



# Urban Greening at Northside

## Here we work with nature to clean and cool the air plus cultivate healthy, local foods.

At this site you will learn how trees, shrubs, and soil are able to *sequester* (capture and store) carbon dioxide (CO<sub>2</sub>) from the air to keep carbon out of our warming atmosphere.

While trees and shrubs also filter pollutants and provide cooling shade, soil building techniques improve agricultural productivity and increase water infiltration that helps replenish our underground water basins, or *aquifers*.

By working **with** the natural cycles of air, water, nutrients, and energy, we are able to sustain our soil and water and increase *biodiversity* (variety of species). Sustainable\* farmers conserve expensive water, build soil health, and foster on-farm biodiversity which reduces the need for fertilizers, pesticides, and energy.

\*Sustainable means a system that is able to use a resource so it is neither depleted nor permanently damaged. Sustainable farming, also referred to as regenerative agriculture, relies on the natural processes that do not harm the health of people or the environment.



It's calculated that the variety of trees and shrubs planted here will result in nearly eight million pounds of carbon being stored over 40 years.



The Ghamlouch family owns and operates The Grove, a Riverside area organic farm.

Here, you can learn to reduce human impacts on our planet Earth and ways to take care of, or *steward*, natural resources: soil, water, air, native plants, and wildlife.

**Begin by using your purchasing power: Support Local Farms.**

## Why Buy Local?

**Good Health** Freshly picked produce normally has more nutrients and superior taste. You can reduce the risk of many diseases simply by eating more fruits and vegetables.

**Strengthens Economy** Money spent on your community's products recirculates dollars through the local economy, providing jobs and supporting independent family farms and businesses.

**Healthier Environment** Locally grown foods require less packaging and transportation, which means less waste, pollution, and fewer greenhouse gases that alter climate.



Find locations for buying fresh produce, plus resources for farming and gardening in the *Fresh and Local* food and ag guide:

Riverside Food Systems Alliance  Riverside-Corona Resource Conservation District 



The Sanematsu Family in 1953

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## Preserving Our Agricultural Heritage

Native Americans used this once abundant meadow for food and raw materials.

Later, in 1913, Denzo and Shie Sanematsu developed a working farm on this site, raising chickens and row crops. During World War II the Sanematsus and their six children were forced to leave their farm as part of the federal government's unjust incarceration of persons of Japanese descent. Neighbors watched over the land, so that after the war the family was able to return to the farm. The Sanematsus continued farming for another 50 years growing persimmons and vegetables, including Japanese *daikon* and *gobo*.



These Northside signs were developed by the Riverside-Corona Resource Conservation District. Contact RCRCO with your land conservation needs: rccrd.org

# What Can You Do for a Tree?

## Need a Tree?

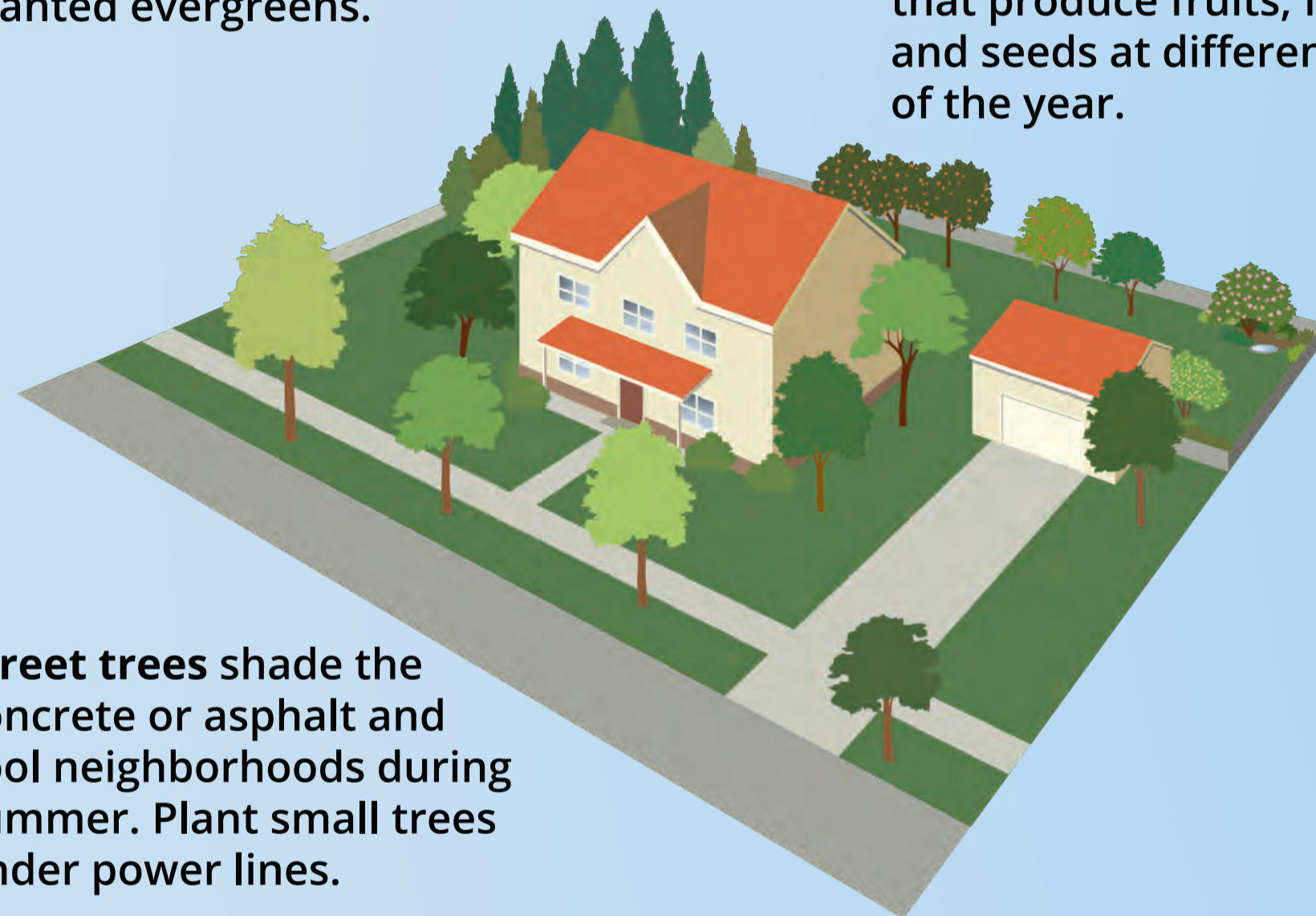
Most trees have the potential to outlive the people who plant them, so take time to select the right tree for the right place.

