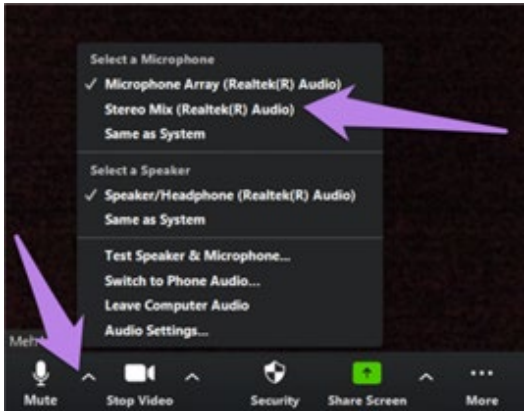
Hydrate Phoenix: Hydrate Your Soils

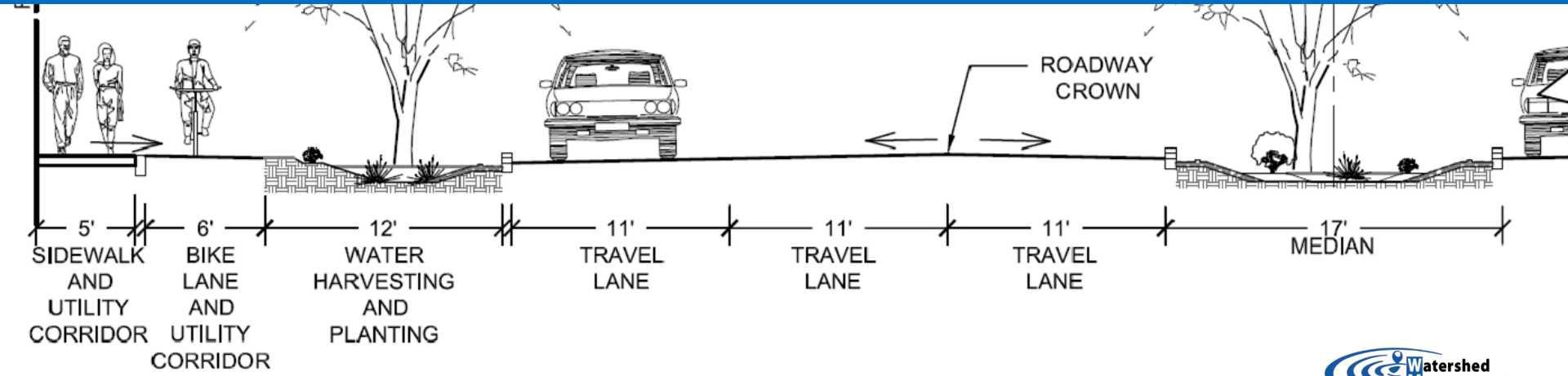
To connect with us best here on Zoom:

- Please keep yourself muted when not speaking.
- Check your audio settings to make sure your audio is working or switch to telephone audio (*Image to right*).
- Please use the chat feature to ask questions. There will be time at the end of class where the moderator will share these questions with the presenter



This event is supported by the City of Phoenix Water Services Department

Watershed Management Group develops and implements community-based solutions to ensure the long-term **prosperity of people** and **health of the environment**. We provide people with the knowledge, skills, and resources for sustainable livelihoods.



Watershed Management Group

Desert Living Home Tour!

Saturday, October 23rd 10a.m. - 3p.m.

Virtual and In-Person

Registration Open
watershedmg.org/hometour

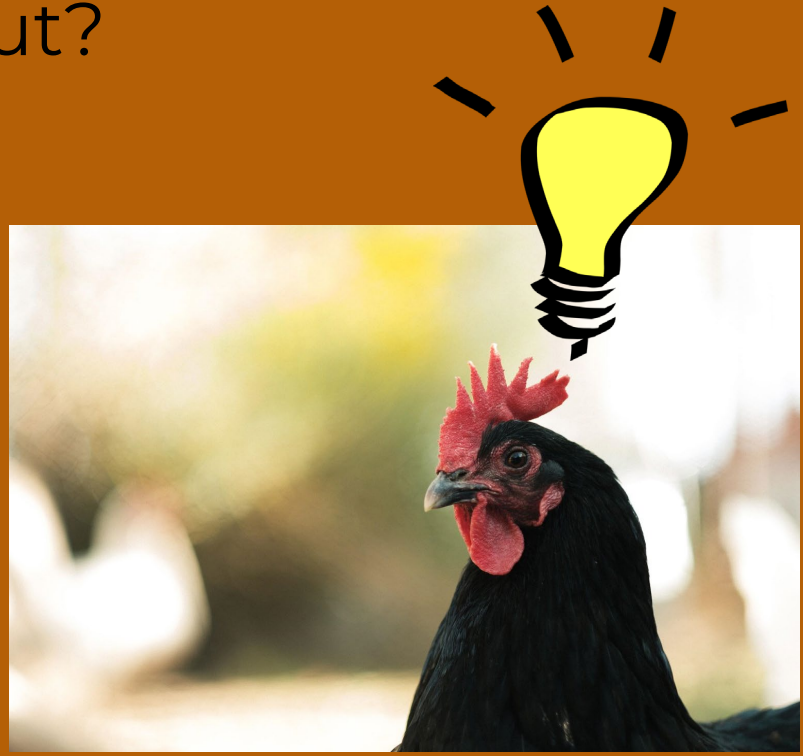
Let’s turn waste into resources and build healthy soils!

WMG Watershed Management Group

PHX WATER SMART

Why do you care about soil?
or
What are you curious about?

Please share in the chat box.



Learning Objectives

- Identify how soils contribute to a healthy watershed
- Recognize soil characteristics
- Implement soil rebuilding practices

