Rehabilitating Commercial Ag. In The Central Valley

Epidemiological Economic Impacts On Environmental Health & Sustainability

in progress/with sufficient support

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My current next steps (pending..)

I believe these 2+ priority areas I should work on to build more good, needed information, and I'm needing sufficient support of others/teammates with similar values and complementary abilities (and maybe money) research grant proposal? to Cal EPA, CDFA, BLM, and other potential funding sources

1) In regard to the 1st step of the general process, maybe prioritizing better, more meaningful planning with a **sustainability evaluation of various sites/operations** with several areas of concern (see template) by deriving (adjustable) index scores with environmental prioritization/value*, to get a clear picture of the most criminal/destructive operations to go after first, etc.

+example from Cornell Soil Health Lab focusing only on the very important soil health indicator

+the Global Commons Stewardship Index & (outdated?) Environmental Performance Index (Yale Center for Environmental Law & Policy, UN SDSN, Center for Global Commons at the University of Tokyo, Center for International Earth Science Information Network Earth Institute, Columbia University)

*consider the "triple bottom line," this scoring will emphasize the environmental sustainability/ecological values, rather than (the usual priorities of business and government) for profit and for (sustained?) social benefits

2) The other main priority focus here is from the most broad perspective, **smart, strategically coordinated relocalized-global planning/trade**

+In addition to these priorities, **personal participation in a (pilot) restoration** (ideally in conjunction with the above 2 priorities) to reinhabit the ag. land where the managers/ owners/ stewards have similar intentions to set up the land in a really good way (eg the homestead flipping exchange)

Background/Need

central valley ag secondary research notes

Rehabilitating to a Sustainable Way of Life.docx

Better perception, convincing ideas for those that need it
especially the appropriate level/methods of science/work
and do they need it? I don't know, so too is the very rough, unorganized uploading of ideas now

If planning is on a continuum from more observing, reflecting, evaluating, setting objectives, prioritizing/strategizing on one end, and on the other end implementation-oriented planning (eg determining tasks and resources, setting timelines, etc.) this document is heavy on the former.

notes

*analogy of environmental health to personal health of at least doing all that WE can do in our power when we know better. Yes, still something (like unpredictable, erratic Climate Change impacts may occur) may occur, but at least we do what we can (also trying our best to anticipate Climate Change) (hear sadhguru)

*entails needed change from destructively competitive business outlook that serves their spoiled consumer base (usually from excessive selfishness, aka greed and ignorance), to smartly cooperative with objectives of environmental health and sustainability, relocalization of food systems / economies, sustainable livelihoods, ecological restoration,

*from focus on trying to manage/fix pollution, pests, human illness, climate change, natural resources, species/biodiversity loss, etc. afterward, toward prevention at the source. and for the methods to deal with violators, first from + incentivizing/nudging, to -punitive enforcement (sadhguru)

*can also be used for educational awareness, pilot-like research, and hopefully as a good/successful example that can help depave the way for others.. There are many complexities and dynamics, but with willingness (political too) and enough people (from policy/legal to labor and planners/managers) for these developmends, then both could be coordinated and done (including in good transformation of former military energies, like this article reveals)..

*can also transition lands that were not developed in an environmentally sustainable way, like gross-ery stores, warehouses, socially-downtaking uses, artificial energy dependency, etc. In fact, Sadhguru mentions how like urban building guidance/laws, there should be for farms

CONSIDERATIONS, RESOURCES, TOOLS

for **general planning process**, merge ideas from MPA science, and marine ecosystem / fish stock health in Indonesia?
SGMA Could Bolster Habitat Restoration in the San Joaquin Valley - Public Policy Institute of California
i'm largely focused on the (1) *environmental aspect*, yet for such planning purposes, 2 other/more considerations:
(2) for the general *current societal situation* in relation to agricultural activity/land use, and needed/realistic/probable trajectory/rate of transition
(3) *how sen$ible/flexible* (including costly) are various approaches/tools/technologies implemented in more conservative transitional efforts (i.e. e.g. if had a better idea of (2)/rate of transition, it'd be smarter to 'leap-frog' those things)
(parallel to transforming the health care system, as sadhguru ji mentioned here)

Living conditions

ok? safe food and water (free testing in household domestic wells in Modesto and Turlok basins) and air? transportation? for many. anticipating more land restoration (e.g. groundwater recharge), not in a floodplain, lakebed (like Tulare), etc.

global agriculture losses (%) alone (not counting envt. harm) due to climate change - graph? where/what situations is it too late for environmental restoration or not worth the effort? For examples: even if shut down all the business, still N/salts polluted water for decades! (see here), prototype for some farms beyond point of working land restoration - Using Retired Farmland to Store Water and Create Habitat in Atwell Island (slide 107). Conversely, climate extremes *disruption* of good transitional efforts? or flooding that naturally restores, like Tulare Lake ('22/'23) perhaps? but Corcoran? a town not even on the floodplain but *in* the lakebed! Also, ?sufficient cooperation/willingness/buy-in of others (especially in relation to: (1) natural (ground)water health and abundance (of shared watershed (like Oregon's seeing California's mismanagement of common Klamath basin), and (2) great synergistic energies from like-minded cooperation, but also use of pesticides, that are more toward "Biologically Integrated" kinds of farming systems (from good thinking/culture, like Sai Baba teaches-promotes), rejection of misguided commercially guided pesticide (neonics) use I corn and soy)
A new threat emerges for US lakes and rivers. Your lawn or toilet may be partly to blame (see toward end of article especially regarding increased EPA power/regulation)
"Based on this work," she adds, "I fervently believe that restoration, even in the worst of cases, is possible."

10 guiding principles for achieving just food system transitions (from article) // consider parallels of (deforestation-free) certification guidance for small-scale farmers of palm oil in Indonesia

a progressive scale of contribution to a socially and environmentally healthy food system relative to society
notes
* whether accurate to real value or not, good or not, money is not really considered as much in this more idealistic rating. complex to figure, but instead figure consider triple bottom line accounting, current social reality, needs, and values
* variations especially contingent on various ideas & beliefs about appropriate power dynamics / social relationships/hierarchies

-4 - demand for slave-like work of others to grow in best ways (e.g. hyper local, best energies, etc.), and go all the way to feed you (other than eat it for you)
-3 - same as above, except not necessarily the *best* ways, and will only serve it to you, like at a restaurant
-2 - demand for value-added / readytoeat products grown in (very) good ways, likely sold at a local farmer's market, farm stop, or CSA/CSF
-1 - demand for (well-presented) raw products grown in good ways and sold at good market outlets (like a local farmer market, farm stop, CSA/CSF, healthy food / more conscious stores,)
+1 - coop volunteering a fair amount in a community garden to earn the food grown there (like work exchange credit), or maybe paying for local "u-pick," CSA/CSF with local currency
+2 - supplying some products (like to farmer markets, farm stops, CSA/CSF, etc.) grown in good ways and in a local economy or using a local currency
+3 - well-coordinated trading with neighbors, other nearby villages, farms, using good, or a bit better than status quo growing methods
+4 - in a powerful position to leading food system activism or significantly finance activist-supported food reform projects/initiatives

Direct vs. gradual transition

2 important yet very difficult holistic-ecological standards/considerations (with the meaning/consensus of "regenerative agriculture" aims as an example here) (also posted on SER forums here)
(from a perspective with relatively high environmental standards) it depends on HOW much of a hole we are in; how much in the wrong/misguided direction agribusiness activity has gone in.. for you to start going in the right direction; for you to start climbing out of that hole.
ok, so at the least have your OWN activities not creating environmental harm or environmental unsustainability could be a first step, and even THIS is challenging given competitive market/financial pressures and the feeling of responsibility to grow enough (safe/healthy) food to feed, like everybody, which corresponds to an abrasiveness in values of a spoiled society expecting ag. products at prices that effectively value imbalance and that undesired environmental harm and environmental unsustainability. on top of all this, there is the Carmic Climate Change Challenge the ag. industry also faces. but the unfortunate truth is that there is more to climb out of; more of a right direction to move toward. "regenerative agriculture" can be a needed step for some, but may be seen as still needing improvement (e.g. consider the ecological baseline or pre-European settler condition of the environment, how the current condition compares, and sure, even the complex, dynamic new climate realities faced). also, a broader definition of those good-sounding, desirable values of regenerative agriculture ("...to protect, sustain and enhance

natural resources on our farms and farming communities throughout California") to include (truly holistically) not just "California," but the entire planet (like in terms of imports.. e.g. the the EU's policy to stop supporting unsustainable deforestation abroad)

some would say to have such goals are a minimum, and i believe (again), it's very unfortunate that even to meet this minimum can be extremely challenging, but with a more +/holistic, inclusive/transformative-resilient (in a Nature-based way) society with more people (including/especially consumers) supporting the needed changes and also being supported to make the needed (somewhat fundamental/radical) changes in values, ways of life, & even diets; smarter, well-coordinated environmental management.... the sky was the medium (re the infrastructure of this I.T.)
to 5: benefits and limitations
consider how analagous this is to a medical doctors' responsibility to safely wean a drug addict
for industrial ag. evaluations, consider those places where it would make sense to gradually transition vs. those which it would not & leap-frogging gradual steps is very recommended
most simplified extent or speed of transition (to extremes of a spectrum):
1- full transition / complete restoration or most sensible rehabilitation to ecological baseline or setup to sustainable land use and livelihoods, or 2- gradual (perhaps even shrewd or as status-quo-conservative as possible) scaling up of good practices, while gradually scaling down of bad practices (example of anticipating preparing for disaster/negative situations - (eg Amri specialized in breeding wheat and barley in dry areas, looking for local varieties in marginal areas and harsh and isolated environments. He spent several decades hunting for genetic traits in wild varieties of staple crops that would make them more resistant to pests and able to endure more unpredictability. (from Mongabay article))
seems like a very normal, prototypical transition currently - California farmers bring climate sanctuary agriculture practices to upstate New York
consider the shady/irresponsible carbon offset trading of allowing other companies to do harm, while your operation takes the obvious/needed step
importance (also recognized by high level authorities) of native/stilldigenous land rights without the culturally malignant view of land ownership that creates dependencies to a (environmentally) harmful, unsustainable Economy (from corresponding spoiled, misguided consumers' demand ("spoiled" in relation to our tastebuds) // SWRCB stricter (than DWR too?) to achieve sustainable groundwater faster & more than spoiled farmers (culture) can handle - "... a lot of property recently going up for sale and long-time farming families moving out of State"
with less smart, wasted-energy in less holistic, progressive efforts/changes (though several benefits include personal development (but at the expense of the greater good), _____), when can better bypass to more needed, significant/drastic (to compliment significant/extreme climate change?) changes
"when farmers are paid to implement an isolated practice such as cover cropping, they can become too focused on the minimum needed to qualify for payments, and they don't consider the overall soil health picture." (from article)
though the environmental balance may be way off, if more radical transition does not have appropriate social support/balance, then dynamic-ready, more progressive, gradual transition may be acceptable (but to climate/Nature?). improvements that happen to be in the right direction toward 5 even if they are still to maintain the "out-of-scale" environmentally destructive commercial/business nature of operations:
more people settling the land, relocalized, balanced way of life, "carbon farm", no-till systems ("Farmers argue that the soil organisms act as tractors, keeping it porous and constantly turning the soil over," G. Lawton got records for the highest quality olive oil (from not tilling, but using herbaceous ground cover… also transitioning from olive monoculture to polyculture in Jordan (here and here))), **land fallowing opportunities**? (like Ferguson's, Chico Rice, ?), other **opportunities on operations needing to transition** (commercial fields in Firebaugh,)
) polycultures (including for bee health // ↑ pollinators I India), agroforestry (especially including non-commercial, native use of plants, perennials, trees) like (riparian) buffer strips, hedgerows/shelter belts (incl. elderberries,), & wildlife corridors, repaired/constructed wetlands (ex. from Illinois), cover cropping (in conjunction w/ SGMA compliance need), habitat creation for pollinator/predator/beneficials (with the coalition), crop rotation (example of strategic rice rotational planning), better animal conditions like free-range, other good, lively soil building methods, restoration to self-renewal, keyline design, Integrated Pest Management (DPR +incentivization/reward grant, 6 IPM awards (for ag and non-ag purposes), Akkadi Saalu from S. India,) etc. // USDA encourages very gradual change by asking farmers to plant 2 instead of 1 crop, away from subsidizing cattle I World Bank // Considering transition from conventional-chemical to organic is about 3 years+ (from Sri Lanka article), but depends on the resources you have (and responsibly source & use) // Man from WildEast, England says the type of incremental change needed on farms is in evidence on his own estate: "Instead of farming closer and closer to the bottom of the hedge, we're just quietly doing exactly the reverse and allowing these hedges to grow out," (from long-range rewilding article) // example from Iowa to reduce N&P runoff pollution through cover cropping and natural vegetation, and from Minnesota // great rice rotation with cover crop in the Sacramento Valley, and when smartly controlling water / flooding, good for salmon // also, national study finds cover crops, reduced tillage boost farmers' bottom lines // cover cropping may causes significant yield reductions.. currently, only 5% of US farmland is covercropped.... but in addition to building healthy soil, the strategy can avoid significant

nitrate leaching, use less water, ↑ biodiversity, etc. also, it can be a "gateway practice" for implementing the five principles of soil health) (like this regenerative almond orchard in Merced (which is a 2 on the 1-5 rough grading scale outline) // a long-term MSU study to ↑ soil organic Carbon // a degraded Arizona ranch with little water and harsh climate with great (regenerative) changes can serve as a great example of what approach/practices to adopt
The Nature Conservancy is leading the Expanding Agroforestry Project to provide training, planning and funds for 12,140 hectares (30,000 acres) of new agroforestry plantings in the U.S. (from article)
consider if too much N (applied to/)in soils to support invasive weed growth - N is often limiting in California desert/dry ecosystem soils, and when added, (unfavorably) taken up quicker by weedy nonnative grasses (p. 65 RAL)
"Even though the water saving benefits of healthy soil practices are attractive to some growers, the physical and economic burden of drought is too high for some to even consider alternatives. (also they need to have patience, as it takes time, like natural, on-site/at human/ecological-scale produced fertilizer vs. (too) external, synthetic, or energy intensive fertilizer (consider how one-third of food giants ignore fertilizer risks), e.g. in Malawi) "The single most important motivator [for farmers] I have seen [is] available water holding capacity and a healthy soil's ability to absorb water, especially runoff during storms." Some driving factors include limited water availability due to drought, declining Sierra snowpacks, saltwater intrusion, and groundwater depletion. Some farmers may view certain soil health practices, like cover cropping, as competing for the water needed for crop production. This is a common tension in the Central Valley nut industry. Many orchardists interviewed for this study reported they either could not plant cover crops due to a lack of water, or did so at the perceived cost of reducing their production. However, recent UC research suggests that cover crops in the San Joaquin Valley might actually not require much water if grown during the winter, when evaporation is much lower" (from BFI policy brief) // "[agroforestry transition,] but not to such an extent that it threatens your profitability. Farmers may be able to overcome that by not transforming everything in one go into a food forest. That is also how we work, in stages…." (from Mongabay article of Netherlands/Dutch farming crisis / transition needs)
some major considerations of herbicide application vs manual removal methods:
●effectiveness?
●the greatly skewed use of it for continued use on bad land stewardship, agricultural operations application, vs. temporary use for good-intentioned habitat/nature conservation
●area of land / reasonable/doable with enough people energy?
●potential bond formed and motivation for ongoing protection of the land when potential stewards take somewhat painstaking efforts of removal
●significant/meaningful impacts of herbicide application on ecosystem health? / duration lasting in the ecosystem?

