

WATER

Drought Resilience and Wildfire Prevention Strategies for Homes, Businesses, and Farms

Australians ask their neighbors, “How’s your tanks?” Here, we’re asking each other, “How’s your well?” “How’s your water bill?” The drought and climate change crisis has already arrived at too many of our doorsteps, and local climate experts warn it won’t be going away, even with all the recent rainfall. We’re urged to prepare for the long haul: Hauling water from our neighbors’ wells and shared watersheds won’t be the sustainable “long haul” solution.

Yes, wells are drying up earlier, gardens look thirstier, and heavy water trucks filled with the precious commodity brought from other communities are already rumbling down our roads, delivering to households whose wells have gone dry. How can we move from our county-wide crisis of water scarcity and severe wildfire danger to “water, water everywhere,” a place where everyone has enough clean drinking water at the tap, enough water for food security, habitat for our fellow critters, our streams and salmon spawning grounds, while still having enough in our groundwater and aquifers to help prevent wildfires on our lands and forests?

Andy Lipkis, whose TreePeople [largest environmental movement headquartered in Southern California] inspired the city of Los Angeles to begin a series of successful rainwater harvesting strategies, urges us to act *now*, saying, “We need *Superheroes* to quickly stand up and save us. Superheroes are what happens when any among us link hands, say, ‘We care,’ and take smart, effective action. That’s community—caring, collaborative, and powerful...”

Here on the coast, we already have our caring, collaborative, powerful community. What *are* the smart, effective actions we all can take?

Here is what we’ve learned from Los Angeles and other cities, from Seattle to Sydney, Australia:

Regina Hirsch, of Watershed Progressive from Tuolumne County, California, which brings appropriate water management to clients through a regenerative, whole-systems approach, says, “More than twice the water demand falls on rooftops in Mendocino village in a drought year. It is not a question of if we have enough water, *but how we manage it together.*”

We receive enough rain during the wet season to provide all the non-potable water we need—even through periods of drought. In most residences, only about 10 percent of the water we use needs to be potable. If we conserve, capture that rainwater and store it, reuse greywater appropriately, and work towards healthy soil permeability, we can secure our drinking water during the dry months, and reduce our tap consumption by as much as 90 percent. *We all need to become water stewards this summer!*

Our Urgent Community Action Alert: *To be drought, wildfire, and climate-action-prepared, we need to implement these conservation and rainwater harvesting tools before our next rainy season.*

WHY ACT THIS SUMMER?

Many might say, “Oh, what’s my little drop in the bucket going to do to solve this crisis?” But it’s not true that your share makes no difference. All of us together build what’s called *collective capacity*, meaning that when we increase our individual water saving and storage capacity, we help increase our local and county-wide capacity. As we lessen our water use and reduce the impact on our wells and watersheds, we also gain greater water, fire, and climate resilience *for the entire community*. In Australia, government subsidies helped citizens increase personal storage capacity to prevent and fight wildfires. Portland, Oregon’s Clean Rivers Rewards and education programs offer incentives for stormwater capture.

Increased water saving and storage capacity can also help us reduce the high environmental, financial, and “taxing” costs of short-term interventions. So far, the coastal need for water hauling in 2021–22 has been subsidized by the state to the tune of \$1.5 million—but that help is running out. With fossil fuel costs rising by the week, heavy water trucks impacting our roads, and salmon and trout-spawning rivers ever more threatened by reduced flows, we need better, long-term solutions.

CONSERVATION AND REUSE ARE KEY

Emphasizing the importance of individuals' participation in conservation measures, Laura Allen, of Localizing California Waters and founder of Greywater Action, a collaborative of educators who teach residents and tradespeople about affordable and simple household water systems that dramatically reduce water use and foster sustainable cultures of water, reminds us that, "When we save a gallon of freshwater, it's a gallon our water company won't look for in a new dam, a water transfer, or a desalination plant to provide more supply. It's a gallon that could keep a river deeper and cooler, oxygenating a salmon as it swims to its spawning grounds, and preventing the growth of toxic algae. It's a gallon of lifesaving drinking water for animals. It's a gallon that can grow local food in a sustainable way without the waste and pollution of industrial agriculture."

Transporting, processing, and using water are *big* energy polluters. Water uses 20 percent of California's electricity, and 32 percent of its natural gas. The National Resource Defense Council found that all the energy used to treat and distribute water releases 116 billion pounds of carbon dioxide per year into the atmosphere—as *much global pollution as ten million cars*. That water was also diverted from our rivers, creeks, springs, and underground aquifers: It is water we and the fish need for our future...and the next generation's future.