Healthy Soils

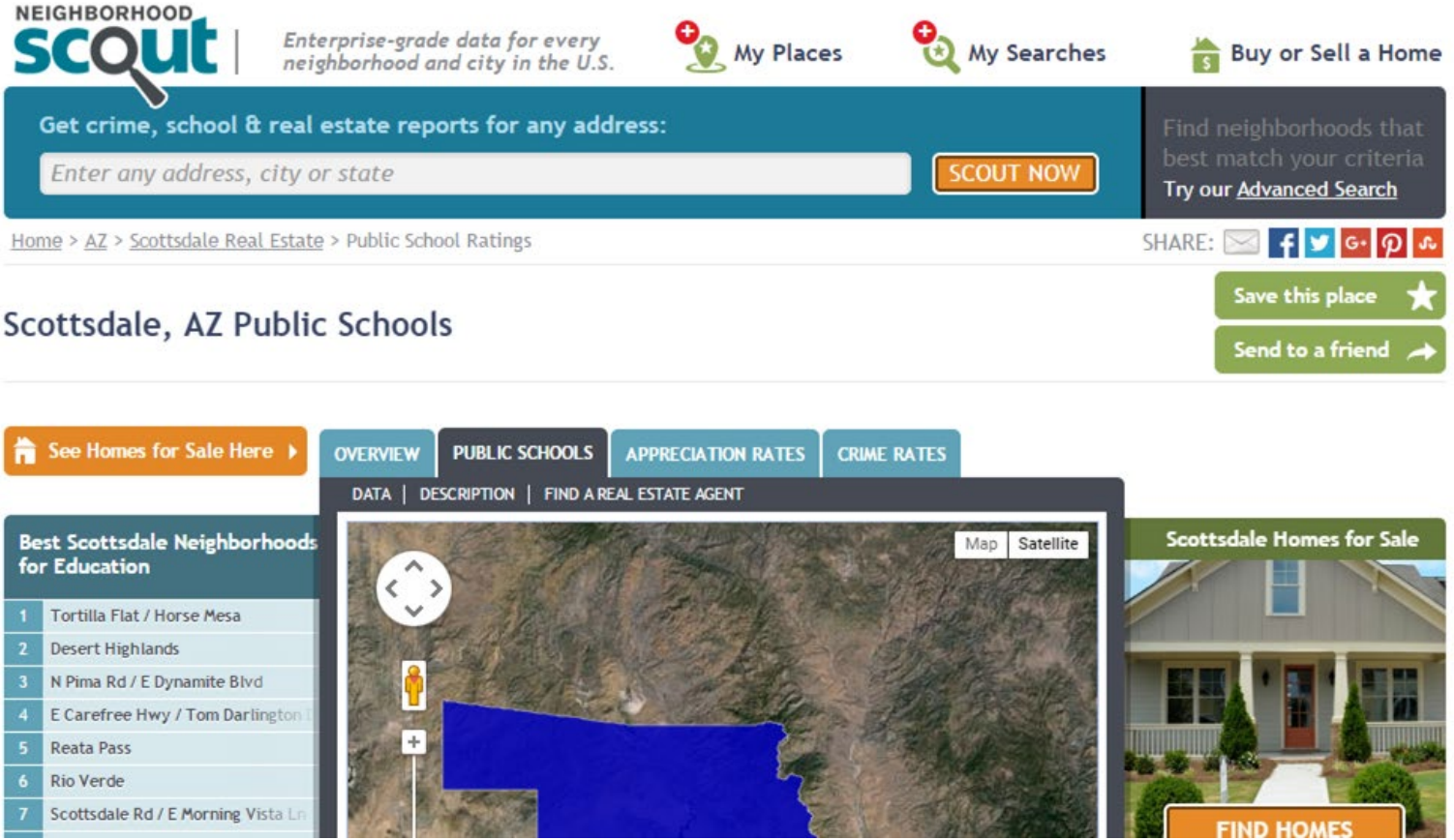
REDUCE

- Flooding
- Drought
- Fire

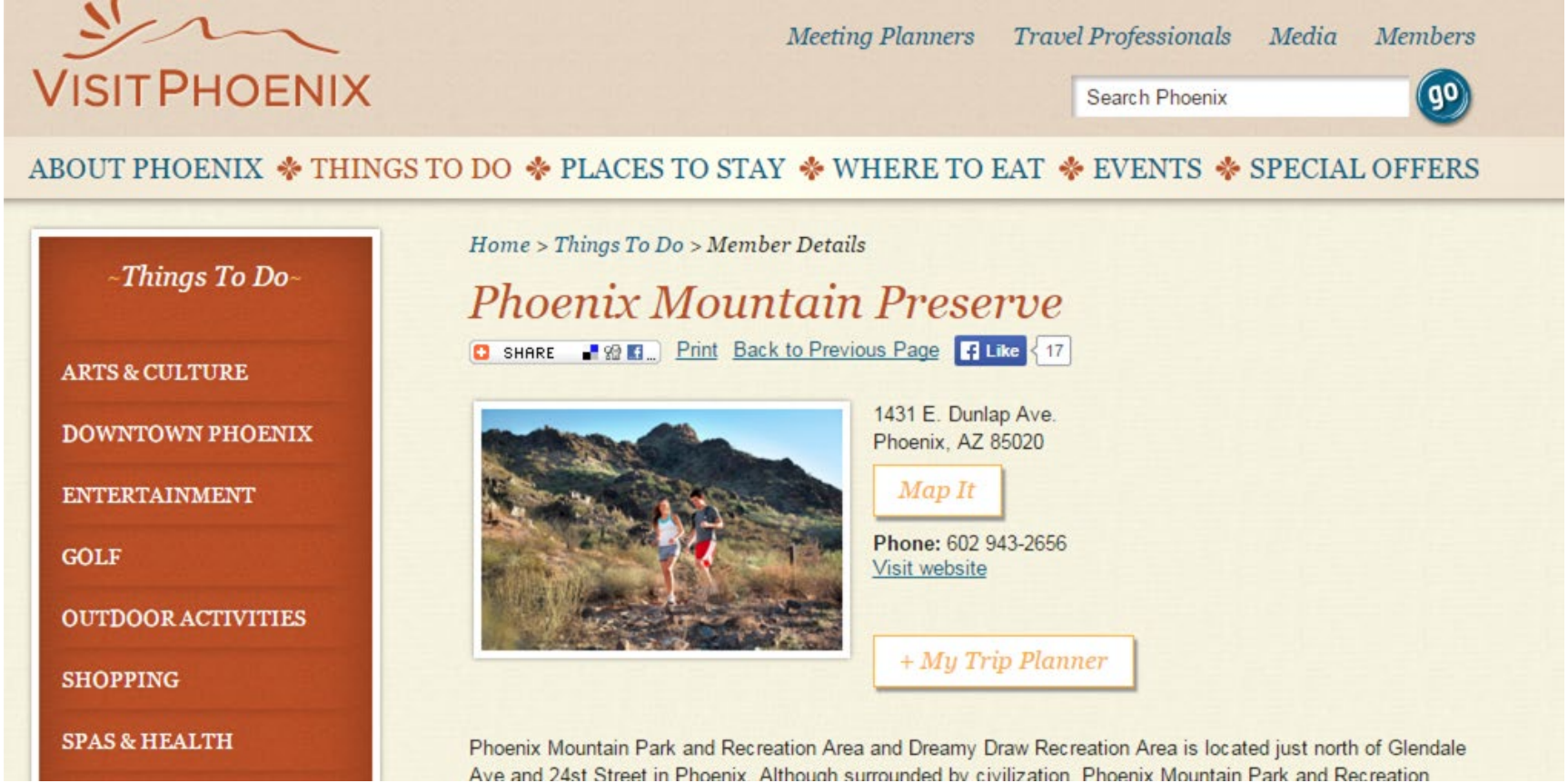
REBUILD

- Agricultural land
- Carbon Balance
- Self sustaining systems

What tools did you use to choose where to live?

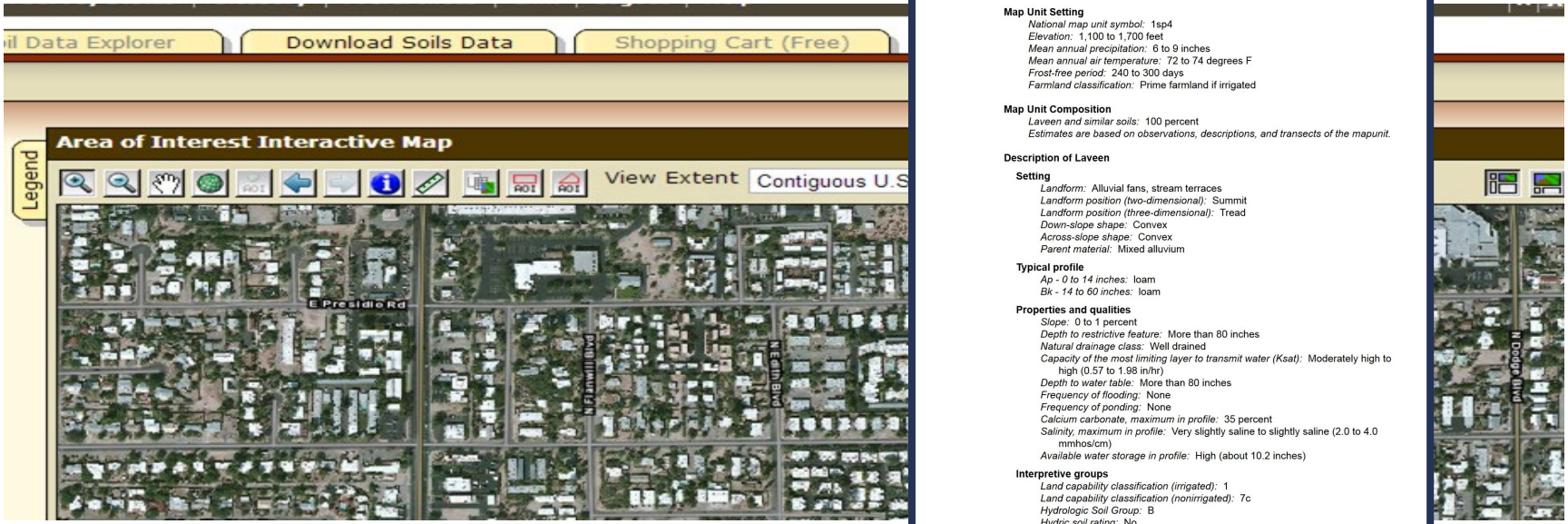


Did you check out the neighborhood?



