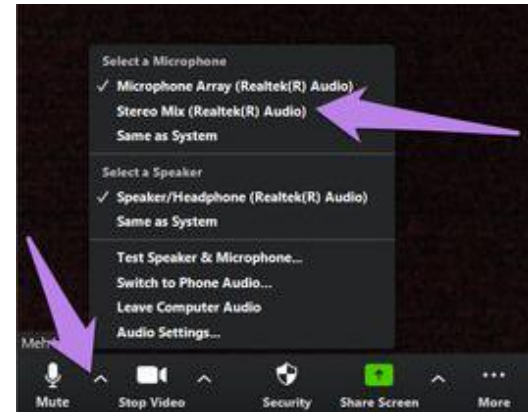


Welcome to Hydrate San Tan: Hydrate Your Soils!

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



And, see what else is coming up that may interest you: watershedmg.org/event



Hydrate Your Soils:

Turn waste into resources and build healthy soils

What do you love about soil?
or
What are you curious about?

Please share in the chat box.



Learning Objectives



- Identify how soil's contribute to a healthy world
- Recognize soil characteristics
- Implement Soil rebuilding practices

Healthy Soils

REDUCE

- Flooding
- Drought
- Fire

REBUILD

- Agricultural land
- Balance carbon
- Self sustaining systems



KISS
the
GROUND

Overview

Real Estate

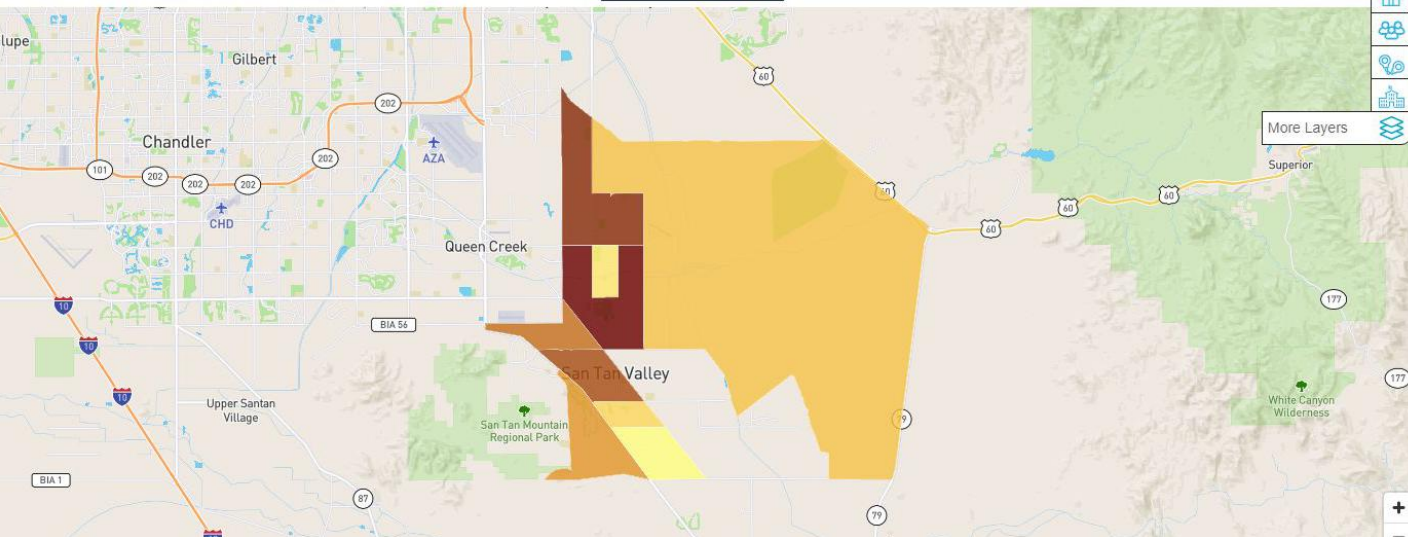
Demographics

Crime

Schools

Satellite

See Homes for Sale



Most expensive San Tan Valley neighborhoods

1. E Combs Rd / N Kenworthy Rd
2. S Meridian Rd / E Galveston St
3. Bella Vista Rd / E Bella Vista Rd
4. E Empire Blvd / N Gary Rd
5. N Gary Rd / E Hunt Hwy
6. Town Center
7. N Drifter Pass Rd / E Judd Rd
8. E Combs Rd / Kenworthy Rd
9. E Magma Rd / E Hunt Hwy



Did you check out the neighborhood?



