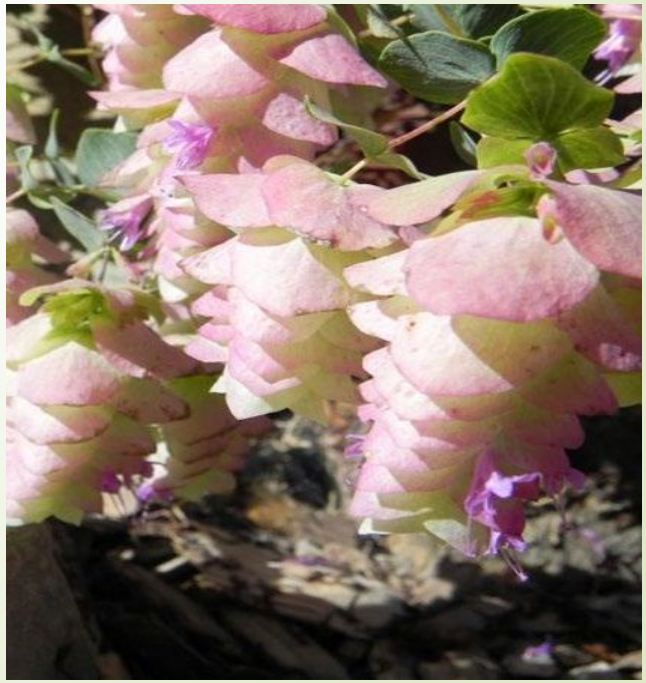
Water- Efficient Landscaping

Helen Muntz

Why Water- Efficient Landscaping Matters in Utah

- Utah's arid to semi-arid climate and limited water supply
- Drought cycles and population growth
- Outdoor landscapes as largest opportunity for water savings
- Shifting from "water use" to "water value"

Flowering Oregano, "Hops Flower"



Outdoor Water Use

- Outdoor irrigation is the largest single-use within Utah households
- 2-3 times greater than indoor use
  - 60–75% of urban residential water demand
- Areas of most potential for conservation gains

Shift in Approach to Landscaping

- Water Efficient Landscaping Incentives (S.B. 118)
- Landscape Requirements (H.B. 450)
- Education and Conservation – Utah Water Savers (H.B. 307)

  https://utahwatersavers.com

  https://weberBasin.gov

Xeriscaping Vs. Water-Efficient

- Utah-adapted, low-water plants

Landscape Locally!

- Living plants cool the air, build healthy soil, & provide a welcoming and soothing space.

Design -Site Assessment

- Irrigation Zones
- Measure your space
- Soil
- Wind
- Sun Exposure
- Slopes
- Microclimates
- Existing trees, shrubs, structures

Hydro-zoning

Grouping Plants with the similar irrigation needs in the same zone

Know your sprinkler zones

- Each zone can run on different schedules
- Allows you to adjust your irrigation schedule based on the water requirements of plants in each zone

- Examples:
  - Practical turf areas
  - Shrubs and perennials
  - Vegetable gardens or flower beds
  - Water-wise plants

