two waterings begin (Wednesday). Waterings #20 & 21.
	22	**RAIN #2.** I put in 2,000 additional gallons total. Waterings 22 & 23 take place before this rain comes.
		On this day, #2 of Series #2, I conduct watering #22 for the NWP, then there are sprinkles over the Site 1 and Eugene areas. I conduct watering #23 at Dexter Lake and we get Light Rains. Series #2 uses just 2,000 gallons total to bring 100s of millions of gallons 'more rain to the area in August. This rain and my cumulative waterings' impacts bring a bigger rain the next day (8/23). The gauges show our 8/22 rain to be very slight and limited in reach. The rain patterning itself is again, uncanny. (See graphs)

RAIN #2	Sites				Fires					
AUG. 22	EUG1	PH	DL	SUM (these 6)	SW OR	CGL1	DWD	RED	COFFEE POT	SUM (these 7)
RAINFALL	0.01	0.08	0.05	0.14	0.22	0.08	0.37	0.11	0.37	1.82
AMOUNTS	NH	MEL	ROS	Average (these 6)	SO WI	NO WI				Average (these 7)
Shown in inches	0	0	0	0.02	0.26	0.41				0.26



23	**RAIN #3.** No waterings today. Series Two concludes when, this morning, Friday, August 23rd, we experience deep radical-cooling and a second significant rain across the entire region. Those rains linger and drizzle for hours; more ideal precipitation. At this point, we have experienced three unforeseen, unexpected, highly-improbable, ideal and uncanny precipitation events in just six days. Uncanny rain patterning.

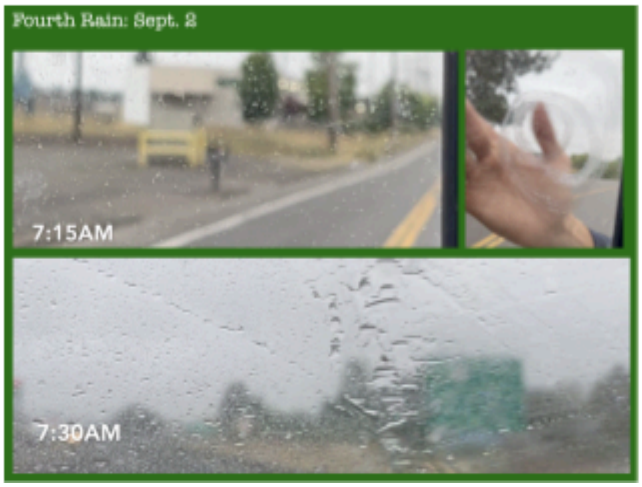
RAIN #3	Sites				Fires					
AUG. 23	EUG1	PH	DL	SUM (these 3)	SW OR	CGL1	DWD	RED	COFFEE POT	SUM (these 7)
RAINFALL	0.16	0.16	0.06	1.8	5.02	0.12	0.61	0.09	0.08	6.02
AMOUNTS	NH	MEL	ROS	Average (these 6)	SO WI	NO WI				Average (these 7)
Shown in inches	0.59	0.23	0.6	0.30	0.03	0.07				0.86