~Things To Do~

ARTS & CULTURE

DOWNTOWN PHOENIX

ENTERTAINMENT

GOLF



OUTDOOR ACTIVITIES

SHOPPING

SPAS & HEALTH

Home > Things To Do > Member Details

Phoenix Mountain Preserve

SHARE  Print [Back to Previous Page](#)  17



1431 E. Dunlap Ave.
Phoenix, AZ 85020

[Map It](#)

Phone: 602 943-2656
[Visit website](#)

[+ My Trip Planner](#)

Phoenix Mountain Park and Recreation Area and Dreamy Draw Recreation Area is located just north of Glendale Ave and 24th Street in Phoenix. Although surrounded by civilization, Phoenix Mountain Park and Recreation

Did you consider quality of life aspects?



Did you consider curb appeal?

Soil Data Explorer

Download Soils Data

Shopping Cart (Free)

Area of Interest Interactive Map

Legend

View Extent Contiguous U.S.



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
Famland 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?

[HTTP://WEBSOILSURVEY.SC.EGOV.USDA.GOV](http://websoilsurvey.sc.egov.usda.gov)

This man did!



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

Most people don't...

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



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Get to know your soils!



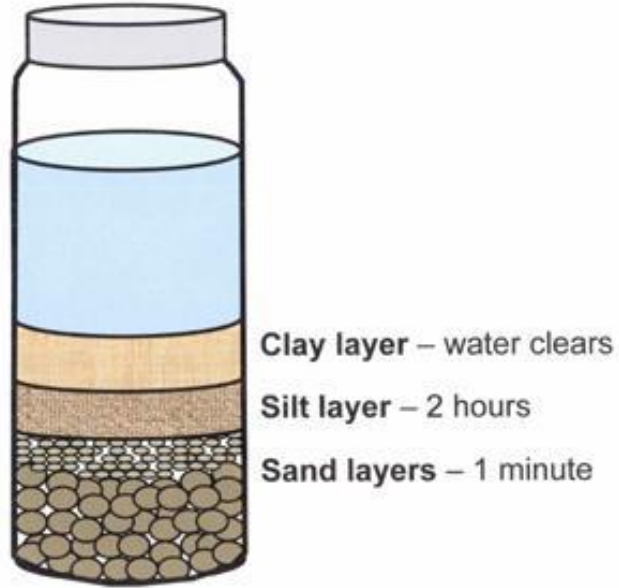
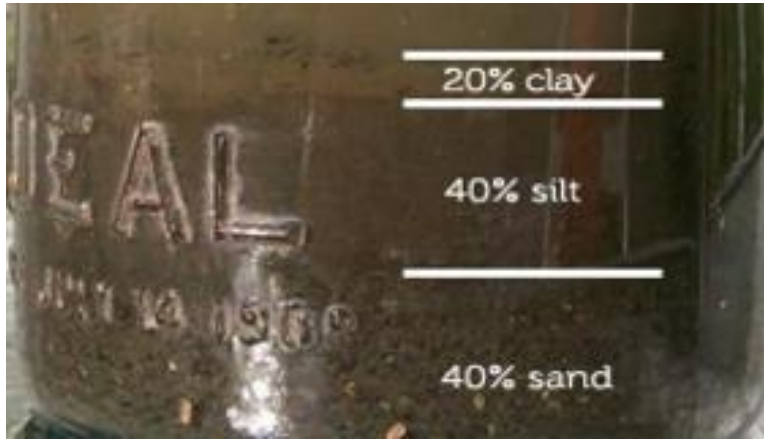


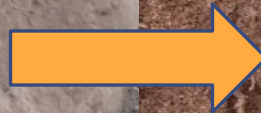
Image source: diy.org and ext.colostate.edu

Sample the soil texture?

