Gardening Though the Seasons - Summer

UCCE Master Gardeners of Lake Tahoe, South Tahoe PUD and Friends of the Library

Welcome

Who are UCCE Master Gardeners?

Our mission:

To provide research-based knowledge and information on home horticulture, pest management, and sustainable landscape practices

Our Goal:

To assist Tahoe residents to cultivate beautiful Tahoe Friendly gardens that both protect and enhance our natural environment.

SOIL

Building a Foundation For Success

What do we have to work with?

Soil

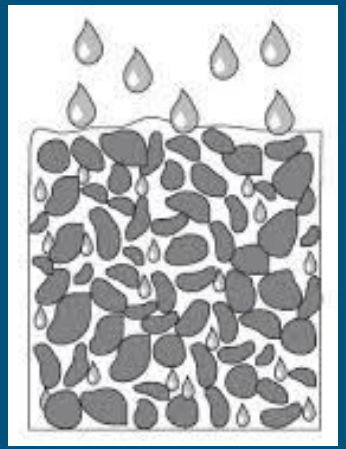
- Weathered rock
- Organic matter
- Air
- Water

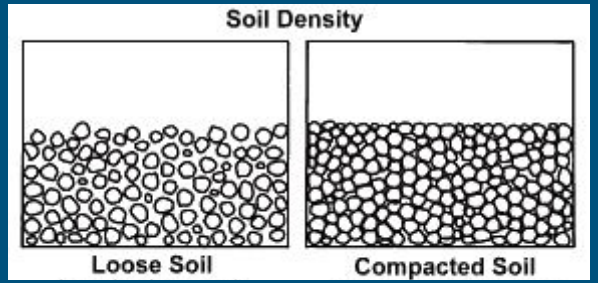
Tahoe Soils: Mostly decomposed granite

- Nutrient poor
- Highly erodible
- Poor nutrient and moisture retention

Additional Challenges that decrease organic matter in soil:

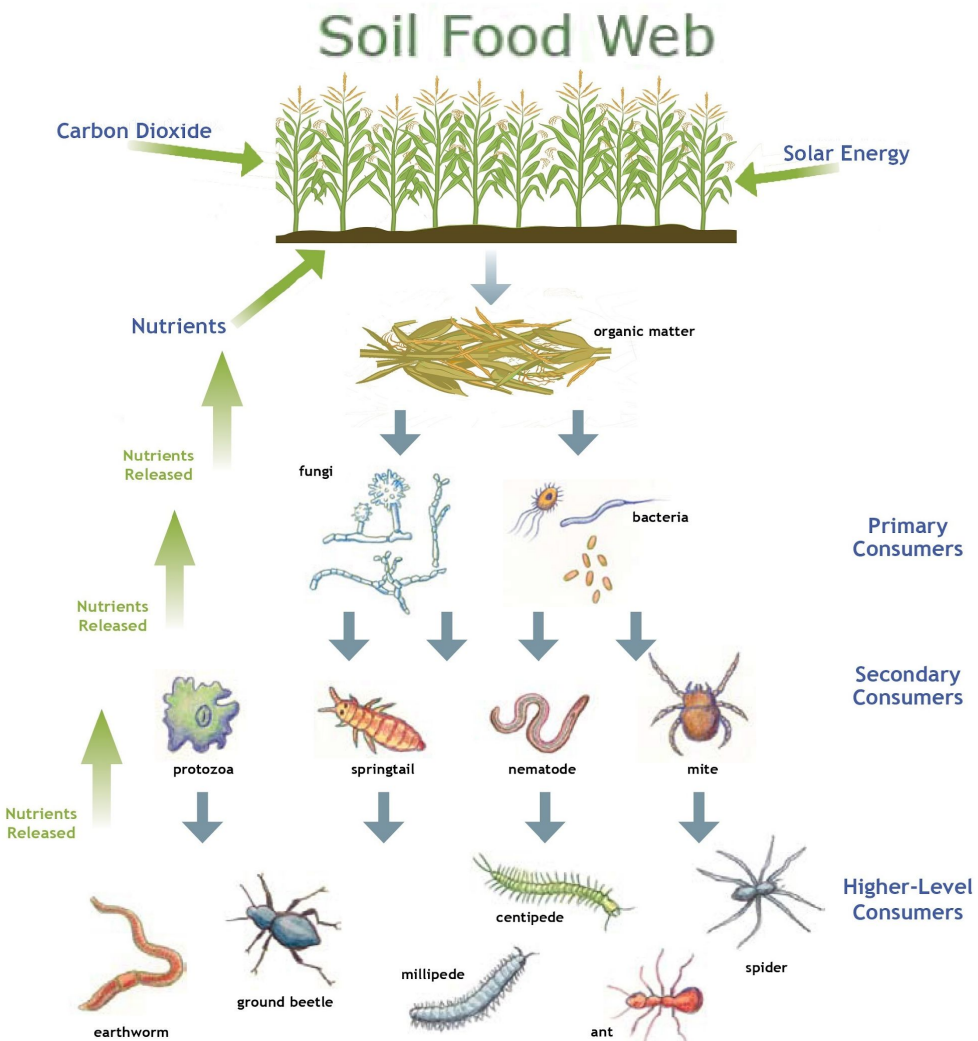
- Construction
- Landscape practices





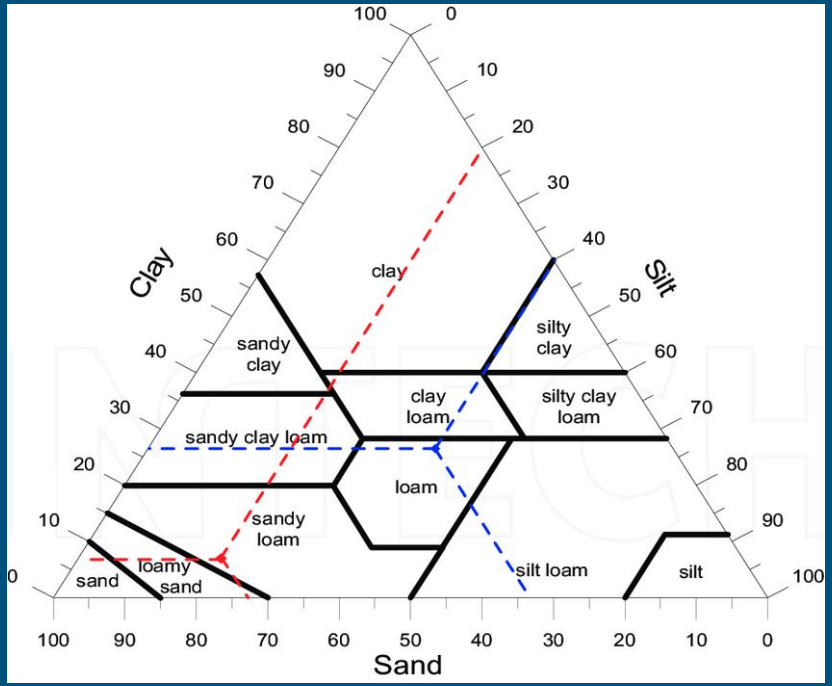
The Hidden Magic

Through photosynthesis plants capture energy of sunlight and manufacture organic molecules that supply the energy for all other organisms