- Consider:
- growing space
  - height and width
  - drought tolerance
  - root restrictions

Fruit and nut trees provide food for people and wildlife.

A windbreak along the north side blocks Santa Ana winds. Include a row of densely planted evergreens.

Create year-round habitat for wildlife by growing native trees and a variety of plants that produce fruits, flowers, and seeds at different times of the year.



Street trees shade the concrete or asphalt and cool neighborhoods during summer. Plant small trees under power lines.

Deciduous trees on the south and west sides of buildings provide cooling shade in the summer and allow sunshine in during winter.

Start with healthy trees. At the nursery, avoid stock with circling roots, sickly looking leaves, or wounds and signs of boring insects on the trunk.

Consult an arborist for advice, or use a tree selection tool, like Selectree.



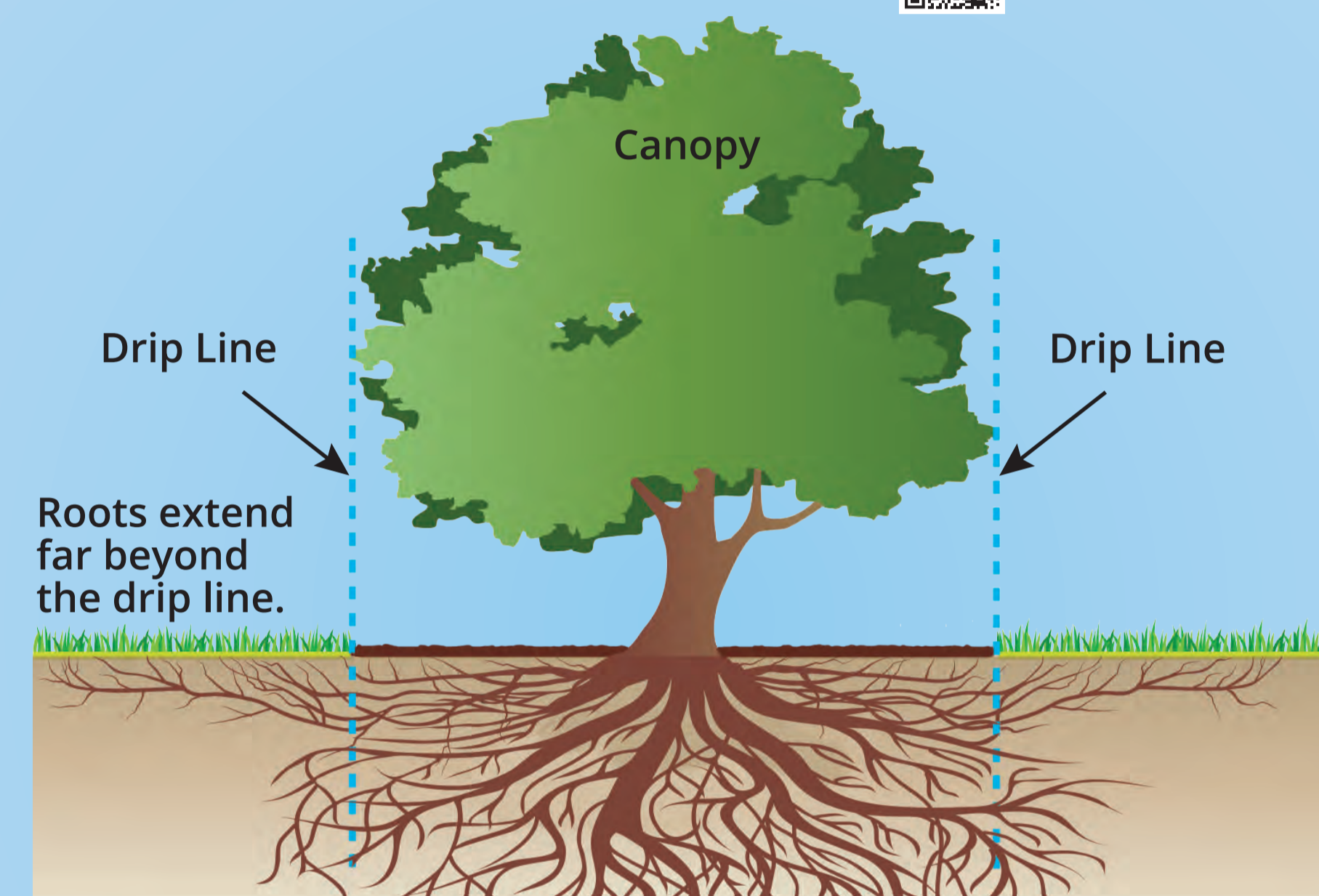
To learn about tree care and find a certified arborist, see [TreesAreGood.org](http://TreesAreGood.org) and the publication *Tree Care*



## Nurture Nature

**Water, especially during drought.** Small plants can easily be replaced, but trees are a decades-long investment. Regular watering is the single most important factor for tree health, preventing disease and pest invasions.

Learn more at [Waterwise Tree Care](#)



**Weed.** By keeping the base of the tree free of lawn and weeds, the tree has less competition for water and nutrients.

**Leave the Leaves.** Allow leaves to decompose and release plant nutrients. If the tree needs additional fertilizer, spread compost. Avoid touching the trunk with compost or mulch.

**Protect.** Create a buffer zone at the base of a tree's trunk. Protect the trunk from mower and trimmer damage and the tree's foundation, the roots and soil. Don't park over roots.

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## Need to Prune?

No branch should be removed without a reason, because each cut has the potential to change the growth of a tree. Removing too many branches will send a tree into a spiral of decline. Are there dead, damaged, or diseased branches? If necessary, prune to eliminate hazards and to remove crossed or crowded branches.

Never "top" a shade tree by cutting off the top of a trunk. Topping destroys the form of the tree and creates weak, hazardous limbs that require excessive pruning and cost in the future.



Before pruning, check for nesting wildlife, especially during spring and summer. Nearby noise and movement impact nesting and young.

Learn more at [TreeCareForBirds.com](http://TreeCareForBirds.com)



Become an informed consumer of tree care services. Learn about pruning young versus mature shade trees at [InlandUrbanForestCouncil.org](http://InlandUrbanForestCouncil.org). See *A Practical Guide to Tree Pruning- How not to get clipped!*



West Coast Arborists, Inc. Training Department



Many trees never need trimming. Trees aren't like people, they don't need regular haircuts.

West Coast Arborists, Inc. Training Department

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# What Does a Tree Do for You?

**Helps You Breathe** Trees filter airborne pollutants. Each year a large tree absorbs about 10 pounds of air pollutants and produces nearly 260 pounds of oxygen, enough to support two people.