when one's freedom, stability, security is at the expense/compromise/intrusion of another's freedom, stability, security… if (only) self-destructive (like to own backyard/domestic environment), even then, there's the spirit of preventing one from committing suicide to their own body, but extended to a way of life or a land that would be passed on in good condition… similar how some cultures do/have done human sacrifices (to the gods), can such thinking be applied to our whole planet, like the UN? considers low-priority landscapes for development, resource extraction purposes..

Global supply chaing

Considering (more short-term/transitional or policy-like) continued global/international trade, but very different than the current good-*business* (yet less holistic, potentially harmful) thinking to increase demand (eg with active almonds marketing). From decreasing pesticide use to full conversion of land from commerce to ecological restoration / rewilded, **consider exports that can & should actually be grown in or nearer to that importing place**, importation impacts on the source region's environmental health/sustainability (for example, are we import-contributing to food insecurity, ecological or hydrological destruction from far (article))?, in smart coordination with global marketplace (stakeholders) (California Ag. Exports Stats I CDFA) // consider what can be grown outside of california with the 99% club (of 16 commodities that are 99% grown in CA) // obviously the easiest, maybe 1st or most prioritized step to focus on correcting ridiculous redundancies (like "16 % of the alfalfa grown in California shipped all the way to Saudi Arabia to feed dairy cattle there" (and furthermore, alfalfa's major problem of high water use exacerbates the problem, and though a hydroponic solution may seem tenable/sensible, especially consider energy use (for lights) and culture of artificiality and domestication), or explained more generally here, or in Germany here, or growing home-garden (and more water-intensive) type of crops in water-scarce Jordan here, or imported-to-USA kudzu that is *invasive* in the SE USA, wine imports (mostly from Australia and Chile) to the USA & even way-too-much-wine-California! due to economic reasons), seafood ("The U.S. is the world's second-largest seafood importer, despite the fact that U.S. fishers catch 8 billion pounds of seafood each year. Much of the fish landed here is eaten elsewhere. That conundrum makes it harder for American fishermen to sustain their operations and forces fish to be shipped thousands of miles") // the more difficult to begin growing locally rather than exporting it from far can have much lower priority to work on (such as bananas, which

are much much more imported than is grown in the country, as there is not too many places (throughout the usa (i.e. still will be 'imported')) that can grow so much of it, and it is a healthy food) // of course (unprocessed/natural) fruits are healthiest sweet, but considering refined sugars, sugar cane and sugar beet growing, about 7B lbs. is produced by US (which is about *twice* as much as americans *should* be eating), and sugar beet sugar growing, about 12B lbs. produced by US (which is about *4x* as much as americans should be eating.. total of cane and beet sources give about 6x! as much), especially consider how needed exports to other countries are as it appears that sugar beets andor sugar cane be grown locally in most of the planet // consider how more local sources of nuts in the SE, USA can reduce need for so many nuts grown in California // coffee from S. California/Vista // consider maple syrup, which is about 20M gallons/year production, or ~half an ounce/person! equitable? environmentally sound to expand maple syrup production? also with honey? good for bees or environment? (current 4B pounds production is 2/3 lb/person // also, in concert with health impacts, like excise tax on high-energy foods, like sugar-sweetened drinks, that reduce consumption/demand // obviously cannot be too precise in evaluating/rating for what should be growing to reflect the dynamic global situation to shiftransition practices. in relation to seasonality, consider most needed, irreplaceable (fresh, local, seasonal tomatoes are an example to think on more (from permies site) and the domestic focus (below)) // example (from Indonesia) of database connecting small-holding palm oil plantations to major consumer goods firms (the Gecko Project), or the RAN's investigative capability to elucidate the global supply chain// collaborate with CGIAR, OECD, (but also, tricky to track food supply chains when criminal/laundering activity going on (like laundered beef on Amazonian indigenous lands)) // consider export-trading done with demand (and when it cannot be grown closer to where the demand is), vs. with subsidies (e.g. USDA subsidizing organic exports) // database to know of and connect various leftover produce material // Harvesting Brazil nuts in the Amazon using zip lines and apps!

regarding evaluation methods of (global) supply chains, supply chain research from the grocery stores / online hub sources traced back to source vs. directly evaluating production lands, former approach is more a "take personal (even if at a state/national level) responsibility" approach that does not require the likely very difficult task of having a truly global coordinated effort as the latter approach implicates
Global Supply Chains (Trase)
UN Comtrade database
Supply-Change.org
PalmWatch free, open-source for palm oil traceability (can get to know what mill it is, but not plantation. with the special close-proximity requirement for palm oil, can infer what plantations were likely to supply the mill)
G7 Climate Club (also from this article-> Currently no global carbon price, and the WTO has been trying to determine equivalence)
consider how similar it is to drinking water, for example. consider carrying capacity, when water should be sourced locally or not

consider noble global power & responsibility:
the CA state government (CNRA) 30x30 document is really good, but only DOMESTIC-focused, and not looking out for how Californians' livelihoods may be harming external/distant lands with their excessive, imbalanced/unsustainable consumption habits. (similar theme can be seen in the forest transition theory) at the same time, just focusing on local can be sufficient in the sense that far-away imports & exports prices will rise accordingly // consider "recreational" opportunities (especially considering how sustainable the recreational equipments are) as an indication of this // who wants to live in a place (example - California) where it (natural resources / ecosystem services) is poor?. and who wants to live amongst those who are poor in spirit (like those in a city, preserving their own land but having to destroy distant environments)
hyp - stewarding the land, means to not harm/degrade it basically. when thinking too much business-oriented regarding land management, then it is highly likely that the land (and water and air) will be harmed and such management will be unsustainable long-term. doing *some* business within an ecological/balanced framework is ok, but that will take extra work.

rating consideration checklist of growing for commercial export (and not all or nothing, but to what degree/% would you designate land (and even gradual, phase-wise shift) for commercial export vs. local/regional) (also using crop-climate map guides, like…):

(1) special/niche growing (soil/climate, even to an extent, less controlled, inferences of biodiversity/pests' natural selection of crops) conditions - artichoke, dates, (dryland) olives

(2) keeps/lasts good (but not too good because there's ecologically imbalanced/excessive processing)? (without imbalanced/artificial energies like refrigeration) - like grain (perennial? harvest??), onions, potatoes, less perishable fruits, … and not like leafy greens (e.g. Central Coast/Salinas Valley, also Imperial Valley), lettuce-like endives (in Europe)
(3) closest (but also considering quality, etc. like (1)) site to supply local/regional community? (incl. unusual cases like integrative rice growing in very temperate, Vermont area)
(4) healthy/healthier end-use for human consumption (like palm oil that's mostly used for overly-processed products or even less life-sensible, inappropriate, overly sophisticated lab/genetic-science selective breeding of crops. also, not that human health shouldn't be our top priority, but because it actually IS so, or likely will be too prioritized at the expense of much non-human forms of life, i'm prioritizing environmental/ecological considerations.

(check for ideas from evaluation of step-transition to regional food system like Penn State's NE region studies, food hubs/cooperatives/knowledge sharing (e.g. North Coast's Growers' Association, hubs/situation in Mississippi River Delta South, Foodshed Cooperative I San Diego, FEED I Sonoma, native seeds (like Heritage Growers in N. California), Food Hubs & Values-Based Supply Chains | UCANR SAREP, Local Catch Network and Community Supported Fisheries (CSFs), community refrigeration hubs (from article)) that go the other way than from self outward to family, neighborhood/community, region…CDFA farm-to-school connections importance of unity and trust, cutting out unneeded middlemen (like sai baba strategizes the farmer cooperative idea, here) Research study idea of grading how local food growing is at various/California farmers' markets (with California Certified Farmers' Markets by County (updated July '22).pdf and Farmers' Market Finder by the Ecology Center // it starts with where we are, and contracts it down to more local
especially given the reality (as opposed to a demonstration farm that may be less scalable given that economic context), Tolhurst Organic, the Knepp Estate (also here), and others from England like Wild East, Park Farming Organics (N. Cal) somewhat, Mark Shepard in Wisconsin, habitat restoration of 2,000+ ag. acres in Grayson, Central Valley, some barley fields restored to wetlands (Lakeside Farms, Oregon), are **good examples of a 4 (or more)** - consider downstream effects too, reliance on oil, potential for bringing more people to live on the land for better balance / carrying capacity. // include an evaluation of "carrying capacity" (like external costs or exergy) how when providing food for others that are supporting that traditional, nature-destructive economy, it both directly (land, and other resources used in that production) and indirectly (feeding/supporting them, but this may not be as much of a concern, especially as the good forces of the source of production are there, like the love of a mother, or God, or Mother Earth) limits or reduces the ecological balance/potential (for restoring natural environment or rewilding) // Sadhguru/isha going for ~ 30% of land for human, agroforestry type purposes, rest of 70% leave alone/wild/natural
"some of CONFENIAE's biggest criticisms of REDD+ projects are their top-down approach and focus on promoting a selection of global staple commodities. These commodities include coffee and cacao rather than local small-scale foods preferred by communities, such as achiote and vanilla, which are integral to many chakras." from Mongabay article
Agroforestry initiative in Assam, India could help farmers earn all year in a more eco-friendly way // Thai rubber agroforestry
increased/sustained commercial production
Rainwater Catchment & Water Recycling at Harley Farms Goat Dairy
Farm Ponds at Lindencroft Farm
Various categories/levels/focuses of policy/transition (Tesco's meat problem (commentary),)

Instead of unemploy workers, have them help transition the land properly ("We had to cut back on our employees, because we can't make it on what we're doing. Everything's so expensive," Guzman said. He downsized from 30 to 15 regular employees because of the minimum wage and overtime costs." from news article)

some limiting, overly-controlled, or more downstream solutions/transitions, just focusing on: reducing water (or energy) demand/use (e.g. increasing the efficiency of groundwater pumps, pumping at off-peak times, Colorado River Basin ag, focusing on 3 - (1) RDI, (2) decreased water-hogging crops like cotton? and alfalfa, and increased dryland crops like wheat (or buckwheat) and sorghum, (3) flood to sprinkler irrigation) // practice of precision, medical-like, less natural nutrients (or pesticides) application (Applying the Right Amount of fertility, at the Right Time, to the Right Place, in the Right Form (4Rs)), downstream building of wetland infrastructure to handle excess nutrients, silt, etc. contaminants
-drainage ditches (and recycling that runoff back to where it was applied)
-better livestock management practices (e.g. manure management to decrease methane emissions, grass-fed, free-range healthy animals) // a good indication to more strategically use grazing animals to graze the land until the soil health is restored to a steady level: "and after soil organic carbon stocks settle at a higher level ("equilibrium"), the grazing animals' methane emissions will continue without any associated offset." p. 280 The Blue Plate by Easter

10,000 acres grape growing/winery operation tries to make all the right climate/environmentally friendly moves, but!
attempt to ↑ water efficiency, but consider how much energy (in the form of diesel fuel) it uses (article)

Successes of (best) transitions of environmental ex-criminal businesses, even industries? (Check panorama, U. of Copenhagen's "FoodShift 2030" project for citizen-driven transformations,) example from Indonesia with mining companies// also, from conventional economy -> ecosystem services, concept or ecosystem services actually being accounted for (current and projected/future assessments like InVEST or TESSA) -> beyond ecosystem services approach & transformational change in seeing "economy", envt./nature // **prototypes of permacultural succession plan(n/t)ing**? crop-wise, dryland, low-water use, such as: olives, tomatoes, pumpkins, watermelons, cantaloupes, winter squash, beans, garbanzos, apricots, apples, grains, potatoes, peaches, onions, garlic,
G. Lawton's Greening the Desert projects in Jordan given they're getting 60%/low rainfall (source - AFP) // from olive monoculture to polyculture (here and here)
Stoffel's part about conserving grasslands in Minnesota / Great Plains region

examples of restoring impaired agricultural lands - "...four that come to mind (though not at large scale of 10s of thousands of acres) are Atwell Island, the Kern Water Bank, the Carrizo Plain, and the Wind Wolves Preserve" (from PPIC article)

authorities in india (maharashtra) are saying equitable water distribution to farm families look something like ~16 cubic meters/day (~4,000 gal/day!), though i believe i (or a really good, permaculture type setup) can do with less than ½ cubic meter/day (or ~100 gal/day) (for a family of 5)