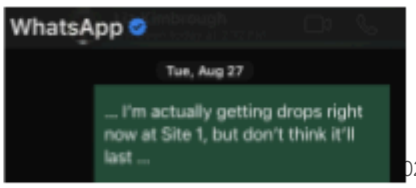


	HOW MUCH RAINFALL?
RAINS 2 & 3:	Regional ROIs: Sites downwind get most overall rain. The Fires get all of their rain on 8/22, my sites and future sites on 8/23. From this point fwd: sea change, we start getting uncanny precipitation, greening and blossoming in the Eugene area.
	My 6 sites overall average was 0.16" for these two rains, 0.51" for these first three rains. Total collected since I started watering: Eugene-1 (EUG1) 0.61", Pleasant Hill (PH) 0.56", Dexter Lake (DL) 0.32", New Hope (NH) 0.92", Melrose (MEL) 0.70", Roseburg (ROS) 1.29". **My 7 target-fires' overall average was 0.58" for these two rains,** 0.47" for the first three rains. Total rain over target fires, since I started watering: SW OR 0.22", 0.36", 0.53", 0.16", 0.81", 0.84", 0.96".
	To help bring these three rains I invested an additional 2,000 gallons (total) over 2 days.
	To compute Regional Returns I'll take the average amount of **0.16"** from my six SW sites (three not yet watered)
You get 4,344.68	8 Acres of Sites Only (4,344.68 gallons/acre)
gallons, per acre:	**37,757.49 gallons H2O** (18.8X more water than I put in)
	And for an additional tally for these rain events I'll compute Regional returns from the average amount of rain at each of my seven target fires and fire regions, **0.58",** and spread that across 1,000,000 acres
You get 15,749.48	100,000 Generalized Acres (15,749.48 gallons/acre)
gallons, per acre:	**1,574,948,820 gallons H2O** (787,474.41X more water than I put in)
RAINS 1, 2 & 3:	GRAND TOTAL: Adding total gallons received from these three rain events, as shown above, we end up with something like "more than 2.3 billion gallons" (2,343,948,820 gallons) of freshwater distributed over these lands since I began Strategic Watering in the middle of peak fire season on August 9.

Temperature	Date	Notes
	August	
	24	**Transpiration rain.** We get light precipitation in downtown Eugene around 7:00pm (video in my archive). FMC is working! In my notes, "The game has changed." Meaning, things are better. However, the second most intense heat wave of the summer is mounting.
		CGL1 now 90% contained at -25,265 acres burned.
	25	Empty sky, pleasant day, Eugene *blossoming*, No waterings.
	26	Heat wave #3 hits the Pacific Northwest. **Series Three waterings begin** (Monday), same primary sites, round 3. After a three day break from watering while I watched the system do it's thing and during which we experienced three exceptionally cold days in Eugene, the rest of the area was indeed heating up. Today the second hottest heatwave of the summer starts over our area. Thank goodness I started watering again (today). This heatwave gets split into two segments during a 16-day heat wave over the greater Pacific Northwest USA. Their interruption synchs with my waterings This heat wave gains rapidly in intensity after I stop watering September 3. Waterings #24 & 25.
	27	**Transpiration rain.** Super-light transpiration in the morning, afternoon drops mentioned in the video and WhatsApp string with Liz Kimbrough. Moist roads but no rain at Site 1 that morning. Black, moist-bottomed clouds are prevalent, SOFTNESS across the land all day, more greening / blossoming, all without measurable rain. *That's FMC, it's been 4 days since measurable rainfall.* Waterings #26 & 27.
	28	CGL1 now 93% contained, no new acres burned. Waterings #28 & 29.
	29	All sites overtaken by Heat. This intensity, without moisture, is what everyone's afraid of. I keep watering. Waterings #30 & 31.
	30	Heat wave #3's first peak today, Roseburg is 18F above average. New Hope is 17F above average (two days in a row). Eugene is 12F above average. Waterings #32 & 33.
	31	Extreme Heat wave continues: Roseburg 14F above average. New Hope 17F above average). Eugene 13F above average.
	September	
	1	Waterings #37 38, 39.
	2	**RAIN #4.** I'd put in about 18,250 gallons by this time. The morning begins with real rain, but its limited, doesn't recur and doesn't show on the local gauges. I expect more to come, it doesn't. Nevertheless, it intercepts this heat wave, causing one full day of cooling over the broader area. This interruption is later credited with keep fire season from returning to total chaos. Waterings #40 & 41
		Three FMC events that don't show on rain gauges:

