Colorado Landscape Basics

Lawn Care
Trees and Shrubs
Water-wise Landscaping

What is Extension?

Where University meets Community

- We're the outreach arm of Colorado State University (your land grant institution) that can provide you with information to use every day
- Our offices have the following programs/services:
  - Horticulture and Master Gardeners
  - 4-H Youth Development
  - Food Safety and Food Preservation
  - Agriculture and Natural Resources
  - Community Development
  - And more!
- Visit extension.colostate.edu to find your county office and more information

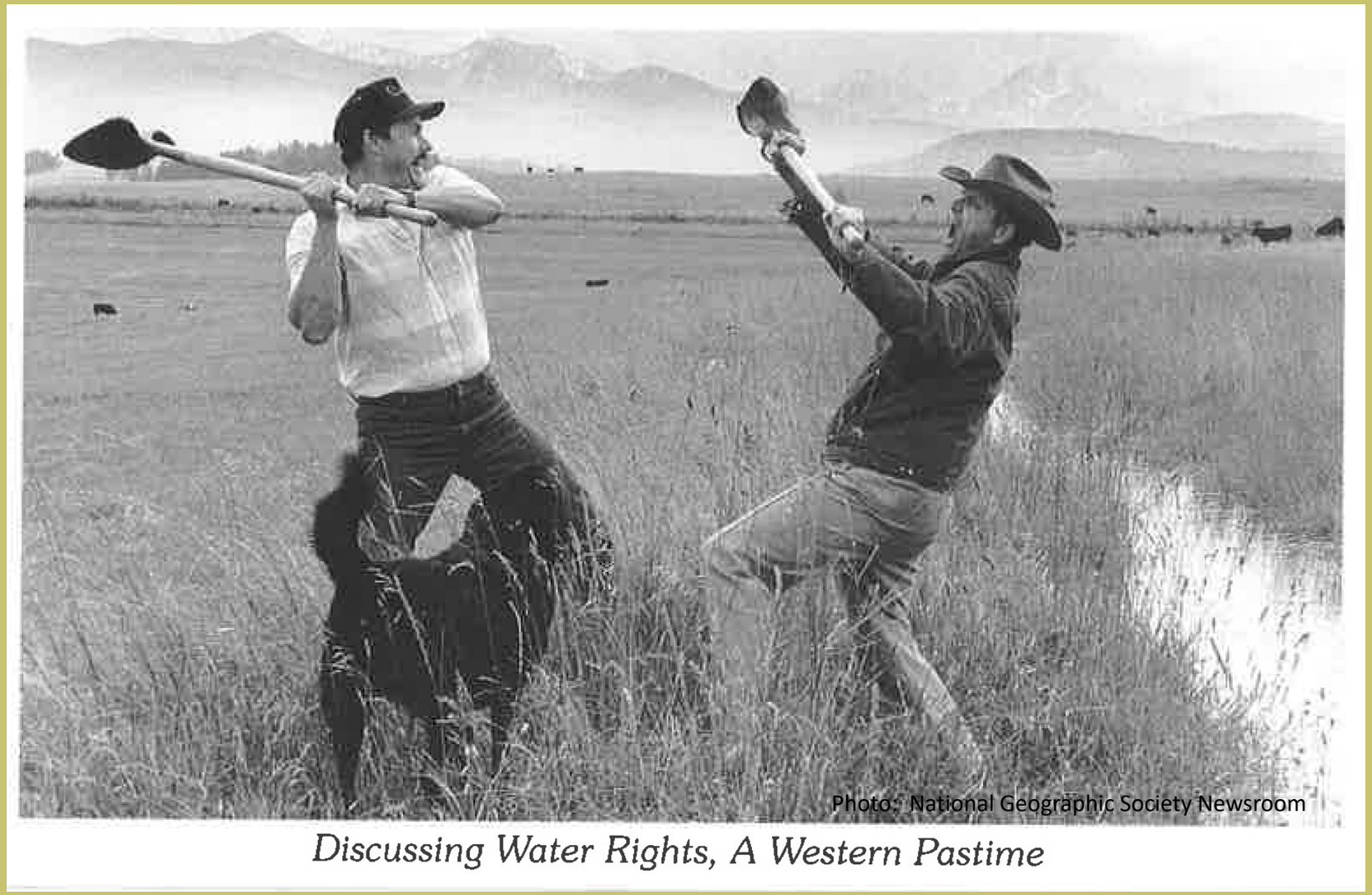
Water-wise Gardening in Colorado

It's Not Easy to Garden Here...

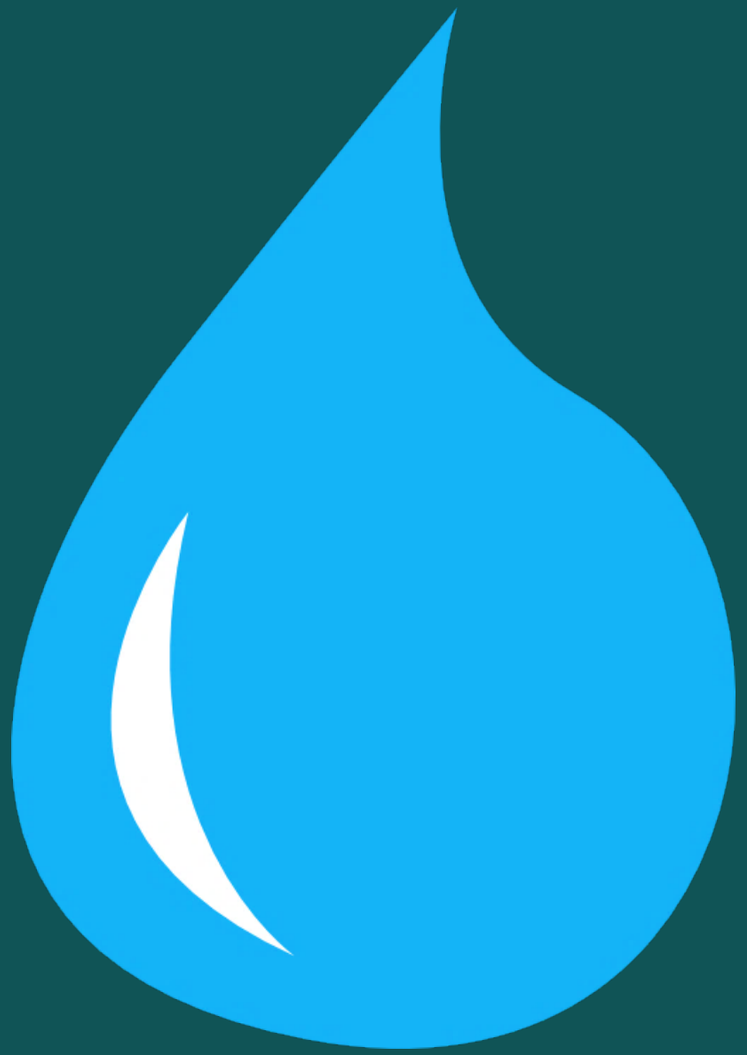
It's not just the cold that makes things difficult...

- Low humidity
- Fluctuating temperatures
- Alkaline (high pH) soils
- Wind
- Intense sunlight
- Short(ish) growing season
- **Lack of water!**

Colorado Water History



Discussing Water Rights, A Western Pastime



- Colorado is a semi-arid state with 8 to 15 inches of precipitation per year on average.
- The average CO household uses **almost 50%** of its annual water supply to water the landscape.
- Increasing population will put more demand on our water supply.
- A well thought out water-smart landscape can reduce outdoor water use by 60%!

Lack of Water

Average Annual Precipitation

- **Gunnison:** 10.1” per year
- **Pueblo:** 12.4” per year
- **Greeley:** 14.4” per year
- **Colorado Springs:** 17.5” per year
- **Boulder:** 19.7” per year
- **Durango:** 19.9” per year
- **Steamboat Springs:** 23.8” per year

Why be Water-Wise?

Photo: NASA astronauts

Where we live…

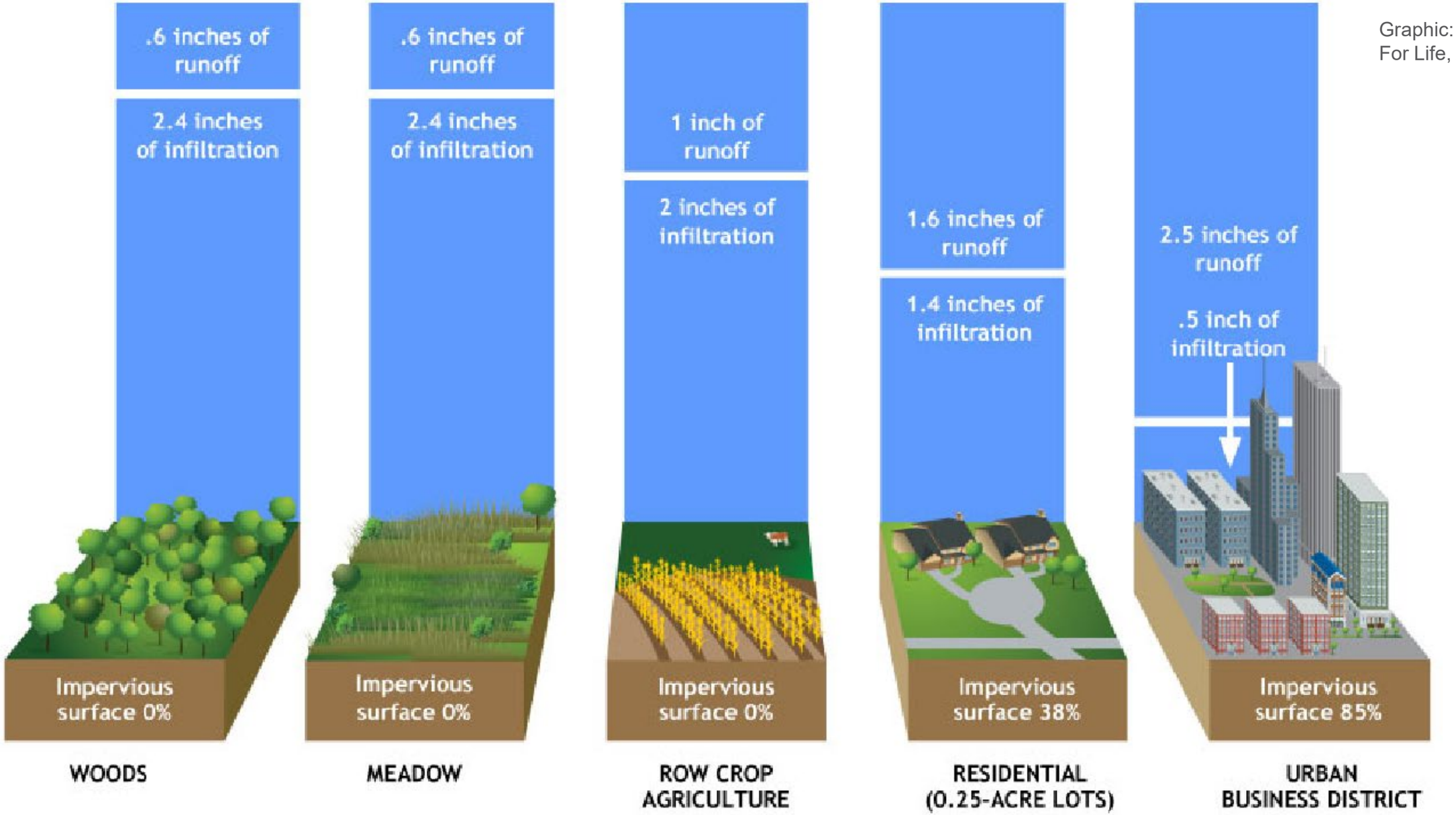
- Semi-arid environment
- Mostly urban

– Western US: 60% of municipal fresh water is used for landscape
– Front Range: ~50% (mostly turf)