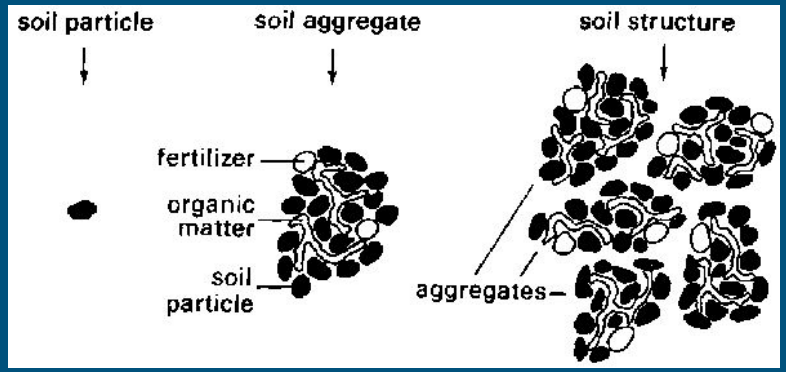


Soils Overview

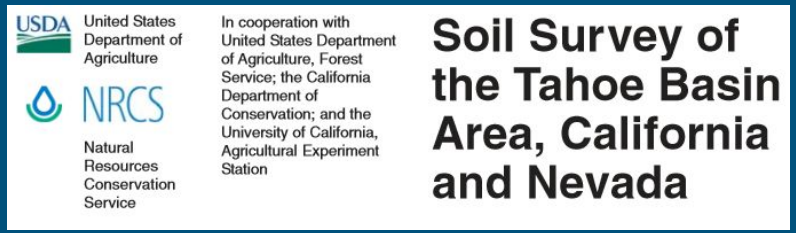
Soil Texture



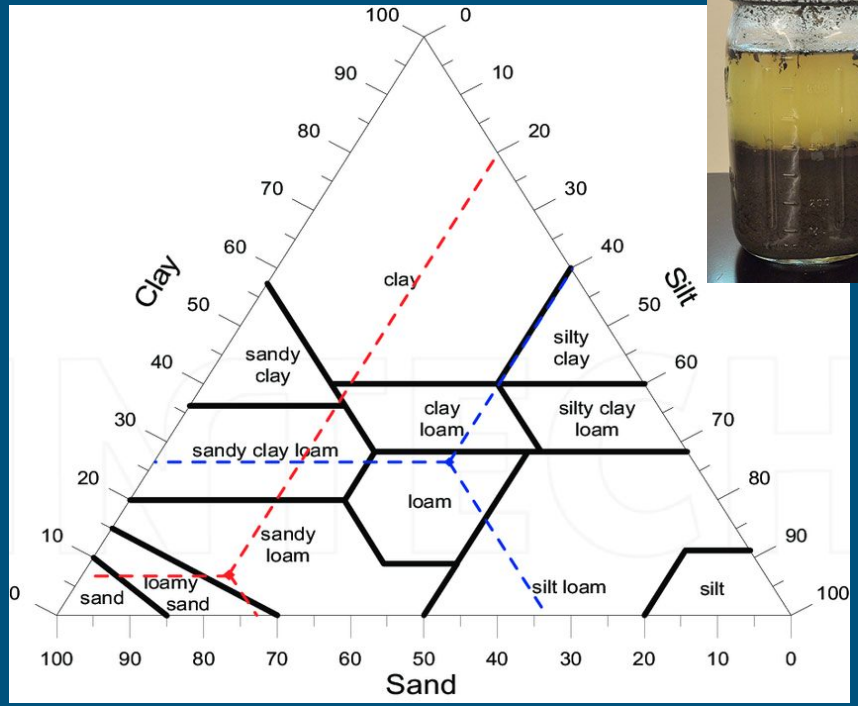
Soil Structure

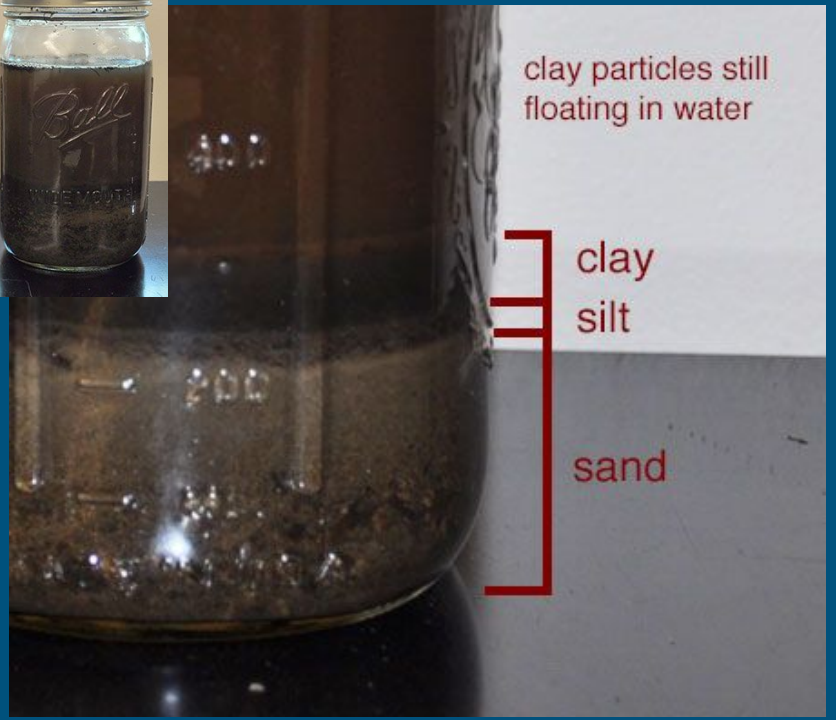


Find detailed soil type and characteristic information at: https://soils.usda.gov



Let’s make a mud shake -Yummy





Improving the Soil

To improve sandy soil:

At planting

Work in 1 to 4 inches of organic matter such as well-rotted manure or finished compost at planting.