RAIN #4					Fires	(No rain)				
AUG. 24-SEP. 2	EUG1	PH	DL	SUM (these 3)	SW OR	CGL1	DWD	RED	COFFEE POT	SUM (these 7)
RAINFALL	I have footage of drops in downtown Eugene around 6pm on 8/24.	I have footage of Rain Drops across Eugene and Springfield on 9/2.	I have note mentions of brief drops at Dexter Lake on 8/27.	NA						NA
AMOUNTS	NH	MEL	ROS	Average (these 6)	SO WI	NO WI				Average (these 7)
Shown in inches				NA						NA





Temperature	Date	Notes
	September	
	3	Water at Dexter Lake, then fly to Texas for 5 days. Heat wave #3 comes barreling back. Watering #42.
	4	Not watering day 1. New Hope, OR, hits 18F above average.
	5	Not watering day 2. Heat wave #3 peaks with high temps at 18F above average in Eugene, 21F above average in New Hope, and 23F above average in Roseburg.
	6	Not watering day 3. New Hope, OR, 17F above average. Accuweather shows slight rain over Eugene area.
	7	Not watering day 4. New Hope, OR, 17F above average.
	8	Not watering day 5. William's bday. New Hope & Roseburg still +10F above average.
	9	Not watering day 6. Leave Texas. Fly back to Eugene —> TRUCK still in shop.
	10	Not watering day 7. **Light Rains Fall.** Self-watering over Eugene. I'm stuck here, truck still in shop. The system self-generates 0.02" over Eugene, 0.02" over Melrose and 0.05" over Roseburg. This is good.

Wildfire conditions return during my absence. (Heat Wave #3)

The land responds. (with FMC)

Self-Generated Rain 1					Fires					
Sep. 10	EUG1	PH	DL	SUM (these 6)	SW OR	CGL1	DWD	RED	COFFEE POT	SUM (these 7)
RAINFALL	0.02	0	0	0.09	0	0	0	0	0.09	0.44
AMOUNTS	NH	MEL	ROS	Average (these 6)	SO WI	NO WI				Average (these 7)
Shown in inches	0	0.02	0.05	0.02	0.35	0				0.06

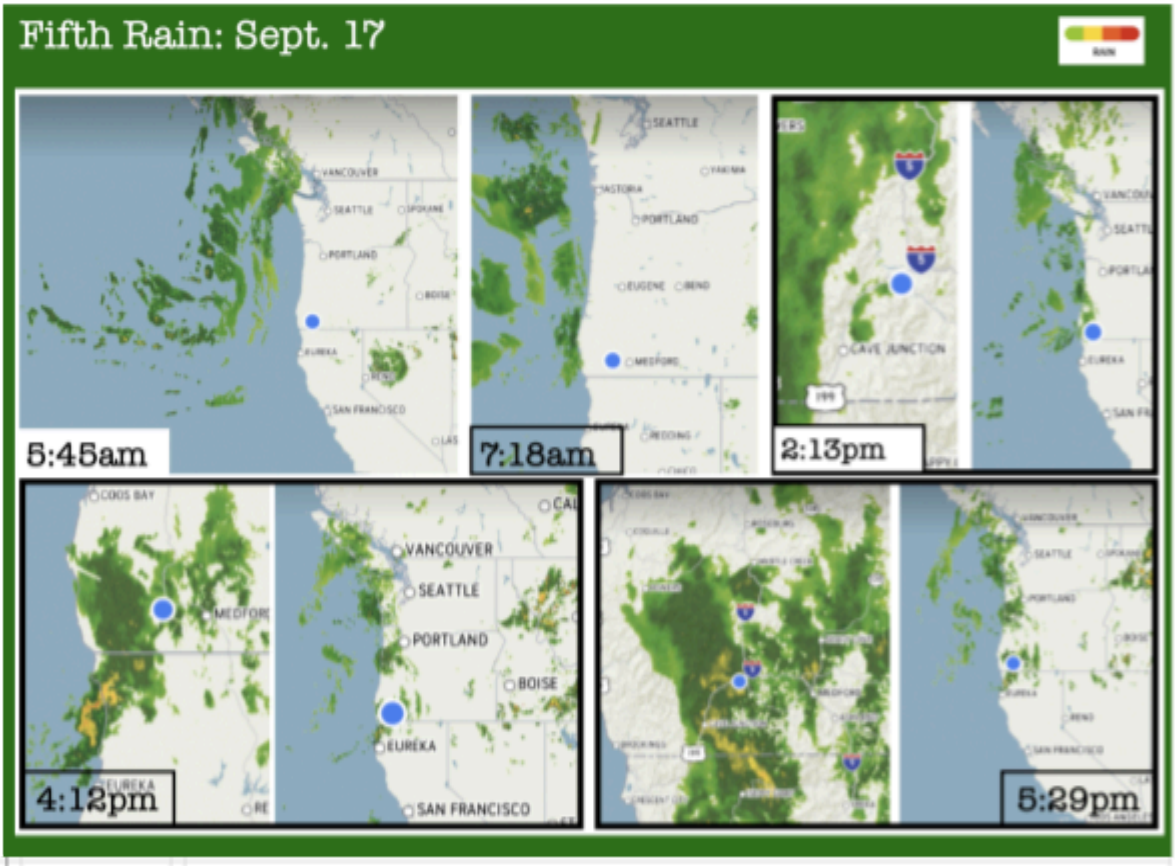
	11	Not watering day 8. **Rain & Systemic Cooling.** Self-watering #2 over Eugene and the broader area. I'm in Eugene, truck still in shop. The system self-generates 0.28" over Eugene. This is GREAT. I can move on. This corridor remains my focus. Now to choose the next site for Strategic Watering.