Groups/govt. To work with in India:
+Banaras Hindu University and Indian Council of Agricultural Research with measurement, reporting and verification processes type of work
+ Farmer-to-farmer agroecology training/learning hub in SW Karnataka, Amrita Bhoomi Learning Centre (website)
+ Prabhakar B. (Nangali village, Kolar district, KA) leases degraded rainfed plots and converts to agroecological farms
+ Society for Promoting Participative Ecosystem Management in Pune (K.J. Joy)

main priority to change misguided economic activity / way of life, either through various means that effectively motivate, or incentivize with money. eg, check SRAP's contract grower transition program that supports those that were unfortunately a part of the industrial livestock industry to transition

Since when does the justice system **pay a criminal money to not commit crimes (and maybe the "criminal" is ignorant or helpless (but then we should help guide to correct path))?** (and in a sense, all of us connected to that food system, so are also criminal)?, how does it really make sense to PAY farmers to not continue their (long-term environmental abuse) extraction of excess water, like this article reveals: "paying agricultural producers not to produce."... "in California's Palo Verde inland irrigation district, farmer cooperatives are collaborating to "rotationally fallow" their fields, which allows a steady crop production flow even as farmers sell their saved water to thirsty Southern California cities." // In Imperial Valley (fall '22), from the Colorado River (from US govt./Biden), spoiled Colorado River growers need more awareness // the Bay Delta // Also, from pg. 149, "Because U.S. farmers have broad property rights to manage their land as they see fit, U.S. agricultural environmental protection policy focuses on paying farmers for environmental services." // Tribes around the Colorado being incentivized to conserve water? // "The Agriculture Department and private companies are in the process of promoting carbon trading markets, in which farmers sell credits to polluting companies that want to offset their own carbon emissions. They do this by employing some of the same "climate friendly" practices that help soil store carbon and might be encouraged through the crop insurance program." - from Inside Climate News article (also, here) // DWR's LandFlex Program to Protect Drinking Water Supplies - $25 million grant program to incentivize local groundwater sustainability agencies to pay growers to immediately idle land as a one-year drought-relief measure. The proposed program would target operators of small- and medium-size farms in areas where agricultural pumping reductions would help keep household and small community water system wells from going dry. //
More state incentives to valley farmers to fallow acres (resembling residential turf replacment incentives)
consider garimpeiro "wildcat miners" (the most stubborn people) in Brazil's illegal gold capital that are protesting govt restriction

nice to positively encourage, and incentivize for conservation (but can be more, according to article "If even a small % of the farm bill paid farmers to protect rivers & streams"), native grasses, etc., **but when market choice is more attractive** (like here), or the reality is (like a pimple coming to a head?) an increased pressure for consolidation of farm operations (to bigger/mega farms) methods to really stop/enforce (start with asking for Notice of Intent from identified violators) such criminal operations (like Sonoma county charging for well water extraction), and instead incentivize ecosystem services (e.g. EDF, USDA conservation easements like around the Mississippi Delta wetlands)? where are/can authorities *actually* protecting, and will protect environment (to avoid situations like this farmer not going for the higher government payment to conserve the land)?
epidemiological concerns:

- air (emissions & noise) pollution
- water (availability and quality)
- other destructive human/invasive activities (like violence, imbalanced/excess extraction of natural resources, hunting,)

Watershed evaluation

watershed science (here, here, here, here)

when evaluating watersheds: (1) how is (or isn't) water infiltrating the ground? can this be improved (especially should be improved if harmful, obsolete economic activity has caused such erosion-prone, less water infiltrating capacity) (create/check playlist or good video like WaterShed Basic Principles-MGNREGA, and example of community-engaged planning (also this local water governance idea of a Leadership Institute I Tule Subbasin), for ecological restorative (not long-term or electricity-generating) purpose) (2) where and how much water is being diverted/extracted? (eg Measuring Groundwater Overdraft in the Sacramento Valley (and subsequent "Addressing.." article) consider impacts of too-big dams and (deep) wells on (ground)water availability, environmental health, wildlife // learn of groundwater design and planning (from various project partners, for example) // SWRCB positions supplemental // from SWRCB Supply and Demand Assessment Meeting June 2024 (video) // quality? dissolved oxygen, temp., sediment/turbidity, fecal, pH, salts and nitrate pollution ("in terms of salting, Australia is where California is going" - penny livingston), with CV-SALTS program (and group), other contaminants, like PFAS? // water quality much worse in Kern county compared to nearby counties (from SJV article) // example of water quality data from CPCB, India // Amazon River water studies // 2012 study on "Groundwater depletion and sustainability of irrigation in the US High Plains and Central Valley"// range of irrigation need for various crops (in various climates)? to then highlight good-bad examples, noting common features // ideas from article // C.W.A.M.? // water divining (India)? // Draw from this example of indexing human impacts on Amazon (also here) // consider how significant diverting water from rivers/flows that would otherwise help prevent salt-water intrusion from the Delta is (is there a study on this?) // study of indicators of stream flow and habitat needs // studies like this one in Iowa about the problem being more fundamental (to an industrial-/commercial-scale management of land) than even good-intentioned soil conserving policies, but in the Central Valley region? // conjunctive management - integrated management of surface and groundwater resources to ensure that groundwater is recharged in wet years and is not withdrawn below a sustainable or "safe" yield, but too controlled, unnatural and less wild, ecological like this vs. // recharging groundwater from surface water like in the Tule subbasin, but why not rain-harvest to recharge groundwater too? // check PPIC's Understanding Water Available for Recharge in the Central Valley blog // DWR's Water Shortage Vulnerability Scoring and Tool Demo on Domestic Wells and State Smalls has so many indicators of "vulnerability," but the "surrounding land use" indicator is the primary one that trumps (almost/essentially) all the others, which can be smartly understood as being caused *by* misguided, ecologically imbalanced (ag./industrial) land uses. therefore, smarter tools would be like The Freshwater Trust's BasinScout to evaluate various growing methods in relation to water conservation // especially focus on SJV because of higher flood risk, higher need for recharge // study that prioritizes land subsidence is causing the most harm/impact // The Groundwater Recharge Assessment Tool (GRAT) // SWRCB's effects of recharge on groundwater quality site // Fastpath app I Stanford // Soil Ag Groundwater Banking Index | California Soil Resource Lab // Consider effectiveness of GSPs getting DWR approval (like from this article) (note: DWR, to SWRCB, to interim stakeholder) // Are Valley Foothills the Water Bank of the Future? article - "The black sands of the Mehrten Formation, a geologic feature of the east side of the Sacramento and northern San Joaquin Valleys, are highly permeable" // recharge groundwater of farmlands (like this in Merced county, or a 20 acre pond in Tulare), but also need to consider the (continued? ecologically imbalanced?) use of the land // consider already toxic land (like this) - (slightly edited, from article) "...groundwater recharge could worsen the problems as the entire region is polluted with fertilizer compounds, which leach into the soil, then into the aquifers, then into the drinking water... Residential areas across the San Joaquin Valley are also hot spots for the pesticide additive 1,2,3-Trichloropropane… Though eventually, recharging groundwater would flush these contaminants into the aquifers much faster than otherwise and in the longer term, the legacy contamination would hopefully be diluted with pristine Sierra snowmelt…" // consider other places in the world (like in India, Haryana) where the problem is TOO MUCH groundwater (due to the continuous sowing of rice paddy over a long period of time, and low elevation point in watershed), and also high salinity "Study says that in the irrigated areas of semi-arid regions, especially in northwest India, a considerable recharge to the groundwater leads to water logging and secondary salinisation" // "There is a fundamental mismatch between where the water falls (north) and where it could be stored (south)." // more examples of groundwater recharge in india, telangana/andhra, maharashtra, // recharge methods in CA (from article) - use "sweet" zones where deposits of coarse gravel/sand offer a direct channel to an aquifer, which could be found using technological mapping. // (from article on CVJV) "Based on a decade of research, we know when and where to put the water to maximize benefits for a variety of species."

Tulare Lake rising in the midst of a dry landscape. // "dense band of tules 2 miles wide… surrounded by arid land" (from chapter 6, p. 157, 158 The Great Central Valley) (ecological explanation, how? Less permeable land surrounding the watershed? consider wetland w/ arid vs. humid surrounding lands)

any examples (like Geoff Lawton's "Greening the Desert" project) that show promise to shift away from desertification? specifically in CA, highlight operations and their methods (e.g. small/appropriate size of operations? good, ecological methods?) that left them unaffected by the drought / lack of unnatural water supplemented // best practices or leading examples (like from scores/rankings of hydrologists'/environmental scientists' evaluations of how sustainable clean water security is) of various, long-term water security solutions

even check the change in watershed from the desorption of water that dries out soils of "dry farming" that does not use irrigation // Although agriculture typically provides less shade and uses a large majority of water that has a drying effect on soil, what percentage of water evapotranspires back to the environment? significant? // when suspected excess surface water is being used (including in permaculture-type design, like swales, ponds,), note extent of ecologically-ill human-hogs (from land-use large-scale or monoculture growing to food waste, and also even much less criminal design of water-hogging - for ecological

restoration though? or for increased/sustained commercial production?), impacts on biodiversity (using Wildlife Recovery Index, which would take stock of three main factors: habitat protection, such as protected areas and wildlife corridors; management interventions, such as reintroduction, anti-poaching and human-wildlife coexistence programs; and enabling policies that promote rewilding and coexistence), downstream water flow, unsustainable/industry-scale, artificial energy use enablization
consider "sit spot" approach
consider FDA's Agricultural Water Assessment Builder designed for farm(ers / landowners) (paper version)
consider CA DWR's Groundwater Digital Platform, that Water Agencies can use to collaborate and should help build local level capacity (currently with 3 pilot project partners - Merced Irrigation-Urban GSA, Pajaro Valley Water Management Agency, and Yolo County Flood Control and Water Conservation District)

Groups/govt. To work with in India:
+Central Ground Water Board (a Mongabay article on their 2024 report), ideas from groundwater article, water divining
Documenting India's water bodies (India's first water body census compiles a state-wise database of location, ownership, size, and usage of ponds, tanks, water conservation structures, reservoirs and lakes) // also, groundwater assessment in Brazil
Kerala's water budget, a step towards effective water management - Kerala became the first state to adopt a water budget ('23), for water scarcity concern, but also for effective water management
consider improvements needed, such as the water budgeting process carried out as part of Atal Bhujal Yojana by the gram panchayat of Karnataka's Nonavinakere village, failed to account for imported surface water (article)

"Since the 1850s, 95% of the historical wetlands and river habitats in the Central Valley have been eliminated (consider reasonable motivation since the huge flood (but also, (unclear) cause of that?) in 1862), according to state flood planners. It would be impossible to restore all of that in a state of 40 million people, where major cities like the capital of Sacramento and Stockton have been built in floodplains." (from AP article on green/renaturalized water infrastructure in California, Central Valley)

Soil Health Institute Recommends Measures for Assessing Soil Health
The Soil Health Institute announced its recommended measurements for assessing soil health: 1) soil organic carbon concentration; 2) carbon mineralization potential; and 3) aggregate stability. The recommendation is based on results of a three-year, $6.5-million project to identify effective measurements for soil health across North America.
soil health indicators from the EU
The Soil Health Connection I YouTube
consider the Belowground Biodiversity Advisory Committee (made up of world-renowned scientists) and their recommendations on biodiversity indicators as a proxy of soil health and ecosystem functions (from CDFA blog/webinar)
another indicator/proxy of growth of various indicator plants
and from Mongabay article:
Tillage practices, input and labour intensiveness, and intensity of intercultural operations have multiple pathways of impacting on the physical, biological, and chemical properties of the soil, which in turn impacts the overall ecological equilibrium and functionality of soils, which cannot be captured by a single indicator like SOC. Hence, it's important to have a systematic approach that is broad based on multiplicity of competing and complementary indicators while assessing soil health of agroecosystems. This is further corroborated, through an empirical study on comparative analysis of SOC among alternate land uses, with an aim to establish their ecological viability, in Wayand district of Kerala… (use of land for more profitable betel nut or banana yielded more SOC, yet less microbial and fungi presence)

"**Recharge conditions** are generally less favorable on the valley's west side due to poor soil permeability, salinity, and the presence of deep clay layers that limit water percolation. Some of the most favorable recharge conditions are clustered in alluvial fans in the northeast, southeast, and the Kern basin… Conditions also vary across different land uses. They are relatively favorable in the two largest land use categories—cropland and open space—which take up 61 percent and 29 percent of all acreage on the valley floor, respectively. Urban areas across the valley also show potential for recharge. Not surprisingly, recharge conditions are poor on the valley's managed wetlands, where thick clay layers do not allow the water to percolate into the ground." (from PPIC appendix)

other hydrological restoration plans
"Central Valley Joint Venture habitat objectives call for adding ~175,000 acres in San Joaquin and Tulare basins over the long-term, and set a short-term (10-year) goal of ~17,000 acres" // "Central Valley Flood Protection Plan Conservation Strategy identified a goal of adding 8,000 acres of riparian vegetation along San Joaquin River." // ""Tulare Basin Riparian and Wildlife Corridor Conservation Report" identified a long-term need to protect and restore 20,000 acres of riparian vegetation." // "San

Joaquin River National Wildlife Refuge Expansion Plan authorizes the expansion of the Refuge by ~10,000 acres through acquisition of fee-title or conservation easements."
"Central Valley Joint Venture has a long-term goal of creating ~70,000 acres of additional wetlands in the San Joaquin and Tulare regions" // "Tulare Basin Wildlife Partners has recognized a need to protect and restore ~100,000 acres of wetlands in the Tulare Basin." (from PPIC appendix)

Given all the possible options… best place to hold water is in the soil,

to *find* ground water, use of water witch in these modern times?! or like how Sadhguru can feel the reverberations of lively soil (which could be verified with more invasive science)

groundwater recharge basin design ideas / examples:
ideas from EDF
Kern Water Bank - not (or semi-)nature-based solution, a 32 mi^2 property that can store 1.5 million acre-feet of water (3X Lake Isabella)

impact of 10 year, huge, San Joaquin Levee project on a 23 mile stretch?