In Charles Fishman's 2011 book, *The Big Thirst*, he highlights our strange relationship to water. Incredibly, in our belief that bottled water is "safer" than tap water (and being well trained consumers) we spend more on water bottled in plastic than we spend sustaining our own local water supply systems—and pay *three thousand times more than at the tap*. According to Food and Water Watch, bottled water is not safer: Our municipal systems are far more rigorously tested. Earth Policy calls this expensive habit of ours "pouring resources down the drain." It takes seventeen million barrels of oil to produce enough plastic bottles to meet America's bottled water demands—and 86 percent of those millions of bottles become garbage or litter, polluting the land and waterways, and the ocean's food chain. The bottlers rob communities of their clean drinking water, while our water utilities struggle to maintain the systems we most depend on. Imagine taking our showers, cleaning dishes, flushing toilets, and watering our gardens with liter bottles of Fuji water! We cannot continue to depend on "the magic at the tap" going on forever. Yet each time we turn on the tap, we *can* be part of the solution.

HOW TO BECOME WATER-WISE AND DROUGHT PREPARED

In Spring 2022, the Grassroots Institute's Water Coalition responded to our local water crisis by sponsoring a series of water-wise workshops in Mendocino village, where residents, businesses, small farms, and tourism have been heavily impacted by the drought. The drought resiliency water "toolkit" the Water Coalition is adopting includes a survey that covers site assessment, water use, and budget, and provides proven design-install models for our homes, gardens, and businesses.

These initial water-wise workshops were presented by Localizing California Waters, Watershed Progressive, and their Land Resilience Partnership.

Statewide water experts from a variety of disciplines, including Anna Halligan of Trout Unlimited, Regina Hirsch of Watershed Progressive, and Michael Maley of Todd Groundwater, shared data, emerging best statewide practices, and successful city, community, and ecology-based solutions. The first two workshops were held in Mendocino village at Joshua Grindle Inn, where Ken Taylor, owner and innkeeper, has created a hands-on demonstration project for rainwater harvesting, and other water and energy saving tools.

Ken and his wife, Kate, took over ownership of the inn just before COVID arrived on the scene—and then the coastal water districts declared a Stage 4 drought emergency. As Ken puts it, "We're on the edge of the village with a deep well that was not dry, but our coastal village was using more than 30,000 gallons a day—and the [water] trucks kept going by. This is what Stage 4 feels like! Kate and I decided to help by creating a water resilient ecosystem and share our experience with others. I even pulled the drain plugs on our tubs to achieve an almost 50 percent water reduction! I have understanding guests."

Inspired by Ken and the first two workshops, Cally Dym, co-owner of Little River Inn, hosted a third workshop. Cally plans to implement many of the water re-use and saving strategies for their golf course, grounds, and facilities, as well as install interpretive signage, self-guided tours, and hold more workshops. "The good news is that we have

all the water we need, we just have to learn new ways to capture and use it. Water resiliency cannot be achieved by just one business or home. We have to work together as a community so that we all have enough water to thrive.”

The project under way at Little River Inn includes: Building bioswales and rain gardens to slow erosion, regenerate ground water, and nourish pollinator corridors; capturing roof runoff into storage tanks; enlarging pond system to capture winter storm water; replacing lawns with climate appropriate plantings; replacing some impermeable surfaces with permeable and improving the slope of the driveway; using greywater for laundry; continuing water metering and use of low-flow fixtures, and building a fog garden to capture moisture in the air.

Here's a quick overview of what we learned, and where to learn more:

WATER-WISE SOLUTIONS

CONSERVE: Each time we turn on the tap, let's flip on our “water-wise awareness switch”: Rinsing veggies, cleaning dishes, running the dishwasher or garbage disposal, brushing our teeth, washing hands, taking a shower, giving a thirsty non-native garden or lawn too much water—How can we switch out unnecessary, over-heavy use and have a lighter touch? Find lots of useful information at www.wateruseitwisely.com/100-ways-to- conserve-water

IDENTIFY AND FIX THE LEAKS: “We ain't dry. We just leaking”: Australian permaculture teacher on lack of conservation and water harvesting tools. Leaks waste an average of 14 percent of total home water use—an entire swimming pool of water lost every year! If the toilet is running, a faucet is dripping, or there are damp puddles around outdoor faucets or irrigation, it's time to fix it! Use a water meter to see when it's running and shouldn't be. www.epa.gov/watersense/fix-leak-week