**Cools the Air** A city tree shades heat-absorbing surfaces like roads and roofs reducing the *urban heat island effect*, where cities are warmer than surrounding natural environments.

**Saves Money** When strategically placed, a tree cools buildings, reducing on average about 9% of annual air conditioning cost.

**Captures Carbon** Carbon is a greenhouse gas that speeds up the heating of our atmosphere leading to changes in climate. A large tree removes the amount of carbon dioxide (CO<sub>2</sub>) from the atmosphere that is equivalent to emissions from a typical car driven 500 miles. The tree *sequesters*, or stores carbon as part of its wood and roots.

**Provides Habitat** A tree provides an excellent framework for perches, nesting sites, and shelter for some wildlife. Cavity nesting birds use hollow spaces in trunks to build their nests and raise their young. Learn about conserving trees for nest cavities at [CavityConservation.com](http://CavityConservation.com).



**Provides Food** Native trees are especially good for wildlife, providing nectar, berries, seeds, acorns, and attracting insects.

**Good Investment** A large tree in the Inland Empire provides \$3,880 in benefits over its lifetime, providing over a **300% return on investment.\***

**Controls Flooding** While roots hold the soil, leaf litter absorbs water, reducing runoff and increasing water infiltration. Less runoff means fewer pollutants flow to our waterways, resulting in better water quality and wildlife habitat.

**Did you know?** Studies show that trees help people heal quicker, learn better, and reduce stress.



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Find out the value of your tree by using the Tree Benefit Calculator



\*Calculated in 2011 by the Urban Ecosystems and Social Dynamics Program at the USDA Forest Service Pacific Southwest Research Station.

# What's a Watershed?

*Watershed* describes an area of land that drains and concentrates water into a watercourse: a creek, wash, arroyo, stream, or river. A watershed is like a funnel: all the water that falls on the ground flows downhill and together.

Wherever you live, you live in a watershed. In urban areas, rain water flows down streets into storm drains inlets, through pipes or concrete channels, and directly to the Santa Ana River. The water is NOT cleaned at a treatment plant. Only wastewater that leaves your home drains to sewer or septic systems for treatment.

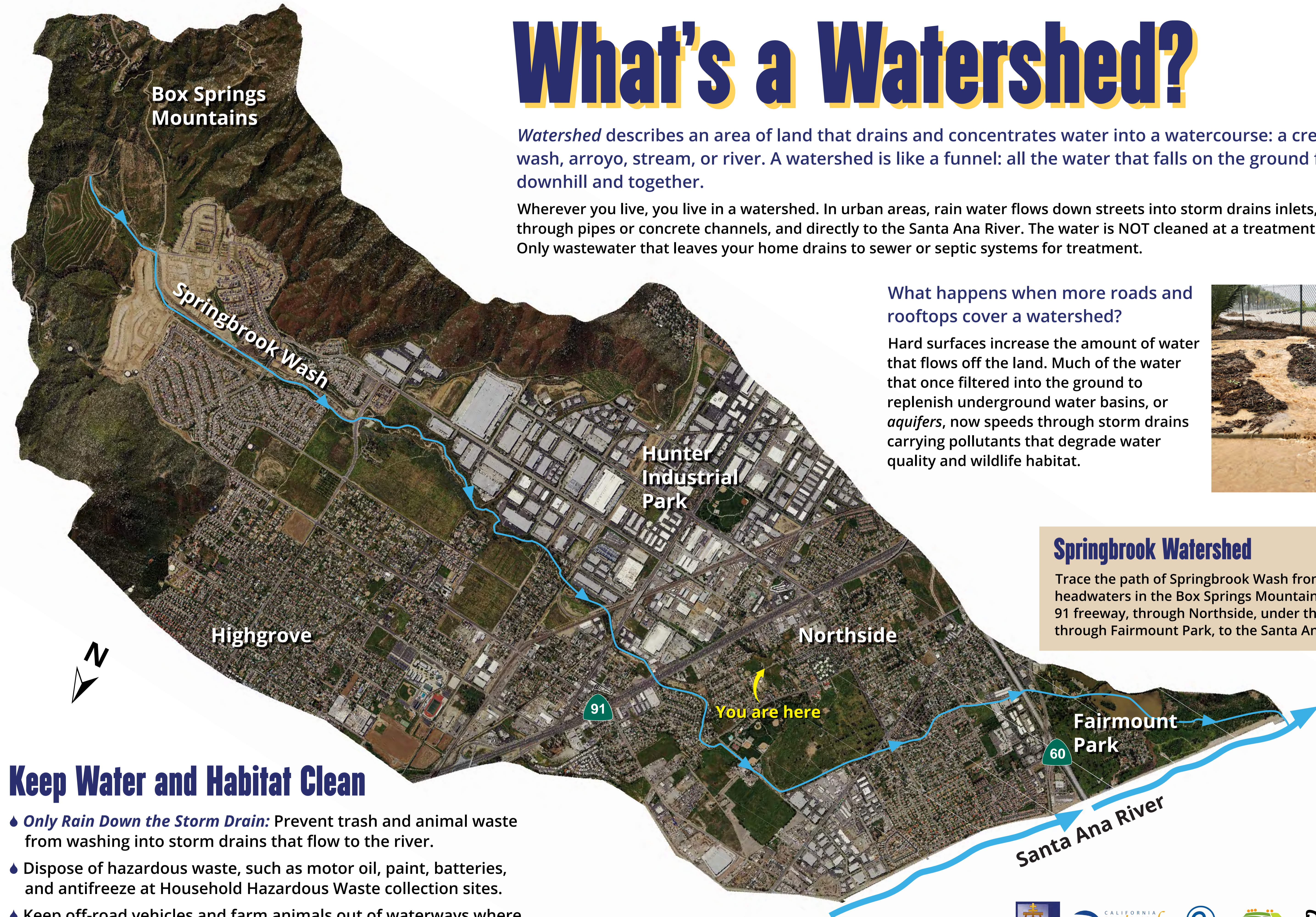
What happens when more roads and rooftops cover a watershed?

Hard surfaces increase the amount of water that flows off the land. Much of the water that once filtered into the ground to replenish underground water basins, or *aquifers*, now speeds through storm drains carrying pollutants that degrade water quality and wildlife habitat.



## Springbrook Watershed

Trace the path of Springbrook Wash from the headwaters in the Box Springs Mountains, under the 91 freeway, through Northside, under the 60 freeway, through Fairmount Park, to the Santa Ana River.