Examples of **ecologically-balanced (agroforestation) that may seem anomalous** (because of its simultaneously having traits including: large size, more commercial intent, monocultural, less local distribution,,)? (but of course, need to have solid/accurate reference, or understanding of the ecological history of the site (for example, caution to take the changed, degraded ecosystem as reference like rainforest to pasture in Brazil), with best ecological understanding too, like "giving high-carbon storage areas conservation status are key steps toward harnessing the soil's carbon storage power," or remembering natives / cultural appropriateness, such that even if land setup (too controlled?) for environmentally sustainable ways of life, what about wilder, hunter-gatherer way of life, like the Batwa in Uganda?) // When (or at what scale) are dams good for the environment? (example in Java, Indonesia to initiate mangrove restoration, sluices for rice growing, beaver dams example in Colorado, but problematic beavers and their dams example in Alaska, check dams (example), boulder checks)// Though natural increase in biodiversity seems the necessary outcomes of ecosystems not invaded by crazy-humans, are there examples of naturally-evolving (healthy/successful) ecosystems that have relatively low biodiversity?
Example (slides 72, 73) considered biodiverse and attracting wildlife/birds, yet large-scale commercial and unnaturally managed rice paddy growing in Sacramento Valley?... but ?maybe beneficial for other reasons, like Rice Farming to Restore Soil in the Delta to prevent subsidence, (but check food miles / local?), being good for salmon

Complex-dynamic climate change consideration

(obviously, first remove stifling commercial ag. priorities like less-smart commercial cocoa. and then… see examples like mitigation-adaptation opportunities by the Meridian Institute, or maybe simply acknowledgement of the the greater resilience/versatility in increasing diversity (e.g. Geoff Lawton video, Akkadi Saalu in KA/AP, India border, various examples from India, millet farming, buckwheat farming, agroforestry in Thailand, from rice, fish, and shrimp to diversification in Bangladesh, ↑ diversification and "deep reading of nature's clues"/strategic, scientific Ram-mol approach in drought-prone Gujarat gives ↓ yields yet security, reconnecting to traditional, wild foods in Kashmir, and similar in W. and Central Africa, beautiful/inspiring example from Africa's Great Green Wall I Senegal) with many small, poly-perma-cultural farms/growing spaces (including grasslands restoration, resilient elephant grass in drought-prone Ethiopia, ↑ pollinators in India… but also consider shade-giving trees in heat of global warming) in higher cooperation amongst each other, including coop forms of organization (like Coopcerrado or CSA gradual transition of small coffee farms in Brazil's Cerrado, equipment/tool sharing (minus the machine-scale land use) in USA), agroforestry plan(n/t)ing, contour planting where appropriate, mulching rather than cover cropping (and use materials better, like use almond shells for mulch rather than for animal feed)… any contraindications?) too (and even smart, strategic crop combinations/planning to not need either mulching or cover cropping, like Ram-mol approach in Gujarat, India) consider how consumer demand is misaligned with rice varieties more adaptable to climate change I Bangladesh, or efficient, noncooperative agribusiness doesn't really want to shift toward more nature-based, permaculture landuse planning to be better prepared for floods in Rio Grande Do Sul I Brazil (end of article), plan in Nature-directed, environmentally sustainable (esp. in relation to energy) (e.g. detach dependency on the All-american Canal to irrigate the Imperial Valley ag.), indigenous/ traditional knowledge (like "The tribal group copes with climate variabilities, such as long dry spells and erratic rains, by using climate-resilient Indigenous crop varieties for farming, seed conservation and access to Indigenous forest foods and weeds for consumption during adverse situations and lean periods.")... nature-based solutions like check dams, permaculture

like flood protections (water catching ditch with bank/floodplain connected to a much bigger ditch/canal? for very high flooding, as explained from this article, at the end), ancient Sri Lankan tank cascade system,
example from the Philippines (incl. rice varieties naturally adapt to climate hazards, planting a variety of crops,
In China's Yunnan province, the Honghe Hani rice terraces use a water management system that is capable of withstanding intense drought while others in the province suffered (2008-'12)… (see article for details)
getting enough days of chill is a difficult obstacle of CC (e.g. walnut, apricot and peach trees in mountainous, oasis ag. I Oman)
Smoke from Megafires Reduces Nut Crop Yields

"permaculture" kind of, more-controlled planning is in contrast to less controlled ways, like in this article regarding a nomadic pastoral lifestyle, in face of drought spells in Tanzania, going from livestock production to vegetable growing, fruits, honey, better water management
if not enough initiative to change activities voluntarily, then unfortunate circumstances may force to such change, like global wheat in '22 (shortage from both Ukraine/Russia war and climate change), "some of the countries most affected by this year's rise in wheat prices have begun discussing ways to boost local crop yields and shift to native grains. Egypt plans to increase the amount of wheat planted on its own soil, and consumers in Africa are substituting expensive wheat imports with locally produced agricultural staples like sorghum and cassava." (also buckwheat)

"More robust food systems — systems that are more resilient in the face of shocks — need to be based on the principle of diversity, rather than concentration and financialization," Clapp of IPES-Food wrote. "That means more diverse production systems, more diverse trade and marketing systems, and more diverse diets. These kinds of diversity can ensure that there is enough slack in food systems to provide alternatives when things in one part of the system are disrupted." (also from end of Mongabay article)
more diversity-resiliency ethic starting from seeds (ICN article)
Regarding market-orientation and alternative to unsustainable, less stable global food system, direction toward local/territorial markets (which undeveloped, Global South countries/cultures tend to be more accustomed to, but also "farmers' markets" in developed places) (article on African "territorial" markets)

from 2022 UofWashington / SER Ecological Restoration symposium/webinar (Dr. Kaye's presentation):
*Earlier blooming time and lower elevation plants have a more significant shift in bloom time than later blooming and higher elevation plants (from "International Journal of Biometerology" Kopp, et. al 2020)
*climatic conditions is the strongest driver of viability of plant success
*planning for climate change
*where plant habitats are moving: see Seed Sourcing for Restoration in an Era of Climate Change & Which provenance and where? Seed sourcing strategies for revegetation in a changing environment
*Seedlot Selection Tool

UC Davis arboretums' climate change adaptation of what to plant
Mangoes and agave in the Central Valley? California farmers try new crops to cope with climate change
Taro in Oregon?

can combine a 'climate change impact on farms/farmers' survey (like this) with data analysis looking for correlation, especially with bias of "climate smart" / ecologically-aligned practices (which could be included in the nascent food certification of "climate-friendly"

note: sometimes climate change can help (even monoculture agribusiness) crops to fair better, like growing wheat at higher elevations, but then remember how it reduced wheat (in US, India, & France) too (from end of Mongabay article)

like assigning value to "ecosystem services," ag. economic research on pricing risk reduction of soil health practices for agribusiness insurers/lenders (see BFI article)

Wikid Fire Problem

Peat forest fire damage in Riau, Indonesia. Tropical rainforests and wetlands rarely burned in the past, but many are seeing serious wildfires as climate change worsens. As global temperatures soar and drought deepens in parts of the world, there is no guarantee already protected forests won't burn and add their carbon to the warming atmosphere. Photo by Rhett A. Butler / Mongabay.

Indicated priority need for wildfire prevention from Biden/federal level

reflexivity example of "lifeless scientific work" (and its enabling energies that are destructive :( ) observing & reasoning that plants suck out moisture from the air, so remove them
D. Jensen's interview of Deanna Meyer, and of Chad Hanson

Debunking Wildfire Myths with Dr Chad Hanson of JMP in association with The Dogwood Alliance
(more John Muir Project videos and site)
Notes:
~ 5 min. Re home hardening, forgot to mention to have healthy soil, with a lot of organic matter that can catch and hold a lot of water and further help to prevent.

Forest fires are driven primarily by climate and weather, not the structure/density of the forest, and (unsustainable/over-)logging/consumption is a key secondary factor.

-More in book, but going over 3 main myths:
·The "Overgrown" Forests myth (YT video) (see history of deforestation to see how we have way less trees now than before, and consider how much (not as much) fire there was before when so many trees! (and also not overexploited groundwater / dry conditions combined with global heating) // similar lie to remove trees also for non-fire logging? - "Cutting trees, Whitmire from the Fish and Wildlife Conservation Council said, is crucial to maintaining healthy habitats for years to come." (from article) // fictional, but sai baba also is against cutting down

living trees (compared to gathering already dead wood for the fire ritual in this case) in drought situation (ep. 1016, also here in ep. 1018, and here in ep. 1021, and the positive solution to respect/worship trees in ep. 1026)

USFS like a contemporary Sisyphus, pushing a boulder up that Hades/Climate Change was laughing at the top

·Denser Forests Burn More Intensely myth - (this common-sense theoretical here - backed up by studied/evidence) dense forests tend to have higher canopy cover, cooling shade, that keeps conditions wetter, cooler, as well as acts as a windbreak, all contributing to conditions less prone to fire - but does groundwater desorption occur, drying out the soil and trees? and how significant? Also, logging creates/spreads invasive, combustible grasses, as well as leaving behind combustible slash/logging debris

·Dead Trees Burn More Intensely myth - when fallen, they absorb a lot of water like a sponge, so more resistant to burning (intensely) - but this doesn't mean to cut and leave the dead trees there, or what to do when trees are dead? (because otherwise..this?)

·Catastrophic Wildfire myth - Post-fire can also create habitat for wildlife
Currently have less fires of all intensities in the USA than we've had historically, before fire suppression
Even in high intensity fires, not much of the wood/carbon is consumed but again, this doesn't mean we should set fire ("prescribed burning"), right?..
Post-fire logging (YT video), even if the area is reforested, it may not be as successful regrowth due to heavy equipment damaging the soil and nutrient/tree removal

- Examples where fire was not stopped in heavily logged / "fuel reduction" places:
  Camp fire 2018
  Caldor fire 2021
  Dixie fire 2021

@ 52 min. - about abused prescribed burning (applying accelerants/gasoline and much more frequent than the fires would naturally burn)
Prescribed burning (cultural burning) has some ecological value, but not a panacea

maybe the most important commons resource - water - is becoming more limited, insecure (in much of the world, including here in the Western USA) towards potential human conflict amongst each other, but as it's happening after/around the time of the coronavirus pandemic and subsequent collective understanding of need for more connection, solidarity, cooperation, meaning more likely for a result to be smoother efforts to planning, developmending, managing/rationing? water resources (and the environment) in the right direction. Can include

about the range of time when collective consciousness (in the valley; in the USA/world?) will go from social justice/equality... to start with environmental justice (before social justice).

if not with the john muir project, ucla collaborate? (Climate and Wildfire Institute at UCLA)
podcast of dr. hansen w/ d. jensen (~ 8:30) re the narrative and the reality

examples of bad science from the USFS (1 - not based on reality, but on their *own theoretical models and assumptions*, 2 - cherrypicking the examples they want, 3 - confounding the effects with something else)

causes - "The law of cause and effect can operate only on the (3 grossest kosas) physical, mental, and energy levels. Beyond that, it has no impact…" – 16 in "Karma" by Sadhguru // unnatural control and irrigation of water with dams, levees/canals mainly from the human supremacist mentality/culture that thought this development was good for whatever reason, including too watery/floody of conditions (reference?), it would be "wasted" into the ocean if not, etc. // Good, simple explanation of climate change, water I "Climate Change is Water Change" (ICN column) // re the fire behavior triangle as being a result of 3 factors: climate (weather humidity and wind), fuels, and topography… but now, it is mostly from the climate factor. (video) // explain both how it is NOT a waste (like here), while water diverted to ill, ecologically imbalanced, human-centric/-dominated ag. land use (but it still evapotranspires, right? misplaced rain, like too much over ocean bodies or less plant life dries out the soil? (As Colorado warms, dry soil sucks up more water article)), also, (@ 12:18, less humid riparian environment with dams/human-imposed water-controlling infrastructure causing less water flow) // finally, how it rains? include contrasting non-scientific means like Dr. Ranganji talks from these talks (from: 1 - agni hothra fire invoking of rain, 2 - dharmic living (of the king), 3 - celibate way / preserving oojas, 4 - (cloud seeding?) IS a waste. even further into this non-scientific thought process, could all that effort by science (from vaccine creation for COVID to IPCC's climate change studies) be similar to slave labor for a king?