CHANGE SHOWER HEADS AND TOILETS: Switching from water-guzzling shower heads, toilets, and appliances for today's efficient models can lower household water use up to 35 percent. Five minutes under an old model shower head uses 12.5 gallons. An efficient model will use 7.5 gallons. If budget permits, install a low- or dual-flow or waterless toilet. Limit flushes. See: www.epa.gov/watersense/showerheads and www.epa.gov/watersense/residential-toilets

GREYWATER SYSTEMS: Diverting bath, shower, and washing machine water from your sewer or septic into your garden makes ecological and dollar sense. Most of the water we use goes to greywater. “A typical family of four generates a minimum of three hundred, twenty gallons of greywater per week, which equates to the water needed for eighteen to thirty fruit trees or other pollinator plants, while also supporting healthy, cool soils, fire adaptive buffers, and carbon farming,” says Regina Hirsch of Watershed Progressive. Many cities and states give rebates and financial incentives for greywater and rainwater harvesting systems. Permits are usually required for most greywater conversions to meet public codes. The washing machine drainpipe is usually the easiest and most economical to use. See: “Daily Acts,” Greywater webinar with Laura Allen; also see Land Resilience Partnership's “Water Toolkit.” www.watertoolkit.org

RAINWATER HARVESTING WITH TANKS: Tanks and cisterns are an effective way to store large amounts of water for drought and wildfire prone areas. Rain harvesting systems come in many sizes and materials, prefabricated and site-built. While rain barrels are the least costly and a good way to start—they may not have sufficient storage capacity or durability for your needs. A thorough and knowledgeable assessment of your site-specific issues and opportunities will help short and long term. In Mendocino County, we can use roof-harvested rainwater for fire suppression, irrigation, laundry, flushing toilets, and livestock, but not for drinking. If properly collected and filtered, rainwater can last for years in the tank without aeration. Our city, county, and state agencies may be able to offer technical and financial help. www.mcrd.org/resources/drought-resources; www.grassroots-institute.org/water.html www.watertoolkit.org

SOIL REGENERATION, SOIL PERMEABILITY, AND FIRE PREVENTION: One of our main rainwater losses occurs when our soils are depleted and/or hardened from drought. Healthy, living soils soak up rainwater, sink it deep into the ground, and recharge the critical groundwater that supplies our wells—seeping back into our creeks and rivers if wells aren't overused. The Natural Resource Conservation Service (NRCS) has calculated that increasing organic matter by 1 percent in the top six inches of soil would hold approximately 27,000 gallons of water per acre. This healthy “sponge”—which supports crucial mycelium networks—is also key to fire prevention: Moist, healthy soils help prevent the accumulation of dangerous tinder and drought-damaged timber on our properties and in our forests.

If we grow healthier soils, then for every square foot we grow, that's water storage under our feet to buffer the plants and community from drought, heat, wind, and fire.

www.mcrccd.org/programs/soil—Information and resources on Climate Beneficial Agriculture, Carbon Farm Planning and Soil Health; www.kisstheground.com;
and www.vintnermag.com/the-soil-restoration-method-barra-is-exploring

RAIN GARDENS: Most garden landscapes have a drinking problem! Americans' lawns guzzle nineteen *trillion* gallons of water each year. Switching to native and dryland plants will make endangered pollinators happy. If you place the right plant in the right place it will make the plants and your water bill even happier. Then mulch, mulch, mulch. Consider designing your garden in and around swales and mulch basins that filter and slow flow, routing the water to valuable trees and plantings.

North Coast Rain Gardens—UCCE Marin; also Portland Oregon's Clean Rivers Program; and www.raingardennetwork.com

WHERE TO START

THE GRI WATER COALITION is a growing group of concerned community members working collaboratively with local organizations and county and state agencies to increase ground and rainwater storage, and ensure that everyone in our community has enough water to meet their needs. We can help with information, site assessments, resources, and demonstration projects. Please join us—get involved!

www.grassroots-institute.org/water; www.watertoolkit.org

THE GRASSROOTS INSTITUTE (GRI) studies, promotes and works to carry out progressive solutions for the common good. The county-wide membership focuses on the systemic, political, environmental, and economic problems confronting all of us, and seeks collaborative solutions to improve our communities through informed action. GRI currently has seven working groups: The Water Coalition, Climate Action, Noyo Headlands, Headlands Eradication and Restoration (HEART), Mendocino Vision, Housing and Agricultural Land Trusts, and a Local Elections and Candidates Workgroup. www.grassroots-institute.org;