Urban Desert Soils

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

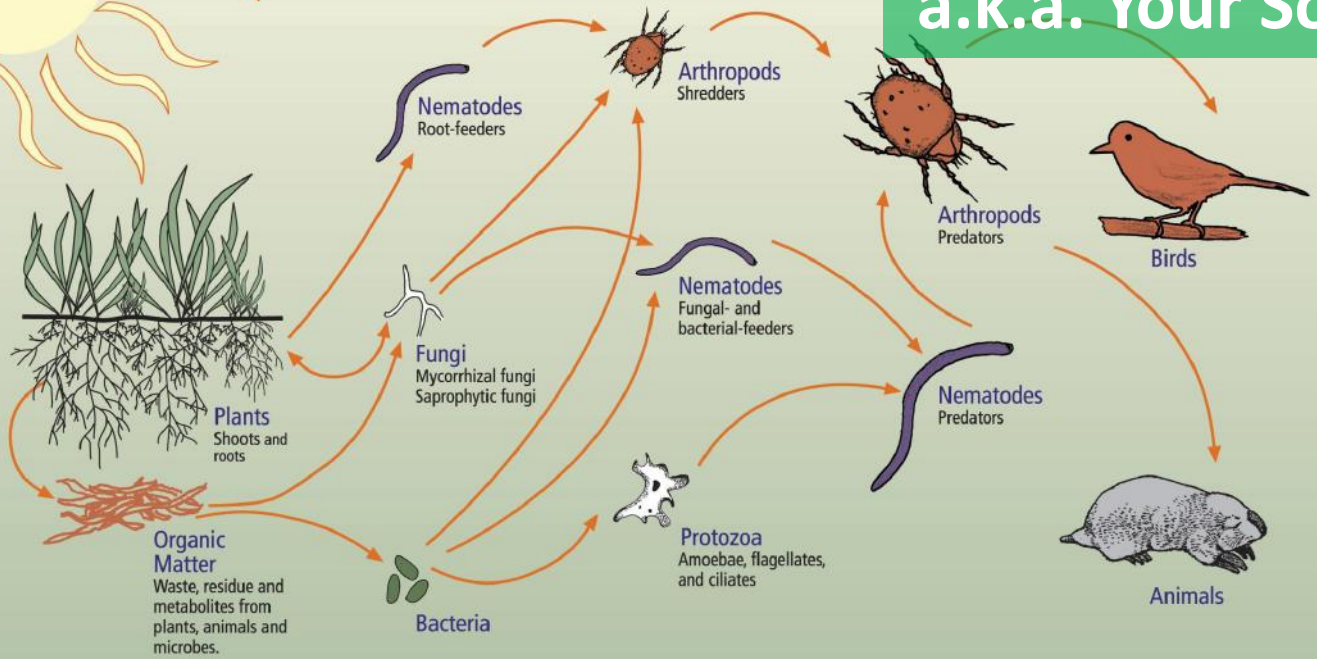




Water + Carbon (*Organic Material*) □ LIFE!