After planting

Mulch around your plants with leaves, needles, wood chips or bark.

Annually

Add at least 1-2 inches of organic matter.

PLANT NUTRIENTS

Essential Plant Nutrients - Macro

Nitrogen [N]:

Promotes healthy leaf growth by stimulating the production of chlorophyll

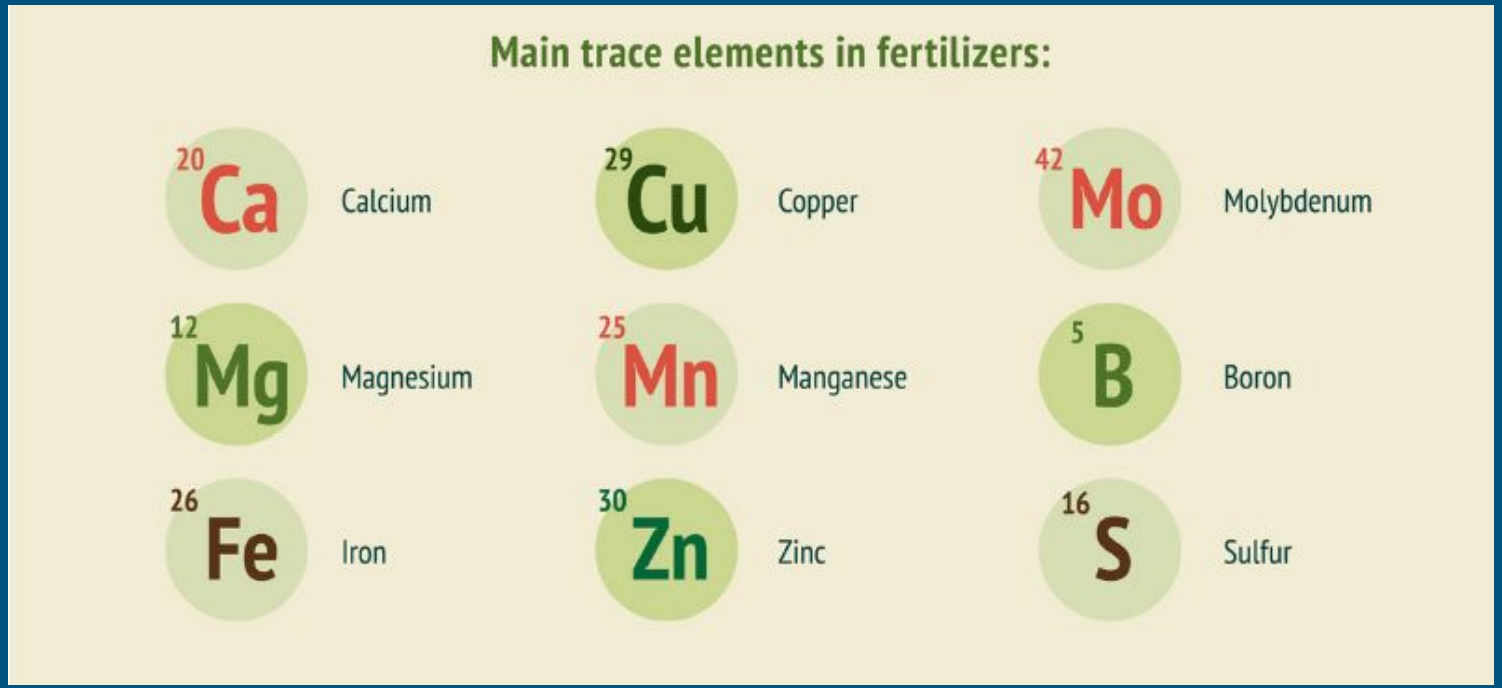
Phosphorus [P]:

Supports the development of roots, stems, blossoms, and fruit

Potassium [K]:

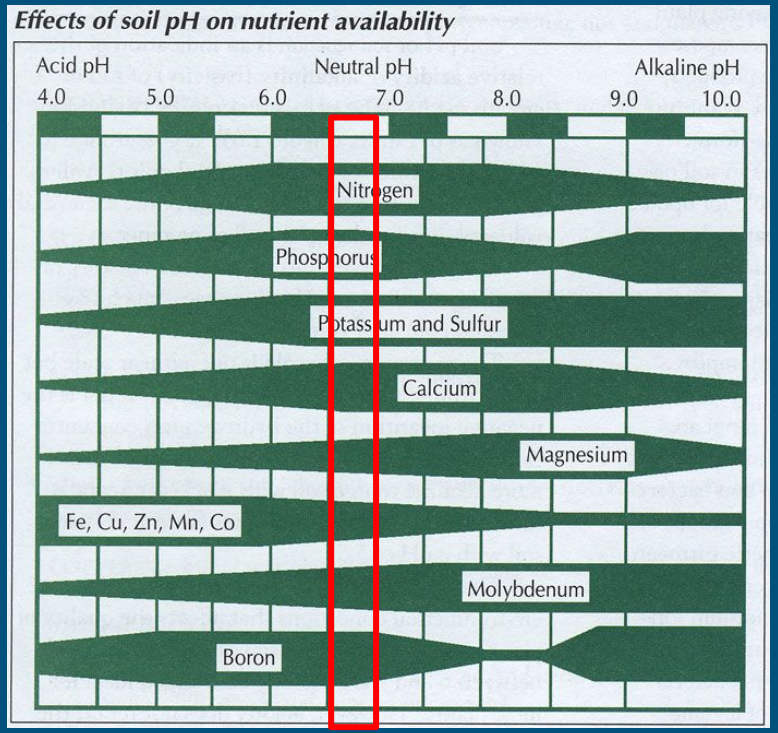
Helps root development and disease resistance

Trace Plant Nutrients - Micro



Understanding Plant Needs - pH

- Ideal range for most plants: 6.5 - 6.8
- Test your soil
- Apply organic matter to moderate pH imbalances