Did you consider quality of life aspects?

Did you consider curb appeal?



Eastern Maricopa and Northern Pinal Counties Area, Arizona

LaA—Laveen loam, 0 to 1 percent slopes

Map Unit Setting
National map unit symbol: 1sp4
Elevation: 1,100 to 1,700 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 72 to 74 degrees F
Frost-free period: 240 to 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Laveen and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Laveen

Setting
Landform: Alluvial fans, stream terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mixed alluvium

Typical profile
Ap - 0 to 14 inches: loam
Bk - 14 to 60 inches: loam

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Available water storage in profile: High (about 10.2 inches)

Interpretive groups
Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: B
Hydric soil rating: No

Research soil characteristics?

NRCS -- HTTP://WEBSOILSURVEY.SC.EGOV.USDA.GOV

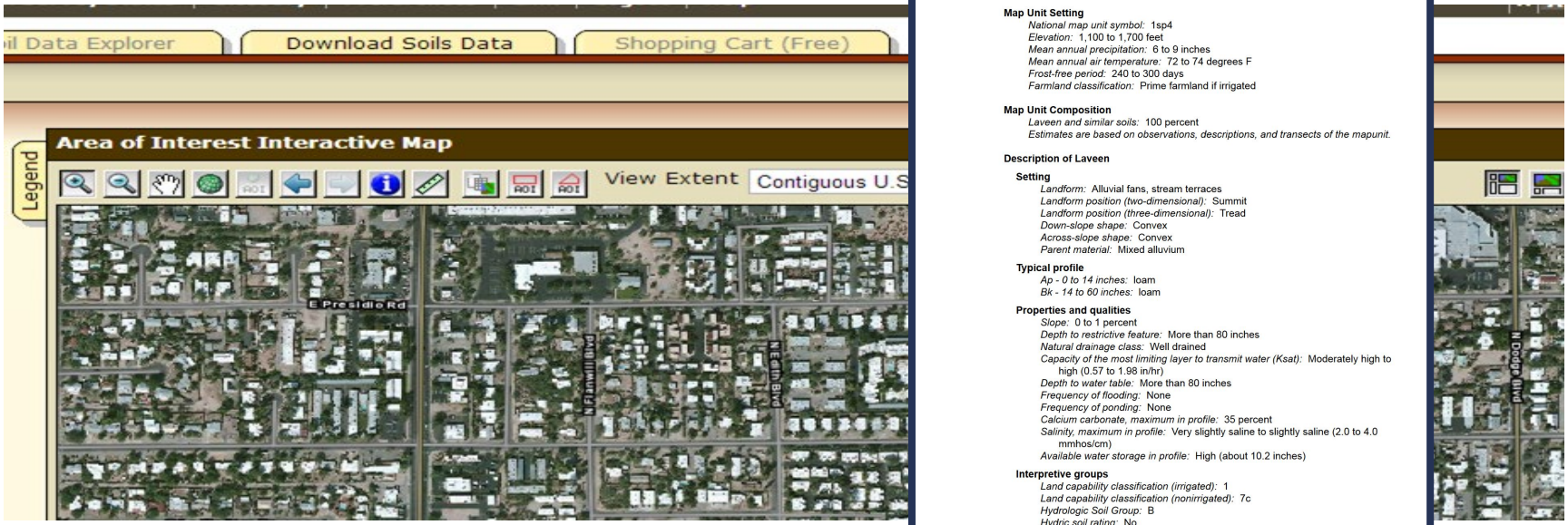
This man did!

Don Breckenfeld, Retired soil scientist – now urban farmer along the Santa Cruz River historic floodplain

Not just a home for microbes!

Most people don’t…

However, there is hope to invest in your soil and begin the transformation



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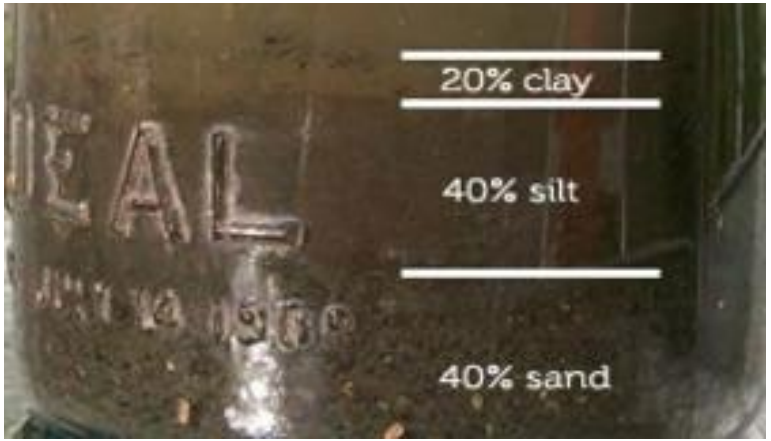
NRCS WEB SOIL SURVEY: HTTP://WEBSOILSURVEY.SC.EGOV.USDA.GOV

Get to know your soils!



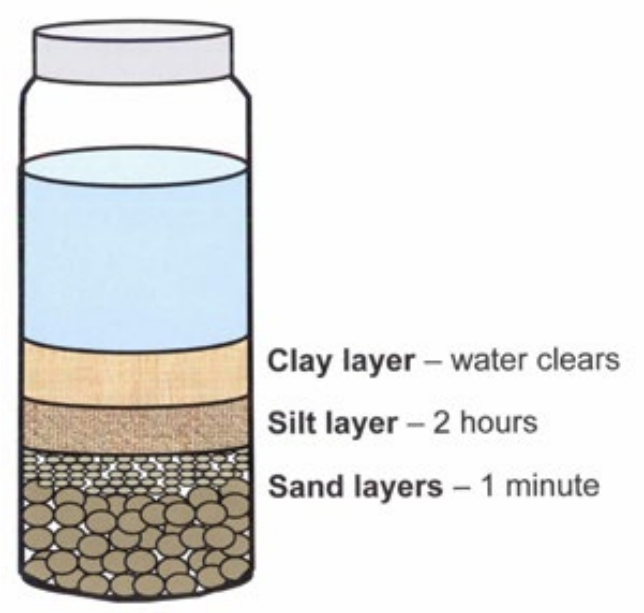


Image source: diy.org and ext.colostate.edu

Sample the soil texture?