Water-wise Landscapes can…

– Use fewer resources
– Save $$$

Graphic: Landscapes For Life, 2011



Urbanization alters the water cycle of a watershed

Semi-Arid and Erratic Climate

- Colorado has a semi-arid climate across most of the state
- Dramatic climatic differences
- Wild swings in temperature
- Strong thunderstorms/hail
- Drought or very dry conditions are normal for the state (and our native plants)

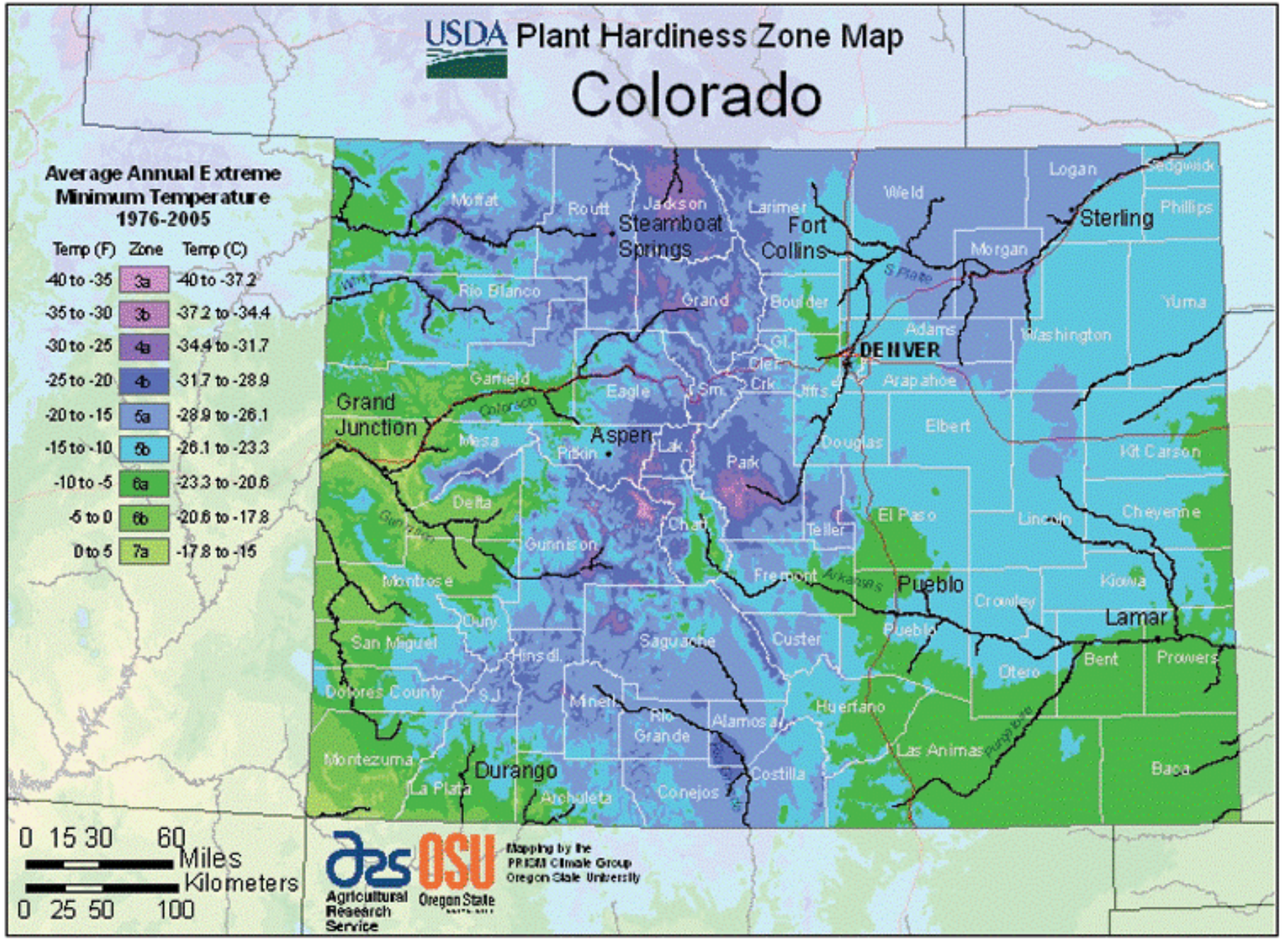


Photo: University of Washington Botanic Gardens

Photo: Norfolk Botanic Garden

What is xeriscape?

The word “xeriscape” *(pronounced ZEER-i-scape)* is derived from the Greek word “xeros” meaning “dry’.

Landscaping with water conservation as the primary objective.

ASSOCIATED LANDSCAPE CONTRACTORS OF COLORADO
BETTER BY NATURE

COLORADO STATE UNIVERSITY EXTENSION

DENVER WATER | 100 YEARS 1918 — 2018

Colorado’s high, dry great plains

Water-wise or xeric landscaping doesn't have to be…

…all rock

…or all cactus

Photo: Audobon Rockies Habitat Hero Winner, 2015 – Evergreen, CO


Photo: Texas Style Front Yard Landscaping Ideas


Photo: Red Twig Studio - Albuquerque, NM

Photo credit: J&S Landscape *in Longmont, CO*

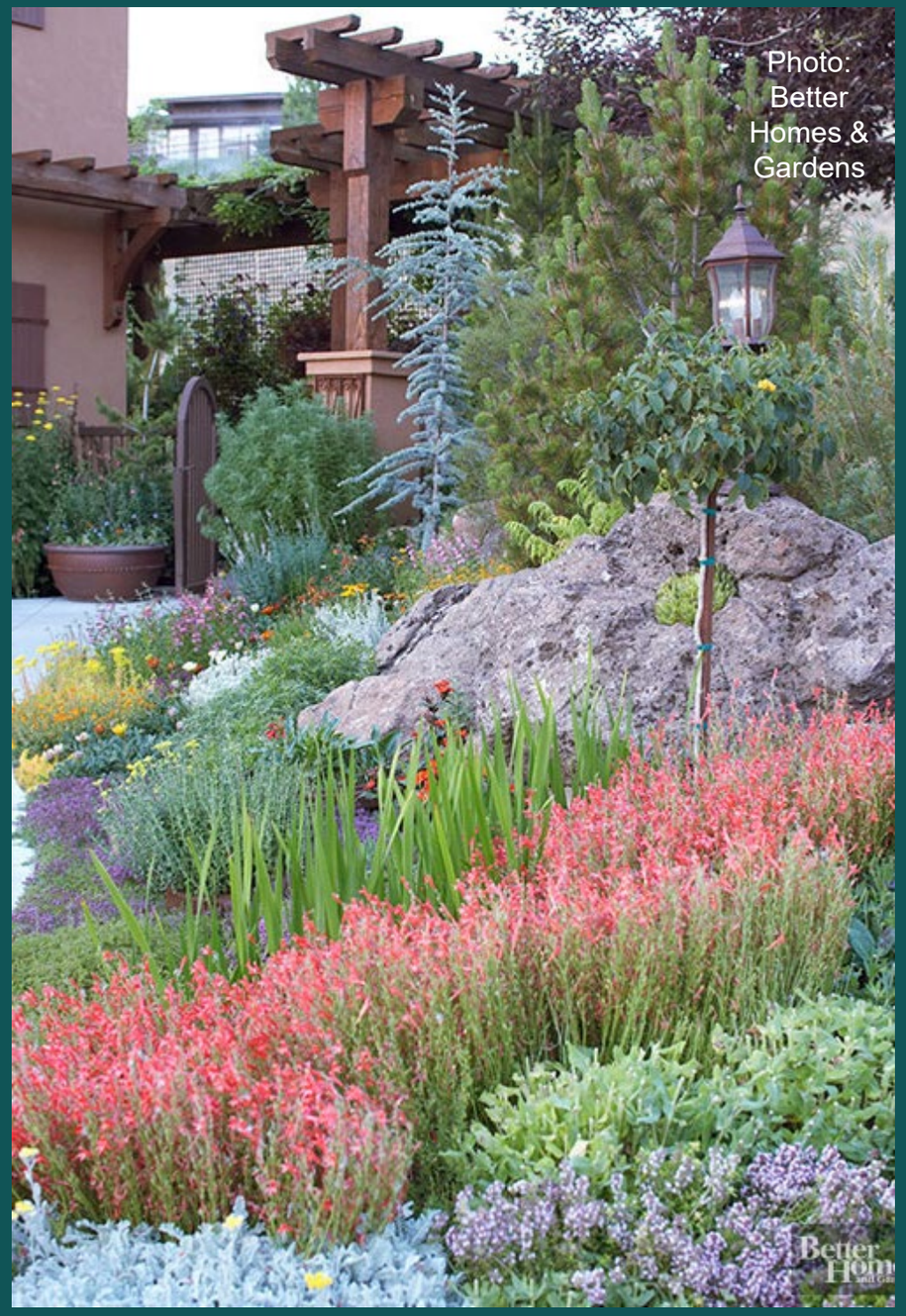


Photo: Better Homes & Gardens

Photo: City of Boulder Twitter

Photo: Pinterest - greggosgarden.blogspot.com

Photo: Pinterest - Foursquare.com


Photo: Lauren
Springer Ogden


Photo: Lauren Springer Ogden

Water Wise Design (Xeriscape)

How to Xeriscape – Based on Sound Horticultural Practices

Follow these steps for a water-wise, yet beautiful, landscape. PDF available.