## Keep Water and Habitat Clean

- ◆ **Only Rain Down the Storm Drain:** Prevent trash and animal waste from washing into storm drains that flow to the river.
- ◆ Dispose of hazardous waste, such as motor oil, paint, batteries, and antifreeze at Household Hazardous Waste collection sites.
- ◆ Keep off-road vehicles and farm animals out of waterways where they may erode stream banks and pollute water.



# Habitat Means Home

This **Habitat Area** has been planted with native trees and shrubs, including local species of oak, sycamore, black walnut, and toyon. Native plants provide the best type of habitat (homes with food, shelter, nesting sites, and water). Here quality habitat has been placed near a small tributary of Springbrook Wash, which is adjacent to the property boundary. The creek provides seasonal water for wildlife and riparian plants. *Riparian*: meaning along a waterway, stream course, or wash.

**Red Tailed Hawk**



**Barn Owl**



**Kestrel**



Farmers install raptor boxes above fields to attract barn owls that will help control rodent populations.



## Farmers Work With Nature

Sustainable growers often rely on natural predators to control pests. Farms that provide habitat attract wildlife, including helpful predators.

**Pallid Bat**



**Bobcat**



**Coyote**



**Gray Fox**



**Granite Spiny Lizard**



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Living on the Edge of the Urban-Wildlands Interface:



Photo credits: Pallid Bat, Micaela Jemison/Bat Conservation International; Spiny Lizard, Stan Fry/PhotosbyFry; Bobcat, Matt Knoth/Shutterstock; Coyote, Shutterstock; Gray Fox, sunsinger/Shutterstock; Red-Tailed Hawk, DeeDee Gollwitzer; Kestrel, Laurie Meikle Photography; Barn Owl, ElvisCZ/Pixabay.com

# Pollinator Paradise... at Nick's Garden



Mexican Long Tongued Bat

## Tiny Creatures with Big Jobs

Plants rely on wind and animals to move pollen for them. As pollinators move in search of energy-rich nectar and high-protein pollen, they unintentionally spread pollen, fertilizing flowers. In doing so, they help feed the world, as a third of food crops rely on pollinators for successful seed and fruit production.



Costa's Hummingbird



Great Northern Bumblebee



Anise Swallowtail Butterfly



Green Sweat Bee



Sphinx Moth



Tarantula Hawk



Do you see any pollinators in the garden?



Pollinators are in decline due to fewer natural habitats, toxic pesticide use, disease, and invasion of non-native plants that displace natives.

## How Can You "Bee" Pollinator-Friendly?

- Plant a variety of native, flowering plants that bloom throughout the seasons.
- Include *host plants* for caterpillars. Some pollinators are specialists, requiring specific plants for a part of their lifecycle. **If their host plant disappears, so do they!**
- Provide some undisturbed natural areas. Leave the leaves.
- Leave some bare areas for ground nesting native bees.
- Purchase locally-grown, pesticide-free fruits and vegetables.
- Eliminate the use of insect and weed killers.

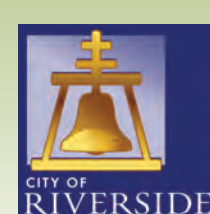


Bee houses provide the perfect habitat for solitary, hole-nesting bees. They typically include wooden crevices, hollow reeds, or cardboard tubes.



## Who Was Nick?

Nick Melquiades was the lead advocate for a community garden in Riverside's Northside neighborhood, in fact he helped write the grant that funded the \$3M urban greening project. Nick served as the Riverside Garden Council chair and was a founding member of the Riverside Food Co-op and Riverside Food Systems Alliance. We are deeply saddened that we lost Nick in 2020 due to the pandemic, and have named the garden in his honor for his dedication to making healthy, local foods available to all.



# Nature's Pest Control

## Beneficial Predators

Spiders and beneficial insects, such as ladybird beetles (ladybugs) and lacewings move into crops to prey on pests like aphids, scales, and spider mites. This method of suppressing pests using living natural enemies is referred to as *biological control*.



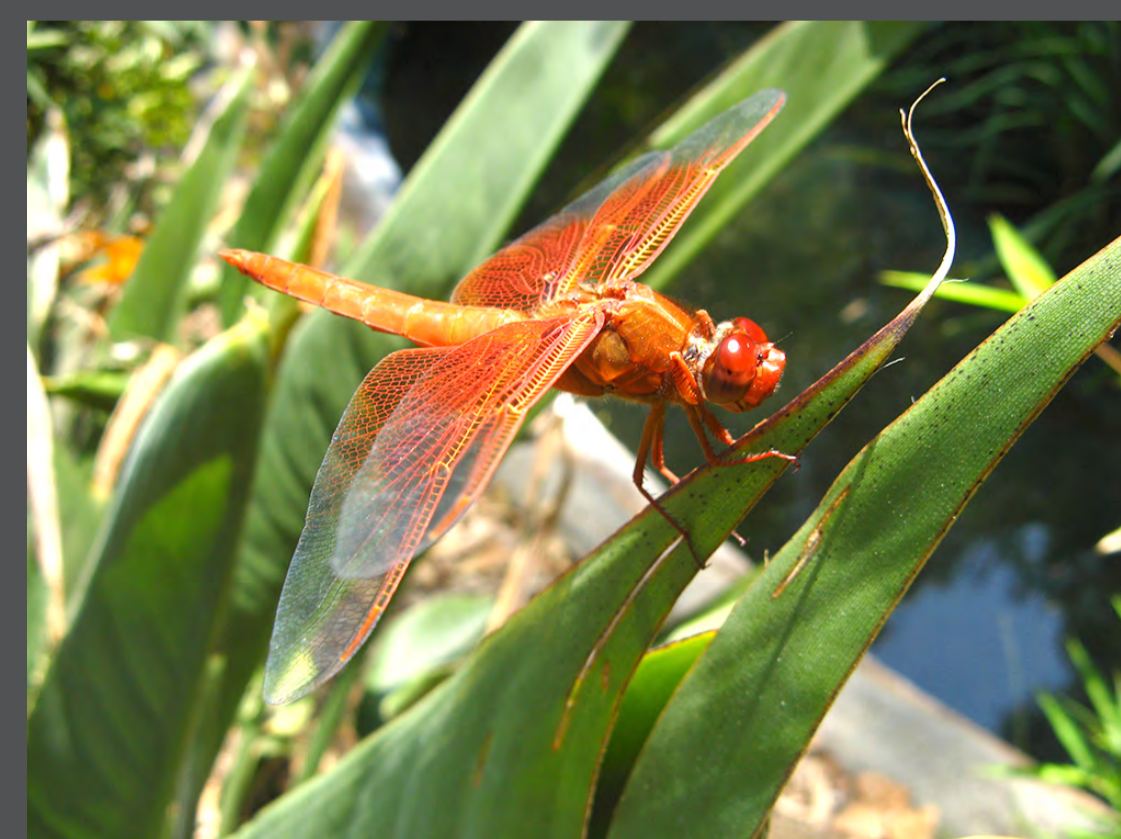
Green Lacewing



Praying Mantis



Orb Spider



Dragonfly



Ladybird beetle larva (above) and adult (right)



Syrphid Fly (Hoverfly)

## Under Cover

Farm cover crops and hedgerows provide habitat for helpful creatures that suppress pests. Native plant cover crops provide for a greater variety of pollinators and beneficial insects.