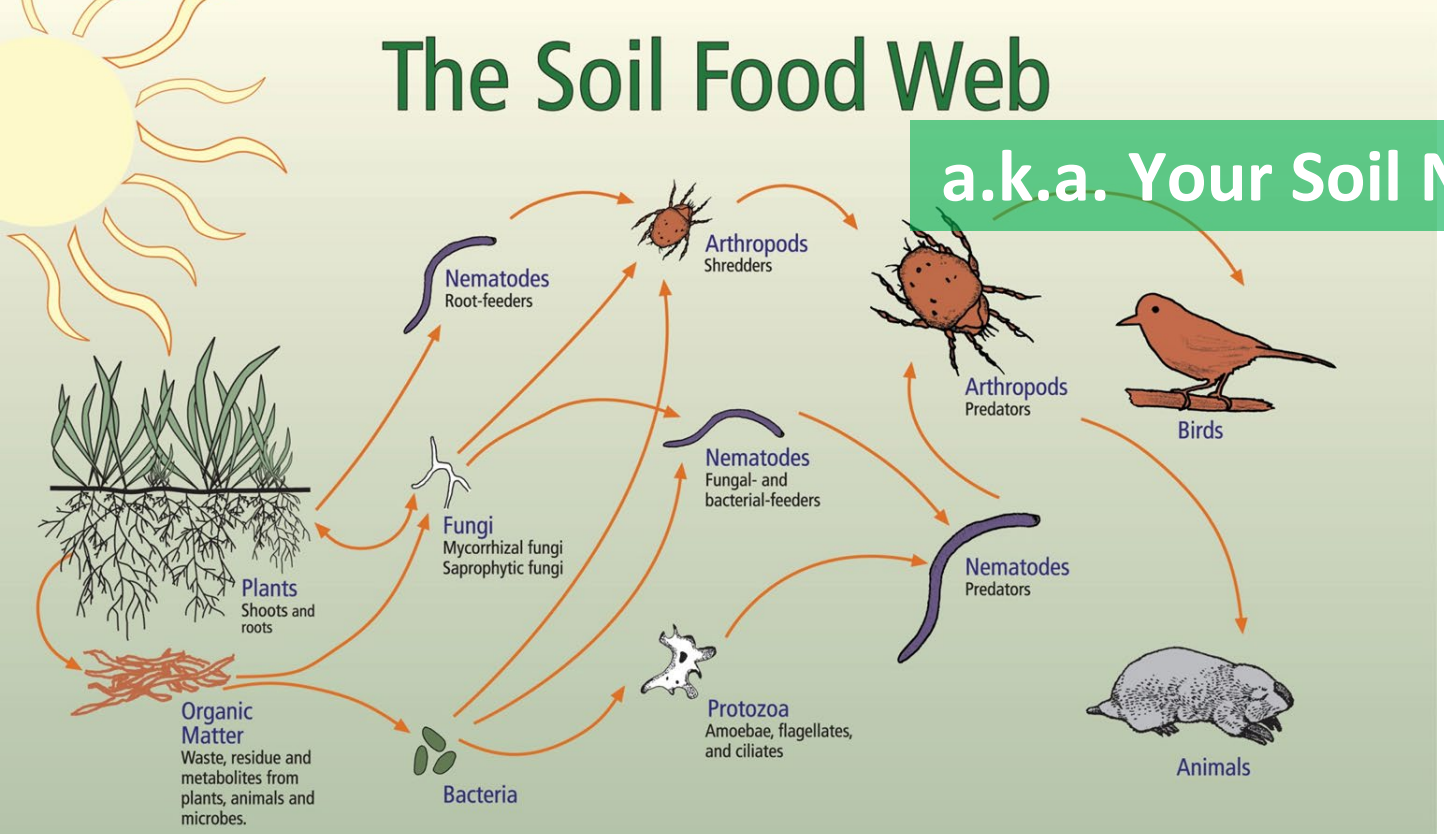
Urban Desert Soils

- Top fill - post construction
- Compacted
- Generally Alkaline
- Limited Organics
- Caliche


Water + Carbon (*Organic Material*) → LIFE!