The Soil Food Web

a.k.a. Your Soil Neighborhood



First trophic level:
Photosynthesizers

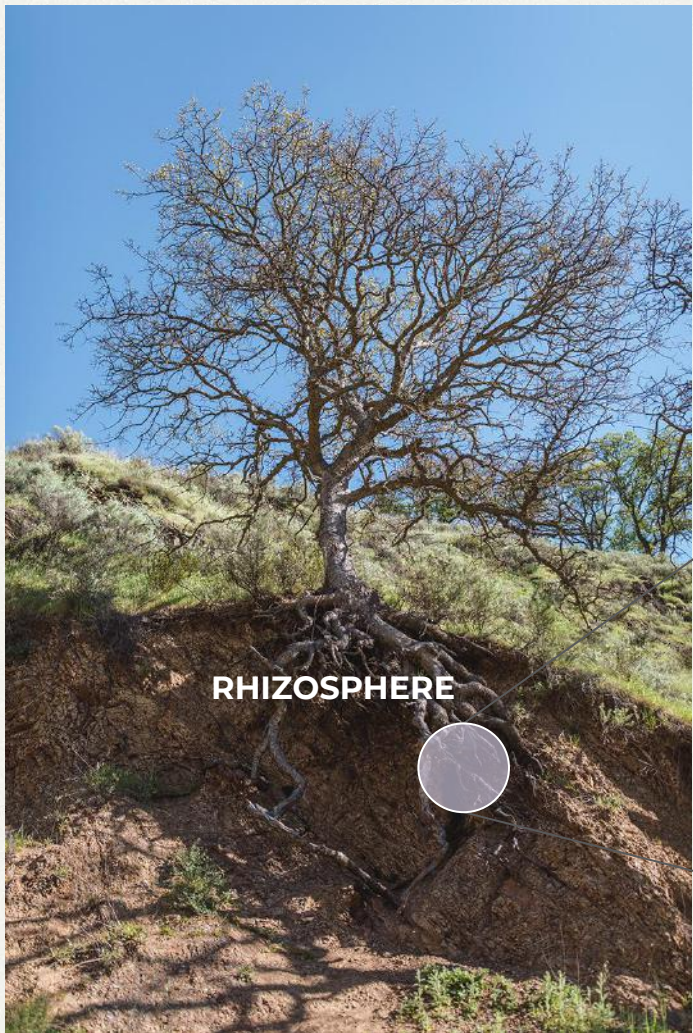
Second trophic level:
Decomposers
Mutualists
Pathogens, Parasites
Root-feeders