Cover crops shade out weeds and improve soil health. This carbon farming practice helps the soil absorb rain and resist erosion. It reduces compaction and improves water holding capacity.



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# Hedgerow Havens



A hedgerow is a row of shrubs, with or without trees, that borders a field and functions as a “living fence”.

## Farm Hedgerows Help by Providing:

- ✓ habitat for beneficial insects that help control pests, reducing the need for pesticides
- ✓ nectar and host plants for pollinators, and
- ✓ corridors and habitat for natural predators, helping with rodent control.



Farm hedgerows buffer for dust, noise, odors, and pesticide drift. Hedgerow plants shade out weeds and store carbon. Their roots control erosion and filter runoff, reducing water pollution and increasing water infiltration and groundwater recharge.

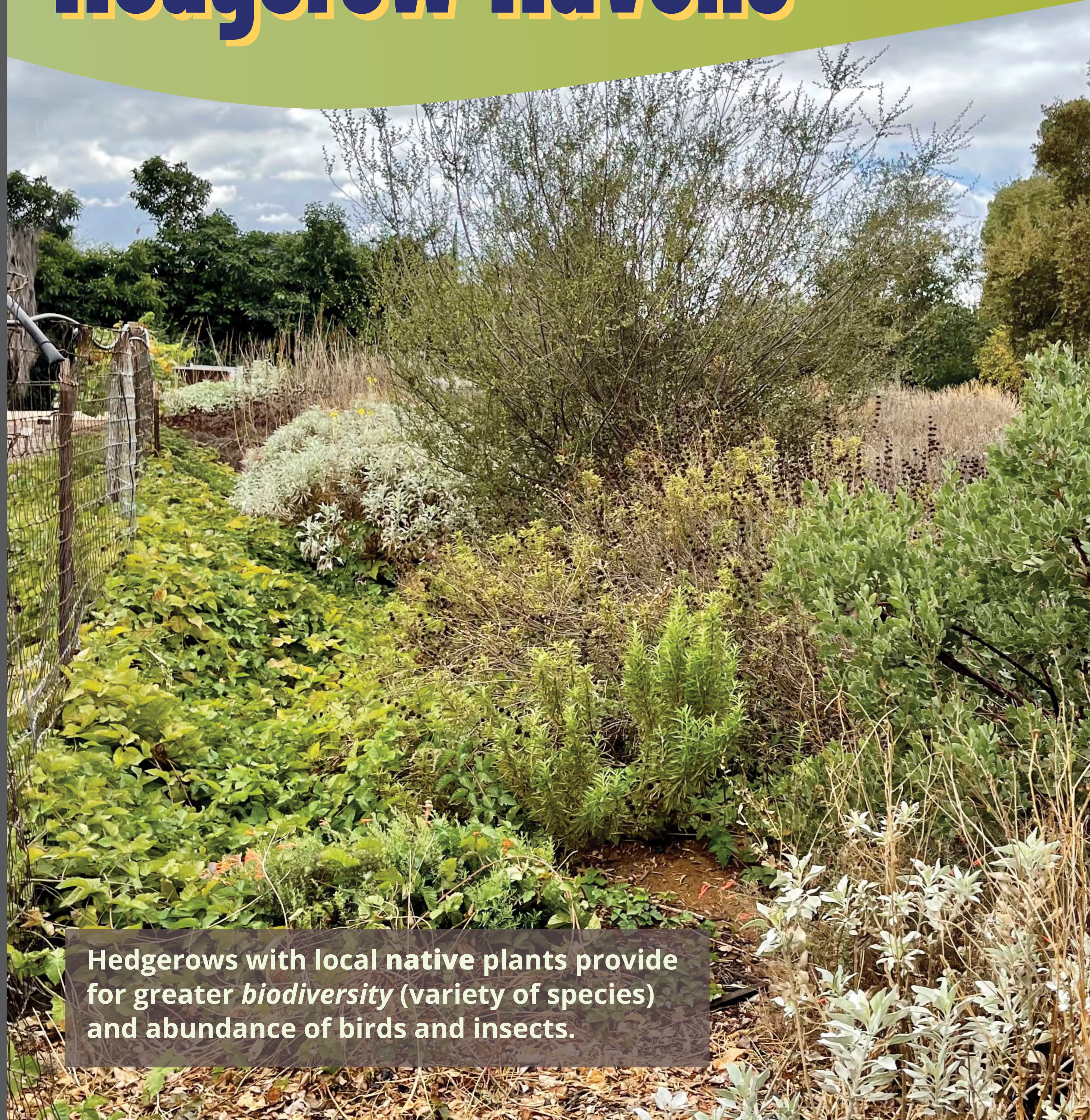
Find a list of local native plants for hedgerow plantings



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Hedgerows with local native plants provide for greater *biodiversity* (variety of species) and abundance of birds and insects.



# Natural Methods for Healthy Farms

A grower makes many decisions about factors that affect long-term sustainability, including those that conserve the natural resources on the farm and of neighboring areas. Growers use *best management practices* to steward (take care of) their soil, water, air, wildlife, and native plants.

## Keeping Soils Healthy

*Soil health* is the continued capacity of soil to function as a living ecosystem that sustains plants, animals, and humans. Farmers use a variety of on-farm regenerative and carbon storage practices:

- compost
- mulch
- hedgerows
- crop rotation
- crop residue use
- cover crops
- grassed waterways
- filter strips
- windbreaks



© Washington State Department of Transportation

Although many farmers commonly use chemical fertilizers to supply nitrogen, compost is a natural fertilizer that also improves soil manageability.



Tom McCabe, USDA Natural Resources Conservation Service

In this field, mulch has been spread in the tree rows. Between the rows, the roots of a cover crop improve soil aeration and structure.

## Keep Soil Covered and Alive!



**Mulch** is a ground covering that shades out weeds; reduces runoff, erosion, and evaporation; and increases water infiltration.



**Compost** is a natural fertilizer that is used to enrich soil. Compost is made of decomposed organic matter (things that were once living, but have died and decayed, freeing the nutrients for plant use).