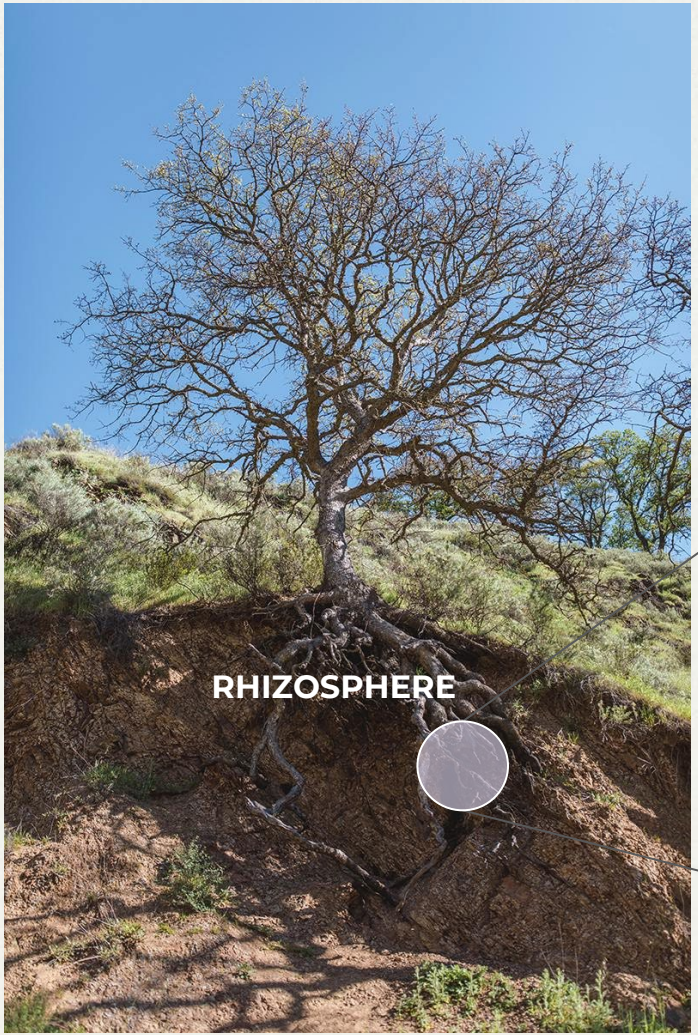
The Soil Food Web

a.k.a. Your Soil Neighborhood

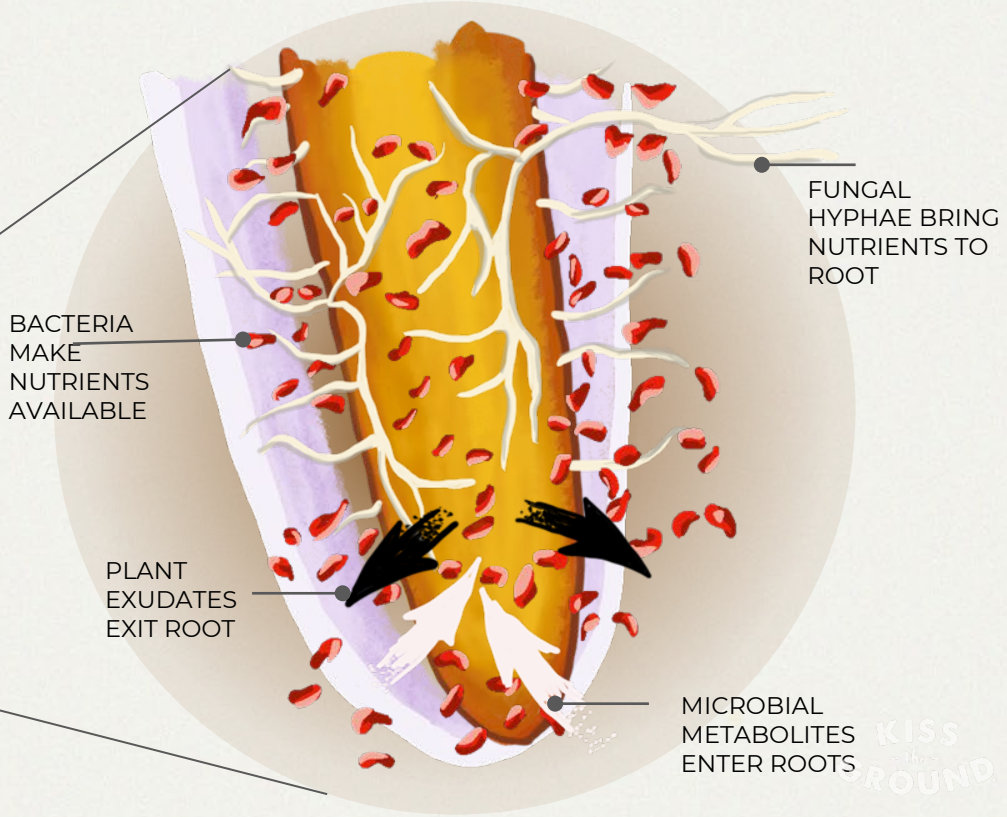


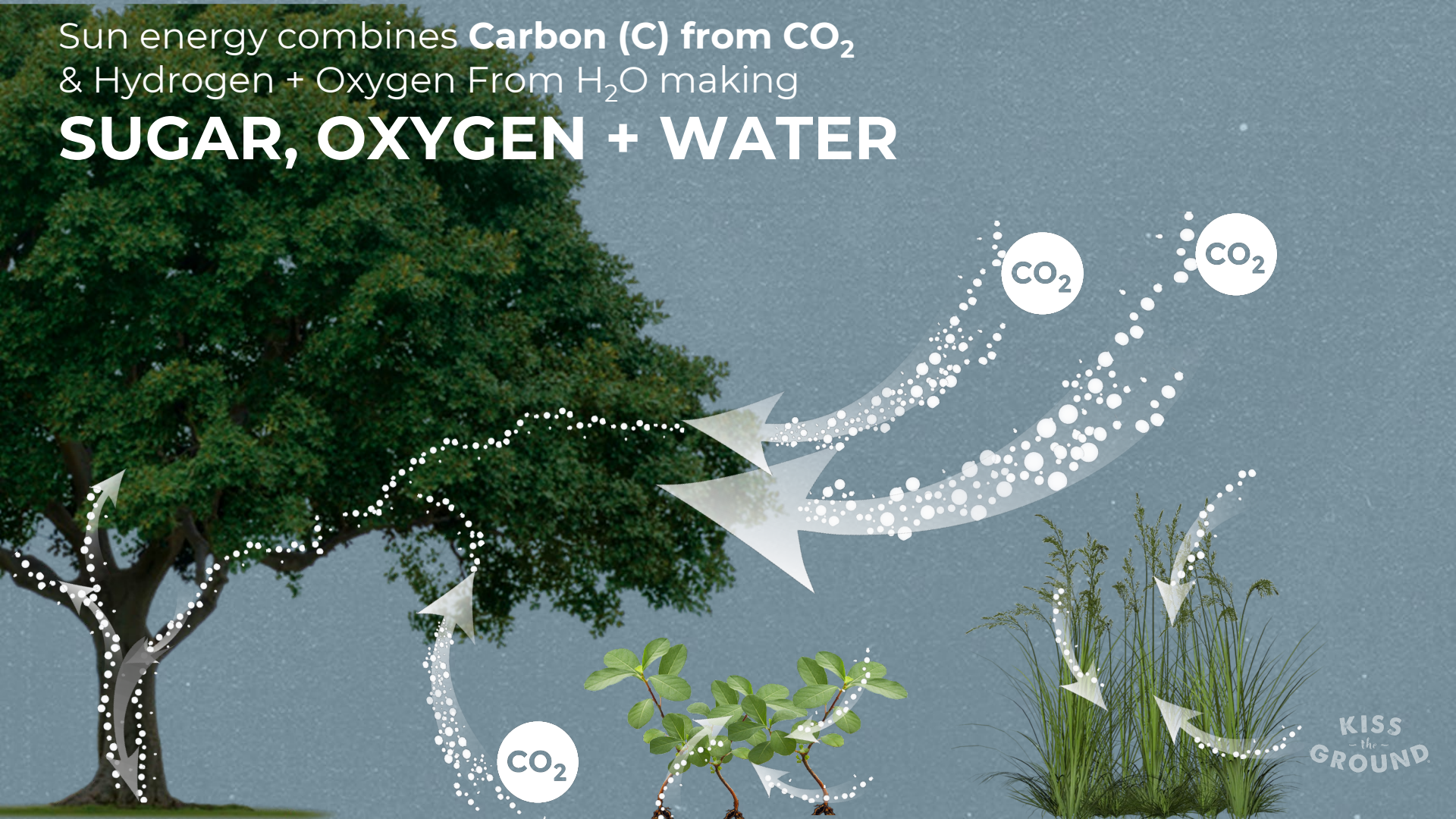
First trophic level:	Second trophic level:	Third trophic level:	Fourth trophic level:	Fifth and higher trophic levels:
Photosynthesizers	Decomposers Mutualists Pathogens, Parasites Root-feeders	Shredders Predators Grazers	Higher level predators	Higher level predators

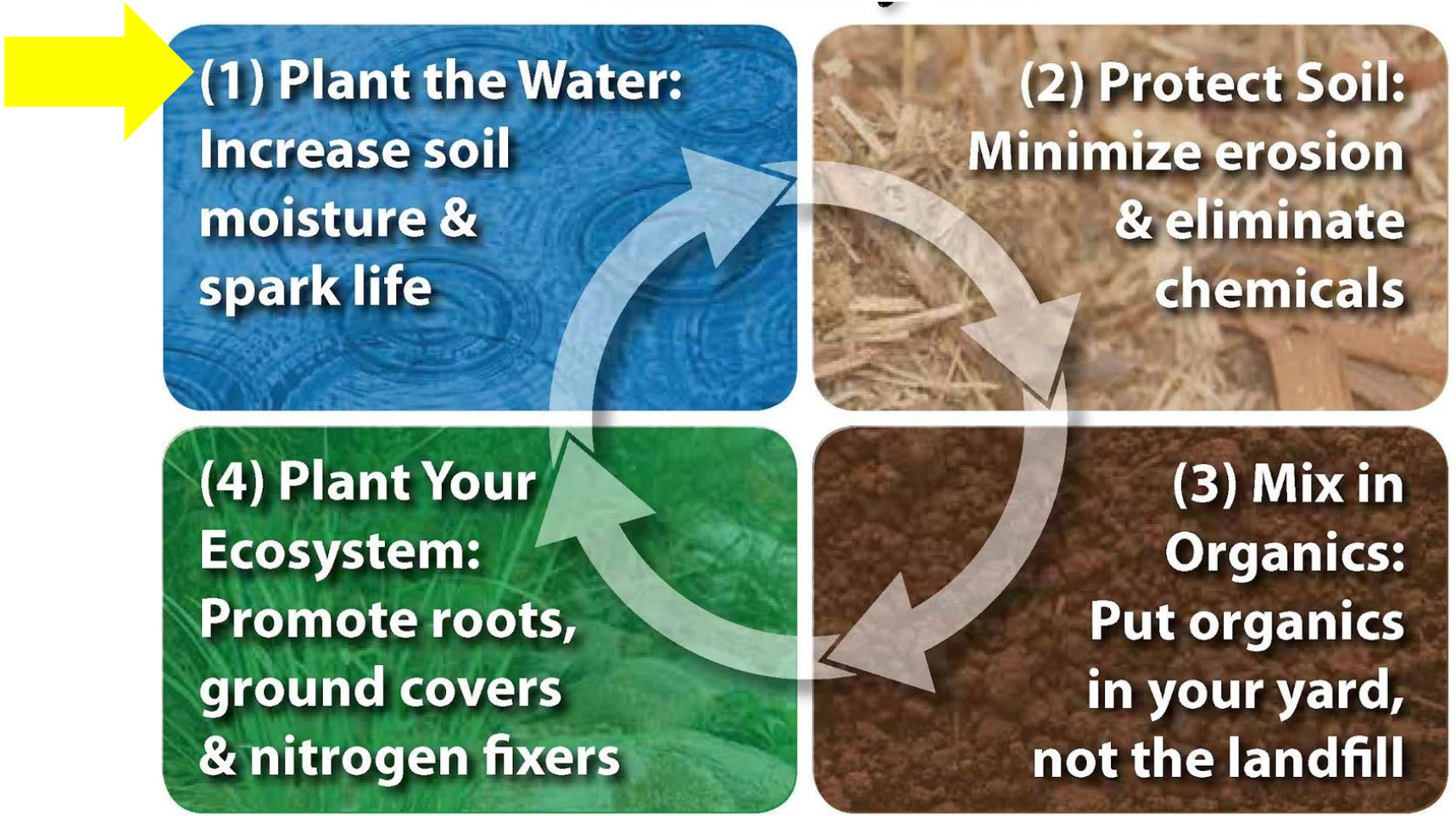
NRC



MOST PEOPLE THINK ROOTS JUST TAKE.
NOT TRUE.
ROOTS GIVE!