1- Plan Ahead

2- Improve the Soil

3- Limit Turf Areas

4- Irrigate Efficiently

5- Select Appropriate Plants

6- Use Mulch

7- Maintain It

Step 1 - Plan Ahead

- Look at the area's topography, exposure and soil.
- Don't try to fight your site; work with it.
- Create a scaled drawing of the lot, including buildings and walks.
- Identify sunny and shady areas, slopes and views.
- Group plants with similar water needs to make watering easier.

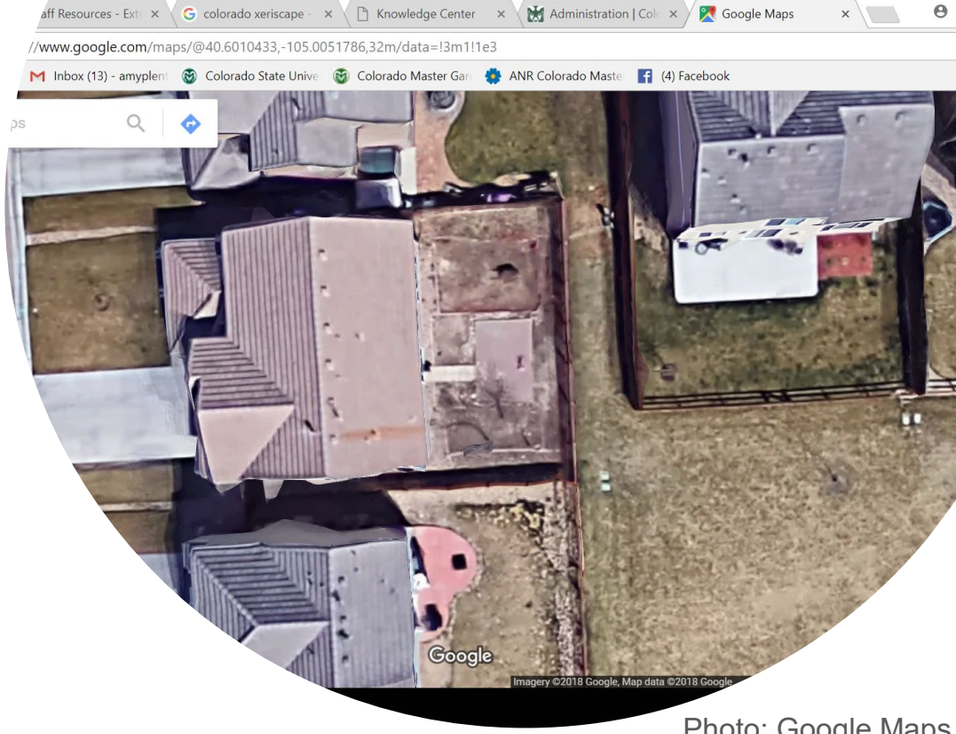


Photo: Google Maps

Gardening Solutions - University of Florida

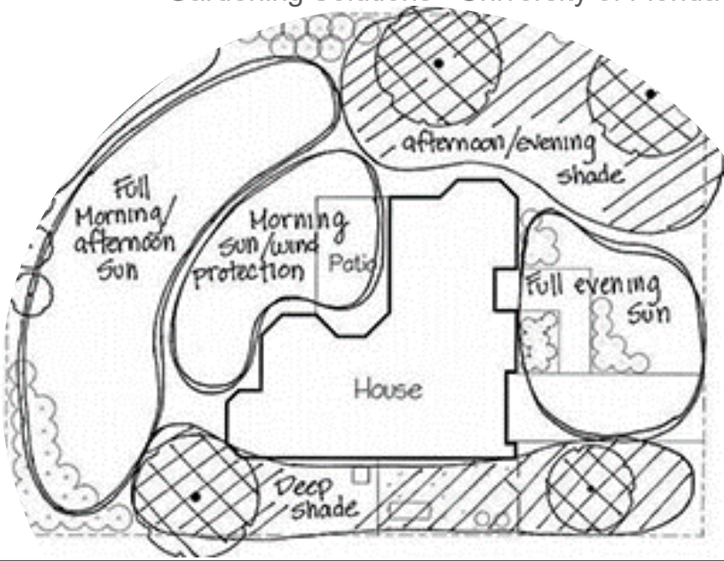


Photo: Kelly Grummons, courtesy of Plant Select

Photo: Bolderscapes Landscaping

Photo: Colorado Waterwise

Step 1 - Plan Ahead

- Do kids and pets need a big open area? Is a large deck for entertaining important? Walkways? Garden?
- Budget

Step 2 - Improve the Soil

- Going **native**? Many native plants actually prefer un-amended or only slightly amended native soil that is fairly low inorganic matter. Many water-wise plants also prefer un-amended soil.
- Consider getting a soil test to determine nutrient content.
- *Choosing a Soil Amendment – CSU Fact Sheet #7.235*

Photo: UC ANR

Photo: Pikes Peak Area Garden Help

Step 3 - Limit Turf Areas

- Confine the lawn to high traffic areas and areas where it will be used.
- Kentucky bluegrass requires 24-26” of supplemental irrigation in a normal precipitation year.
- Shrubs, perennials and groundcovers use less water and provide a cool, green appearance.


Photo: City of Rio Rancho


Photo: McCumber Fine Gardens

Step 3 - Limit Turf Areas

- Use walkways, decks or patios in place of turf in high foot traffic areas.
- Consider other grasses, knowing the look and growing conditions may be different.
- Place mulch around driveways or as paths.


Photo: City of Rio Rancho


Photo: McCumber Fine Gardens

Photo: flickr.com via
Patrick Standish

Photo: CoyoteGulch.blog

Photo: Amy Lentz, CSU

Step 3 - Limit Turf Areas

Step 4 - Irrigate Efficiently

- Grass: use low-volume, low-angle sprinklers.
- Trees, shrubs, flowers and ground covers: use drip, spray or bubbler emitters.
- Adjust your watering times monthly to meet seasonal needs.

Step 4 - Irrigate Efficiently

- Install a rain shutoff device.
- Water deeply and infrequently to develop deep roots.
- Water between 9 p.m. and 8 a.m. to reduce water loss due to evaporation (dusk until dawn).

Even the lowest water-using Xeriscape needs supplemental water during extended hot, dry periods.

Step 5 - Select Appropriate Plants

- Local nurseries carry trees, shrubs, perennials and groundcovers that are low water-using.
- Zone together plants with similar water and sunlight needs.
- Natives are well-adapted to use less irrigation.


Photo: Monrovia


Photo: Southeastern Colorado Water Conservancy District


Photo: Plant Select


Photo: Plant Select

Step 5 - Select Appropriate Plants

- Install a variety of plants with different heights, colors and textures.
- Choose plants for their seasonal interest, including fall color and/or interesting berries, bark or seed heads.
- Check out water-wise plant lists from various


Photo: Monrovia


Photo: Southeastern Colorado Water Conservancy District


Photo: Plant Select


Photo: Plant Select

Step 5 - Select Appropriate Plants

Plant Select®
plant smarter

RESOURCE central

Colorado Native Plant Society
Aquilegia coerulea

COLORADO STATE UNIVERSITY EXTENSION

Treasure Island Demonstration Garden
Windsor, CO

Photo:
Amy Lentz,
CSU

Step 5 - Select Appropriate Plants

The Urban 'Jungle'

- Plant diversity is imperative! Otherwise, you have a sterile environment with only a few species.
- We all need a home, including wildlife and pollinators!!
- Urbanization leads to a loss of habitat for animals and insects.
- Pollinators are critical to food production ~70% of crop plants rely on pollinators
- What do they need?
  - Food
  - Water
  - Shelter
  - Space

Step 5 - Select Appropriate Plants

How can you increase habitat?

- Keeping honeybees is not the answer!
- Providing forage and habitat is!
- Utilizing native plants will help create habitat for native insect species
- Most CO native plants are water-wise, too!

Step 5 - Select Appropriate Plants

Choosing Native Plants

- Lower water needs
- Lower fertilizer needs
- Lower maintenance
- Attract pollinators
- Support native bees, insects, and birds
- Support diversity in the landscape plant species
- Wide range of bloom colors, texture, and great “stories”

Penstemon grandiflorus
(Large Beardtongue)

Photo: Wildflower.org

Step 5 - Select Appropriate Plants

Establishing Native Plants

- Source of water
- Water first year to establish
- Future years, before watering, check moisture levels by using a long screwdriver inserted into the soil or moisture meter
- Do not amend soil
- Weed frequently to allow plants to become established

Gaillardia aristata
(blanket flower)

Native Plants!!!

A 2002 study in Colorado Springs compared water use between traditional and xeric landscapes

- Water savings ranged from 15-63%
- Native plants often top the xeric plant lists
- Natives – fewer resources, support local fauna

Photo: Colorado Mountain Gardener

Step 6 – Use Mulch

- Cover planting areas with 2-4 inches of mulch
- Conserves soil moisture, control weeds and adds interest to the landscape
- Bark chips, shredded wood chips or pole peelings decompose and improve soil texture
    - Need to be restored from time to time


Photo: inspiredetail.com

Step 6 – Use Mulch

- Rock and gravel mulches are practical in windy spots and unplanted areas.
- Landscape fabric?
- Do not use black plastic; it prevents air and water from reaching plant roots.