Self-Generated Rain 2					Fires					
Sep. 11	EUG1	PH	DL	SUM (these 6)	SW OR	CGL1	DWD	RED	COFFEE POT	SUM (these 7)
RAINFALL	0.28	0.33	0.47	1.44	0.36	0.31	0.27	0.2	0.41	2.17
AMOUNTS	NH	MEL	ROS	Average (these 6)	SO WI	NO WI				Average (these 7)
Shown in inches	0.06	0.12	0.18	0.24	0	0.62				0.31

	HOW MUCH RAINFALL?
Self-Generated Rains 1&2	Regional ROIs: Seems to be the one that brings hydration into relative balance over this region of Oregon. Dexter Lake catches up, SW Oregon gets extra, all sites and target areas receive rainfall which kills this heat wave and keeps fire season at smolder, rather than expansion. No new fires.
	My 6 sites overall average was 0.16" for these two rains, 0.51" for the first three rains. Total collected since I started watering: Eugene-1 (EUG1) 0.61", Pleasant Hill (PH) 0.56", Dexter Lake (DL) 0.32", New Hope (NH) 0.92", Melrose (MEL) 0.70", Roseburg (ROS) 1.29". **My 7 target-fires' overall average was 0.58" for these two rains,** 0.47" for the first three rains. Total rain over target fires, since I started watering: SW OR 0.22", 0.36", 0.53", 0.16", 0.81", 0.84", 0.96".
	To help bring these three rains I invested an additional 18,250 gallons (total) between Aug. 9 and Sep 3.
	To compute Regional Returns I'll take the average amount of **0.76"** from my six SW sites (three not yet watered)
You get 20,637.26	8 Acres of Sites Only (20,637.26) gallons/acre)
gallons, per acre:	**165,098.08 gallons H2O** (About 9X more water than I put in so far)
	And for an additional tally for these rain events I'll compute Regional returns from the average amount of rain at each of my seven target fires and fire regions, **1.30",** and spread that across 100,000 acres
You get 35,300.57	100,000 Generalized Acres (35,300.57 gallons/acre)
gallons, per acre:	**3,530,057,700 gallons H2O** (193,427.81 more water than I put in)
These 2 self-generated rains:	GRAND TOTAL: Adding total gallons received from these two self-generated rain events, as shown above, we end up with something like "more than 3.5 billion gallons" (3,530,222,798.08 gallons) of freshwater distributed over these lands perhaps I in part, or largely, because of the Strategic Waterings I did here Aug. 9 to Sep. 3.