Sun energy combines **Carbon (C) from CO_2**
& Hydrogen + Oxygen From H_2O making
SUGAR, OXYGEN + WATER
CO_2
CO_2
CO_2
KISS the GROUND



https://watershedmg.org/document/healthy-soils-resource-guide

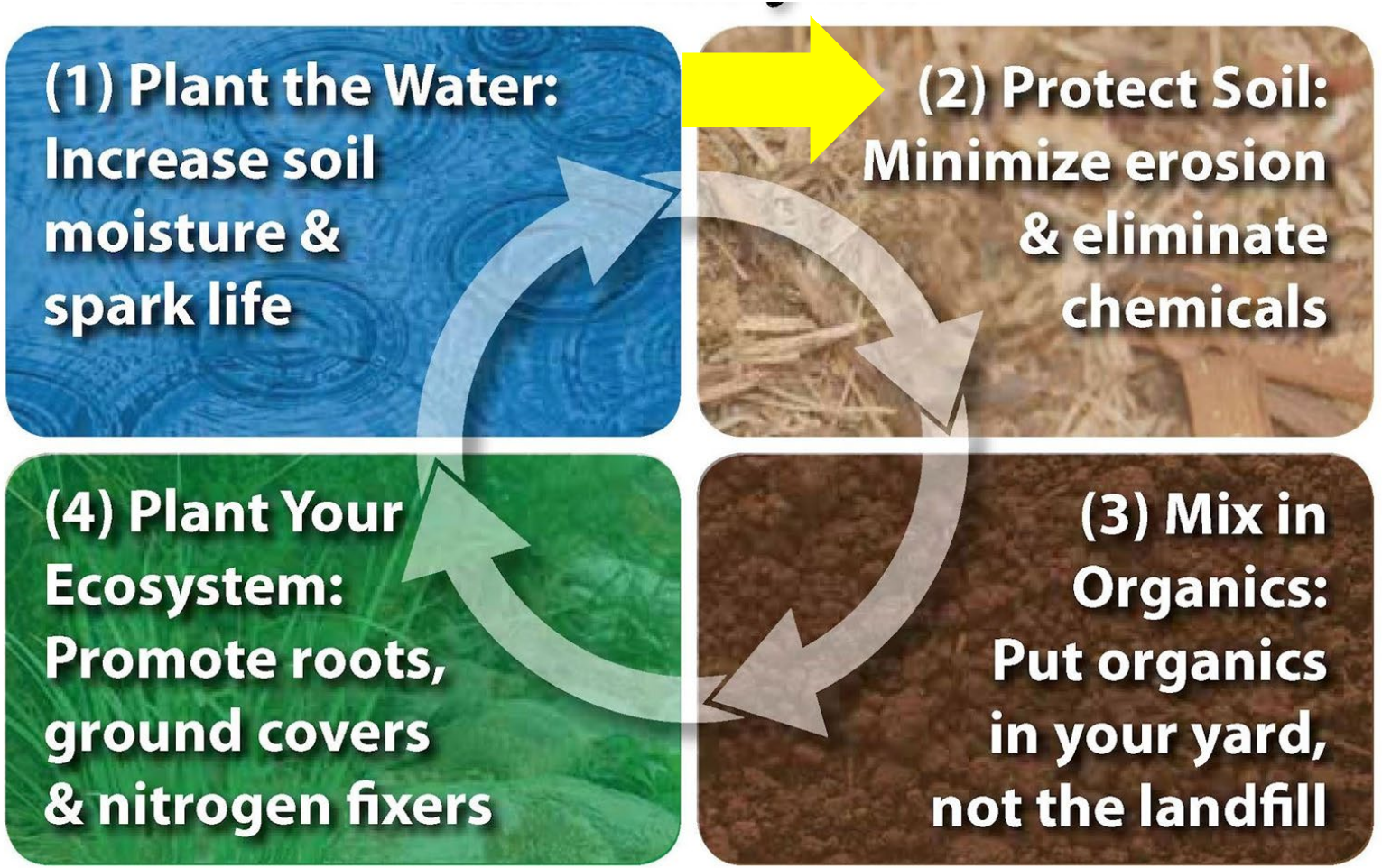
Our typical starting point: Hot or flooded

Lack of integration with water and landscape resources…

Plant the Rainwater

Basins Make a Difference!

Soil microbes and native plants LOVE stormwater



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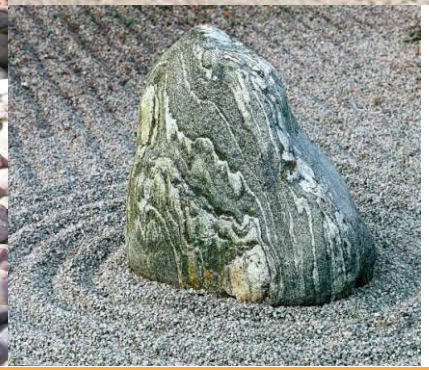
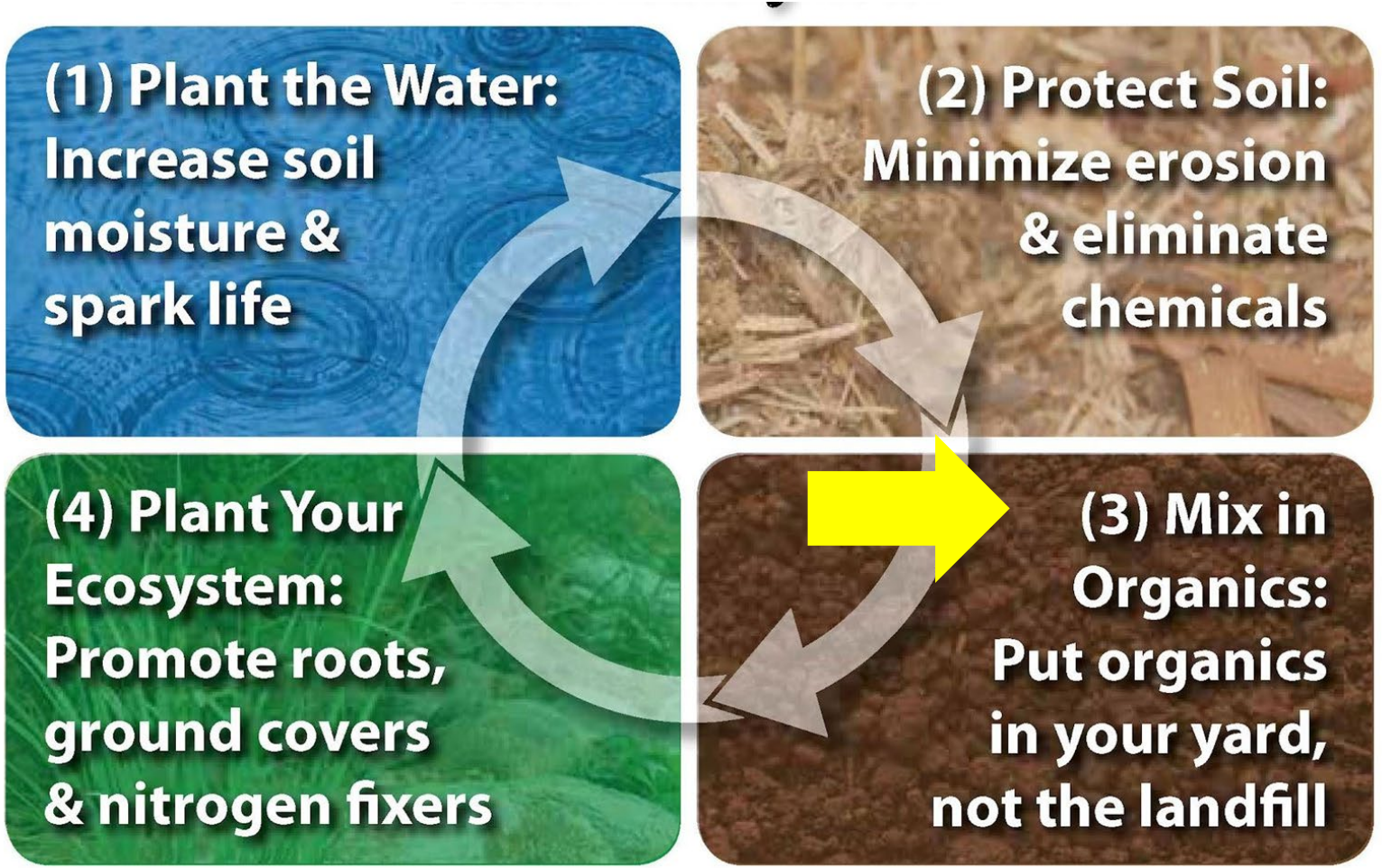
A choice:

Resource Scarcity ? or Resource Abundance?