Photo: inspiredetail.com


Photo: Jake's Designs

Mulch for Water Conservation

- Improves soil
- Protects plants
- Helps inhibit weeds
- Can reduce irrigation needs by as much as **50%**

Mulch for Water Conservation

Types

- Organic (wood, bark chips, straw, grass clippings)
- Inorganic (gravel, rock)
- Ideally
  - Will not compact
  - Does not hinder water and air
  - Breaks down slowly
  - Help regulate soil temp
  - Help prevent soil erosion

Grass Clippings

Bark

Pine needles

Straw

Wood Chips

Gravel

Mulch for Water Conservation

Application

- Any time of year
- Organic – 3-4 inches
- Inorganic – 1-2 inches
- Leave space around base of trees!! (mulch wide, not deep)
- Don't use plastic under mulch
- Landscape fabric ineffective over time

*** For more information: CSU Fact Sheet 7.214 – Mulches for Home Grounds***

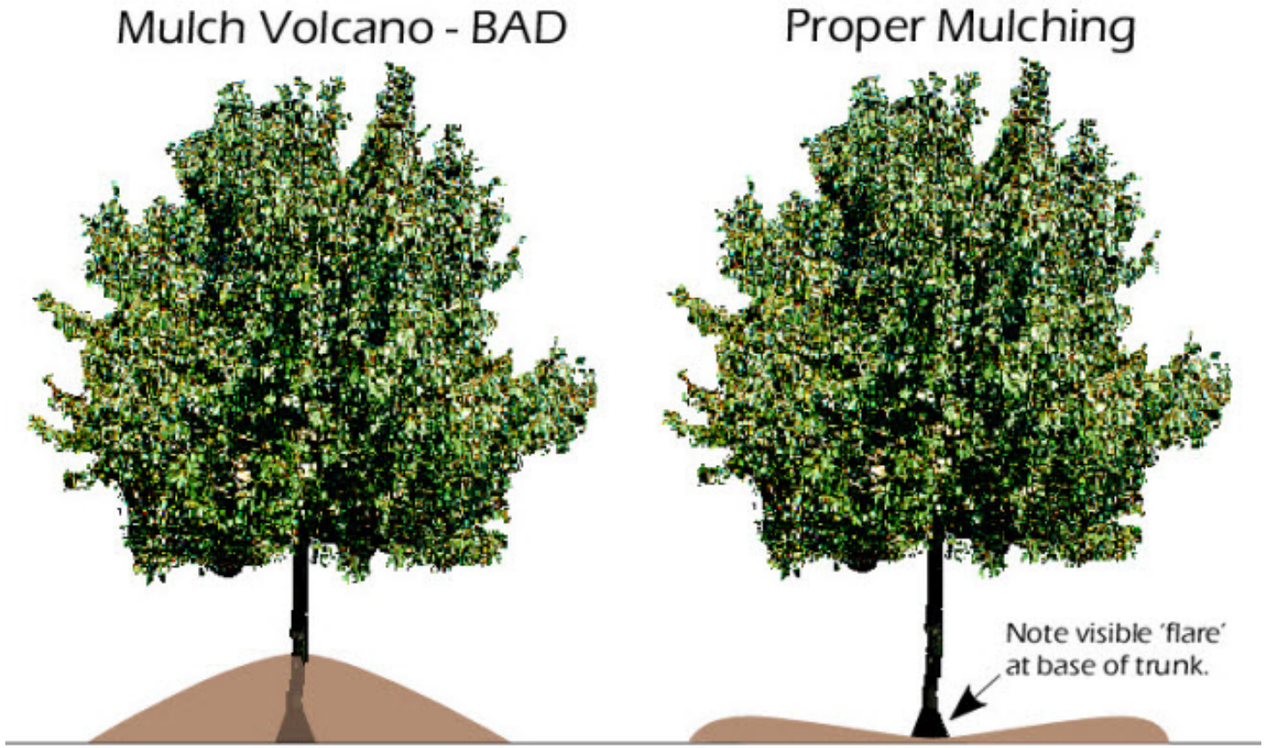


Photo: yourgreenpal.com

Step 6 - Use Mulch

Use different mulches for different planting areas to add texture and interest to your design.

Step 7 - Maintain It

Even xeriscapes need regular, seasonal maintenance to preserve their beauty.

Step 7 - Maintain It

Winter: Prune deciduous trees and late-blooming shrubs. Water roots of plants if no recent precipitation. Cut back ornamental grasses and perennials.

Spring: Aerate lawns and check sprinkler systems, amend soil as needed.

Step 7 - Maintain It

Summer: Weed and deadhead flowers.

- Mow grass when it is about 1/3 higher than the desired height. Keep a high mowing height throughout the season (3-4 inches).
- Leave clippings to recycle nutrients into the soil.

Photo: Noth Carolina State University

Photo: Iowa State University

Step 7 - Maintain It

Fall:

- Conduct soil tests
- Mulch around tender plants prior to winter weather
- Cut back spent perennials or leave for winter interest
- Plant spring blooming bulbs

Water Harvesting

Active and Passive

- Storage container with sealable lid
- Located above ground, outside of a residential home
- Used for collecting precipitation from a downspout or rooftop
- Only single-family homes or multi-family units with up to 4 units
- Up to two rain barrels with a combined storage of 110 gallons MAX per building
- Water must be used on the same property that it is collected on and must be used outside

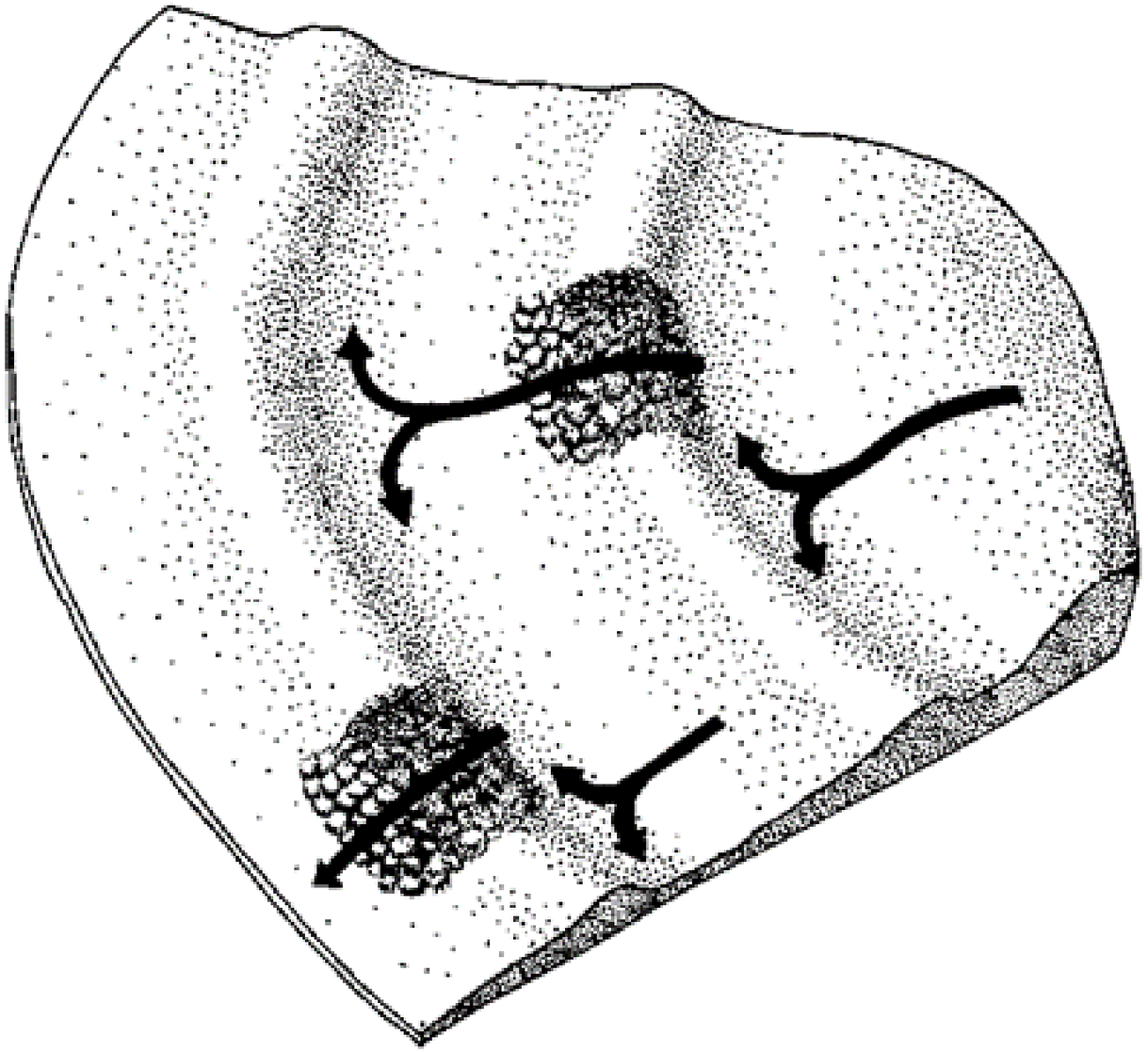
Rain Barrels – Active Water Harvesting

- Water and money savings depends on several factors – total precipitation, size of rooftop, hydrology, water-use of plants, size of area to water
- 110 gallons of water will cover an area of 180 square feet with 1 inch of water
- Rainwater is a softer water, lower in salts and unchlorinated

Rain Barrels – Active Water Harvesting

Passive Rainwater Collection

- Passive = divert water overland to vegetated areas for *immediate* use
- "Slow it, spread it, sink it"
- Integrated into landscape
  - **Swales – *spreads* horizontally on contours**
  - Berms (microbasins)
  - French Drains
  - Bioinfiltration Gardens