Third trophic level:
Shredders
Predators
Grazers

Fourth trophic level:
Higher level predators

Fifth and higher trophic levels:
Higher level predators

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



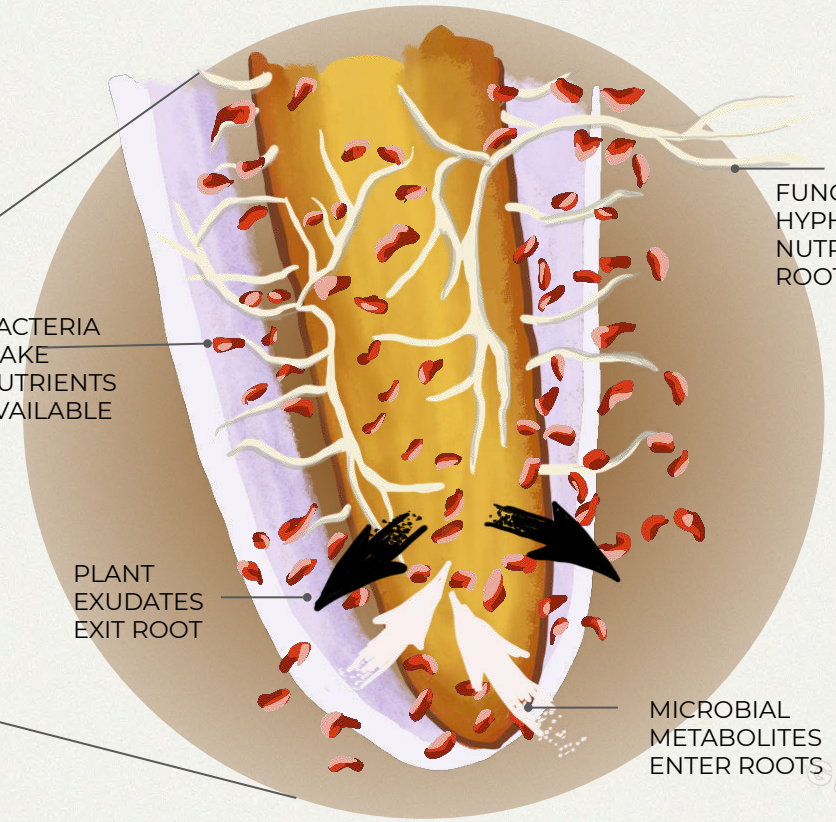
RHIZOSPHERE

BACTERIA
MAKE
NUTRIENTS
AVAILABLE

PLANT
EXUDATES
EXIT ROOT

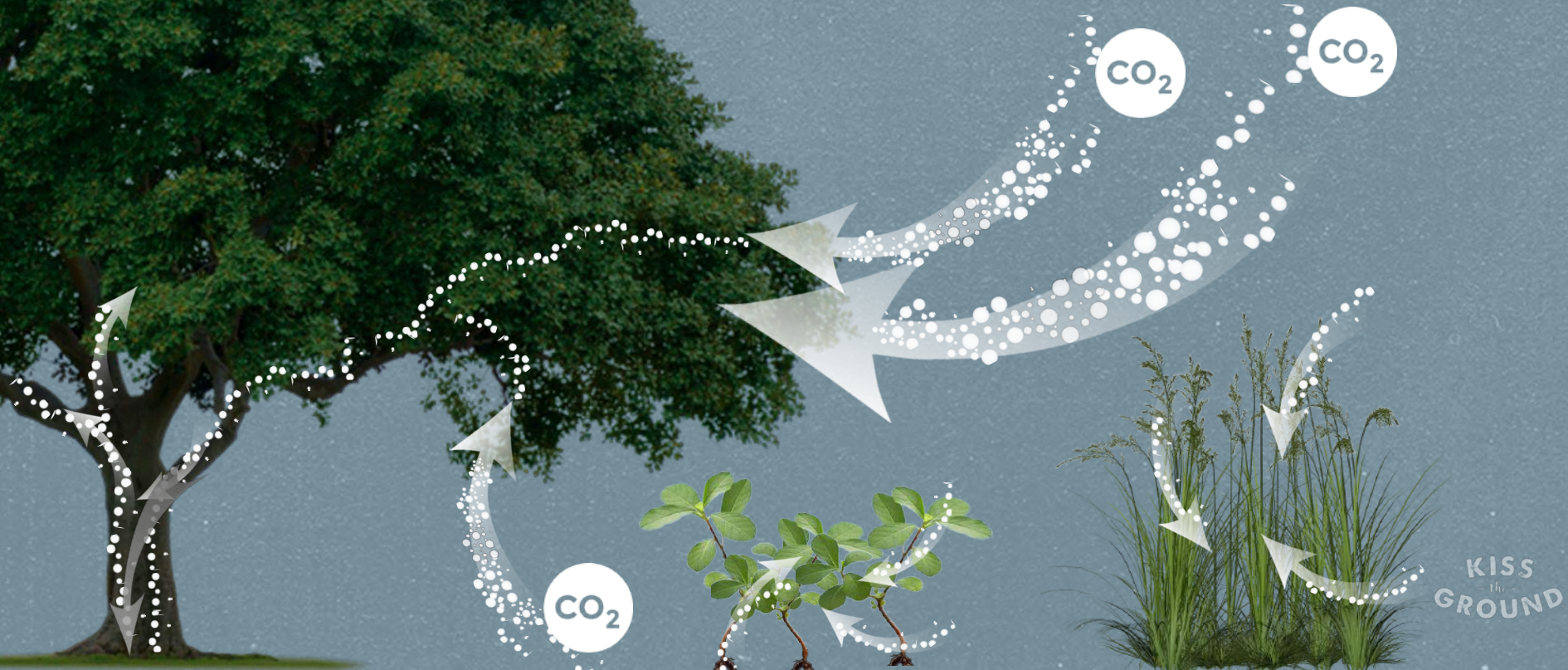
FUNGAL
HYPHAE BRING
NUTRIENTS TO
ROOT

MICROBIAL
METABOLITES
ENTER ROOTS



KISS
-the-
GROUND

Sun energy combines **Carbon (C) from CO₂**
& Hydrogen + Oxygen From H₂O making
SUGAR, OXYGEN + WATER



KISS
- the -
GROUND



Images courtesy of Brad Lancaster, harvestingrainwater.com



(1) Plant the Water:
Increase soil
moisture &
spark life

(2) Protect Soil:
Minimize erosion
& eliminate
chemicals

**(4) Plant Your
Ecosystem:**
Promote roots,
ground covers
& nitrogen fixers

**(3) Mix in
Organics:**
Put organics
in your yard,
not the landfill



Our typical starting point: Hot or flooded
Lack of integration with water and landscape
resources...