Images courtesy of Brad Lancaster, harvestingrainwater.com



Stop these soil degrading practices



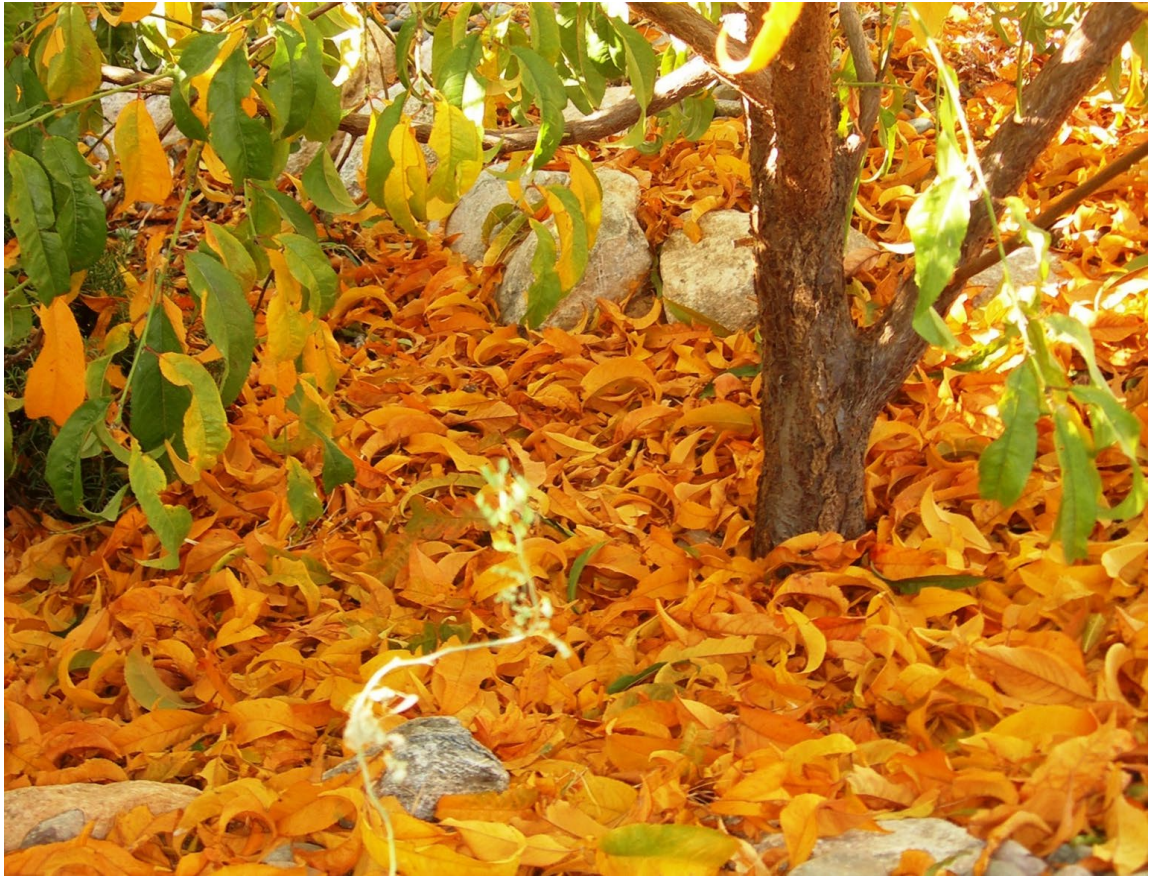
https://watershedmg.org/document/healthy-soils-resource-guide

What resources do you produce to build your soil fertility?

List your resources:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Chop and drop tree and shrub



Always Integrate Organic Material – Prune, Mulch, and Harvest

Fresh Tree Trimmings

Promote fungi for perennial plants

Integration of mulch into topsoil!

The shredders!

Promote bacteria for vegetables and annuals.

Mulch for Gardens

- Green plant clippings
- Alfalfa Hay
- Wait to mulch Seedlings until roots establish

Compost

Food scraps and smaller plant trimmings:

- Can provide residential needs for soil compost amendments
- Average person generates ~1.35 pounds of organic waste per day. That equals ~500 pounds per person every year!

Backyard compost pile integrated into chicken coop

Hens hard at work

- Compost needs Water!
- Balance of Carbon Nitrogen (30:1)
- Time

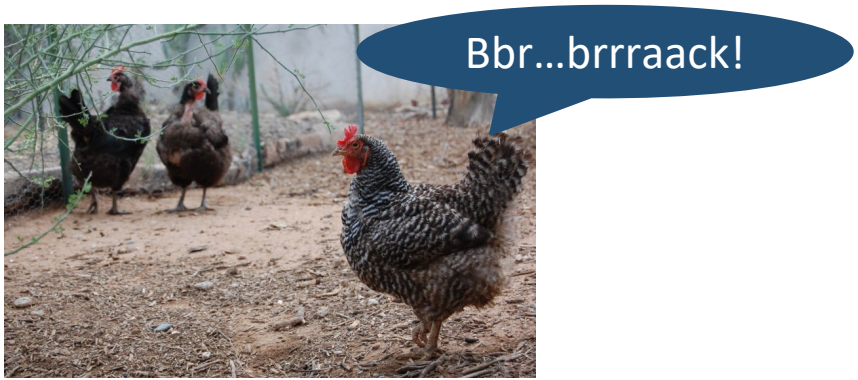
Amazing compost for vegetables!

Now, Let's talk about manure!

Earthworm castings

Farm animal manures: horses, cows, goats, etc.