Temperature	Date	Notes
	September	
	12	Not watering day 9. In Eugene, truck is finally ready. I choose the SW corner of Oregon next. I prepare to leave.
	13	Not watering day 10. Average Temperature. Relocate to New Hope, OR area (southwest corner of OR), set up with City of Grants Pass for H2O.
	14	**Series 4 waterings begin near New Hope, OR.** Another average temperature day, which is great news. Today is Watering #1 in New Hope and #43 for the NWP. Watering #43.
	15	Temperatures drop below average regionally, which is super-good news. Waterings #44 & 45.
	16	*Whoosh:* "Transition New Hope." And, California flips to cold. New Hope's FMC is thriving. Things are moving right along. Waterings #46 & 47.
	17	**RAIN #5.** I put about 4,000 gallons total into my New Hope sites, via 8 Strategic Waterings, by the time this rain came. Waterings #48, 49, 50.

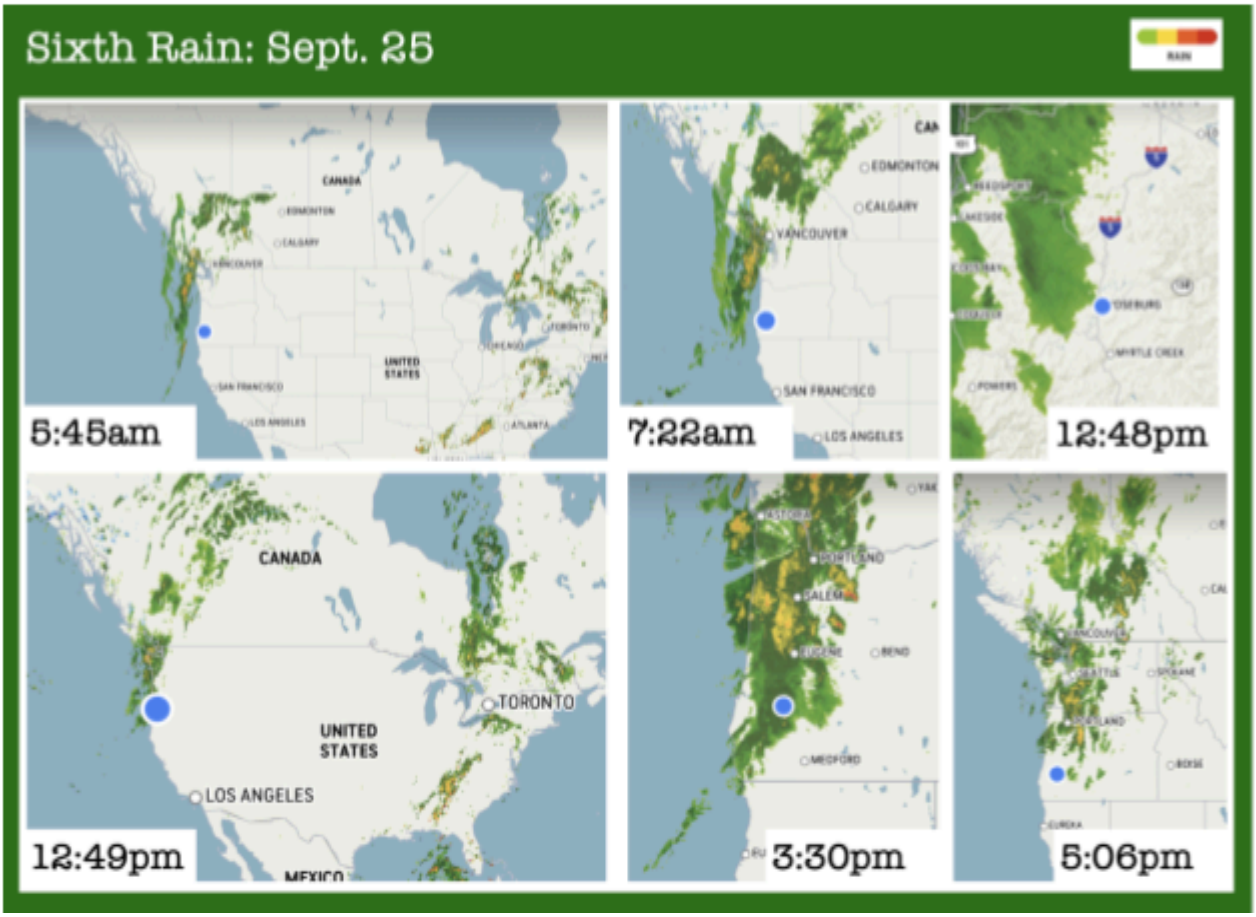
RAIN #5					Fires					
SEP. 17	EUG1	PH	DL	SUM (these 6)	SW OR	CGL1	DWD	RED	COFFEE POT	SUM (these 7)
RAINFALL	0.13	0.09	0.02	0.31	0	0	0	0	0	0.02
AMOUNTS	NH	MEL	ROS	Average (these 6)	SO WI	NO WI				Average (these 7)
Shown in inches	0.04	0.03	0	0.05	0.01	0.01				0.003