Tree plantations in Patagonia are the site of wildfires and land dispute
"plantations account for over 9% of the area burned in the last three decades, but they make up just 2.5% of forest cover… According to firefighters and government officials, the valley's plantations made the wildfire much worse."
"a study found that pine species produce more flammable material and accumulate much more dead fuel as compared to Patagonian native forests, where live bushes and shrubs make up a healthy, diverse understory. Biodiversity is severely impoverished where pines have been planted or invaded, said the study, leading to the ground being covered only with dry, resinous pine needle litter….Their results ordered the following environments from lowest fire risk to highest: native forest, pine plantation, young invasion, mature invasion."
also, the exotic plantations seem to have greater water requirements

and we can blame fossil fuel and cement companies (articles here, here), but we have to also blame most all of us who each support those energies in our everyday lives

solutions
Hypothesis that needs to be individually experienced ("subjective science") – regarding mitigating earth's undesirable, unpredictable (of maybe too high expectations) climate, if doing the correct things (in relation to Nature / our environment), then Nature will reveal to you the solutions either via consciousness/insight or via empirical knowledge/right observation in right space-time. // to respect/worship trees I mere sai, ep. 1026 (w/ more context, see above)
hyp - human intervention and activity (especially considering restoration of nature, microclimatic, interventionable actions, but even way of life) (significantly) impact cloud formation? (with baba's words hinting at the importance of right timing and right dharma/law of nature to follow) (and likely complicated (hear) from a modern science perspective)
"focus on communities and keep the carbon in our forests" - dr. hanson

(from conference) - My perception of hype (or at least skepticism) around "indigenous fire burning" maybe like hindu priests' agni/homam prayers, rituals, sacrifices. So like, like tilling, may be needed at times in the current very ill situation we're in (like allopathic medicine), but considering/imagining non-crazy industry/economy-disturbed environment, think, "?Why would people (think to) set fire to plants??" May be a cultural thing, but in terms of increased fertility claims as we are used to now, there are other methods for this..
references to consider:

Traditional Aboriginal fire practices NW Australian deserts (study)

questionable/problematic
how wildfire response is similar to this - “Pledging to make your operations ‘net zero’ when your entire raison d’etre is to continue producing the fossil fuels destroying the livable world: this is like pledging to become more energy-efficient when your business is manufacturing electric chairs,” from twitter

ironic if not disappointingly blind, actual headline:
How forest thinning waste could fund California wildfire prevention

Truckee River headwaters example of forest "restoration" that means thinning trees (due to belief it helps to reduce wildfire threat)
California’s forests are packed with dead trees. Harvesting them could cut wildfire risk
Save Our Sequoias Act divides environmental groups (better-planned environmental review or stream-lined logging?)

prescribed burning may have some benefit, but not to be forgotten is how it contributes to air pollution and soil sterilization

analogy of how many criminals/marginalized are a victim/product of their environment as dried out plants/trees not having enough water because there is mismanagement of water, and people think to correct this by cutting down the fire-causing problems like thinking to outcast those criminals, rather than look/start at the source of the problem where is this hypothesis refuted? – hypothesis – given a HEALTHY ecosystem where there is sufficient groundwater supply, there is no reason/need for strategic, prescribed burning of trees.
Sure, removing poor, dried/drier trees to decrease fire spreading risk is understandable, buuut..
explicitly answer in 2 ways: 1) biased like a salesman, and 2) impartial like a good scientist - what’s more romantic, or unrealistic? feeding the world, supplying energy to the masses, and development that increases the standards of living, all through a way of life that is evidently unsustainable? or…
After California's massive Dixie fire, PG&E to ramp up spending on wildfire safety in 2022

Compare aerosol pollution benefit of cooling effect to this cutting trees to help prevent fire destruction
cut down trees to prevent fire image // (include meme of how deserts do not cause many wildfires, but desserts also do not...) // bare soil suggested “Each set of four rows is separated by 150 cm of bare ground that serves as a firebreak in case of fire”

Good to reduce risk in our lives, but there can be an excess/extreme of this too from preventing fire by cutting all the trees, to too sanitized, to too protected from the outside world,

and more than just on public lands, even standards for individual properties

or another parallel to “mainstream” thinking of our relationship to water and its use, “As California’s population increases and water becomes more scarce, irrigation management practices will have to become ever more precise.” (see end of part 2 re efficiency)
Why would one do prescribed burning in an ecosystem that has vegetation and soil that is abundant in water content? more narrow-minded science/thinking (that used computer models) that less trees to uptake water (like @ 5:49 from this lecture) // example of prescribed burning contributing to more fire - Prescribed burns cause fires in Bolivia, Amazon logging leaves drier conditions, 'Giving up': Amazon is losing its resilience under human pressure, study shows, USFS Pauses All Prescribed Fire Projects, // Resistance Radio : Interview of George Wuerthner (April 5, 2022) / Prescribed Burning 101 // from SERCAL Ecesis Winter '21 newsletter that includes “cultural fire”

In Brazil, experts say they’re skeptical about ban on fires to manage forests / prevent greater fires, noting that similar measures failed to stop the burning in previous years, but

real / effective solutions?

Maybe not as much (or careful of) the prescribed burning, but otherwise Pew Research study shows government (those who are supposed to have the authority to safeguard us/the environment) has less incentivization toward initial prevention than toward emergency/disaster response

can measure "fuel-moisture content"? (California's only wildfire research center makes scary discovery) // NMR measure of surface groundwater?
Fire Once Helped Sequoias Reproduce. Now, it's Killing the Groves

Federal plan to thin forest on Pine Mountain draws lawsuits from Patagonia, Ojai and others

Spanish farmers fight forest fires with agroforestry (and many sheep)
In the US West, Researchers Consider a Four-Legged Tool to Fight Two Foes: Wildfire and Cheatgrass
Inside the world of California's fire-reducing goats - Goats are carbon-friendly, prefer weeds to native plants, and can get up steep hills that humans and machines can't get to. (encourage some experienced (& wise) goat pastoralists from outside of USA (likely Africa, India, etc.) to come help/teach Americans good goat tending skills

Permaculture Design for Wildfire Defense (from Andrew Millison)

Good, prescribed burns? (from University of California)

'Giga Fire' project aims to map California's wildfire fuels

California Indian Basketweavers' Association uses dried grass for basketweaving

using sound/bass?

PG&E field tests wildfire mitigation technology that "instantaneously" reduces the energy flowing through faults in lines

Though sometimes they can be a nuisance too, naturally made, refreshingly priceless beaver dams (at least) help after fire destruction in Oregon - "priceless"?
Logging, forest thinning are not solutions to stopping wildfires like the Marshall fire
How Covid lockdowns triggered record rainfall in China

Restoration/reforestation consideration

natural vs. human-assisted (and even how much assistance (like marine restoration of multiple habitats/species, or land restoration of just one, start-off/leading species ("So just by putting one species — spekboom — in, you get a whole bunch of animal species returning and also other tree and shrub species that are indigenous to thicket. You can get 100 species coming back and restore the whole ecosystem,")))? (consider from Mongabay resources, like this article - "Assisted natural regeneration can involve putting up fences to keep animals away from new growth, selectively removing vegetation that can threaten the survival of resprouting saplings, or addressing the pressures that lead to logging and other disturbances." (also, can involve addressing impairment of soil and hydrological functions, high run-off, soil erosion, and other sources of degradation) // "the "framework species" approach (a method first devised in Australia & new to SE Asia) centers around planting a subset of native tree species that are ecologically resilient, grow quickly, and attract seed-dispersing animals that in turn boost natural regeneration processes." from Mongabay article // Mulch as a Drylands Strategy I G. Lawton to start restoration // Shade as a Drylands Strategy I G. Lawton // "We reforest where there is a need, although plants are only planted in necessary cases because we prefer that the forest would regenerate on its own, [by] seeds falling and new trees being born," from Mongabay article // active restoration especially in highly tilled areas that have lost their native seedbed… will want or need to take an active role to kickstart // "Natural regeneration my not be best when area is highly degraded, like the Monarch Butterfly Biosphere Reserve in Mexico. However, in the Mirema Forest, natural

regeneration has produced favorable results." (from Mongabay article) // Dr. Hanson's thoughts for natural forest regeneration, but sometimes assisted when too degraded // sometimes facilitating conditions for others (like creating artificial cavities for the large tree seed spreading, keystone/critical species, bigger bird, the grey hornbill in Western Ghats) to naturally restore may be part of the solution... ""Governments need to recognize natural regeneration. They don't recognize natural regeneration because there is higher uncertainty, and what we are trying to do is reduce the uncertainty," he told Mongabay. "The same for the private sector. They will not invest in something that has higher uncertainty and higher risk.""... in the podcast, K. Holl talks about successes found in bottom-up, and NOT top-down (whether from govt. or private funders) approaches. Importance of good priorities, like ideal situations of most community (those most truly connected with the (health of the) land planned for restoration (like "indigenous" or locals) involvement in the process, as this high-level, IPCC report suggests // natural restoration example - Monks Wood Wilderness farm field allowed to naturally rewild // super-active restoration example - Tree-planting approach suggested for SE Asian countries // categorize or make a continuum of basic types? like totally wild ("analog reforestation"?), some wild some human-centric, totally human centric (pine resin plantations in Mexico,) // native seeds for local, non-ag./non-commercial, ecological restoration grown as crop - factors to consider from Lebanon (Mongabay article) "...the planters carefully select where to plant each seedling, according to soil type, depth and water sources. The seeds are sourced locally and grown using a root air pruning technique to maximize resistance to the warming climate." // but sometimes non-native/-endemic species should be grown (at least first, leading the way for others), like those Gregg's pine trees in Mexico, or with TNC's land rehabilitation efforts in the SJV // and sometimes there may not be enough seed from a restorationist's perspective, or it wouldn't make much of an impact from a person in a powerful/responsible position (as stated in PPIC webinar) (so strategic-gradual and intermittent/island restoration strategy) // (varying examples with mangroves: (1) "on the Honduran island of Guanaja, Hurricane Mitch in 1998, ecologists observed that an area left to recover on its own regrew about as fast as nearby Rhizophora plantings." and (2) in Guinea Bissau, and for assisted: (1) Philippines, with frequent typhoons // a study from Tanzania found that assisted restoration of mangroves were regenerating faster than naturally restored // "Nobody can plant a rainforest," McCaffrey said. "You can only plant the structure, the trees that you think will speed the process up, get all those transformations happening." from Mongabay article // Reforesting 2,000 hectares (with ANR) of degraded cattle pasture on the São Nicolau Farm, Brazil (Mongabay article) // Restoration turns pastures into wildlife haven in Brazil's Atlantic Forest, using almost all local, native seeds, started in greenhouse nurseries // Brazilian group rehabilitating degraded ag. lands // reforestation hypothesis - like a patient to a doctor, if one is more aware of their local environment, they may better know how to heal the land (especially if deforestation, then the kinds of trees that were destroyed) // example of individual site restoration of pasture/ag. land to native grasslands in iowa, Mattley Meadow and Riparian Restoration around Bay area CA // consider succession/relay planting starting with trees that grow well in degraded lands, for example (like Eucalyptus, Pine,) // "critical area" planting too (like degraded lands with higher susceptibility to erosion) collect seeds of local trees (like the grassland restoration project Montana), especially if "native", for nursery/reforestation, ?and try to identify them // of course if there are records of what was there before, that is best, and when no records, ____ // what apps/sites/? Exploring Timelapse in Google Earth // Timelapse – Google Earth Engine // https://earth.google.com/web/search/timelapse/ // InVEST | Natural Capital Project or TESSA or Portal da Mantiqueira (from article), types of methods// special/local focused map of current industrial activity, environmental health, habitability / carrying capacity (uninhabitable, somewhat habitable, very habitable), including regenerative potential // can help people decide where to move and live an ecologically-balanced way of life (that can be used with other maps, like from WWOOF, FIC, GEN, or even real estate - / housing-oriented maps)
map groups / institutions / governments that are in the right direction (maybe with 5 shades of green from dark to bright)
research studies on grazing (Rewilding: rare birds return when livestock grazing has stopped, From paddock to park: removal of licensed grazing in Warby-Ovens National Park, Seagrass-grazing dugongs and green sea turtles supercharge the seeds they eat)
Of course where perennial (like almond) trees have died, can be ready for local-poly cultural plan(n/t)ing

consider **outreach, community support/involvement** (like from the rewilding in England article (esp. ~"Unequal Ownership" section), River Garden Farms in Yolo,)
"Local living, sustainable development" vs. "Unsustainable, harmful development" (e.g. Greenwood Creek Conservation Area (Lewis Ranch) p. 110)
"Between July and October, during the rainy season starts, reforestation work becomes a kind of popular festival in which everyone in the community is invited to help. Everyone gets two meals a day, and the adults dig while the children take turns racing to bring the plants for potting." Chocholteca, Mexico

“engagement of stakeholders in monitoring can promote social learning, capacity development, and communication among stakeholder groups and communities of practice, local and non-local.” (from UNEP principles of ecological restoration)... and how formal should this inclusive decision-making/participation be? // important for (appropriate level) ongoing monitoring/ protection from redegradation, as well as Assessment/verification of biodiversity (an example from FL wetland restoration of biodiversity increasing, but still more improvement needed) // Pioneering method of assessing rewilding progress // Also, remember to include more subjective accounts (from elders/locals), like Derrick’s here
consider multi-functional farmer/land owner participation in (awareness-raising) research survey of desirable goals (like my survey, but less directly for various interest groups rather than directly to farmers/land owners, or a ‘23 SGMA-related survey (by CSU-WATER)), and consider other contrasting examples, like die-hard ranchers in high-stakes Brazilian cattle industry that could make for an exciting action movie (resisting the government takeover, shooting, setting traps against the govt., etc.)
distrust in testing water wells for nitrate in Kings County

General considerations for habitat restoration from Public Policy Institute of California blog

a multi-layer map with historical land use? Including ideas from here, ecological restoration case studies