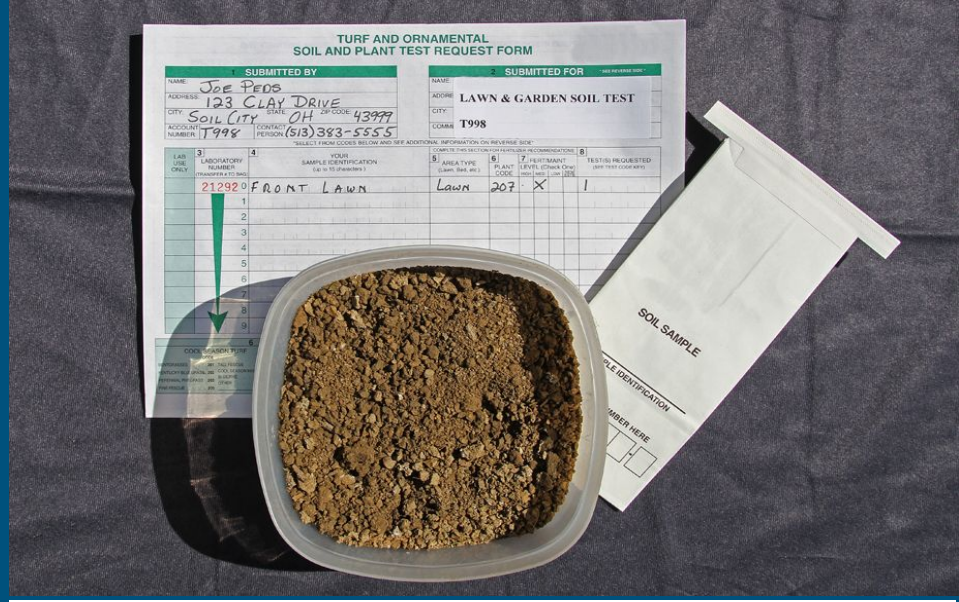


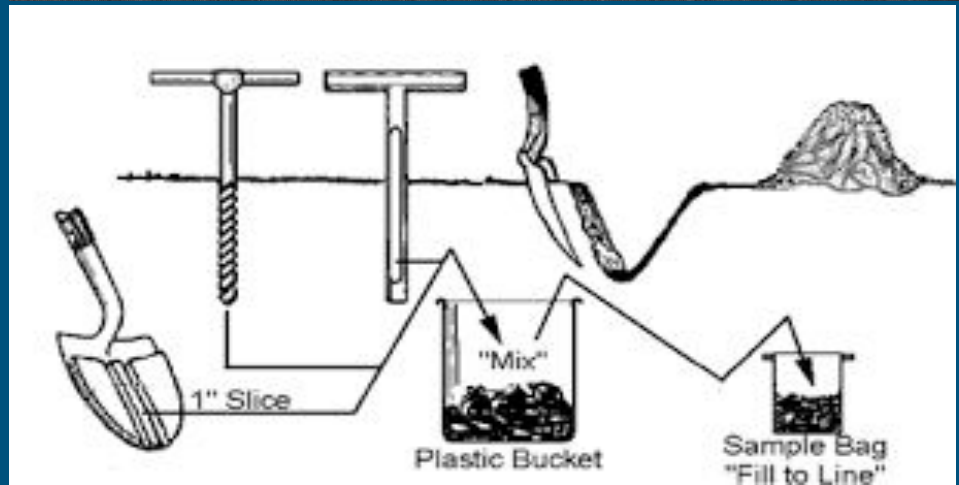
Soil Testing

What does it tell you?

- pH
- Levels of macro and micro nutrients
- Recommendations for amendments and fertilizers

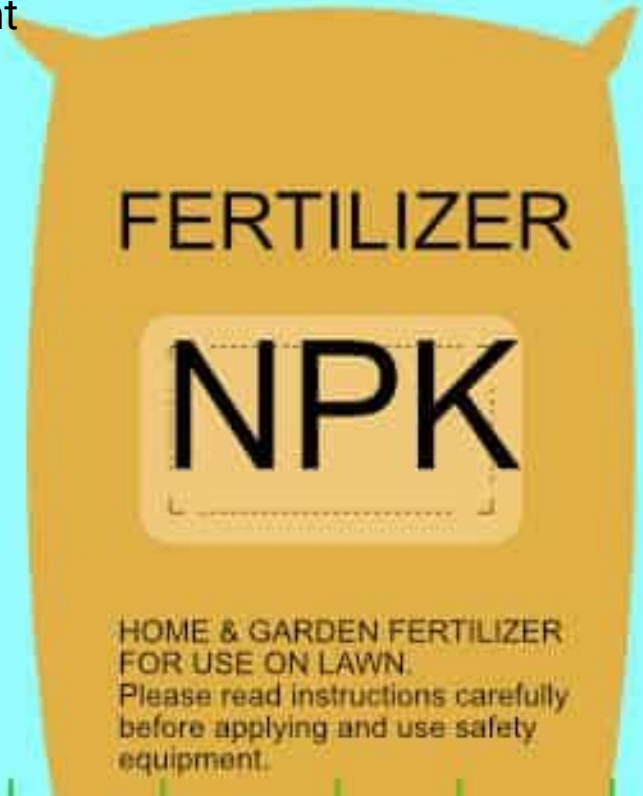
http://cecentralsierra.ucanr.edu/files/115331.pdf





Fertilizer

- Additive not amendment
- Essential nutrients
- Not needed for native plants and most Tahoe adapted plants
- Overuse of chemical fertilizer is toxic



Fertilizer Application

- Use right amount and right time-late spring and early autumn for lawns
- Avoid avoid late growing season application for perennials
- Sweep spills from hard surfaces
- Don’t use within 25 feet of a stream, riparian area or lake
- Don’t wash away or past roots by overwatering

Tahoe Friendly Fertilizer Alternatives

Organic fertilizer

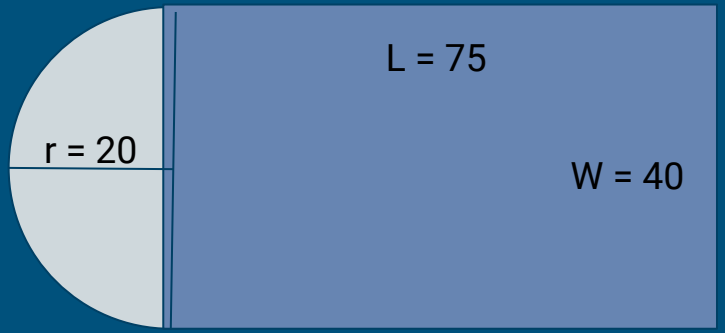
Organic Amendments

- Lawn clippings
- Animal manure
- Compost
- Worm castings
- Fish meal & seaweed
- Bone and blood meal

Fertilizer Application - Calculating Area of Lawn

1. Know the size of your yard.

- Rectangles/Squares: length x width = SF
- Triangle: height x base /2 = SF
- Circle: average radius x radius x 3.14 = SF



<u>Example Calculation</u>

Area of circle: 20 x 20 x 3.14 = 1256 SF

Then area of ½ circle: 1256/2 = 628 SF

Area of rectangle: 75 x 40 = 3000 SF

Added together: 628 + 3000 = 3628 SF

Fertilizer Application - How Much?