	To help bring these this rain I invested an additional 4,000 gallons (total) between Sep. 14 and Sep 17.
	To compute Regional Returns I'll take the average amount of **0.05"** from my six SW sites (two not yet watered)
You get 1,357.71	8 Acres of Sites Only (1,357.71) gallons/acre)
gallons, per acre:	**10,861.71 gallons H2O** (About 2.7X more water than I put in)
	And for an additional tally for these rain events I'll compute Regional returns from the average amount of rain at each of my seven target fires and fire regions, **0.03"**, and spread that across 100,000 acres
You get 814.62	100,000 Generalized Acres (814.62 gallons/acre)
gallons, per acre:	**81,462,870 gallons H2O** (20,365X more water than I put in)

Temperature	Date	Notes
	September	
	18	"Wow, Cali" (in my notes), big rains there, finally. In hindsight I wish I had built everything from this moment forward. This is where I made some mistakes in judgement I can see clearly in hindsight. I was tired and ready to go home (had been on the road all but a few days for about 3.5 months) and decided to finish the planned 6-week project. I now wish I had known more about water deficits and the Aug 23 rains in SW Oregon, and stuck with the mantra that began developing in Flagstaff (this July), stay until the system is self-watering. That would have meant at least 10 more days here, and perhaps someplace like Cottage Grove more interior to the FMC conduit I'm trying to rehydrate here. None the less, things went exceptionally well and on this and the next day I only do one watering. Watering #51.
	19	New Hope; Watering #52.
	20	My notes: "It's going well, there's black dots in the light." Waterings #53, 54 & 55.
		CGL1 now officially 99% contained, no new acres burned since August 24 (27 days!).
	21	Final watering in New Hope; relocate to Melrose. Fires are diminishing and disappearing all over. Watering #56.
	22	Unfortunately several of the key fires in my primary zone are still burning. Interestingly, these fires started July 27 and despite their relatively small sizes are still burning. The Red Fire for instance has just been left to smolder. The choice here being, "let it burn itself out." My survey drive of the Melrose/Roseburg area reveals awesome transpiration & FMC.
	23	Get set up with City of Roseburg. **Series 5 Waterings begin.** Conduct first watering in Melrose that evening. Watering #57.
	24	Water Roseburg, then Melrose. Waterings #58 & 59.
	25	**RAIN #6.** I do three strategic waterings before this rain arrived. In sum, I put about 3,000 gallons into my Melrose and Roseburg sites, via 6 Strategic Waterings, to help bring these light rains. It looked promising for more for our area. Downwind did better. Waterings #60, 61, 62.