Importance of Hydrozoning

- Pairing plants based on water needs

Lawn Vs. Native/Utah adapted Plants

Zone 1 | Zona 1

Moderate water use

Uso moderado de agua

Zone 2 | Zona 2

Low water use

Bajo consumo de agua

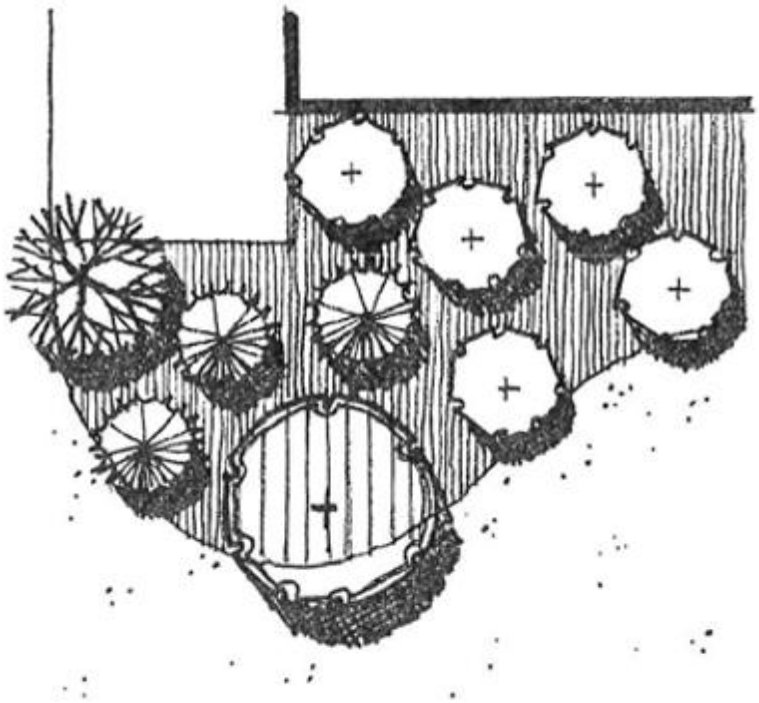
Zone 3 | Zona 3

Water only in drought

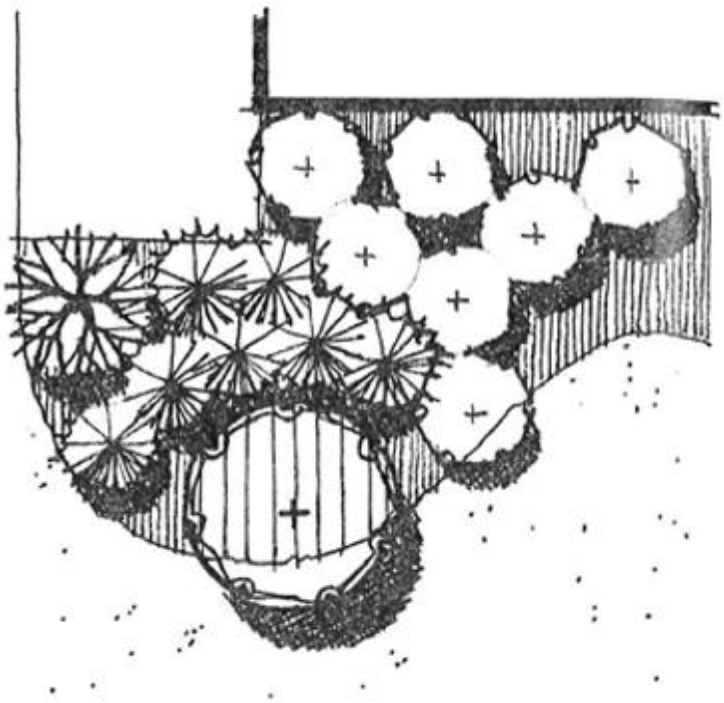
Agua solo en sequía

Form as a Unifying Element

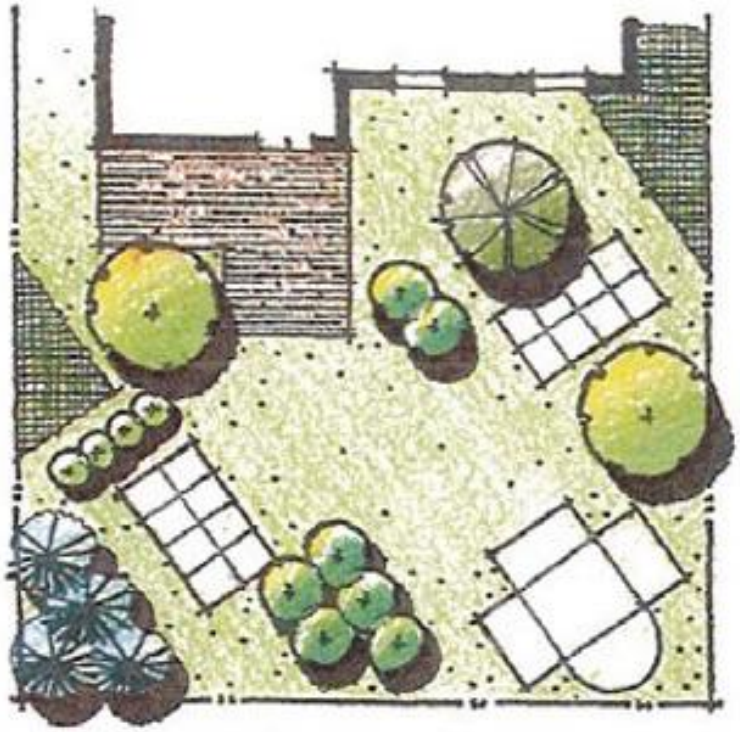
Planting Design



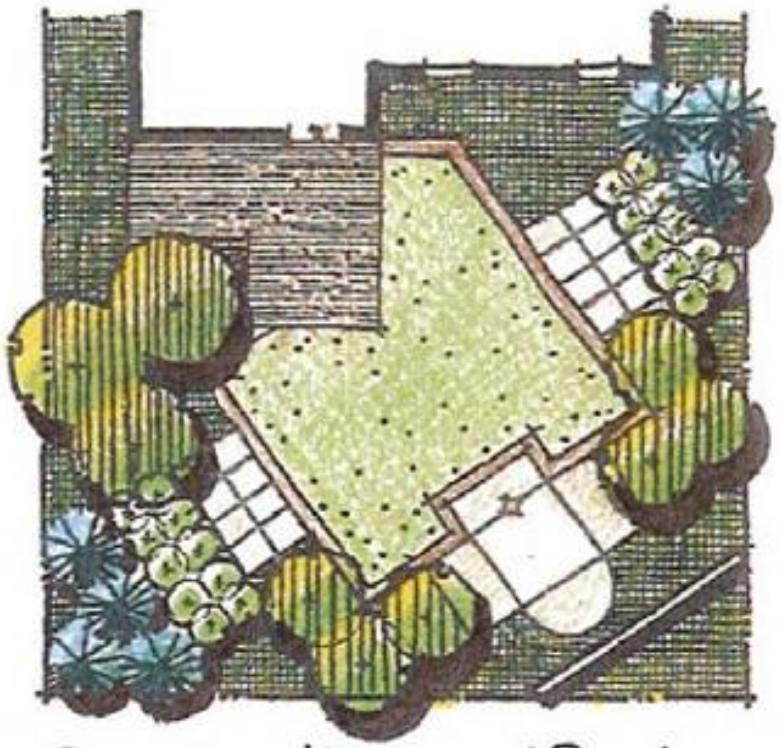
No! Plants are separated and scattered.