1. Read the label on the front of the fertilizer bag for percentage N (nitrogen)

Calculate Rate of Nitrogen.

- For Tahoe, ½ - ¾ lb N per 1000 SF
- Don't follow fertilizer bag instructions of 1 lbs per 1000 SF, instead, reduce lbs by up to 50%

<u>Example: To apply ½ lb N per 1000 SF:</u>

Divide 100 by percent N

- 100/16 = 6.25 lbs of fertilizer per 1000 SF

This means 6.25 lbs of the fertilizer contains 1lb actual N per 1000 SF then multiply that by .5 for ½ lbs N for 1000 sf.

- 6.25 x .5 = 3.125 lbs of bagged fertilizer

Calibrate your fertilizer spreader to apply 3 lbs fertilizer per 1000 sq ft.

Or calculate weight of N per 1000 SF x thousands of hundreds (fraction of 1000 SF)

Example: 3.125 x 3.628 = 9.57 lbs,so approximately 10 lbs of bagged fertilizer for 3628 SF

COMPOST

Compost

What is it?

Organic waste broken down by microorganisms in the presence of oxygen

Compost

What is so Great About it?

- Adding it
  - Improves soil structure and texture
    - Helps retain nutrients, moisture, and air
    - Loosens soil so roots can penetrate more easily
  - Adds nutrients
  - Supports balanced soil ecology
- Making your own from waste
  - Reduces your greenhouse gas emissions
    - Reduces landfill methane
    - Captures carbon and harmful VOCs

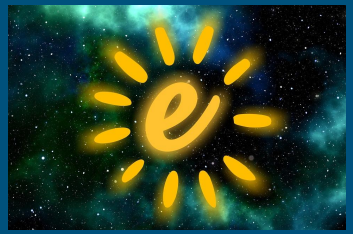
Compost:

To make your own, nourish the microbes

1 part GREEN

- fresh plant matter
  - Fruit and vegetable scraps, fresh cuts from your yard

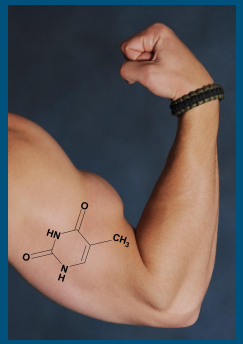
Nitrogen-rich supplies microbes with energy



1 part BROWN

- dry, light plant material
  - dried grass clippings, sawdust, newspapers, chopped-up pine needles and dead leaves.

Carbon provides microbes protein



Compost:

Support a healthy environment

Contain it - 3x3x3 feet

Supply air

Monitor moisture

Hot composting

- Temperatures at least 122-131 degrees
- 6 weeks +
- Destroys weed seeds

Cold composting

- Wide temperatures range
- Weed seeds remain viable
- Lengthy decomposition time

Compost

Available locally in bulk

Tahoe Sand and Gravel offers:

- Certified Organic Compost - a weed-free soil amendment comprised of decomposed forest products, rice hulls, gypsum, and steer manure

MULCH

MULCH

What is Mulch?

A layer of material applied to the surface of soil

MULCH

Put a lid on your soil

Holds water in soils

Prevent topsoil erosion

Stabilize temperature

Control weeds

Improve soil quality

MULCH

Organic options

Apply at least 2-3 inches deep

- Pine Bark Mulch
- Compost
- Shredded Hardwood Mulch
- Newspaper covered with other mulches

MULCH

Organic options

Naturally occurring mulches

- Leaves - chop and mix with other materials 3-4 inches thick
- Pine Needles - allow 3-4 inches thick
- Grass Clippings - leave in place

Fire considerations:

- Create defensible space breaks
- Spring - Apply defensible mulch to preserve winter water.
  - Remove natural, non-defensible mulch if necessary.
- Fall - Keep leaves and pine needles in place overwinter

MULCH

Inorganic options

For vegetable gardens consider:

Black Plastic - modifies the micro-climate

enhances growth, yield, and quality of horticultural crops

Clear Plastic - temporary, to accelerate soil warming

For under patio stones consider:

Landscape Cloth - limits ant nests

For general application:

Rock

MULCH

Topsoil Profile

How? Layer it!

1 Native soil mixed with compost, fertliizer

2 Plant

3 Drip irrigation

4 Mulch -

up to dripline of trees

Away from stems

MULCH

Available locally in bulk

Tahoe Sand and Gravel - minimum purchase of 1/4 cubic yard.

Rock (inorganic):

- 3/8" Pea Gravel/Salt & Pepper (round)
- 3/4" Crushed Rock/Drain Rock,Ginger (fractured), Lodi Gold (round), Salt & Pepper (round)
- 3" x 8" Cobble (River Rock)

Bark (organic):

- Small Deco Bark (approx. 3/4")
- Medium Deco Bark (approx 1-1/2")
- Walk-On Bark

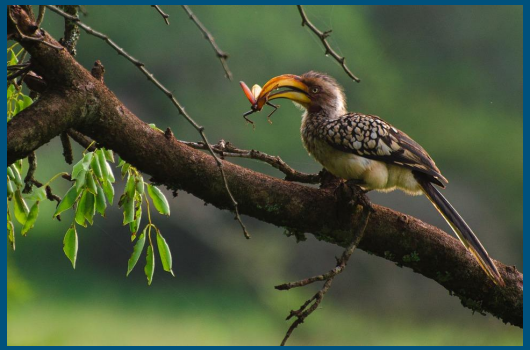
INSECT PESTS

When we try to pick out anything by itself, we find it hitched to everything else in the universe.

John Muir, *My First Summer in the Sierra* , 1911, page 110.

Nature depends on the balance of predator and prey,

the vast majority of which are INSECTS



Pollinate blossoms

Prey on insect and plant pests

Are a food source for many animals

Create top soil - aerate, recycle nutrients and organic material

Earth would otherwise be awash in trash!