RAIN #6					Fires					
SEP. 25	EUG1	PH	DL	SUM (these 6)	SW OR	CGL1	DWD	RED	COFFEE POT	SUM (these 7)
RAINFALL	0.14	0.11	0.11	0.37	0.03	0.02	0	0	0.09	0.58
AMOUNTS	NH	MEL	ROS	Average (these 6)	SO WI	NO WI				Average (these 7)
Shown in inches	0	0.01	Trace	0.06	0.07	0.37				0.08



Temperature	Date	Notes
	September	
	25	**RAIN #6.** (Continued)
		To help bring these this rain I invested about 6,000 gallons (total) between Sep. 21 and Sep. 25.
		To compute Regional Returns I'll take the average amount of **0.06"** from my six SW sites:
	You get 1,629.24	8 Acres of Sites Only (1,629.24) gallons/acre)
	gallons, per acre:	**13,033.92 gallons H2O** (About 8X more water than I put in)
		And for an additional tally for these rain events I'll compute Regional returns from the average amount of rain at each of my seven target fires and fire regions, **.08",** and spread that across 100,000 acres
	You get 2,172.34	100,000 Generalized Acres (2,172.34 gallons/acre)
	gallons, per acre:	**217,234,320 gallons H2O** (193,427.81 more water than I put in)
	26	Relocate. THINGS LOOK AMAZING (air & leaves, touristy), water in Roseburg. Hurricane Helene makes landfall in FL late night, seems to suck all USA water to it. Hurricane Milton also starts forming at this time, making landfall on Oct. 9 in the same region of Florida, also catastrophic. Both systems cause 1,000 year floods where they are most intense. These systems and the conditions that formed them seem to take all of the USA's atmospheric moisture Sep. 26 to Oct. 20… https://en.wikipedia.org/wiki/Effects_of_Hurricane_Helene_in_North_Carolina , https://en.wikipedia.org/wiki/Hurricane_Milton + Watering #63.
	27	Water in Melrose. Watering #64.
	28	Final two waterings, then relocate to Oakgrove for a few days' review. Waterings #65 & 66.

	29	Trying to understand impacts and best next steps. Driving, scouting/confusion. Lakes are too low, air too dry, yet vegetation and comfort conditions are excellent in Oakgrove, despite extreme fires and water deficits everywhere in the area.
	30	"I don't need to be here" is what I'm observing, there's heavy condensation in the morning, apparent growth after 1 day, things look great; ; ; Is this FMC from Roseburg? Drive to Red Fire revealed trees that were panicky, but still moist.
	October	
	1	SMOKE. Everywhere. The Red Fire has grown 200 acres in 24 hours.
	2	Smoke is magically gone, mostly. Oakgrove is "doin' just fine," again. As I drive out of the area towards California the forests look GREAT, I go through moisture and then suddenly they're bad. I hit SMOKE AGAIN from the Red Fire / Crescent Lake area in Oregon area all the way to Turlock, California.
	3	I drive across the rest of California, through smoke all the way until the last couple hours (across the desert). The desert is +100F when I drive across, Tucson is 109F. I stay in the Bucky dome.
	4	I drive from Tucson to home, near Dripping Springs, TX.
	5	CM1.
		After the NWP the area experienced drought from __ to __, but and above average heat continued — but the system's fires did not increase. Burn rates stayed low and smoldery. Things did not worsen, despite: a) overall climate catastrophe and degradation conditions, b) extremely low rain in September, c) deep water deficits (year on year), d) continued above average temperatures, e) fires popping all over the NE USA… Furthermore, since the rains returned, the areas I focused on have been aggressively refilling, catching up and getting ahead on rain in every site and regional case of the NWP.