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MENDOCINO COUNTY RESOURCE CONSERVATION DISTRICT (MCRCD) is a non-regulatory local public agency providing technical, financial, and educational support for voluntary stewardship of our natural resources: Water quality and quantity for people and the environment—including home water audits, soil health and climate-resilient agricultural systems, forest health through best fire and drought resiliency practices, and land and habitat stewardship, including streamflow enhancement.

www.mcrccd.org; linda.macelwee@mcrccd.org; deborah.edelman@mcrccd.org;
and joe.scriven@mcrccd.org

MENDOCINO COUNTY FIRE SAFE COUNCIL: The prolonged drought means that all of our communities are more fire prone, even here on the coast. Through their mini-grant program, the Fire Safe Council has been funding community projects throughout the county, primarily for fuel reduction, but also to add capacity for fire suppression and make water sources more readily available to fire fighters. Their website has a wealth of information on best practices for reducing combustibles, and other home hardening strategies. www.firesafemendocino.org

FORT BRAGG GARDEN CLUB:

Changing Gardens for a Changing World, September 2022–April 2023, second Monday each month (except December), 1:00 p.m., Mendocino Coast Botanical Gardens Education Center.

Learn active responses to our drying environment and new ways with water resources in our gardens, in support of wildlife, and beyond.

September 12, water-wise and ecological reasons to *Start Your Pollinator Garden This Fall*.

October 10, Ken Taylor, co-owner Joshua Grindle Inn, member of the Grassroot Institute's Water Coalition, presents *Rainwater Harvesting and Other Water Conservation Tools*.

Later topics include *Drought Tolerant Gardening with Native Plants*, *Fire-Wise Landscaping*, *Bio-Intensive Gardening* and more. More information and the full program at www.FBGardenClub.com

VICTORY GARDENS FOR PEACE: One of the best ways to save water is by growing our own food. We use almost 90 percent of our water to grow the food we buy commercially. In a drought, you can easily reduce your water footprint by two-thirds by growing your own garden. Matt Drewno, director of Victory Gardens for Peace says, "It is easy, fun, and you get delicious, homegrown food that is full of love and nutrition. Careful cultivation and composting techniques can also increase organic matter and soil fertility, lower our carbon footprints, reduce energy consumption, enrich our health, lower our food costs, and relieve stress." He adds, "Eating less meat and dairy helps too. It takes about six hundred gallons of water to grow the food fed to a cow to produce a hamburger. A pound of cheese? Nine hundred gallons. Holy cow! Growing your own food in your own backyard can be thirty-three times more water-efficient than that cow. Start today!" Free seeds, gardening resources, growing guides, and more can be found at:

www.victorygardensforpeace.com, Project of Ecology Action, a 501(c)(3) based in Willits, California teaching people worldwide to better feed themselves while conserving resources and building soil since 1972. You can learn more about Ecology Action from the story we ran in the March 25, 2022 issue of this magazine: www.realestatemendocino.com

TROUT UNLIMITED AND SALMONID RESTORATION: Anna Halligan, North Coast Coho Project Coordinator for Trout Unlimited, works on projects focused on restoring habitat for freshwater fisheries, enhancing water quality and instream flow, addressing stormwater impacts, political advocacy, watershed stewardship, and public education. www.tu.org and www.calsalmon.org

JUG HANDLE CREEK FARM AND NATURE CENTER: Jug Handle has partnered with Trout Unlimited, the Mendocino County Resource Conservation District and others to undertake restoration projects in coastal watersheds, and on public and private lands—including collaborative partnerships with local middle and high school groups. Jug Handle's Native Plant Restoration/Education Nursery provides hands-on group learning for up to fifty students at one time, where they learn to propagate native plants from seeds, cuttings, or divisions. The farm also offers affordable accommodations for families, groups, tribes, and schools. www.jughandlecreekfarm.org; Accommodations: 707-357-6480; Education and Native Plant Nursery, Restoration Projects: 707-357-0783, 707-937-3498; jughandlefarm@gmail.com

THANKSGIVING COFFEE BEE BOLD ALLIANCE PLEDGE for water stewardship and water tending. www.thanksgivingcoffee.com/blogs/blog/expanding-story

CITY OF FORT BRAGG: Offers free water conservation kits, water monitoring use. See their **SAVE OUR WATER** website for drought and water wise tips and tools. www.city.fortbragg.com/departments/public-works/water-conservation

MENDOCINO CITY COMMUNITY SERVICES DISTRICT: MCCSD has issued a Stage 4 Water Shortage Emergency and is asking residents and businesses to conserve use and increase water storage capacity. www.mccsd.com REM