Plant the Rainwater



Divert Greywater



Soil microbes and native plants LOVE stormwater





(1) Plant the Water:
Increase soil
moisture &
spark life

(2) Protect Soil:
Minimize erosion
& eliminate
chemicals

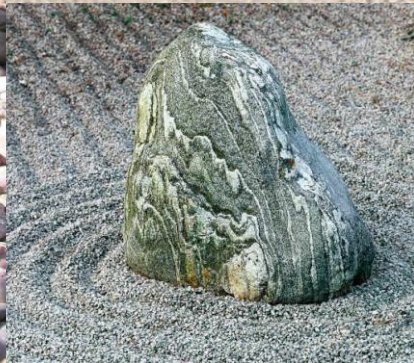
**(4) Plant Your
Ecosystem:**
Promote roots,
ground covers
& nitrogen fixers

**(3) Mix in
Organics:**
Put organics
in your yard,
not the landfill

A choice:

Resource Scarcity ? or **Resource Abundance**?







Harvestingrainwater.com

Stop these soil degrading practices

(1) Plant the Water:
Increase soil
moisture &
spark life





(2) Protect Soil:
Minimize erosion
& eliminate
chemicals



**(4) Plant Your
Ecosystem:**
Promote roots,
ground covers
& nitrogen fixers



**(3) Mix in
Organics:**
Put organics
in your yard,
not the landfill



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!



Promote bacteria for vegetables and annuals.

Mulch for Gardens

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



The shredders!





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.

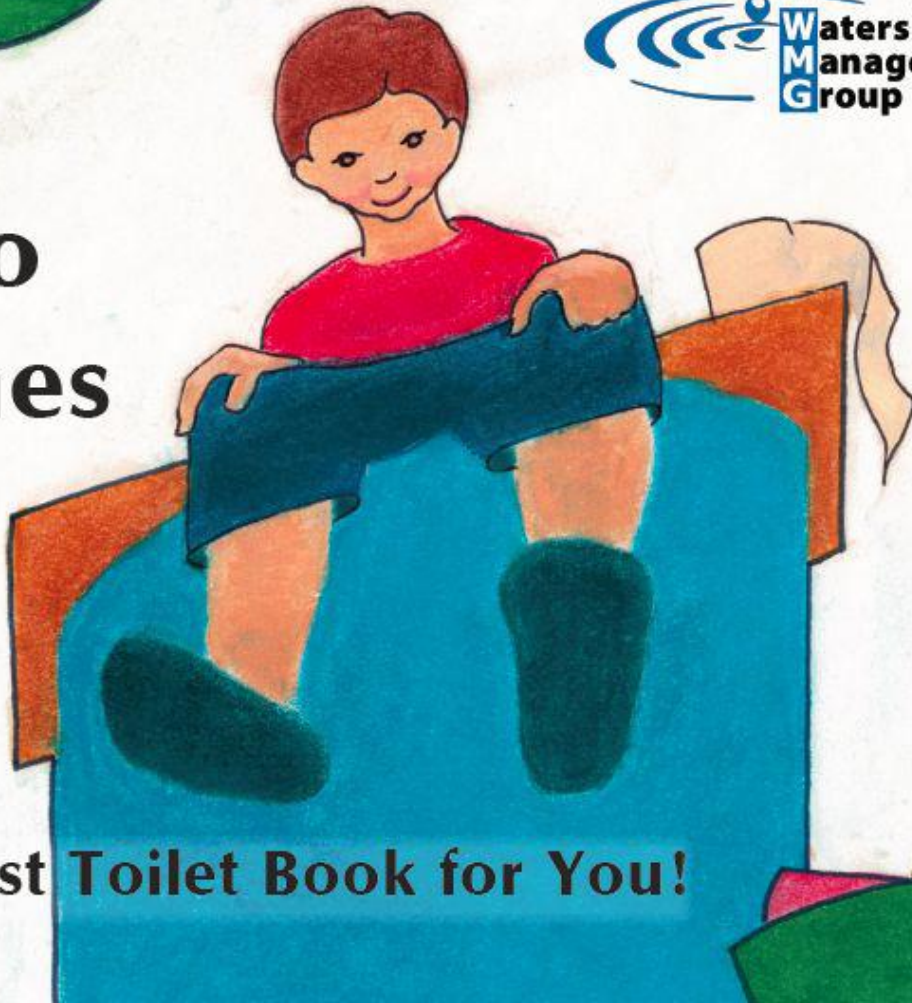
Chicken manure

And....Humanure!