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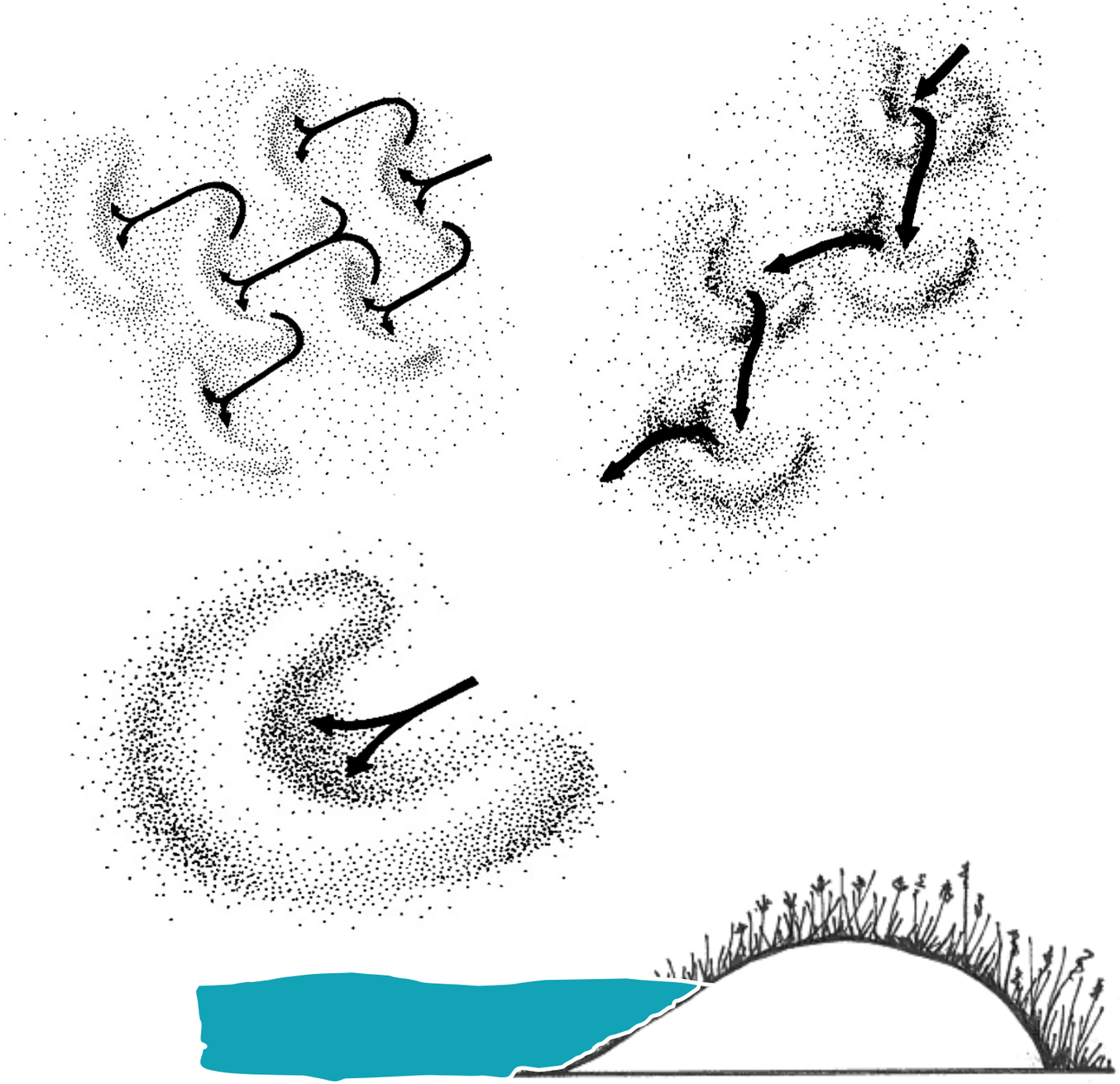

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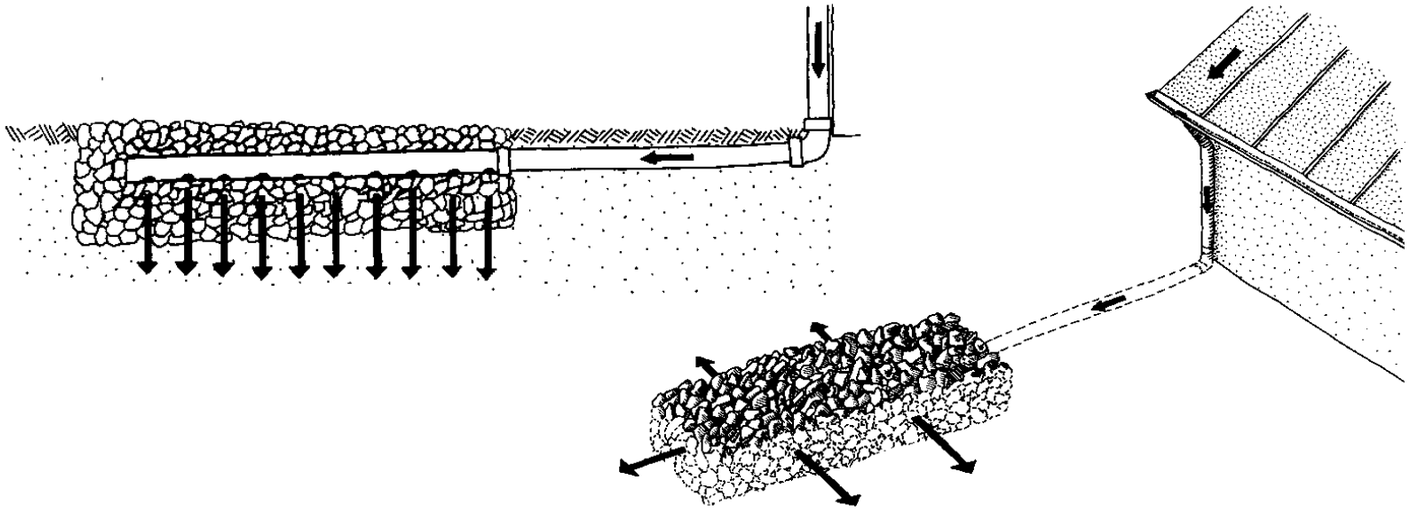

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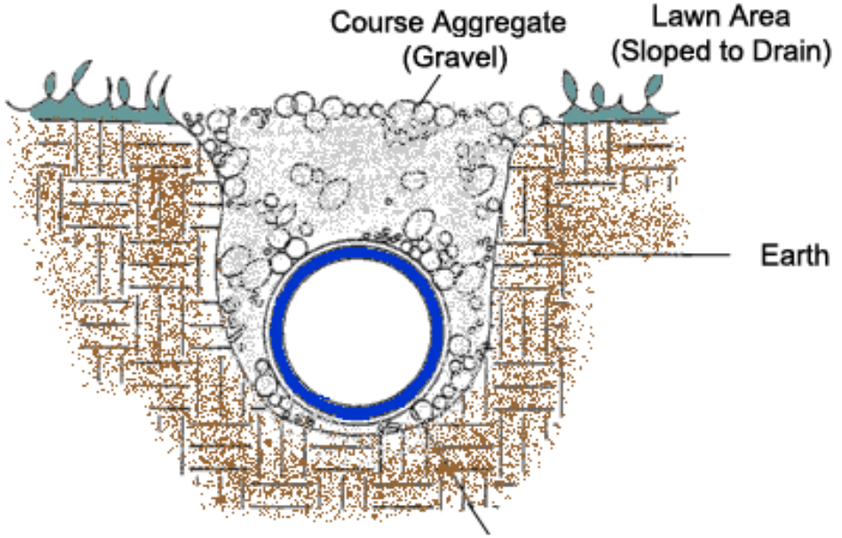

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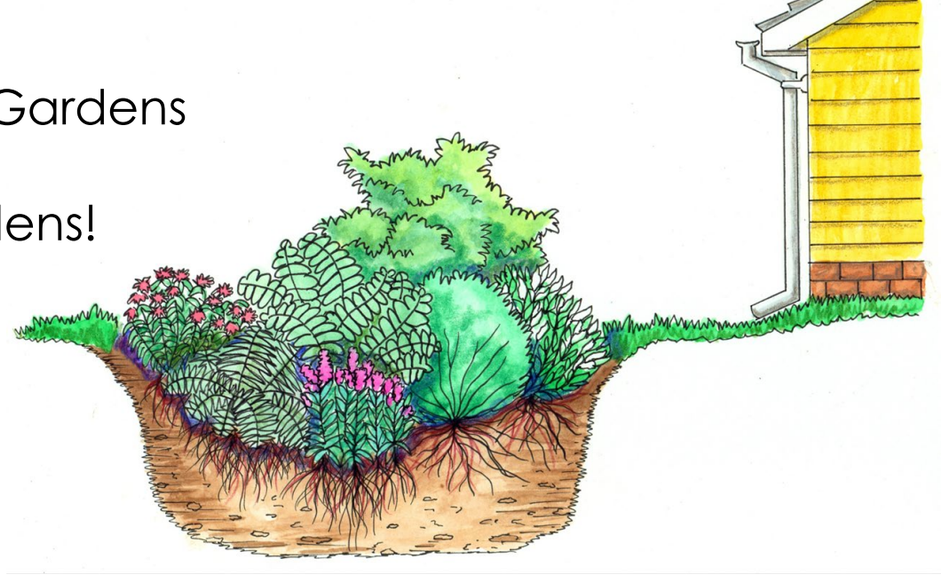
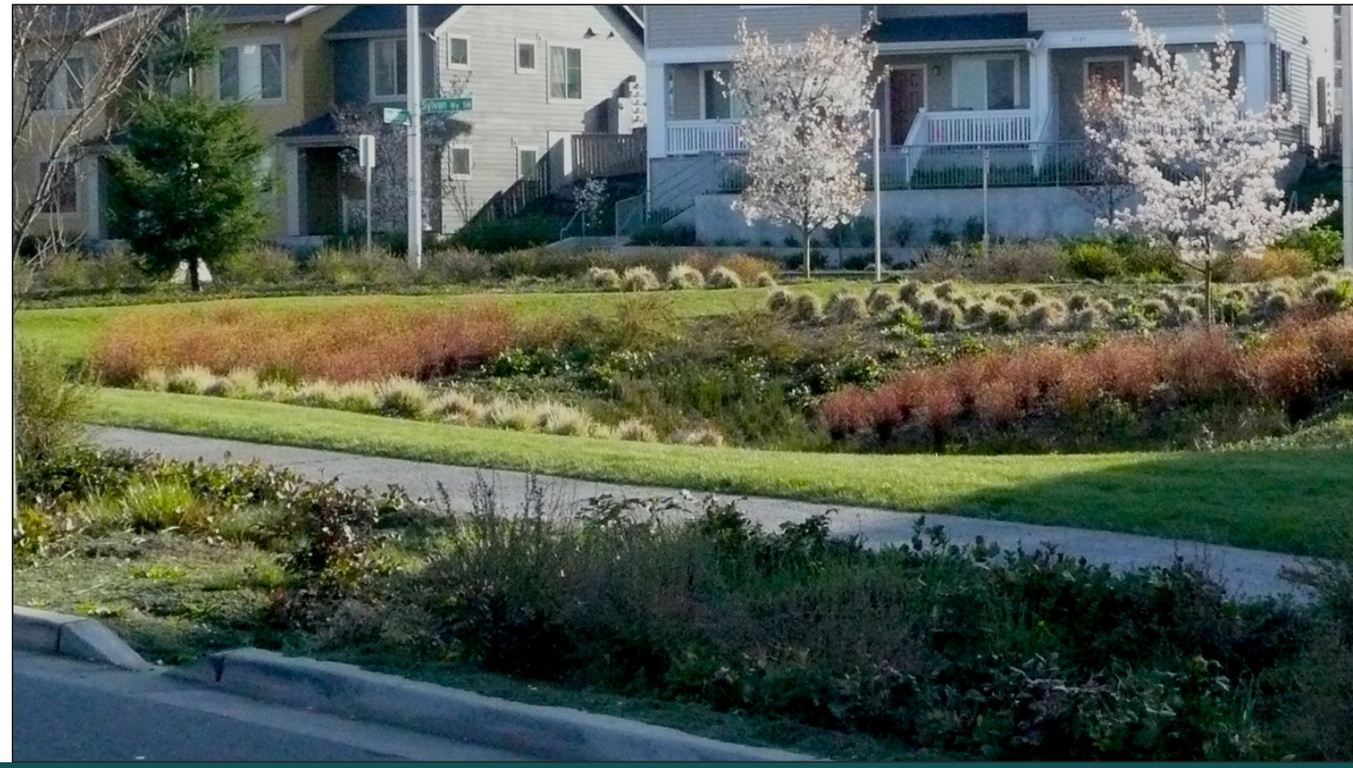
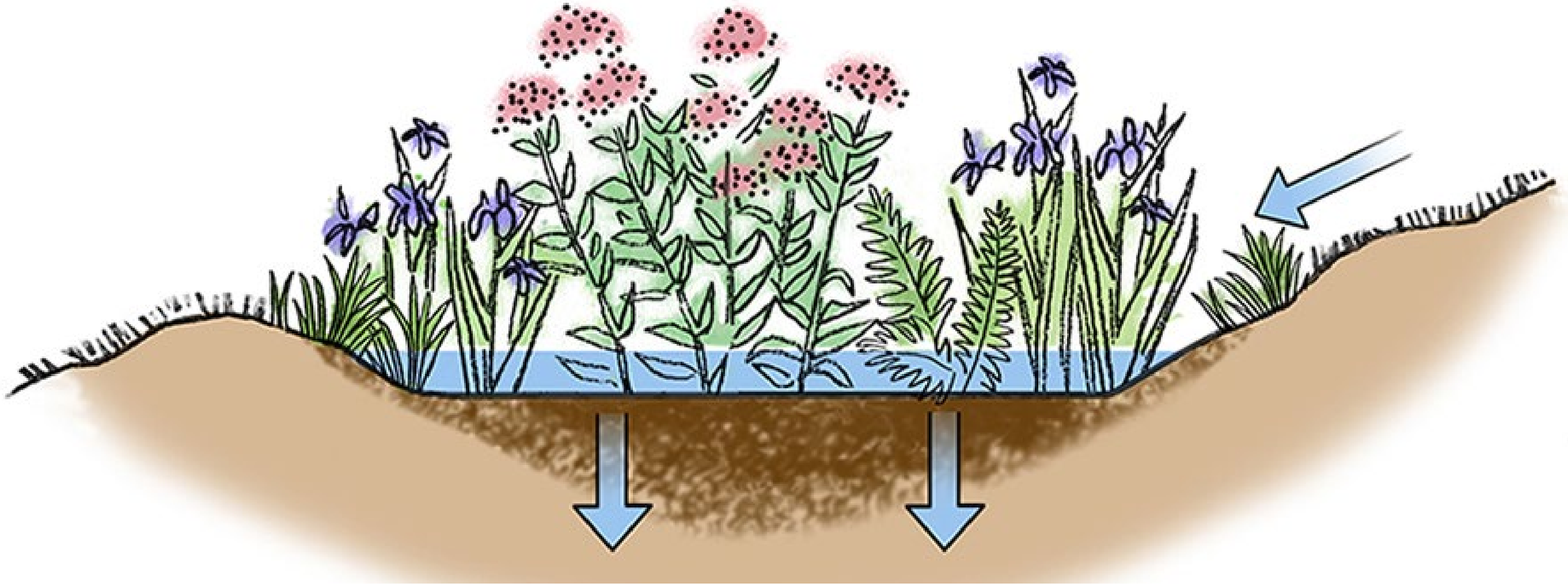
Bioinfiltration Gardens
=
Rain Gardens!