Data/maps/references
about satellite imaging

General terms reference (Yolo County example)
UN Biodiversity Lab I visualize over 400 of the world's best available global spatial data layers
California Natural Resources Agency Open Data
Our World in Data
Google Earth Engine
Native territories maps
Rewilding map projects (global)
Food Systems Dashboard (especially outcomes->environmental impacts)
Data, Maps & Analysis | NRCS
Native ecosystems toolkit I Wild Farm Alliance
LandCART (from UCLA) (shows vegetative cover.. for land management), SHIFT (from UCSB) (also veg. cover (can show N & P content of leaves), Vegetation Classification and Mapping Program
policy-local focus on 'food justice' criteria for index of various local governments I BFI (food access, nutrition, local food production, edible landscapes, protection of agricultural land, and equity) - see database
Atlas of Pesticides (also California pesticide use data)

crops (market-based)
Publication | Crop Progress | USDA Economics, Statistics and Market Information System
Annual ag stats report (21-22) I CDFA
USDA Ag 5 yr Census I 2022
FAOSTAT (especially with the global transition/cooperation part)
study on tracking food flows among counties in USA
geoFootprint (environmental footprint of ag.)
The Sustainability Consortium's commodity mapping tool - includes global maps of ag. crops with import and export stats
Global Supply Chains (Trase), UN Comtrade database, Global Investigative Journalism Network's Supply Chain Resources, Vizzuality for companies' supply chains' environmental impacts
Regenerative Farm Map
ICN's cattle livestock map I California (and for Texas)
Climate TRACE
Farms by size and crop I SJV, PPIC (and water situation (next blog))

water
California Water Watch // SGMA Portal // Groundwater Monitoring (CASGEM) // WaterDistricts | California State Geoportal // Domestic well vulnerability to drought duration and unsustainable groundwater management in the Central Valley (and in Brazil) // How's My Waterway - Home // River Runner // USGS watersheds info, maybe USGS's Earth Resources Observation and Science Center // water records like here // awareness-identification of streams // Water Supply Stress Index (WaSSI) // US Drought Monitor // EPA GeoViewer // A new tool for simulating the use and movement of water on the landscape, called "Farm Process", combined with the USGS MODFLOW groundwater/surface-water model to form a hydrologic model, and A texture model to characterize the hydraulic properties of the valley-fill materials (from here) // Uninhabited Aerial Vehicle Synthetic Aperture Radar (UAVSAR) (NASA), NISAR also here (with Indian Space Research Organization (ISRO)) // earthquake-measuring method to indicate soil moisture in the vadose zone/shallow region I Cal Tech // Plants-water dynamic (NASA) // UCMerced // InVEST urban flood risk mitigation // Groundwater Accounting Platform
Consider best and unneeded/obsolete methods amongst: Cost-effective/multi-use seismology method for groundwater detection | MIT // NMR-based measure of surface groundwater? // Airborne Electromagnetic Surveys (& in comparison to the old, tedious soil surveys from wells), water divining (India), DWR's Innovative Underground Aquifer Mapping Project Reaches Major Milestone: Data Now Available for Entire Central Valley // NASA Monitoring Underground Water Loss // The Groundwater Recharge Assessment Tool (GRAT) // Fastpath app I Stanford
Drinking water map showing facilities at risk of failing I Newsweek
Harmful Algal Blooms Incident Reports Map

Regarding Pesticide Application Notification System

soil
California Soil Resource Lab :: SoilWeb Apps // Soil Ag Groundwater Banking Index // Groundwater Recharge Suitability etc | Land IQ //farmland mapping and monitoring program // California Farmland Conversion Report 2004-2006 // Web Soil Survey - Home
The Soil Inventory Project I Soil Carbon data
CropScape - NASS CDL Program // CA Farm Directory
complemented with local, individual, on-ground sites assessment (using: Soil Triangle and Jar Test , Using a Shovel and a Knife, LandPKS app,)
soil erosion-prone areas (to prioritize, from macro-level restoration efforts)?

CDFA - Fertilizer Research and Education Program

restoration
Spatial multi-criteria analysis for prioritizing landscapes for restoration // Restoration Resource Center A project of the Society for Ecological Restoration // How to pick a tree-planting project // Agrobox design/planning tool // Mongabay Reforestation Directory // Global Restoration Observatory // slow ecological restoration perspective / article // Agroforestry for Climate-Resilient Landscapes // Midwest USA agroforestry for greatest benefit // rewilding 9 ecological wounds // Global map of ecoregions, biomes, and degradation status
from people - CSTARS, UCD Dr. Zhang, Dr. Jin, Jacob from UCMerced cohort,

rainwater catching case studies (why not focus on this rainwater catching rather than digging deeper/new wells?)
Guidance from "Ecosystem Restoration" course (Learning for Nature from the UN)
Ideas from NbS standards

responsibility
Water Boards Map | California State Water Resources Control Board
various university-associated specialists, researchers, professors, etc. (should be more responsible / held to higher standards)

conserved/protected
places The Nature Conservancy protects
Wildlife Conservation Board 2021 Year in Review
USA Wilderness areas
CA Nature | California Nature (biodiversity, access, climate and conservation information to advance 30x30)

my reading list to do
Exploring the Potential for Water-Limited Agriculture in the San Joaquin Valley PPIC
Water and the Future of the San Joaquin Valley - (Technical Appendix E) PPIC
SJ Land And Water Strategy AFT (more pro-farming than pro-envt, for example)
CalCAN reports
Becoming a TSP_General Information with Links_04.24
Understanding the Science Behind Climate Smart Agriculture in California: A comprehensive literature review
True Cost Accounting for Food, Balancing the Scale (from p. 48)

"Datasets covering environmental effects are available from EPA, USDA, USGS, and private-sector sources.. U.S. surface water quality is tracked by the USGS National Water Information System. Air quality and chemical toxins are tracked by EPA's Air Quality System and ECOTOX databases. The environmental effects of farming practices are tracked by USDA's Agricultural Resource Management Survey and NRCS databases, while pesticide residues on food are covered by the USDA Pesticide Data Program." pg. 152

PLANNING/METHODS

Plan in such a way, that eventually such pilot/demonstration areas of indigenous, ecologically balanced, biodiverse food systems (e.g. Berkeley's Indigenous Community Learning Garden) are flipped with conventional, monocultural, business-oriented ag, so that destructive food growing practices (even if they were very well-intended at the time, like the Green Revolution) become a pilot/demonstration museum-like educational lesson in history and science to learn what not to do (but also include the following sentiment: "I don't believe we can label agriculture as an unqualified success. To be clear, conventional agriculture did make civilized society possible. Fabulous technological, medical, and artistic innovations came about because agriculture improved food security throughout the world. That said, it appears very likely that agriculture created the heated platform from which the fossil fuel catapult is hurling us into climatic terra incognita, an unknown region on the climate map that ought to be labeled "Here be Dragons"." (pg. 373 The Blue Plate by Easter)

Also important is to **consider all land**, even that not currently being used for (maybe being planned for development of) agriculture, and be especially careful, holistic-smart, ecologically balanced, Nature-based planning. But with focus on current ag./crop lands…

Restoration diagnostic of the presence of enabling conditions & key success factors (from p. 95/96, table 21)
Priority ordered (with overwhelming cultural challenge of spoiled dependency on ill, fossil-fuel addicted Economy)
□ Authoritative coordination amongst appropriate stakeholders for sustained restoration
□ Incentives for restoration (especially with competing ag. market land use)
□ Opportunities & Readiness (including know-how and supplies) for restoration are identified
□ Benefits/needs of restoration are publicly communicated (especially good examples proof)
□ Locals empowered to make good, synergistic decisions about collective restoration
□ Performance monitoring and evaluation processes ready, especially notifying early successes
□ Laws/policies requiring restoration

check EDF's whitepaper "Advancing Strategic Land Repurposing and Groundwater Sustainability in California" for ideas
take ideas from La oportunidad de los acuerdos de conservación con campesinos para sustituir coca

General process in transitioning to environmental health and sustainability of ill ag. land**:**
1) broad-scale evaluate / coordinate, and subsequent prioritization* amongst all operations/sites in the Central Valley region -> 2) individual operation/site assessment (with sustainability evaluation), and subsequent transitional planning… (then 3) implementation, 4) management/maintenance/?enforcement/etc.)

*needed for things including interdependent/shared air, water (incl. pollution from fertilizer and pesticide), wildlife habitat connectivity, pest avoidance,.. and with criteria from good values (such as relocalizing economies & environmental sustainability (with blockchain integrity?)), and with realities/flaws of ties to global market, and prioritize most criminal, need to change (like overly-subsidized) activities (less unwise federal subsidies?)
*can get ideas from current (socially focused / non-environmental) law enforcement coordination (step 1), criminal investigators and rehabilitation workers (step 2) (from water health, soil health, etc.)
*use ideas/template from water-focused evaluations for 1 & 2 (from State Water Resources Control Board) environmental science jobs:
1) SWRCB environmental scientist systemic strategic prioritization.pdf
1&2) SWRCB environmental scientist individual site assessments.pdf (and a more broad than water, permaculture-oriented one)

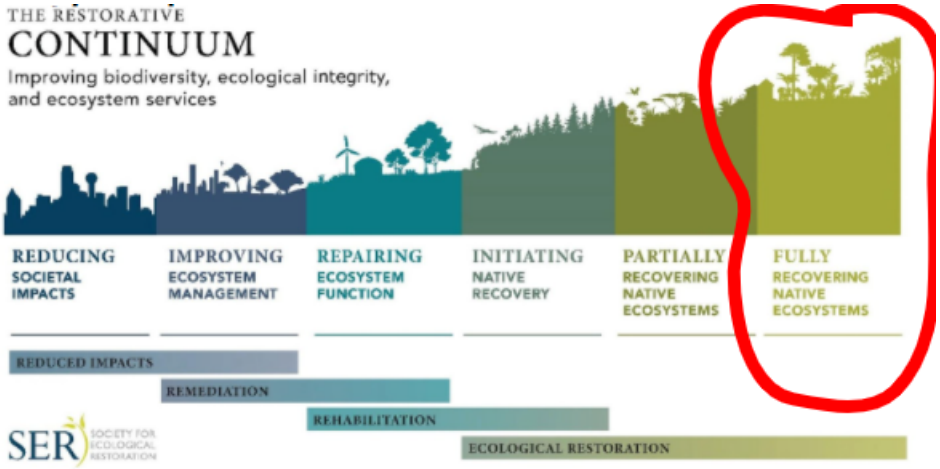
General priorities especially in light of critical, urgent drought (but even in '22/'23's water inundation)

1) prevent excess water extraction 2) rehabilitate soil 3) recharge groundwater 4) appropriate economic (lit. “home/land management”) balance for environmental health and sustainability - like agroecological food production, with native plant / wildlife habitat restoration

some (simplified) alternative methods (to get started)

+land use transition of industrial ag. use with change to relocalized, sustainable way of life (with permaculture courses? or a better, environmentally sustainable version of “Habitat for Humanity”?)
+evaluation/comparison of size and purpose of farming operations in relation to environmental health
+focus on downstream, end result of local consumption (eg CSA and CSF subscriptions), whole foods, plant-based consumption, and if food is wasted (but also how dependent on refrigeration and artificial energies, incl. fossil fuels)
+is top-soil being built up over time (without imported soil)?
+low external inputs/outputs (like “food miles”) and appropriate carrying capacity occupation of land?
+”low-hanging fruit” for supposedly-environment-protecting government to have its own internal checks on it unwise, malaligned, environmentally unsustainable, improvable subsidizing (for example)
though there may sometimes be challenges like endemic species that only grow well in a particular region?, seems like a good, general way to consider transitioning ill, isolated, noncooperative/noncoordinated agribusiness lands to multiple, regional polycultural, cooperative operations, is like responsible/sustainable, with more common/Life-sense (though maybe not as efficient) partial-harvesting as opposed to harvesting the whole thing at once. and we know there are some crops that are (best) to be harvested all at once… appropriate crop rotation with good coordination,
find easier-to-transform lands/farms. for example, kandarian's, which is already growing food more conducive to local, self-sustaining (also consider ecological baseline, energy use, number of people/community)? lone willow ranch (e. of madera), a timely local grain economy article (also this), (incl. Heritage Grain Alliance, Whole Grain Connection, multiple organizations around the country working to revive heritage grains, Golden State Grains Network Farmers Directory… also Common Grain Alliance, GrowNYC Grains, Colorado Grain Chain)
+in supply chain tracing work, focus on Walmart products (a company where a third of food dollars are spent, and does not value the environment (or people))
+basic/general checklist for growers (which can supplement with the sustainability evaluation checklist):
1) pollution/contamination? (air, water, soil - prevent at source, and rehabilitate as needed)
2) fertility? (watershed and soil health/vitality, low external input? if not immediately, at least good long-term plan?)
3) climate? (ideas/help for cold climates)
4) pest pressures?
5) ecological plans? (consider inputs required, embodied energies of food, good ratio of people:land, carrying capacity, ecological baseline aligned or good justification)
+ safe, healthy, and nutritious for humans, ecologically grown in relation to water & soil health, and best, rich or pre-exploitative/restorative levels of biodiversity), and local/mostly low-no artificial energy used (either in transport or fridge storage)

personal preference is simply to transition grazing/livestock ag. land (like Colombian pres. Petro? see end of article) to socially harmonious, rewilding, natural or ”vegan”/plant-based, self-sufficient, min. dependency on artificial types, and industrial levels of energy ecovillage way of life. very resonant with Carl Grether’s Ecotopia vision From “ReInhabiting the Village” p. 131



Indicators/factors of evaluation

to prioritize intervention / rehabilitative guidance

special, needed, balancing emphasis on the *environmental component* of the triple bottom line (other 2 being social health/well-being and profit/business)

then ask for Notice of Intent (like this on water quality) from identified/prioritized violators that need to come under compliance

prioritization similar to end of article on marijuana restriction first, for water rationing

create an index score of each site/operation using these factors

- meat, animal products? (e.g. see here, problematic cattle grazing (on public lands) podcast, government (like the BLM) needs to be more a part of the solution, huge amount of water needed (like Utah's top cash crop, alfalfa), and from Vox report, and in relation to diversion of the Colorado River), EPA recently reported that more than half of the country's rivers and streams are in poor condition due to N and P pollution from animal ag especially, harmful conditions for workers themself - prioritize harmful, CAFOs (incl. consideration of D. Jensen's comment on antibiotic dependency, ~30 minutes in, more consideration for antibiotics), and the particular suppliers to cheap, fast-food markets, and not so much (struggling) small family/community farm, free-range, locally sold, expensive types (e.g. Markegard Family Grassfed, or understand this problem more from one of Europe's top livestock producers (by density)/exporters) - the Netherlands), but still consider the many downsides of even best-practice, regenerative, "sustainable" grazing (for example) // Regenerative, local beef supported by University of California, for better hospital food // consider possibility that the problem may resolve on its own (Meat prices are soaring as inflation bites U.S. consumers, Historic drought forces ranchers to innovate, drought forces ranchers to sell their cattle (also here)), but ?direction hinted toward grazing solution? (a bird conservation rationale example to NOT convert livestock operations) // example from Imperial Valley (Brandt Company cattle ranch, 643-acre feedlot is home to 139,000 beef cattle, largest single point source of methane emissions in the state) // Sonoma county overwhelming vote to *not* cap number of animals per farm (article) // soy produces about fifty times the amount of protein per hectare as grass-fed beef raised in the Amazon (article) (but obviously not meaning that one should try to increase efficiency of beef like toward horrible CAFOs)