## Conserving Water

A well designed and managed irrigation system applies just enough water for optimum plant growth and crop production without excessive water loss, soil erosion, or accumulation of salts in the soil.



USDA Natural Resources Conservation Service

To conserve expensive water, local growers commonly use low volume irrigation systems that control the amount of water applied to each plant. Efficient systems are designed to allow separate operation of irrigation sets according to plant varieties, slopes, and soil differences.

**Irrigation scheduling is often based on weather station data and/or soil moisture sensors.** Periodic irrigation system audits ensure the efficiency and uniform distribution of water to meet crop needs across an entire field.



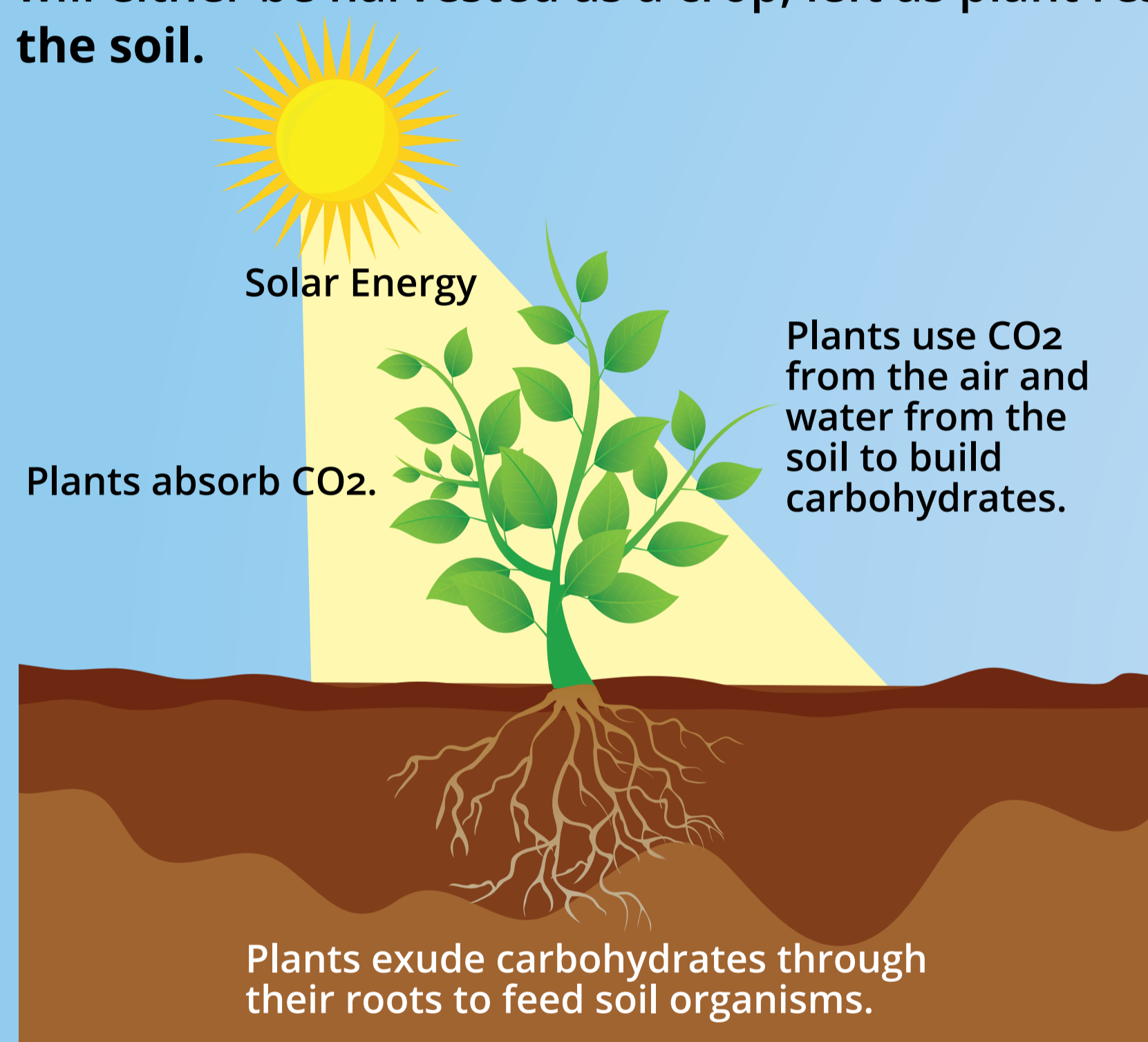
© Coachella Valley Water District

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# Carbon Capture

Solar energy drives plants to transform carbon dioxide (CO<sub>2</sub>), an invisible, odorless gas, from the atmosphere to form carbohydrates (sugars) which provide for plant growth. That carbon will either be harvested as a crop, left as plant residue, or **released through the roots into the soil.**



Sugars are sticky and help particles aggregate into clumps, which creates larger pores in the soil. Pores help retain water and provide space for root growth and soil life.



**Organic matter** includes dead and dying plants, animals, and microbes that free nutrients for plant use as they decompose.

Organic matter in soil:

- ✔ improves soil structure and water infiltration rates, and thus drought resilience
- ✔ reduces runoff and erosion, keeping soil and water available for plant growth
- ✔ filters pollutants providing for cleaner storm water
- ✔ provides fuel for microbes that “feed” the intricate soil food web.

## Carbon Farming

Agricultural soils and trees *sequester* (store and capture) CO<sub>2</sub>. When farmers maintain soil cover and living roots, carbon is stored.