Poo to Peaches



A Compost Toilet Book for You!

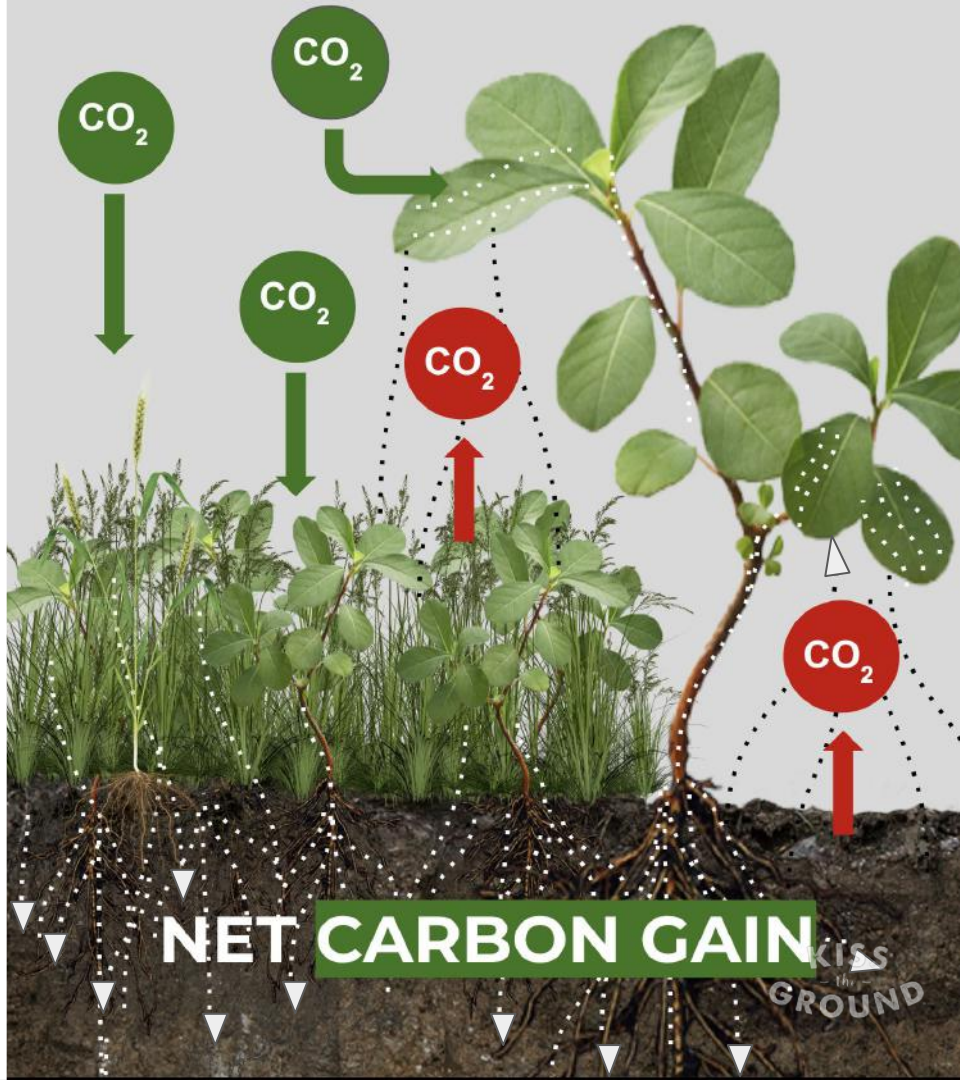
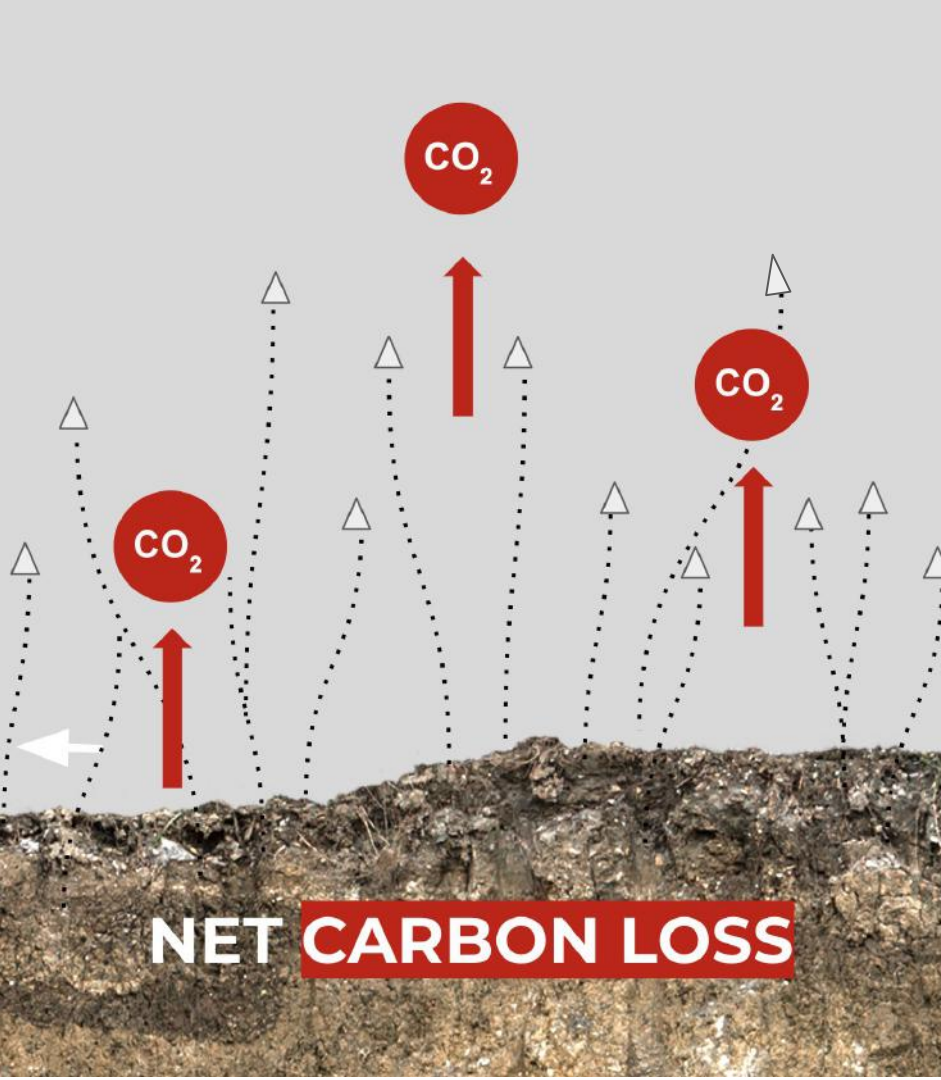
Instructions for Project review