- downstream (in food cycle) negative impacts on human health (like fat, sugar, (harmful) drugs, etc. (including tobacco, alcohol, additives, preservatives,), even at subtler levels that are sensitive to how fresh, alive, and nutritious the food is (for example)?
- climate/geographical conditions inappropriate to production? note: there is room for honest, *good-intended* climate adaptation (for example, transitioning an arid climate to more humid with more vegetation (like Geoff Lawton has done much work on, the African Great Green Wall, etc.)
- chemical/artificial pesticide use? (use is apparently ↓, but also study finds residents continually exposed to a 'toxic soup', pesticide companies paying state politicians to evaluate less-strict federal standards (article) // also check here,) // SprayDays, a basically instantaneous notification system
- chemical/artificial fertilizer use?
- food wasted downstream?
- large size or monoculture (standardization) of operations? (example of HUGE (>1,000 acres) operation, that is focusing on soil health)

- air quality? (especially w/ EPA's relatively high standards (but weak enforcement). vehicles contribute a lot. seems ↓ priority)
- water balance and soil health/sustainability? (interesting example in Egypt, using very deep well from ancient water that should last for centuries and no land subsidence, including water/irrigation consideration/need (sadhguru), Re SOM, 3-6% policy recommendation (sadhguru), seems like right direction for a commons resource (water) to guide appropriate amount of water used by farmers/growers (and suggested to focus on identifying amt. of SOM esp for unification purpose, traditional education/politics, objective-oriented sports/science, "question of single-pointedness, commitment"), Framework and Indicators for Soil Health Assessment (California) (incl belowground biodiversity indicator), soil health outreach examples (from CDFA), the EPA ought to use it's powers under the Clean Water Act to target the largest farms producing the most waste (article), stupid, dumb, & dishonest (respectively), yet insurance-backed growing practices (ICN/G. Gustin articles, like this - "In Iowa alone, farmers plant on 400,000 acres that are in a two-year floodplain, meaning they flood, on average, every two years," "rates can be calculated on county yield averages rather than a particular farm," & "farmers can "throw out" bad years in their calculations, effectively masking the impact of extreme weather events. (An analogy might be that a drivers could erase repeated accidents from their records and get a premium rate based on a much better track record than they actually have.)" // also most criminal in terms of overdraft/abuse of a common resource (groundwater), for example (Minnesota-based) Riverview LLP's way too deep wells in Arizona, world's largest carrot growers in Santa Barbara, California, that (can) tap way more groundwater than they should // for monitoring/indication of (soil) health, should be patient, may take more than a decade (e.g.), and just trust in the right methods used
- proximity to the ecological baseline (which is the historic, ecological/environmental conditions before humans excessively destructive, unsustainable interference)?
- less ideal carrying capacity (incentivization for more balanced population densities / sustainable livelihoods?)?
- less biodiversity / wildlife / lively?
- more food miles / embodied energy (including post-production processing and dependency on refrigeration)? - prioritize unnecessary exports (which can instead be appropriately produced in importing region), a more obvious indication that sees a country/areas imports and exports are nearly identical quantities of identical products // various "local" from yogic/human powered local, to horseback local, to nonlocal // another problem that may be resolved on its own? (Effort to Alert Consumers to Looming Food Shortages Goes National & Need to relocalize/focus less on "feeding the world" & National And State Ag Groups Call For Meeting On Export Trade Imbalance). examples of *passive* transition to more local: banning of wheat and rice exports from India due to production concerns due to Climate Change, etc. ('22)
- conditions for adversity for farmer / food grower? suicides, poor mental health, substance abuse, unhappiness?

Goals

+ abundant, yet ecologically balanced / environmentally healthy & sustainable subsistence food growing/obtainment
+ healthy soil not (or gradually less) dependent on external inputs (also permeable to water, no-till/uncompacted, cover-crop, compost application, restoring native grasslands/wetlands, rewilding / appropriate introduction of flora/fauna, // if get soil to at least 12% SOM content, can depend on natural and rainfed, and no need for external/artificial irrigation - Sadhguru (1% SOM can hold 160,000 liters water/hectare! - V. Shiva (~43 min). an example of + results from MP. dry farming is (currently/2019) practiced at less than 1 percent of California's 77,000 farms

+ design to catch and store water (while of course designing to avoid potential flood problems), and of course avoid both excess withdrawl of water and polluting water (instead setting up nature-based infrastructure, like this from India,

Current priorities/values in assessment

Measure, monitor, and verify carbon I USDA
dust hotspots, salt, weeds, pests, water use, & soil quality, and habitat I PPIC
Food safety
Artificial solar energy
predict crop yields, ↑ production, target pests & weeds, ↓ waste, minimize chemical and water use, and ↓ the impact of ag I
Alphabet's (Google's parent company) Mineral
soil and water conservation I American Farmland Trust & its Project Prioritization Tool
lenders'/insurers' risk reduction in respect to soil health
water conservation and comparing various growing methods I The Freshwater Trust's BasinScout
food access, nutrition, local food production, edible landscapes, protection of agricultural land, and equity (policy focus) I BFI
envt impacts: global warming/GHG equivalents, land use, water use (& scarcity-weighted), eutrophication/nutrient pollution
fertilizers are safe, effective and meet quality guarantees
'most wrong' / multiple harms (like cattle ranching on indigenous lands) I Brazil
"climate-friendly" label I USDA
Nature-based Solutions IUCN Global Standards | NDC Partnership

Overlap of CAFOs/unnatural livestock with wildlife habitat w/ with public health concerns like bird flu (consider if/how production of raw milk is not done in CAFOs or less natural/ecological environments)

Current priorities/values in transitional planning
Bird habitat
Mitigating dust & wind, winter crops, dryland/rainfed crops, cover crops, low input/cost systems I PPIC
Grazing I PPIC
rather than transition the growing in a healthy, sustainable way, some want to continue crazy or questionable development, like
a space port following grapes/wine fields
start near nature reserves I Mongabay (leading) question
around (disadvantaged) communities (where people (and their power) are) | UCS, Angel
less ecological, more arbitrary-financial $/job focus
USDA Conservation Programs Are Giving Millions to Farms That Worsen Climate Change (like dairy operation biodigesters, other CAFO-related infrastructure)
away from cattle I World Bank
climate adaptation strategies
immediate drought relief, domestic wells and land subsidence
crop rotation/transition to economic sense (given less/drought-like water, rice-> tomato, dry bean, sunflower, safflower)
3 key indicators (total carbon stored, crop production, & freshwater availability I German landuse optimization study (but ought to consider local context, and many other things incl. ecological baselines)
given the CNRA call for NbS expansion, i wrote my general letter, while my ag.-focused co-leagues (group of agricultural, climate, and conservation organizations) collaboratively wrote theirs, with the recommended practices (and targets) included
Fair representation (from CDFA/govt.) toward triple bottom line? (40% business-as-usual, 40% ngos w/ environmental & social progressive values, 10% research/education, 10% more needing of help)

organic
small farmers, disadvantaged farmers
renewable energy
domestic fertilizers

Check for ideas from: Life Cycle Assessment (LCA) | SAREP & ranch/beef sustainability Indicators (including ecological and social types; omission of ecological diversity/rewilding indication from the existence of livestock/ranching industry to begin with?),
The Agroecology Criteria Tool
Restoration Project Information Sharing Framework I GRO
Site Analysis and Client questionnaire (from PDC)
Restore Climate with science driven technology
others doing similar work in other environmental fields
Regarding the index that measures human impacts on Amazon waters
Environmental Justice Center at U of Maryland, in creating an index score
prioritizing forests to be protected in Oregon I OSU

general rough grading outline spectrum

(can correlate with the extent an operation/site is impacted by Climate Change and other potentially destructive forces)
5 - fully natural, self-sustaining, balanced carrying capacity, like native peoples before industrial revolution/civilization, independent of mistaken economic values including artificial energies like gas transport
4 - completely supportive of transitioning to environmentally sustainable, ecological restoration, etc. land use (but maybe because of a continued business mentality seeing opportunities in things like export, ecotourism, etc., and people not having the will/incentive to join in better food systems / ways of life, still open to and using artificial energies (like transport))
3 - right in the middle, which may seem smart, but… (when is this sufficient when urgent action is needed? to what extent can this moderate transition step be seamlessly (or seen as more of a natural progression) toward even more ecological improvements in the future?)
2 - concern for environment health, but really with the too-familiar, much-ingrained profit-/production-motive, so may make some steps in the right direction, but can be deceivingly satisfactory given the usual valuation of their business

1 - no concern for environmental health, basic compliances to not harm neighboring operations (like farm run-off, pollutions)

COORDINATION

notes:
*seems like Spain has a governmental setup in place (since 2018), with The Ministry for the Ecological Transition and the Demographic Challenge (MITECO), Ecuador has the Minister of Environment, Water and Ecological Transition,
*from DGR - How to Get Started in Political Organizing

Center establishment

a Peace, Ecosystem Restoration & Permaculture/Relocalization Center of Environmentally Chronically Ill Farms in the Central Valley (at a midpoint area, like around Stockton), and future vision of center toward environmental protection/management/monitoring stations, more distributed/localized, knowledge/training, educational/demonstrations encouraging outreach and sharing ideas), finance coordination, etc. // get ideas from Transition Centre

Outreach

background of need for ↑ people (from study for example) on and working on the land (the land that is otherwise not stewarded well and could include many more).

•to people for livelihood change with better, more holistic habitat for humanity that includes environmental responsibility/stewardship, settle & developmend the industrial ag. lands (like giving incentives for time-share presentations (but the difference in need being for environmental protection and right livelihood rather than individualistic, selfish money-making in a win-lose economy)). ALBA training (Salinas) is an example that is more focused on farming than more holistic stewarding, and can be improved gradually. of course sometimes the right urban solutions (like Crop Swap LA) could be fine/sufficient too, buuut

•collaborate w/ experienced social workers? in public & environmental welfare, substance abuse (paralell from personal to environmental abuse of energies), policy, advocacy, planning, training/occupational, community organizing

•ask groups like California land trusts (and more local land trusts), ag linking groups, USDA beginning farmers,,: Are there (elder) land owners that want to pass their land on to stilldigenous tribal/community types that agree to steward the land in native/environmentally sustainable fashion / way of life (and ok to (heroically/like a leader) have a third party validate this)?

•attend a (GSA) meeting with growers? (eg kaweah subbasin on reducing water allowances)

•education with material like DIY Economics of Happiness Workshop? my YT playlists? practical homesteading, local/community-living workshops, meetings, knowledge/skill-shares as helpful, other video/educational ideas, surveys using leading, right-biased questions (to inform and empower, like these from England)... less business-minded, more ecologically balanced land use and sustainable

livelihoods planning (could be especially effective from good business sales types of people to *sell right ideas/activities* like ecosystem services, protection of Nature, environmentally sustainable living,)

•with flyers in one hand, and "give me a break" Kit Kat bars in the other) to (Mexican/Latino) gardeners/landscapers… can include (explaining) equality, equity, justice infographic (in India, demographics would be like those from Dhaka, slum/urban settlement occupiers, these eople from the Gutter Ki Machhli documentary, Mumbai,)

•there is FIC and WWOOF types already people can take advantage of, but bringing that opportunity of transition to more mainstream or institutional (money/incentive-providing) programs and groups (like CDFA-supported, WWOOF x MESA future farmers' grants, CLBL, CA 30x30 partners/collaborators, WWOOF LATAM, USDA-supported), for rehabilitation and sustainability of both land and livelihood, a pilot (like the 1-acre self-sufficient farming model in India, or dryland rice farming in Bali/Indonesia while remembering the importance of patience, perseverance (like here) and potential rough road (like here)), research/study (and maybe even film/documentary, like DW Documentary style?) need for incentivizing or facilitating various (lucky) individuals/families to transition to the highest levels of earth steward / environmental sustainable way of life, like a rehabilitative agriculture lands network opportunities (like WWOOF but only for "out of scale" agribiz operations). Also, regarding the "homeless problem," for more nomadic types, have a supportive group or connection to good work (also considering transportation energies…). recruit recruiters from NRA Outdoor access awardees list,

•for environmental protection issue outreach (like a "deep green," not "lifestylist") Street outreach education awareness of sustainability issues (like greenpeace, LA River Rover (from FOLA), at farmers' markets like NCGA non-profit tables,)

*w/ kiss the ground type, azita connections, jensen, etc., for spoiled, criminal farmers who have the gaul to oppose their crime of agbusiness - outreach, educational documentary/creative video containing: (1) (sai baba like) relatable/sympathetic analogy of spoiled child who is obviously doing wrong (for many years), and has to be corrected, (2) the holistic, ecological picture of the (ag.) problem, (3) the alternatives/proper guidance.. and (4) the need to cooperate (and (5) the inconvenient truth of how will a spoiled culture and their descendants live well) // Goodvertisements (for example: political commentary goodvertisement type where show a few different personalities of getting what they want (with grades (like this U of Maryland grade of govt., and applied to/around the index idea)): 1) spoiled child (one very whiny, crying and one very calm and collected) getting something that will be scored on a few simple criteria (their health, the collective good / sharing); 2) (spoiled) agribusiness / ag. lobby interests in different ways, asking for what they want (like water, continue their destructive practices, not reality-based thinking, like concerning water extraction - land subsidence for example)

Strategies

3 good strategies for "back to the land" movement

(1) The Doctor's Note Strategy

•especially for people more institutional/mainstream or agreeable to human-made law and tend to trust more established, authoritative figures and groups like govt, like a doctor's prescription, public-health type promoters, social workers from more legally-backed or authoritative/govt groups

•to places like adult/extended education, schools/colleges, govt. welfare/DOR, 211, public buses, church/religious/non-profit charity groups, hospitals, jails/corrections/DOR, work/lifeway centers, staffing agencies, military recruiters, homeless/help centers, banks, etc.