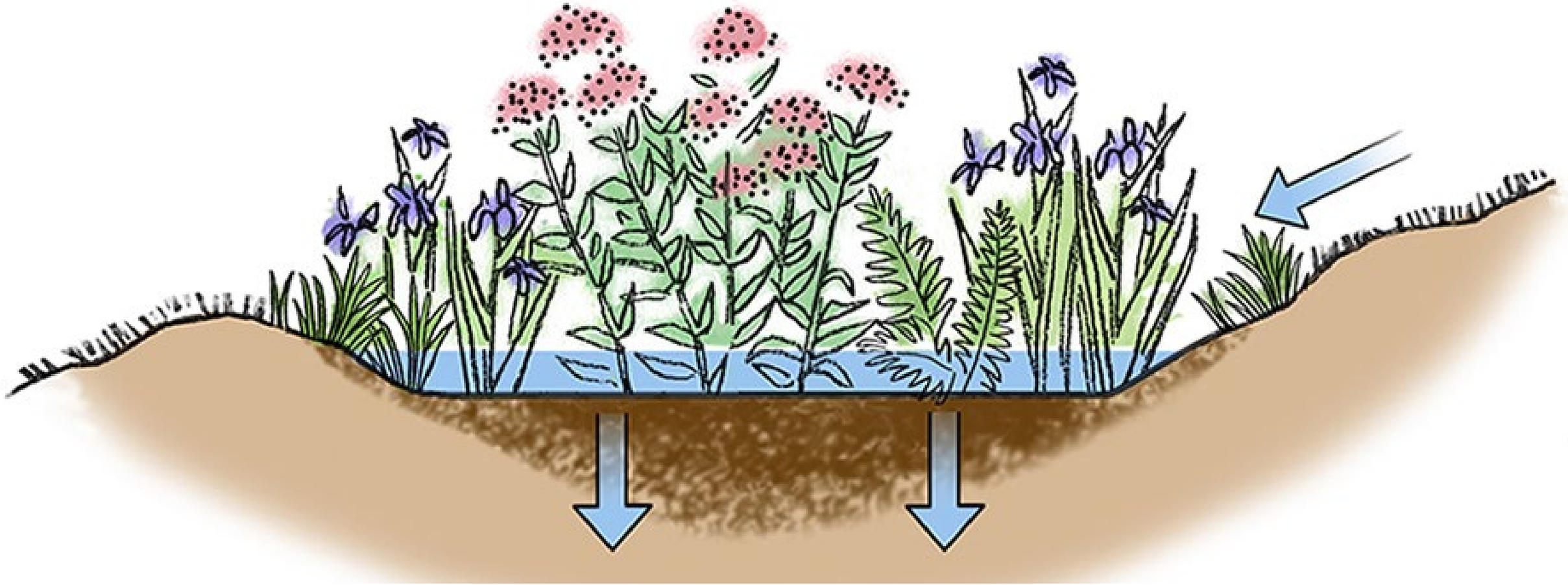






How to Plan Your Rain Garden

- AVOID underground utilities! (water/electric, septic, gas)
  - Call 811 (free)
- Minimum 10 feet from house
- Minimum 25 feet from septic system



How to Plan Your Rain Garden

- Do not place directly under trees
- Steep slopes are not ideal
- Consider where overflow will go (neighbor's yard, street OR into another rain garden)



How to Plan Your Rain Garden

- Locate in an area where rainwater runoff naturally occurs
- Plan your garden like a river flows: *follow the path of least resistance*
  - Downspout
  - Driveway/sidewalk



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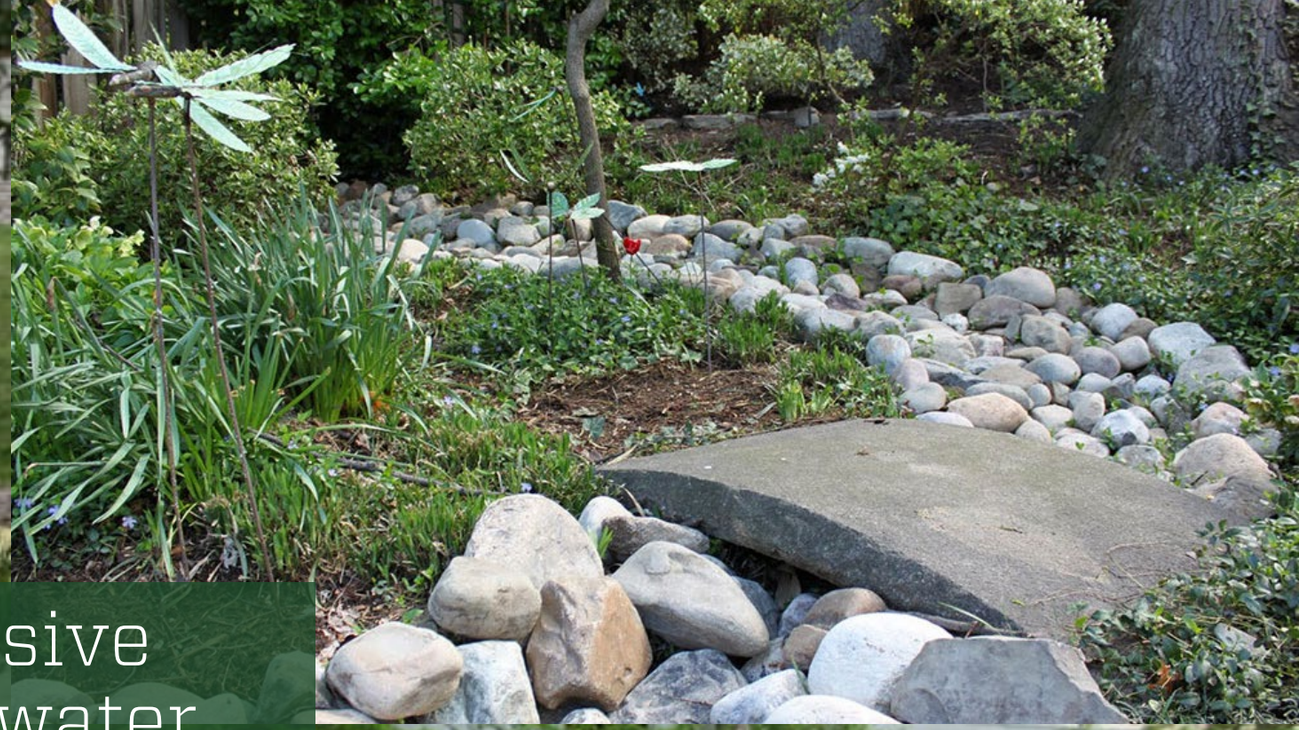


Passive Rainwater Collection

Water-wise Plant Selections

Xeric Tree and Shrub Selection

- Selection based on adaptation to Colorado's climate and the ability to prosper in reduced water situations
- Assess site soil, drainage and exposure before selecting trees and shrubs
- Apply adequate water during the first years of plant establishment, then gradually reduce irrigation
- Woody plants are a long-term investment!