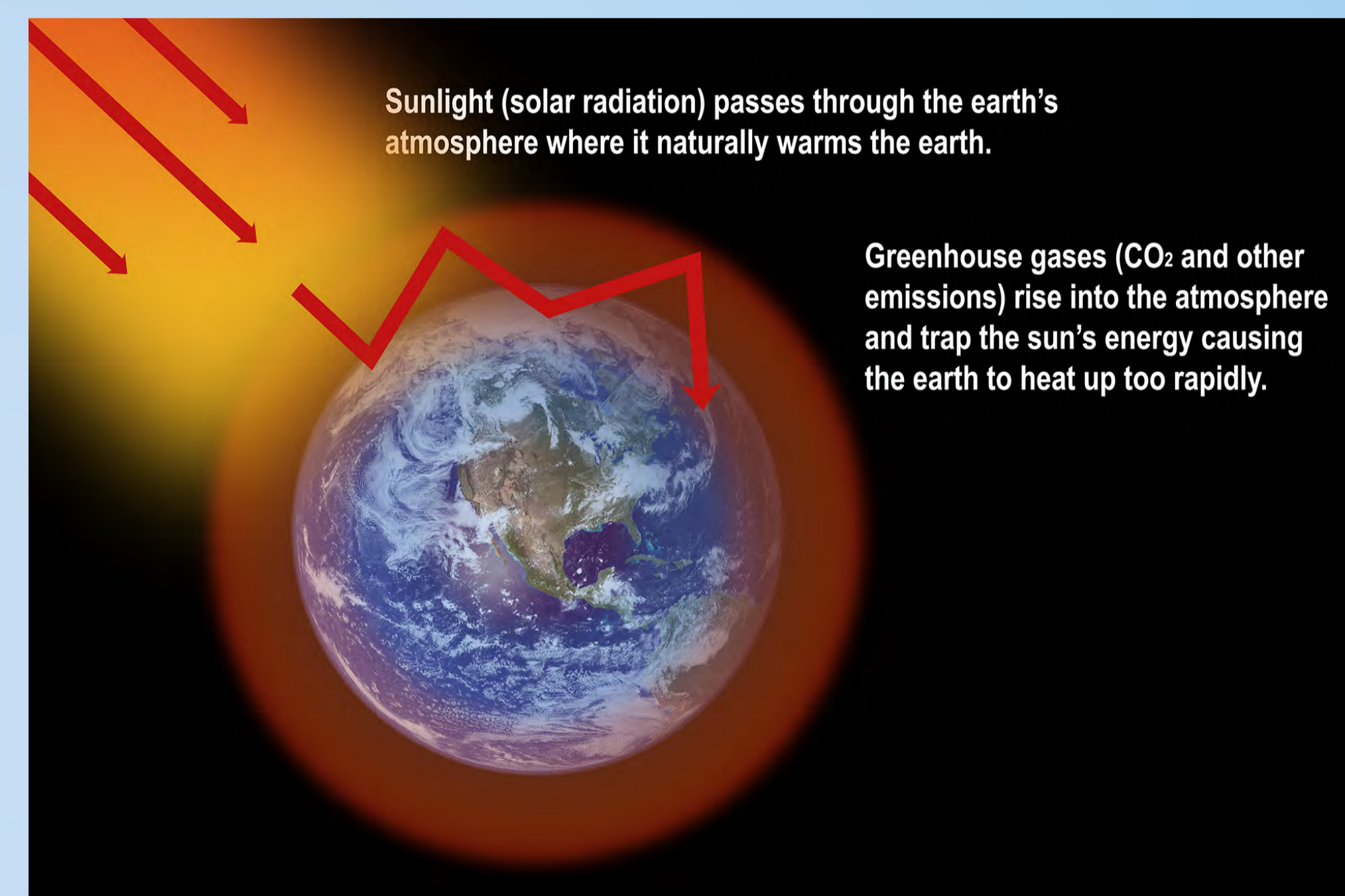
Carbon is lower in lands that have been tilled, because the underlying soil has been disturbed, killing roots and soil organisms.

COMET-Farm is a USDA greenhouse gas accounting tool that can be used in the carbon farm planning process.



## Climate Change

Have you ever walked into a greenhouse and felt the warm air? Like a greenhouse that’s used for keeping plants warm, the *greenhouse effect* refers to the warming of the entire Earth’s atmosphere. Carbon dioxide levels in the atmosphere serve as the world’s thermostat: as CO<sub>2</sub> gets higher, the Earth gets warmer.



Additional heat melts ice, raising sea level, and creates weather extremes like severe storms, drought, and flooding. Sadly, climate change leads to food and water shortages, mass migrations, and starvation.

Combustion engines from industry and transportation burn fuels that add greater amounts of CO<sub>2</sub> and other greenhouse gases into the atmosphere, raising temperatures.



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# Planning For Success

There's a lot more to farming than growing the crop. One essential skill that a grower needs is the ability to think ahead and evaluate many variables, such as financing, employees, post-harvest management, and transportation to market. An important first step is to determine the potential market in advance: knowing where to sell the crop before planting it.

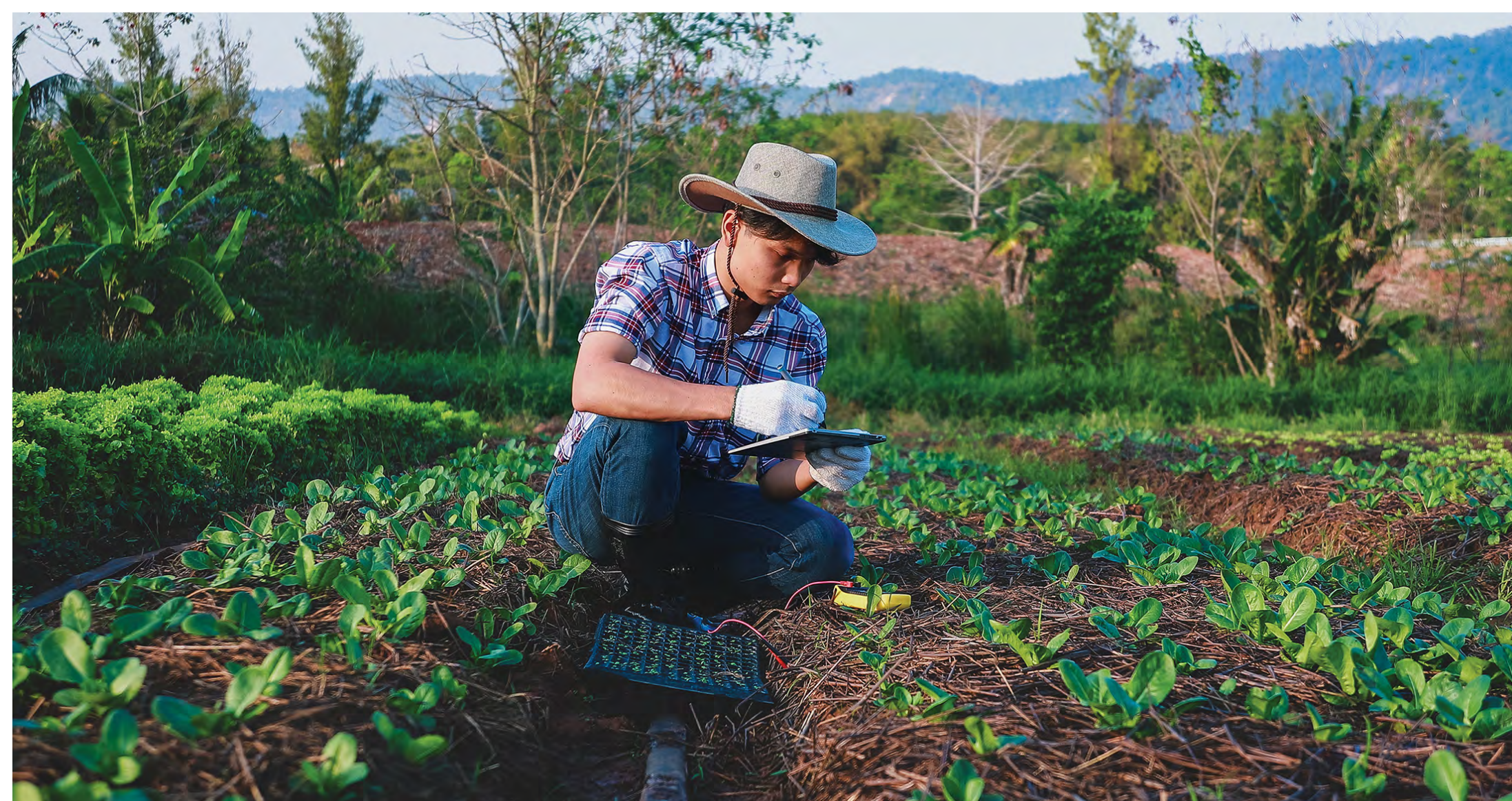
Plans may be required or helpful, such as for business, food safety, marketing, staff safety, and conservation for the future sustainability of natural resources.