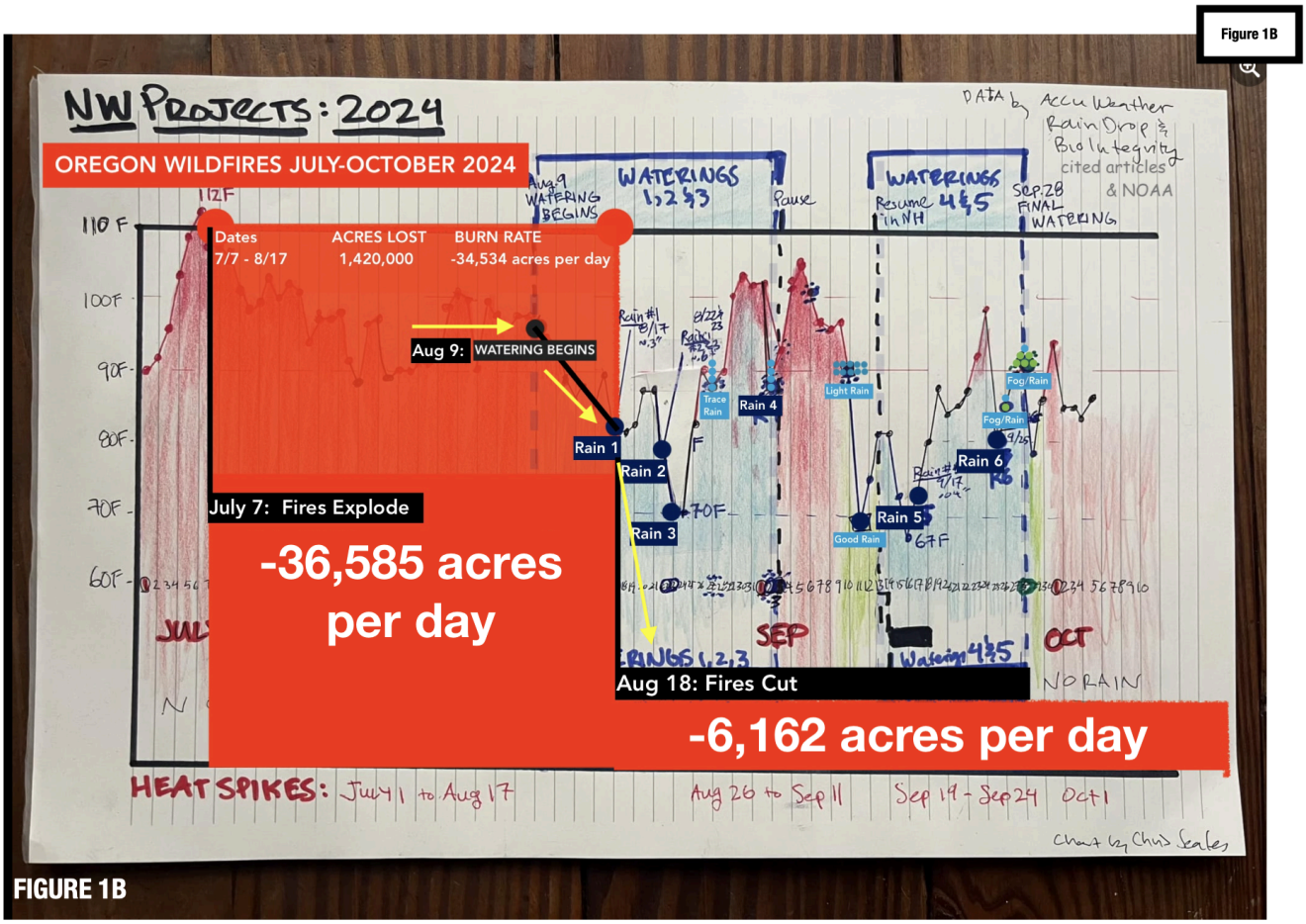


Figure 1B. Same graph as 1A with a fifth layer added, the state of Oregon's average wildfire burn rate, July 7 to late October. Oregon fires exploded July 7. My first rains came in the middle of peak first season on August 17.

Citations. Science that helped me learn what to do.
References. Articles that helped me define what to do.
Videos. My onsite experiences and reports. (incomplete)
Supplementals. Additional key material from various sources. - Coming soon
Archive. All of my material, videos, snapshots, etc. - Coming soon

More Info

Please contact me via BioIntegrity Partnerships: BioIntegrity.net.