Photo: Adams County Extension

Xeriscaping: Trees and Shrubs – CSU Fact Sheet #7.229

Photo:
Columbia
Daily Tribune

Deciduous Trees

Kentucky Coffee Tree

Gymnocladus dioicus

Kentucky Coffee Tree

- May be male or female
- Interesting winter form
- Yellow fall color
- Mature size (H x W) - 50’ x 40’
- Tree shape is variable
- Slow growth rate
- Low soil moisture
- Plant in full sun, adaptable to wide variety of conditions


Photo: Arbor Day Foundation

Photos: Tree Farm

Russian Hawthorn

Crataegus ambigua

Photo: UC, Berkeley

Photo: Urban Forest Ecosystems Institute

Photo: Urban Forest Ecosystems Institute

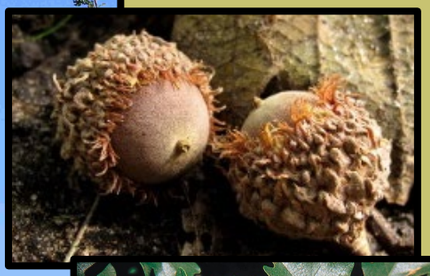
Russian Hawthorn

- Small, deciduous tree
- Mature size (H x W) - 20 x 15
- Tree shape - Upright, spreading
- Medium growth rate
- Low soil moisture
- Full sun to part shade

Bigtooth Maple

Photos: Upshoot, LLC

Photo: Blue Heron Farm



Bur Oak

Xeriscaping: Trees and Shrubs – 7.229

Evergreen Trees

Pinyon Pine
Pinus edulis

- Native pine
- Mature size (H x W) - 20’ x 15’
- Tree shape – Conical to rounded
- Slow growth rate
- Low soil moisture
- Not suited for frequently watered lawn areas

Photos: ArborTanics Inc.

Pinus aristata
Bristlecone pine

- A Colorado native
- Five-needle pine
- Very slow growing
- Hardy to 11,000 feet
- Resin dots on needles – key ID feature
- Very tolerant of most soil types
- Do not overwater
- Plant in full sun
- Because of the slow growth rate, they are perfect for rock gardens
- Methuselah, a bristlecone pine, is the oldest tree in the world

Junipers!

Rocky Mountain Juniper

Woodward Columnar Juniper

Wichita Blue Juniper

...and many, many more!

Deciduous Shrubs

Skunkbush Sumac, Three-leaf Sumac

Rhus trilobata

Photo: Lower Platte South NRD

Skunkbush Sumac, Three-leaf Sumac

- Native deciduous shrub
- Grows at elevations of 3500 to 9000 feet
- Orange to red fall color
- Arching branches
- Low water use


Photo: Southwest Colorado Wildflowers


Photo: Plant Select

Photo: Southwest Colorado Wildflowers

Pawnee Buttes® sandcherry

Prunus besseyi ‘P011S’

- A Colorado native
- Shrubby groundcover
- Drought-tolerant and tough as nails
- 2 feet tall by 6 feet wide

Photo: Plant Select

Photo: Jordan Valley Water Conservancy District

Pawnee Buttes® in summer

Pawnee Buttes® Fall Color

Rabbitbrush

Chrysothamnus nauseosus

- Native, but cultivars are available (yellow twig, baby blue)
- Mature size varies: 1-3 feet tall, 2-3 feet wide for baby blue, others are 5-6 feet tall and wide – check cultivars
- Flowers late summer
- DEER RISISTANT
- Attracts bees and butterflies

Photos: Colorado Springs Utilities

Photo: wyoextension.org

Photo: Clearwater Designs Ltd.

Blue Mist Spirea

Cheyenne Privet

Photos: ArborTanics Inc.

Photo: National Gardening Association

Wayfaring Tree Viburnum

Evergreen Shrubs

Juniper species

- Hardy
- Versatile
- Drought Tolerant
- Many varieties

Photo: Monrovia

Photo: ArborTanics Inc.

Photo: NC State University

Juniper species

Broadmoor – dense, mounding dark green form

Arcadia - bright green foliage on a flat top form

Pfitzeriana Compacta - silver-blue foliage with wide spreading growth habit

...and so, so many more!

Oregon grapeholly

Mahonia repens or *M. aquafolium*

- A *broadleaf* evergreen, that looks a lot like holly
- One of the few evergreens that can tolerate shade
- Very drought tolerant once established

Photo: Monrovia

Mahonia flowers, fruit and fall color

Photo: Plant Select

Photo: High Country Gardens

Desert Sweet, Fernbush

Chamaebatiaria millefolium

- White flowers throughout most of the summer months
- Cinnamon colored stems
- Mature size - 3-5’ tall and wide
- DEER RESISTANT
- Attracts bees

Panchito manzanita

- Pink flowers
- Low growing spreading shrub
- Evergreen
- Mature Size - 12-24” tall, 18-48” wide
- Water to establish, then reduce water in subsequent years
- Low maintenance


Photo: Manzanitas Plus


Photo: Plant Select

Perennials


Photo: High Country Gardens

Penstemon

- Most bloom in late spring and early summer, different foliage types and flower colors.
- 1 to 3 feet tall, depending on cultivar.
- More than 250 varieties (*not all hardy in CO so buy local*).
- Hummingbirds
- Tend to be DEER RESISTANT
- Does better in sandy soils with lower fertility, even gravelly soils
- Full Sun

Pikes Peak Purple® Penstemon

Pineleaf Penstemon

Rocky Mountain Penstemon

Firecracker Penstemon

Coral Baby® Penstemon

Penstemon (also known as beardtongue)


Photo: Plant Select

Mohave Sage

Salvia

(ornamental sages)

- Mint family
- Will handle clayey soils if well drained, also sand and loam – wide range of soil types
- Do not overhead water, keep on the dry side
- Attractive to bees, tend to be DEER RESISTANT
- Tons of different types and colors!

Salvia (ornamental sages)

WINDWALKER® royal red salvia

Photo: Blue Stone Perennials

Photo: Houzz

Photo: Conservation Garden Park

Salvia argentea (silver sage)

Photo: Monrovia

May Night Salvia

Photo: Plant Select

Hyssop

Agastache sp.

- In the mint family, but not invasive
- Like a sandier soil, okay with hot and dry sites – need good air circulation bc of downy mildew
- Cut back in late spring, leave plants standing through winter.
- Tends to be **DEER RESISTANT**
- Attractive to bees, butterflies, moths and hummingbirds

Coronado® Hyssop


Photo: Plant Select

Sonoran Sunset® Hyssop


Photo: High Country Gardens

Blue Hyssop

Hyssop

Agastache species

- Varying fragrances, such as bubblegum and anise
- Water very rarely once established
- Considered “short lived”
- May reseed

Use a mix of penstemon, salvia, and hyssop for color throughout the growing season!

'Blue Fortune'

‘Summer Love’ hyssop

‘Apache Sunset’

Coronado Red® hyssop

Ice Plant

Delosperma species

- Easy to grow
- Mats of small succulent green leaves with star-shaped flowers
- 3 foot spread, 6-12 inches in height
- Rock gardens, path edges
- Low water
- Well-drained soils

Photo: High Country Gardens


Photo: High Country Gardens


Photo: Conservation Garden Park

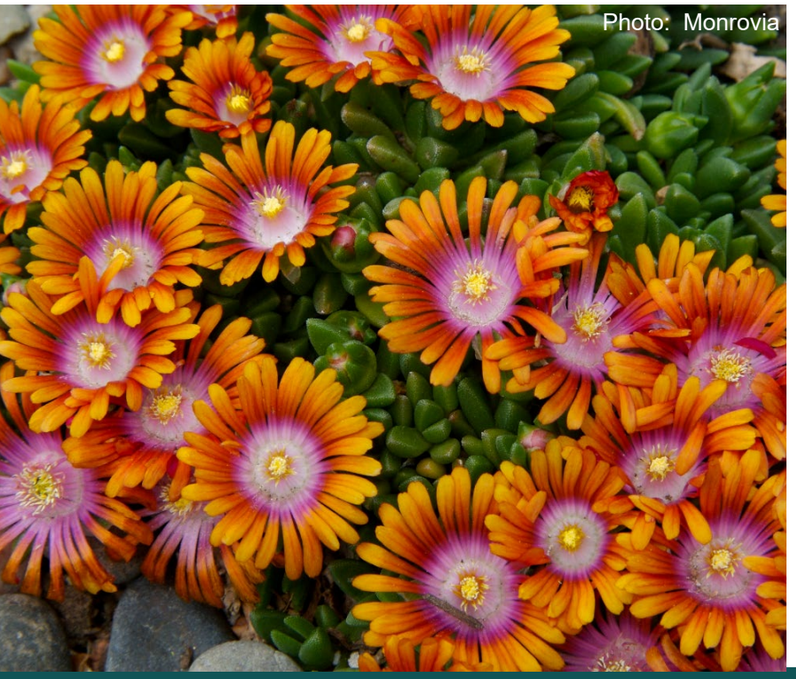


Photo: Monrovia


Photo: High Country Gardens

Ice Plant

Delosperma species

- Lots of choices:
- *D. nubigenum* (Hardy yellow ice plant)
- *D. basuticum* 'Gold Nugget'
- 'Mesa Verde'
- 'Firespinner'
- 'Alan's Apricot'
- Granita® Raspberry