•authority to prescribe healthy ~~treatments~~ punishments too? like for over-weight-food-disconnected illness

(2) The (freer) Market Connection Strategy

•make opportunities available or promote opportunities especially at a more environmentally (and socially) conscious, good-intentioned, healthier, local-oriented market (e.g. Mother's Market), and perhaps for the less environmentally conscious, etc. markets with proper incentive (e.g. Food4Less), (and there can also be more of the external-controls from the forces of (1) above), targeting at local farmers' markets*, this www (e.g. local harvest, ncat/attra, eco farm, farmlink, open silo, wwoof, fic, Co-housing list-serv, naturalists, sierra club, cultiva la salud, el quinto sol, local nations/natives/indigenous (like the yokuts, amah mutsun, TERA, etc.), social medias, apps

*w/ WWOOF, there could also be a non-educational-focused array of opportunities, or have another organization step in to include such opportunities, including simply paid work in more sustainable ag. (that may be a transitory step), or more direct holistic, healthy (long-term) living arrangements,). such outreach also/especially at big holiday/festival events (e.g. orange street fair, earth day , major farm conferences,) // use USDA grant funding?

(3) People naturally/smartly follow where ecologically balanced habitat/water is restored

for example, "River Partners has notched berms to allow river water to flow onto 1,000 acres. The nonprofit is going through government hurdles to breach a federal levee keeping the Tuolumne River at bay. Eventually Dos Rios could hold up to 10,000 acre-feet of flood water, keeping it from flowing toward cities like Stockton." (state granted $40 M for River Partners to continue such work)

Homestead flipping exchange approach

a competitive-oriented approach would be like the Paani Water Cup from India (there is a soil judging competition!)

•the concept is like a timeshare, especially for those who are younger or don't know where to settle exactly, a more holistic, environmentally sustainable (livelihoods) type of "Habitat for Humanity", setup for independence from or drastically reduced/minimal involvement w/ industrial level, artificial types of energy, and instead more ecological, human-scale, permaculture-type, relocalized way of life (like a traditional-/eco-village) by helping build a habitat for a deserving (or even racially/historically elevated group like natives/indigenous) family/community, either for oneself and future family, or, even another deserving family (in a network? beyond USA? like the GEN?). (e.g. permies/wheaton labs in montana boot camp/"deep roots" track to buy land, agrihoods Village Farm in Austin, TX,). remember that usually people are less likely to properly maintain/protect something when they didn't put much effort to deserve it (of course hard-earned money is effort too, but what that money actually valued (or didn't value) should also be considered)

•economic paradigm shift of plan(n/t)ng starting with the health and sustainability of the local ecosystem in mind (production that is more or less ecologically appropriate, life-affirming/biophilic, rich in biodiversity), would basically start from providing for oneself/family first, then (excess/leftovers) to the community/village, then maybe trade and coordination with neighboring communities/villages, to regional level, etc. Also, consider slow money options for minimal mainstream economic participation, with right, ecologically balanced (for examples) trade.

•through actual touristy retreats (eg Kerala rice harvest festival), work-exchange trials, demonstrations (e.g. natural, human-scale vs. artificial, industrial-scale energy awareness demonstration), workshops, classes, providing insights about how such a transition would be like*, daily life, equivalency education (for example),

*especially how the alternative way would meet important functional needs of security/stability seeking (like healthy, smart/responsible environment, setup of infrastructure/conditions, health care access, career opportunities, serving of various peoples' natures/tendencies (like potential for upward mobility), community support/solidarity of/with each other (incl. elders)

•may be good to start with the easiest, “low-hanging fruit” first (like Global Conservation helping protect UNESCO World Heritage sites). potential to go away from fortress conservation at: Tehachapi Mountains preserve, Rocks Ranch, River Garden Farms (Yolo),

•survey-educate locals (in the CV or SJV) to form an interest/wait list?

Coalition building

•(like public/personal/environment-oriented health focus with people from a variety of different fields, who share common interest (both practical (like equipment/tool sharing setups/opportunities) and cause-based (like with spirit of love and cooperation, ecological, biophilic, socially desirable, healthy, uplifting) // self-interested groups: evolved consciousness, medical/public health, noise-free, environmental, health insurance, government, climate-change effected like land/property insurance
check List of Central Valley Community and Environmental Health and Sustainability Interest Groups

•even “One of the challenges has been bringing together people reliant on traditional land management practices to work on large-scale landscape restoration. McDonnell has had meetings with around 50 local stakeholders and has been working with a psychologist to help him communicate with people who might feel skeptical, and to allay the fears of damage to livelihoods that have accompanied other rewilding projects in the UK.” (from article)

To work with (more direct)

labor/participants

not to be undervalued
WWOOF
Wind Wolves Preserve » The Wildlands Conservancy
Local Conservation Corps (LCC) | Fresno EOC
Americorps Volunteer Infrastructure Project
other youth who are motivated (eg climate cafe emotionally heavy/imbalanced ~ LA)
check work-based learning opportunities list

supplies, seeds, plants and animals

compost/soil from industrial waste management stream for the reasonable rehabilitative amt of time to increase SOM, but uncontaminated (like PFAS,)?

Creating a seed exchange network or seed bank (prototypes? BASIL Seed Library | Bay Area Ecology Center,
prototype from International Center for Agricultural Research in Dry Areas (ICARDA)? I Lebanon
at conferences (like Heirloom Expo (Ventura County), California/more local? Organic Seed Summit)

Hedgerow Farms (incl. many native grassland seeds and transplants for various bioregional eco-types (restorative, best cover crop (and a funding source), but).
S&S Seeds
Pacific Coast Seed
Great Valley Seed Company (SJ Valley)
from Kern Water Bank Authority?
Valley Flora Propagation Center Species Profiles (SJ Valley) I CSUStan
Plant Resources from Sustainable Solano
From BLM’s national native seed collection program (or a tribe?), and check California Native Grasslands Association (with community involvement), California Invasive Plant Council, Great Basin Fire Exchange Revegetation Equipment Catalog, Heritage Growers I Colusa

Other examples, like check for ideas from the Great Basin’s Revegetation catalog site
IUCN SSC Conservation Translocation Specialist Group

sharing, cooperating hubs, groups, tools, mills,

to smart-strategic relocalization, better, human-scale resource/energy use, good/positive upliftment, cooperation, sharing,
equipment/tool sharing cooperatives (minus the machine-scale land use)
California Plowshares example

Craft Millers Guild
CDFA farm-to-school connections
Good Food Purchasing Program (with institutions, like schools, jails,

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Punjabi American Growers Group
Apple Hill Growers Association I Placerville (for grower cooperative ideas and community engagement)
North Valley Food Hub
North Coast Growers' Association
Pacific Coast Farmers' Market Association
FEED I Sonoma
Agricultural Institute of Marin
Coastside Farmers' Markets
So Cal Farmers' Markets
Food Access LA
Foodshed Cooperative I San Diego
San Diego Markets
Farmers' Market Finder (all)

farms/operations/restoration projects to check, ask about transitioning

a sustainability evaluation w/ emphasis on an operation's environmental/ecological performance

map with various operations
CA ag tour - San Joaquin Valley (also Cal ag. tour of good/best examples?) // Ventura County Farm Day
Wild Farm Alliance's Farmer Success Stories

4 CSUs with campus farms (Chico, Fresno, SLO, and CPPomona) get $75 million grant money for climate change smart methods
Berkeley Food Institute "day on the farm" ag. tour (for students)

Transfarmation farmers
Mentor Farmers & Regenerative Farm Demonstrations I CSUChico CRARS
EcoFarm Sustie and Justie Award Recipients
RCD Project Tracker list
Dos Rios Ranch Preserve - River Partners
Projects of Tule Basin Land & Water Conservation Trust
Various Preserves around Visalia I Sequoia Riverlands Trust

To work with (less direct)

potentially good examples to learn from/work with

permaculture type?
Rocket Heating tech (like Sundog?)

Primus Auditing (farms, ranches) generally same work type, but for food safety I Coastal, Taft latitude, Santa Maria
Balance Hydrologics (around Water assessments) // CV SALTS
Self-Help Enterprises (SJV) (the goto org for GSAs in need of help)
Bring Back the Kern
The San Joaquin River Parkway and Conservation Trust
Ducks Unlimited

from Green California Participant Organizations list I Envirovoters Ed Fund
from Wildlife Conservation Board partners (pg. 18)
from 30x30 appendix f

Farmer Educator Network | SAREP • White Buffalo Land Trust
California Farm Demonstration Network
Soil for Water Network I NCAT ATTRA
Mentor Farmers & Regenerative Farm Demonstrations I CSUChico CRARS

Regenerative Organic Learning Centers
EcoFarm Sustie and Justie Award Recipients
UCANR Organic Farm Demonstration Network and Transition to Organic Partnership Program Mentorship Program • UC Master Food Preserver Program • UC Organic Agriculture Institute • Kearney Agricultural Research and Extension Center ~Fresno, Visalia
Agroforestry | SAREP
SAgE (Sustainable Ag. Ed.)
Craft Millers Guild
CDFA Fertilizer Research and Education Program Database • Soil health outreach examples I Sacramento Valley, Colusa RCD • grant awardees (eg Healthy Soil grant awardees)
USDA awarded grants (Farmers Market Promotion Program // Regional Food // Local Food)
Pollinator Partnership (pollinator advocacy coalition-network)
The Regenerative Agriculture Network Web Forum – CRARS @ CSUChico
Farmer's Resource Guide - Kiss The Ground
Transfarmation Farmers (mostly hemp or mushrooms, at various scales, with various motivations, likely the fav)
Cannabis Research Center I UC Berkeley

powerful (funding, grant$)

(customized) search tool for funding from Ambrook accounting company • Social impact advising | Bridgespan

Western Sustainable Agriculture Research & Education (SARE) Producer-driven grants for on-farm sustainable ag. research & ed. • Sustainable Agriculture & Food Systems Small Grants Program FY25/26
Environmental Defense Fund (EDF) - Central Valley Habitat Exchange Program (opportunities to conserve/restore habitat)
Healing Soils Foundation
Audubon
Late Summer Farmlands Habitat Program I Bird Returns (it's a reverse auction system)
California Council of Land Trusts (capacity building grants) (and local land trusts)
FIC Fiscal Sponsorship Program
The BioFi Project (bioregionalism/relocalization)

CV-SALTS prograHealing Soils Foundationm (water quality, salt and nitrates)
county (e.g. water districts)
DOC Division of Land Resource Program (DLRP) • Multibenefit Land Repurposing Program (MLRP)
Wildlife Conservation Board Habitat Enhancement and Restoration Program • Ecosystem Restoration on Agricultural Lands (ERAL) Program
CDFA Office of Environmental Farming & Innovation (OEFI) - Conservation Agriculture Planning Grants Program • (7) pollinator protection, funding, benefits and programs • Fertilizer Research and Education (grant) Program '24 • Farm to Community Food Hubs Grant Program (to schools, and other institutions)
CDFW Cannabis Grant Program for restoration, watershed enhancement,
State Water Resources Control Board Nonpoint Source Pollution (NPS) Control Grants / Program
State agencies by region
California Conservation Corps grant money
EDD Farmworkers Advancement Program grant money
Strategic Growth Council Transformative Climate Communities
Conservation.gov federal grant opportunities
USDA Conservation Reserve Program • CLEAR30 incentives for land w/ water bodies • NRCS Conservation Innovation Grants (CIG) Program • Farmers Market Promotion Program • Local Food Promotion Program • Regional Food System Partnerships
NFWF America's Ecosystem Restoration Initiative: America the Beautiful Challenge 2024
International G 20 Global Land Initiative Grants Programme

precedent-preserving of the Texas abortion ban, just applied to environmental protection instead

reciprocating, research-oriented, knowledge sharing, educational platforms

Transdisciplinary Collaboration for Sustainable Agriculture I Community Science Exchange
SER CAL abstract I 2025
Restoration Resource Center Submit a Project
USDA Agriculture and Food Research Initiative (AFRI) I National Institute of Food & Agriculture
Foundation for Food & Agriculture Research (D.C.) research grant money (like "submit a research concept" or "seeding solutions")

Food Systems Dashboard (especially outcomes->environmental impacts)
Groundwater Exchange
Groundwater Resources Association of California
Regulatory Alignment Concept Paper I Crowe LLP (focus on food safety and water quality)

Restor, a map-based platform to better plan, manage and monitor restoration projects
DWR's Mapping Tool ~3000 Groundwater Sustainability Projects
The Water Adaptation Techniques Atlas (WATA) I SW, US
Spatial Planning group I UN Biodiversity Lab
Tech4Nature to enable protected areas to evaluate success with IUCN Green List Standard
UNEP Restoration Road Trip
Food Systems Transformation Report & Toolkit (Beacons of Hope stories)
Mapping grasslands for community rights and to tackle climate change (from India, ATREE)

Transition Centre
International Alliance for Localization (IAL)
Peer Exchange | California Landscape Stewardship Network

Food Policy Networks - Johns Hopkins University (incl. trainings, conferences, workshops)
National Sustainable Ag. Coalition members
National Healthy Soils Policy Network
Healthy Food America
Noise Free America: A Coalition to Promote Quiet
Commonweal Programs I Marin

CGIAR (Consultative Group on International Agricultural Research)
PANORAMA Solutions
INRAE - France

Calendar (current/specific)

Events, Meetings, Tours, Symposiums, Webinars, Conferences, Gatherings, Workshops, Workparties, etc.

Calendar (general)

EcoFarm Conference I Winter (Monterey County, Pacific Grove)
CAFF Small Farm Conference I Winter
Heirloom Expo I post harvest time (Ventura County)
CalCAN Summit I Fall (UCDavis)
Ventura County Farm Day I Fall
California Organic Seed Summit I Fall
Latino Farmer Conference I Fall (CSUMonterey Bay)