ANTS

ANTS

Diverse, numerous--and amazing

ANTS

OUTDOORS

- Generally beneficial
  - predators, decomposers, soil improvers
- Herbivores, Scavengers, Predators
  - flowers or flower nectar
  - live or dead insects
  - insect honeydew
  - seeds and nuts
  - fatty substances
  - Leaves and other decaying organic matter.
  - eat flies, fleas, caterpillars, or termites (venom)
- Shelter
  - rotting wood
  - soil, especially under rocks which radiate warmth all night long.
  - migrate below frost line in winter

ANTS - OUTDOORS

Exclude ants from specific locations

- Control food and water sources
- Discourage nests near buildings
- Create barriers
  - Tanglefoot on trees
  - Hardware cloth
  - Caulk entry points

ANTS - INDOORS

Carpenter Ants

- Food
  - Protein - meat, ret food
  - Sweets - syrup, honey, sugar, jelly
- Shelter:
  - Wood
    - Network of galleries and tunnels
    - Wall voids, hollow doors
  - Initially excavate water-damaged wood
  - May expand into sound wood

ANTS - INDOORS

Carpenter Ants

Avoid infestation in your home

Eliminate:

- Available food and water/attractants
- Soil/vegetation to structure connections
  - firewood
  - branches
- Rotten wood--repair leaks, ventilate

ANTS - INDOORS

Carpenter Ants

- Watch for:
  - trails of ants lead to nests especially after sunset
  - sawdust
  - excrement/frass - looks like soft, fibrous bits of wood loosely compacted together the color of the nearby wood being excavated and is usually arranged into a cone-like pile.
  - faint rustling in walls, floors, and woodwork

ANTS - INDOORS

Carpenter Ants

To control:

- Create barriers, seal entries
- Set out
  - slow-acting baits (insecticide mixed with attractants)
    - remove other food/water
    - best tackled in late winter/spring
    - supply mixture of attractants
    - set outside building on trails
    - allow weeks to work
  - Dessicants: diatomaceous earth
    - low toxicity
    - Do not inhale

- Other types of pesticides are not recommended, only attempt if directly applied to nest

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All Pesticides (natural, organic, or synthetic) are Poison

Use only in specifically targeted application according to instructions

- Moves through environment
  - with water
  - with soil
  - into
    - water systems
    - your neighbor’s yard

Presents health risks to people, nontarget organisms, and the environment.

TERMITES

TERMITES

Essential to ecosystems

- Degrade woody debris
- Return nutrients to the soil
- Food source to a variety of predators
- Aerate soil
- Prefer decaying wood so rarely injure or kill trees

A minority of termite species can be very destructive to wood in buildings

TERMITES

Subterranean

Lifestyle

Food:

- Wood, preferably decaying, in contact with the soil
- One nest may have several foraging sites

Nest:

- Underground
- Network of galleries
- Populations can be 100,000s

Subterranean TERMITES

Monitor

Challenging to spot!

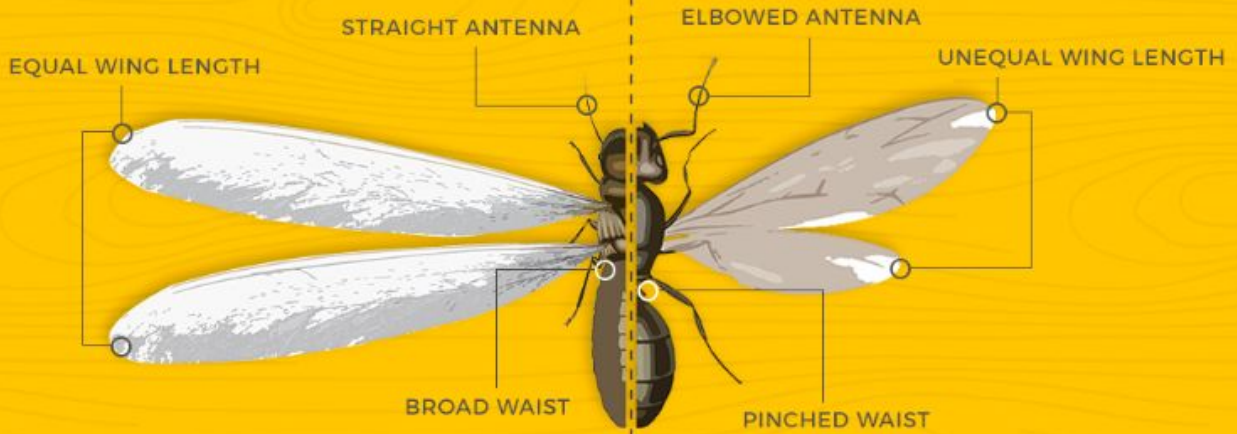
Watch for...

- Shelter tubes on inside or outside walls
  - earth-hardened tubes are made by workers
  - Need moisture
  - forage for food away from the moist nest
  - Tube provides connection to soil
- Swarm of flying termites
- Darkening or blistering of structural wood

WINGED TERMITE VS WINGED ANT

How to Tell the Difference

Learn how to tell the difference between two very bothersome pests: termites and carpenter ants!



Active Season: both are active in spring and summer

Subterranean TERMITES

Prevention and Control

Prevention - focus on point of entry

- Remove structural wood in contact with the soil
- Destroy their shelter tubes

Control

- Call a professional
  - Effective pesticides are very toxic
  - Professionals are trained to avoid:
    - Contamination of ducts, pipes, plumbing, etc.
    - Endangering people, pets and the environment

APHIDS

APHIDS

Lifestyle

- They vary -
  - Color
  - Size - tiny to tinier
  - Winged to wingless
  - Texture and pattern
- But all are -
  - Are soft-bodied
  - Somewhat pear-shaped
  - Suck plant juices
  - Excrete honeydew, food for other insects
  - Have 2 tiny rear cornicles--tube-like protrusions

APHIDS

Watch for...

- Trails of ants
- Curled or yellow leaves
- Stunted new growth
- Honeydew on leaves
- Stationary masses of insects
  - Undersides of leaves
  - Along stems and veins

APHIDS

Control

- Inspect plants before purchase
- Prune out inner canopy and infestations
- Control ants with barriers or traps
- Avoid excess water/fertilizer
- Spray off with water. Try adding oils and /or soaps

Insecticides may work temporarily...