Ground Covers

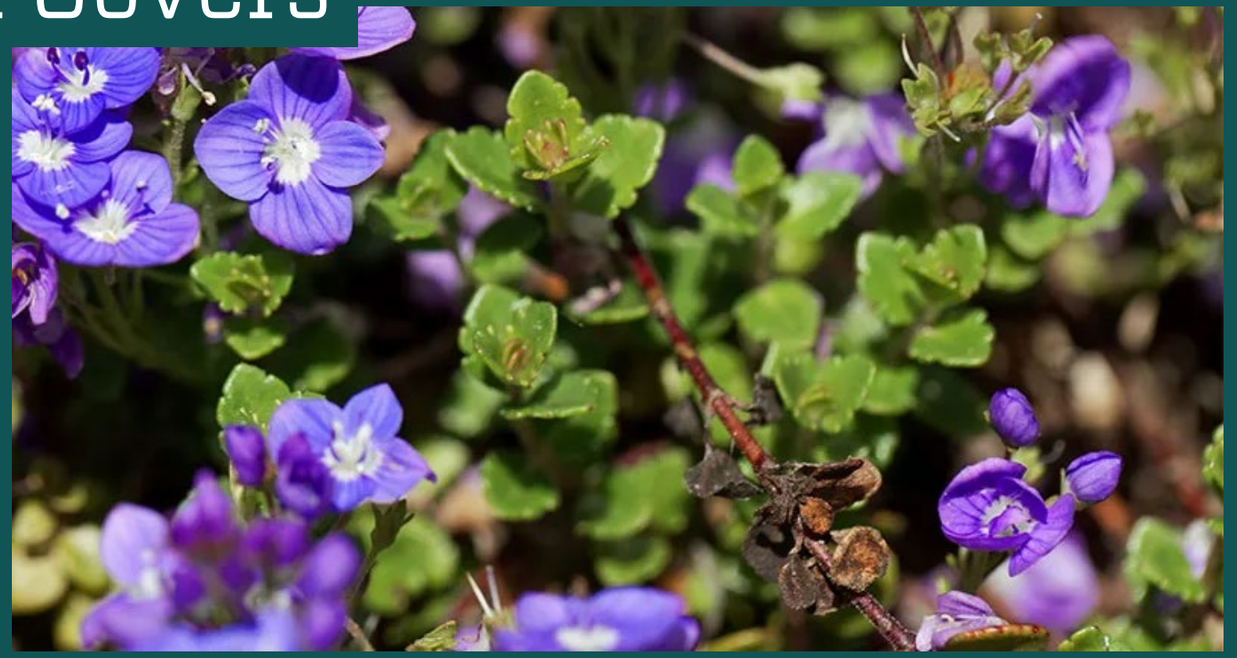
Ground Covers

Whooly Thyme – *Thymus lanuginosus*

Photos: Epicgardening.com - patrick_standish

Photos: High Country Gardens

Turkish Speedwell – *Veronica liwanensis*

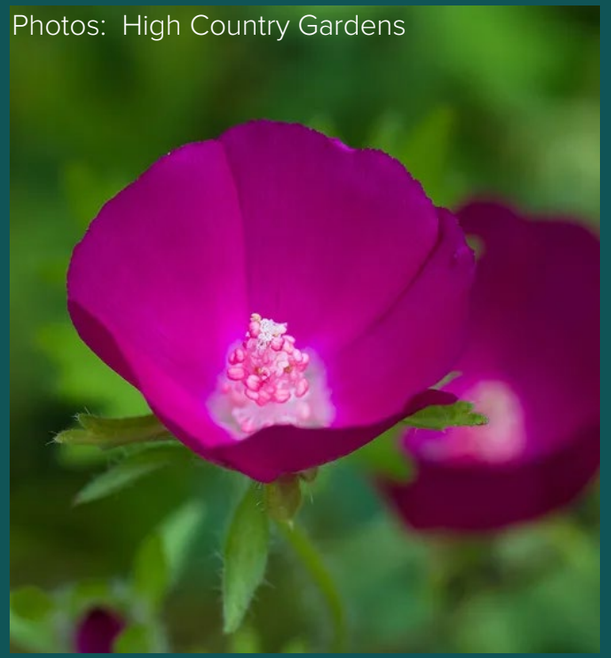


Prairie Natives

Prairie Natives

Wine Cups

Photos: High Country Gardens



Blue Flax

Prairie Natives

Photo: High Country Gardens

Indian Blanket (*Gaillardia punchella*)

Photos: Colorado State Forest Service

Photo: NC State University

Purple Coneflower (*Echinacea purpurea*)

Prairie **Natives**

Photo: WNMU

Mexican Hat (*Ratibida columnifera)*

Photo: UC ANR

Photo: SDSU

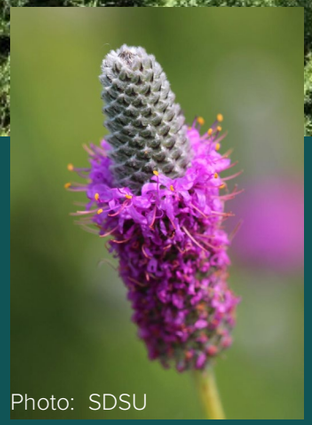


Photo: SDSU

Purple Prairie Clover (*Dalea purpureum)*

Ornamental Grasses

Photo: Ciaran Burke, Blooms ‘n’ Food blog

Photo: Grasstalk Blog

Little Bluestem

Schizachyrium scoparium

- Warm season
- Green to blue-green to blue clumps
- 2 to 3 feet tall
- Fluffy, white seed plumes
- Native best grown in clay soils
- Tolerates light shade
- Drought tolerant
- Plant up to 7,500 ft. in elevation

Little Bluestem

‘Standing Ovation’ – Great Fall Color!

Photo: Plant Select

Photo: High Country Gardens

Blonde Ambition Blue Grama Grass

Bouteloua gracilis ‘Blonde Ambition’

- A clump-forming grass, 30-36” tall and wide
- Hardy, native grass
- Use in unirrigated areas – drought tolerant
- All soils
- Shade intolerant
- Plant at elevations up to 9,500 ft.


Photo: Hort Mag

Switchgrass

Panicum virgatum

- Many ornamental introductions
- Up to five feet tall
- Some selections have great fall color
- Warm season—will green up in late spring

Dallas Blues Switchgrass

Switchgrass

- Doesn’t lodge (fall over) in winter, so great for winter interest
- Dense, upright form
- May get red or yellow fall color, depending on cultivar

Photo: The Gardener’s Eden

Heavy Metal Switchgrass

Photo: High Country Gardens

Shenandoah Switchgrass

Switchgrass cultivars

- Heavy Metal
- Shenandoah
- Cloud Nine
- Dallas Blues
- **Northwind**
- Prairie Sky
- Prairie Fire


Photo: Plant Select

Succulents

Turquoise Tails blue sedum

Succulents, cacti and more…

Prickly Pear Cactus

Red Yucca

Parry's Agave

Hen and Chicks

Photo: Audobon Rockies Habitat Hero Winner, 2015 – Evergreen, CO


Photo: Texas Style Front Yard Landscaping Ideas


Photo: Red Twig Studio - Albuquerque, NM

Photo credit: J&S Landscape *in Longmont, CO*

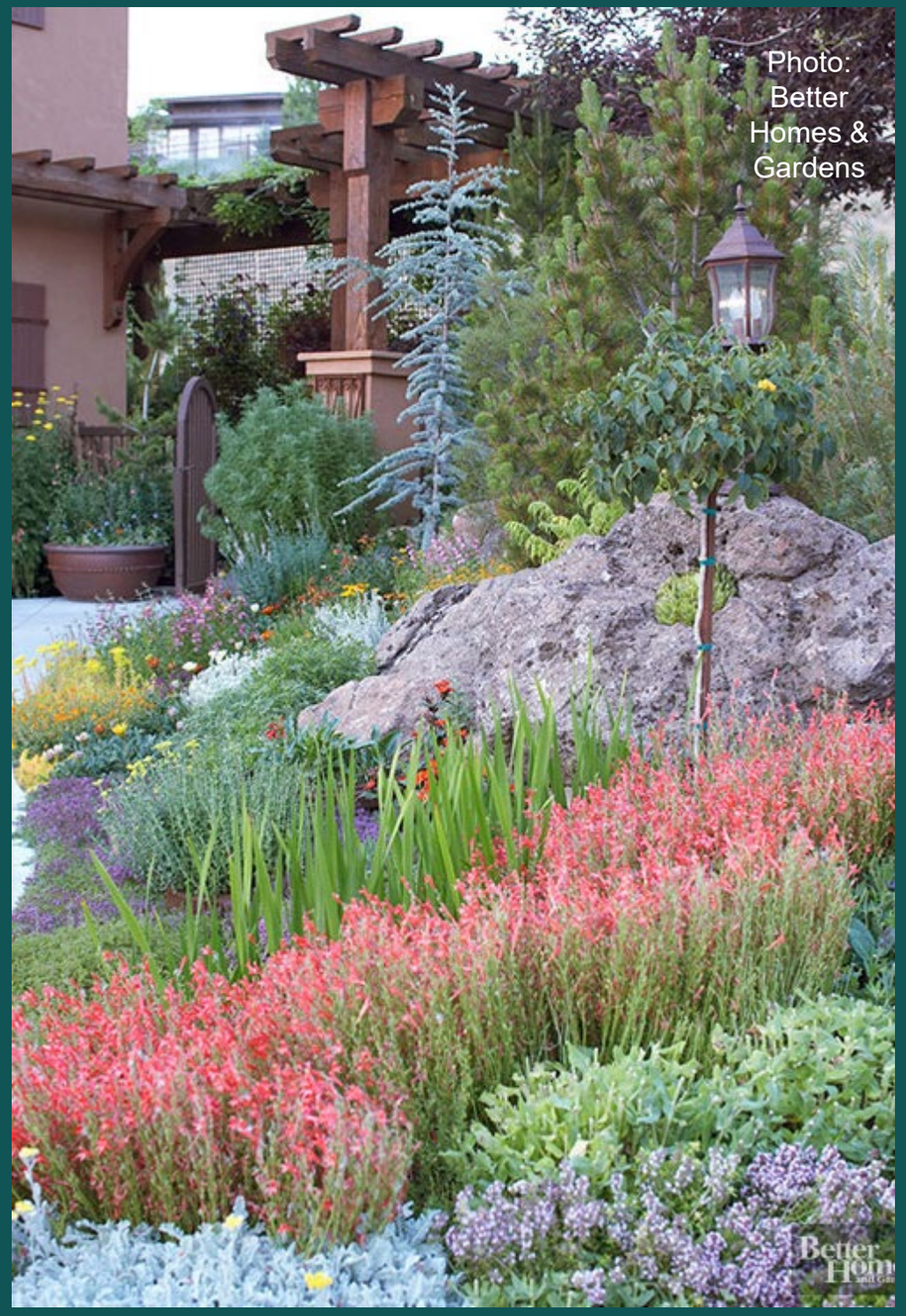


Photo: Better Homes & Gardens

Photo: City of Boulder Twitter

Photo: Pinterest - greggosgarden.blogspot.com

Photo: Pinterest - Foursquare.com


Photo: Lauren
Springer Ogden


Photo: Lauren Springer Ogden

Photo: Colorado Springs Utilities Xeriscape Demonstration Garden

Water Wise Design (Xeriscape)

Additional questions and comments?

[Place your county's Colorado Master Gardener contact information here]

CO-Horts blog:
csuhort.blogspot.com

CSU Extension website:
extension.colostate.edu