Find out about *Good Agricultural Practices* training for food safety at: [riversidefoods.org](http://riversidefoods.org)



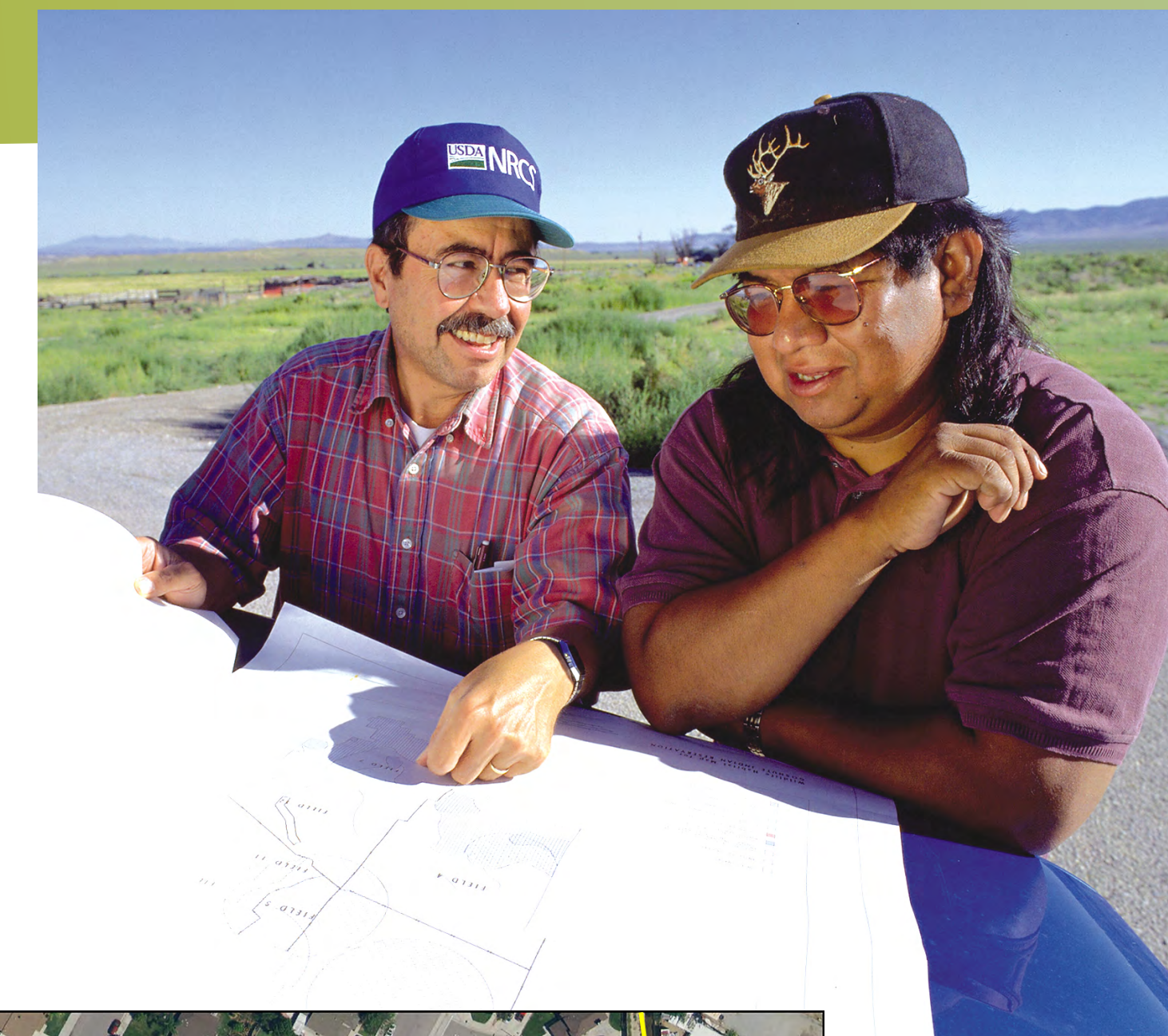
Even before leasing or purchasing land, a farmer is wise to consider site conditions, including:

- 🌿 soil qualities and limitations
- 🌿 water availability and cost
- 🌿 topography and flow of runoff
- 🌿 existing vegetation and presence of sensitive wildlife or plant species
- 🌿 land use history and possibility of archaeological artifacts.



The USDA Natural Resources Conservation Service provides free conservation planning assistance to growers. A **conservation plan** starts with a site evaluation and includes a variety of recommended practices, such as for soil health, erosion control, irrigation water management, and integrated pest management.

A *conservation plan* is deciding what to do in the future about the best combination of crops and practices for a sustainable use of resources.



Ron Nichols, USDA Natural Resources Conservation Service



— Property Line      — Soil Type Boundary      ← Seasonal Creek

**RaB2:** Ramona sandy loam has a root zone that is greater than 60 inches deep; high natural fertility; 2-5 % slope with moderate potential for erosion; and moderately slow permeability.

**BuC2:** Buren fine sandy loam has an effective rooting depth of 30-42 inches; moderate to high natural fertility; 2-8% slopes with moderate potential for erosion; and moderately slow permeability.

Find information at the *Soil Survey of Western Riverside Area, California* or the *Web Soil Survey*.



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