Chicken manure



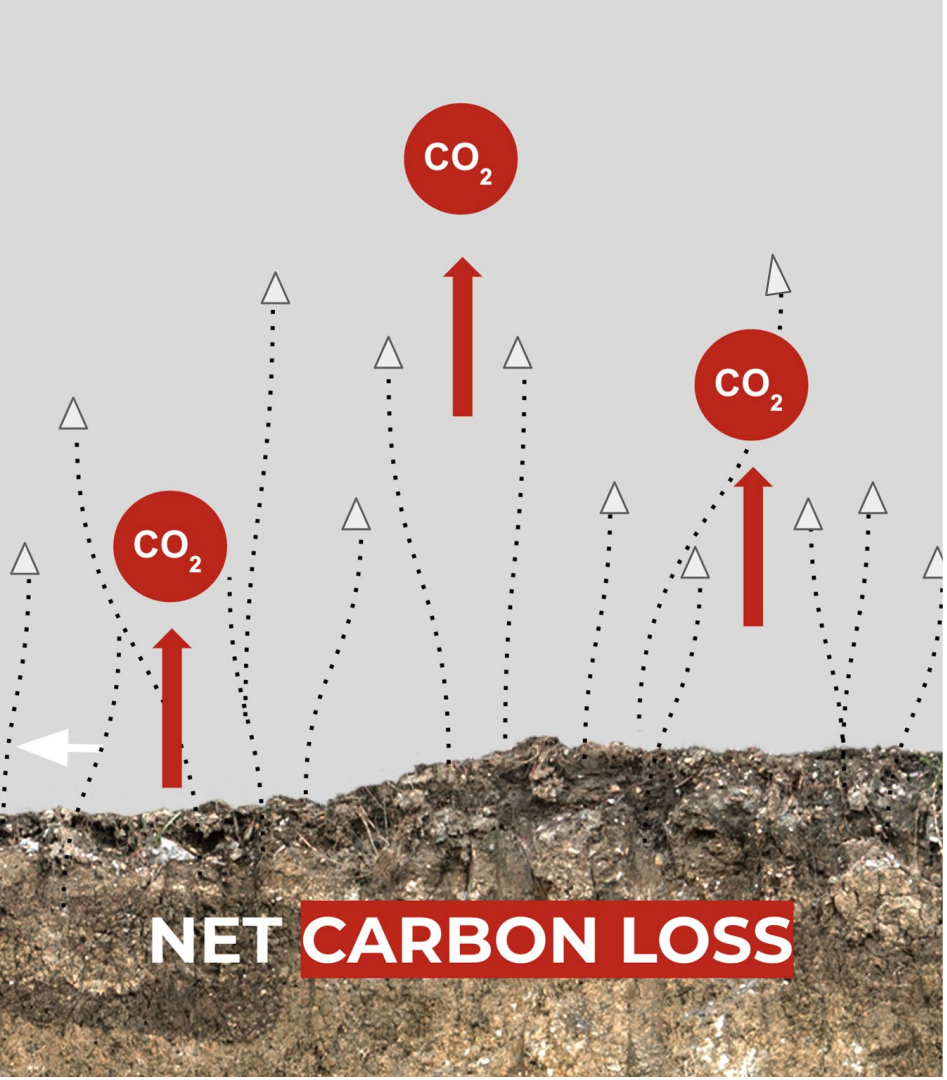
Instructions for Project review

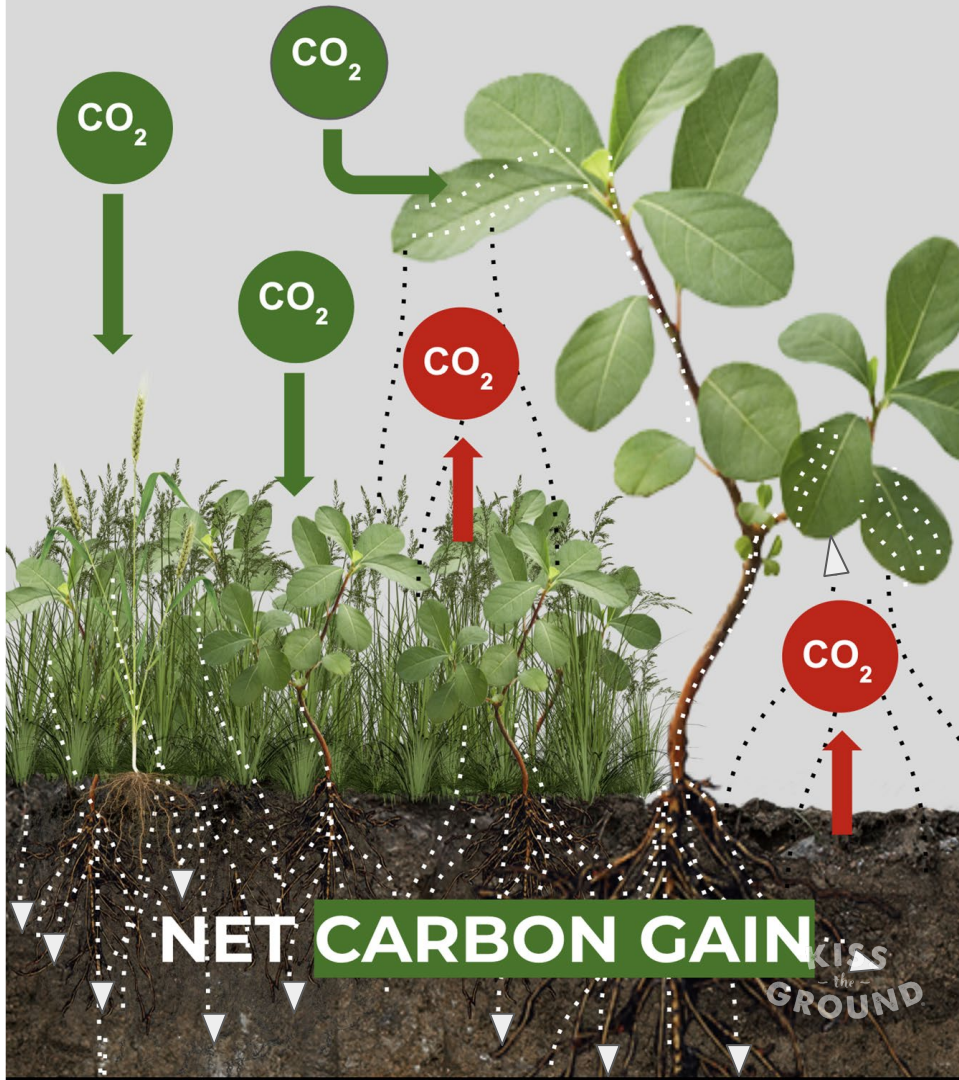
What Soil Resources do you have?

- Review Soil Resources List, page 1 of handout

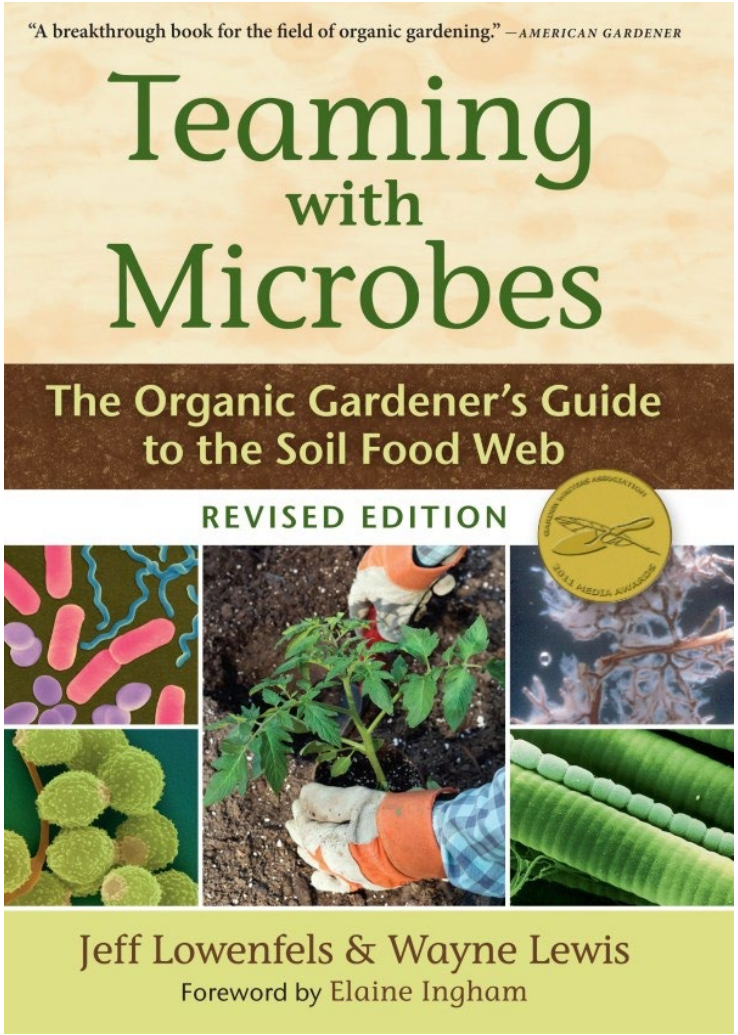
Soil Enhancement Planning

- Handout on page 1
- Areas
- Needs
- Best practices to employ


CO_2
CO_2
CO_2
NET CARBON LOSS


CO_2
CO_2
CO_2
CO_2
CO_2
NET CARBON GAIN
KISS the GROUND


DEGENERATIVE
SUSTAINABLE
REGENERATIVE
KISS the GROUND



Carbon Cycle Institute

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justice, the Carbon Cycle Institute has been exploring how a focus on soils, soil health and soil carbon can address social and environmental justice for rural and urban communities in California (and the US). This report chronicles our exploration of this question, with leading social and climate justice leaders across CA. We encourage you to read the report, as we found a vibrant set of approaches to advance justice, community resilience, and healthy soils. CCI and our partners will be working to identify opportunities to advance these approaches through community-scale projects across CA, and building the local and state policies and economic supports to scale them. Coming to a community near you.

Many thanks to our friends and partners: Nikki Silvestri with Soil and Shadow, and Eric Holt-Gimenez and Annie Shattuck with Food First. And, of course, Sallie Calhoun at Globetrotter Foundation.

To download a copy of the full report or the executive summary, please submit this form. Thanks!

Fields marked with an * are required

First Name *

Last Name *

Organization *

Email *

Thank you!

Questions?

Charlie Alcorn | Watershed Management Group
calcorn@watershedmg.org
Phone: 520.396.3266 x3