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





DEGENERATIVE



SUSTAINABLE



REGENERATIVE



“A breakthrough book for the field of organic gardening.” —AMERICAN GARDENER

Teaming with Microbes

The Organic Gardener's Guide to the Soil Food Web

REVISED EDITION



Jeff Lowenfels & Wayne Lewis
Foreword by Elaine Ingham

Carbon Cycle Institute

About CCI

Carbon Farming

Programs

Strategic Partners

Contact Us

Donate

Healthy Soils, Healthy Communities

Opportunities to Advance Environmental Justice and Soil Carbon Sequestration



IN THE AGE OF CLIMATE CHANGE, utilizing the carbon cycle is key to mitigating risk (naturally removing legacy carbon in the atmosphere) and adapting to climate instability (building ecosystem resiliency and thus long-term sustainability for all of us). Safely in the soil, carbon is beneficial – it helps hold water and nutrients, resist drought and prevent erosion. As communities across the state of California work to build climate resiliency and improve the health of their natural environments and families, they are fundamentally re-balancing the carbon cycle.



Soil carbon reduces emissions from pesticides



Carbon-friendly practices can support small scale and immigrant farmers



Soil organic matter improves water quality and water retention



Soil Health as Environmental Justice in Rural California

Soil Carbon (or Soil Health) Work is also Environmental Justice Work.



Managing fire carbon and soil health creates jobs

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 *

Thank you!



Questions?

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