MOSQUITOS

MOSQUITOS:

Lifestyle

- 12+ species in Tahoe Basin
- Species vary
  - Where they breed--snowmelt pools/grassy meadow pools/any standing water
  - When they bite--day/night/day and night/dawn and/or dusk
  - How far they range--stay close to pool/many miles away
  - Disease vector--or not
  - What they bite--large mammals/birds, etc.

MOSQUITOS:

Lifestyle

- West Nile virus is carried by only 1 species
  - 5% of local population
  - Females are night feeders
  - Generally bite birds but will also sometimes bite mammals
  - To vector: Bites infected migratory bird then human
  - Breeds in any stagnant water

MOSQUITOS:

Control

Eliminate standing water:

7-12 days to emerge

WASPS

WASPS: European paper wasp Lifestyle

- Slender with long dangling legs
- Nests
  - Hanging
  - Umbrella-shaped
  - Constructed of paper-like substance
  - Open cells where the eggs are laid
- Generally limited conflict with people
  - Not aggressive
  - Threat is generally inches from nest before becoming defensive
  - Feed on insects. Switch to carbohydrates at end of summer

WASPS: European paper wasp

Control

Limit suitable nest sites

- Repair holes in walls,
- Caulk cracks in soffits and eaves
- Screen vents and louvers.

Avoid wearing strong fragrances in late summer

Eliminate nests in spring

- Fewest wasps
- Encourage them to move. Knock down nest
- Apply wasp and hornet spray at night , from a distance

Call vector control (530) 573-3197 for free assistance

WASPS: Yellow jackets/ AKA “meat bees” Lifestyle

- 4 species in Tahoe Basin
- All species
  - Spring population of 1 queen that grows all summer
  - NOT a type of bee (bees and ants are more related)
- Varies by species
  - Diet--predator/scavenger (protein and sugar)
  - Relationship to humans--Beneficial/pest/mix
  - Nest
    - Population at maximum -- 100/400/5000
    - Location - hanging/subterranean/inside walls and attics
  - Timing of population decline-- mid summer through fall

WASPS: Yellow jackets/ “meat bees”

Western Yellow Jacket

- Wasp species of most concern
- Scavenger
- Nests are in rodent burrows or in house wall and attics
- Nests contain 500 to 5000 workers
- Population declines late September to October

WASPS: Western Yellow Jacket

Monitor and Manage

- Watch for :
  - Persistent behavior around food
  - Aggressive defense of nest (can sting many times)
- Response:
  - Remain calm around foragers
  - Contain food, garbage
  - Avoid contact in late summer when food supplies are low

WASPS: Western Yellow Jacket

Control

- Set out traps out in April or May to capture queen
- Locate single nest entrance which “looks like an airport”
  - Rodent burrows
  - Protected cavities i.e. voids in walls and ceilings of houses.
    - Wet patch in wall or ceiling

Call Vector Control, (530) 573-3197, for free assistance

More Information on Insect Pests

Google:

UC IPM (University of California Integrated Pest Management)

http://ipm.ucanr.edu/PMG/PESTNOTES/pn7411.html

See: *How to Manage Pests*

Pests of Homes, Structures, People, and Pets

Break

Garden Analysis

Is your garden working for you?

Gather information:

- What's working?
- What isn't working?
- Why?

Hey! What is going on over there?

Check List:

- Soil
- Roots
- Rodents
- Pests
- Soil moisture
- Irrigation

Is your garden working for you?

Could it be….?

- Weeds
- Wrong or marginal planting zone
- Overplanting
- Plants are too big for the space
- Wrong exposure: too much sun or shade
- Wrong hydrozone: too much or too little water
- Irrigation is not automated
- Soil lacks nutrients
- Soil lacks mulch
- Critters
- Fussy plants: disease and pest-prone, nutrient hogs, deadheadi
  pruning

Make Tahoe Friendly Plant Selections

Books:

- Sunset Western Garden Book
- Growing Shrubs and Small Trees in Cold Climates
- Growing Perennials in Cold Climates
- The Well-Tended Perennial Garden

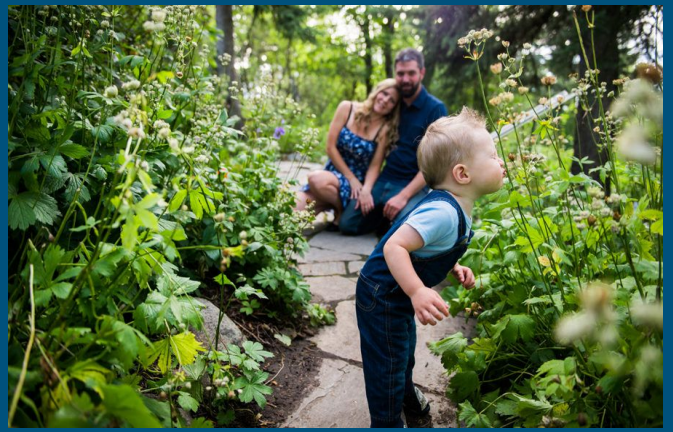
Websites:

- Ladybird Johnson Native Plants
- Calflora
- Missouri Botanical Gardens
- Tahoe Friendly Gardens

Local Resources:

- TRCD
- Master Gardeners
- Nurseries

Play more, work less!



Defensible Space

Gardening for Fire Defensible Space

Plant Selection & Design Considerations:

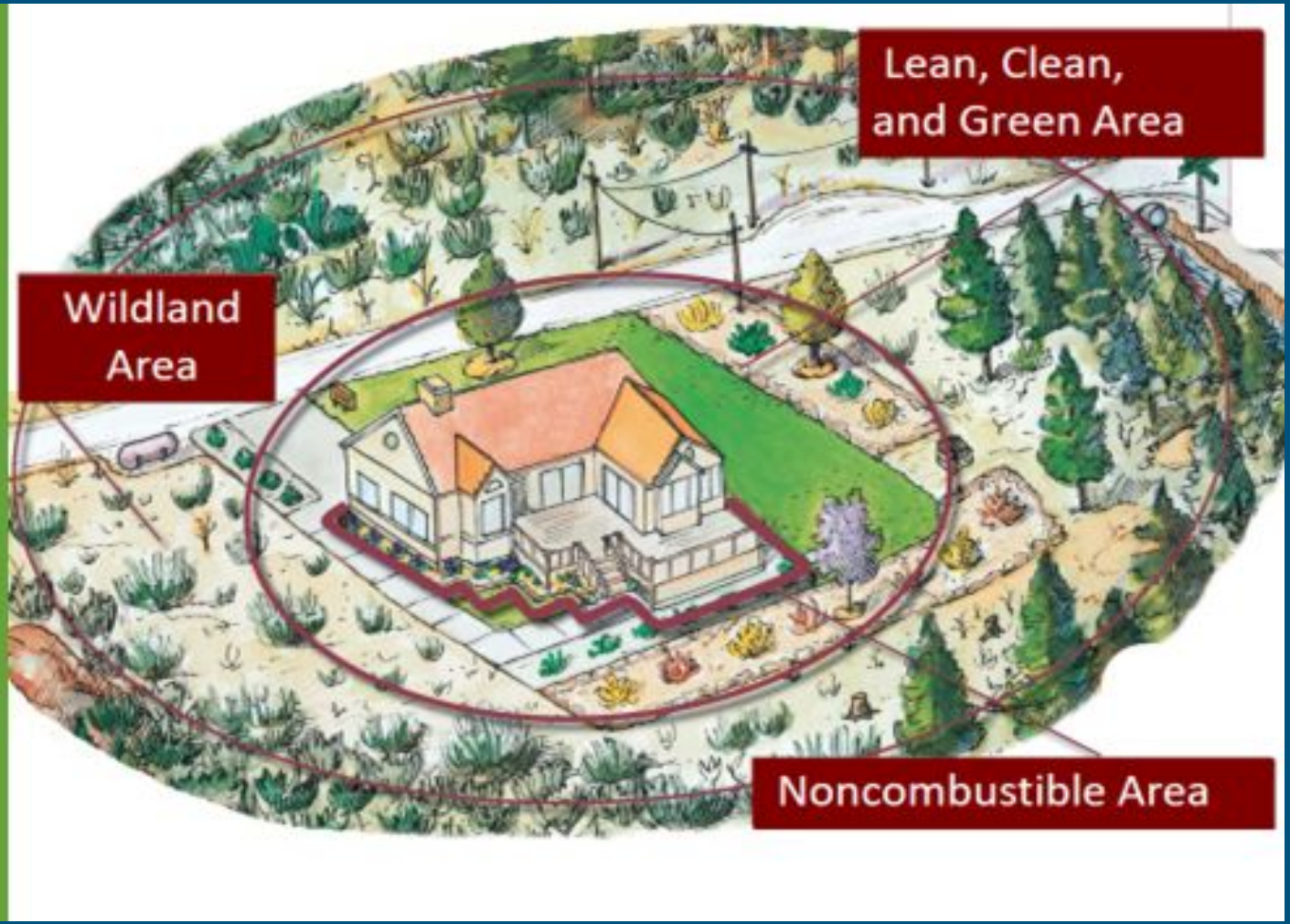
- Safety/Local Ordinances:
  - Defensible space zones
  - Other local ordinances may exist
- Plant Selection:
  - Plant Hardiness Zones (USDA & Sunset)
  - Native/Adapted (Tahoe Friendly)
  - Microclimates
    - Hydrozones (water needs)
    - Sunlight vs. Shade

Fire Defensible Space Zones

Zone 1: (0-5 ft) Non Combustible Zone

Zone 2: (5-30 ft) Lean, Clean and Green Zone

Zone 3: (30-100 ft) Wildland Fuel Reduction Zone



Zone 1 – Noncombustible Zone Gardening Tips

Overview:

- 0-5 ft includes: Home and all structures (including sheds, garages, wooden decks and fences)
- Most restrictive of all the landscape zones.
- Fire districts and insurance companies would prefer no vegetation in this area.
- Counties within Tahoe are moving to enforced ordinances check your local jurisdictions.

Design Suggestion (a mix of the following):

- Rock Mulch (water infiltration and soil management)
- Plant Choice: Native/adapted groundcovers with drip irrigation (Groundcovers are low growing, spreading plants usually less than 6 inches in height)
- Maintained lawn

Maintenance is Key:

- Remove any existing woody plants, shrubs or trees.
- Clean up any leaf litter and plant debris that may migrate near this zone.
- Keep your house vents free of any plant debris in the event of flying embers.

Zone 1 Design Examples

Zone 2 – Lean, Clean & Green Zone Gardening Tips

Overview:

- 5-30 ft from all homes and structures
- Most creative and flexible area for planting

Design Suggestion (a mix of the following):

- Mosaic landscape (patchwork of plants and other hard/soft materials)
  - Breakup continuity: stones, pavers, and flagstone
  - Utilize a mixture of tilled wood mulch, rock and or green mulch (groundcovers).
  - Plant Choices: native/adapted groundcovers, perennials, shrubs, and deciduous trees
    - Group plants according to water and sun needs
- Maintained lawn

Maintenance is Key:

- Maintain ladder fuels
- Ensure separation between shrubby plants

Zone 2 – Design Mosaic Planting

Basic landscaping principles:

- Group plants by water needs.
- Group plants by cultural needs.

Take it a step further for fire safety:

- Space plants (vertically/horizontally).
- Integrate non-combustibles into your mosaic (flagstone, pavers, other materials)

Zone 2 Plant Ideas- Perennials

Zone 3 – Wildland Fuel Reduction Zone Gardening Tips

Overview:

- 30- 100 ft from all homes and structures
- Zone 3 is often your neighbor's Zone 2! Think about you're the defensible space of your entire neighborhood.

Design Suggestion:

- Continue the mosaic landscape (patchwork of plants and other hard/soft materials)
- If planting choose native/adapted Tahoe Friendly plants, once natives are established they will require less irrigation.

Maintenance is Key:

- Maintain ladder fuels
- Ensure separation between shrubs and trees
- Maintain pine needle depth at 2 inches (or less).
- Be a good neighbor!
  - Don't have conifer thickets in your yard.
  - Ensure your trees and shrubs aren't hanging over your neighbors fence line.
  - Join/start a FAC in your neighborhood

Zone 3 Design

Free South Tahoe PUD Services and Rebates

Water Wise Landscape Consultation

- Irrigation check up, sprinkler application and scheduling evaluation, and efficient irrigation information
- plant selection and care, pruning, hydrozoning

Water Wise and Energy Efficiency House Call

Rebate Programs

- Turf Buy Back Program
- Efficient Irrigation Program

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Ask a Master Gardener

American Legion Farmers Market SLT most Tuesdays through August

Next Workshops

- Tahoe Friendly Gardens: Planning and Design
  - August 20, 6-8 pm, South Lake Tahoe Public Library
- Gardening Through the Seasons: Autumn
  - TBA

Advice to Grow by

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