Yes! Plants are grouped together in masses.



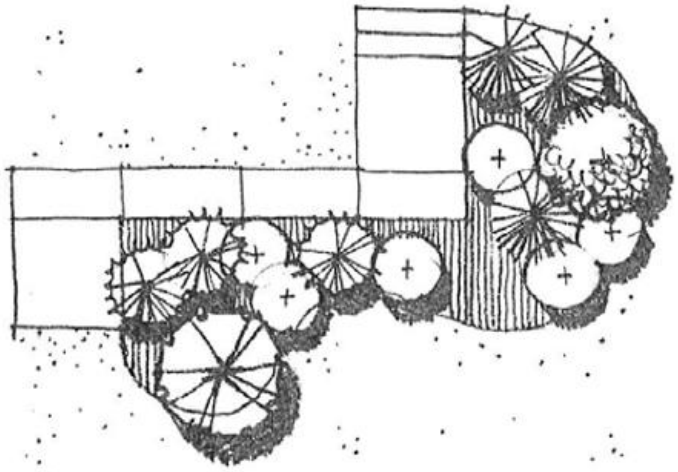
Composition lacks interconnection.



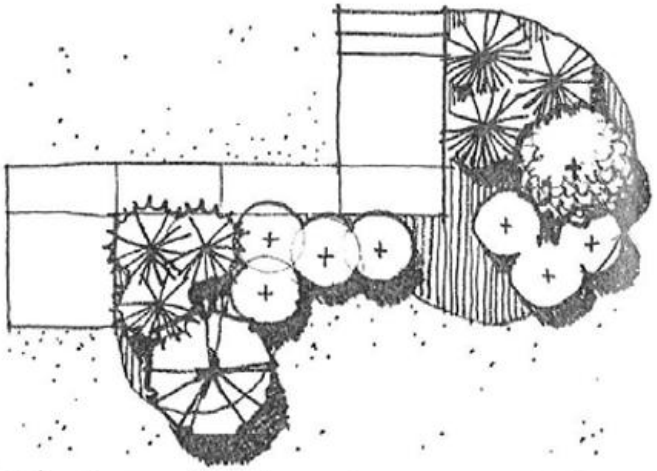
Composition unified through interconnection.

Planting Design

MASSING IS YOUR FRIEND



Similar plants are separated within the masses ... less order.



Similar plants are grouped together within the masses ... more order.

Massing

Massing

Planting Design
See Plants as a Medium to

Practical Turf Areas

Functional Lawn Area-Considerations

- Size for play, activities, & pets
- Shape –Is it easy to irrigate and mow?
- Grass only stepped on when mowed is not considered a functional turfgrass area.

Garden Design

- Cottage Style
- Formal
- Naturalistic

Design

- Color and Texture
- Year-round interest
- Leading the eye
  - Repetition/Balance
  - Specimen Plants/Eye-Catchers
- Look twice before planting
  - Size & Space
  - Vegetative layering
  - Pathways
  - Seasonal
- Experiment

Pollinator Garden, 2020 (Ogden Botanical Gardens)

Hardscape Pathways

- Access from street to front yard area
- Reduce foot traffic damage to plants
- Mulch or stone
  - Permeable towaterandair
  - Flagstone, pavers,gravel
- Mulch over bare soil
  - Weed suppression
  - Keeps soil moist

Design

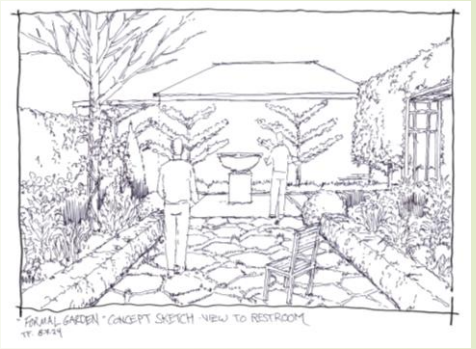
- Mimic nature
- Plant in groupings of 3's, 5's, or7's

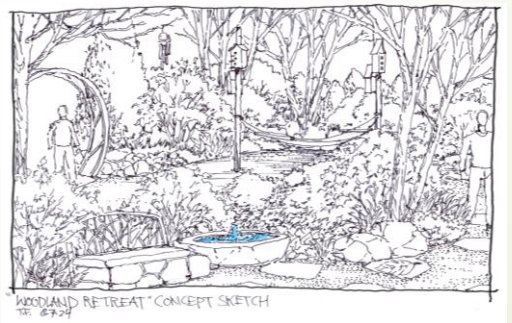
Design

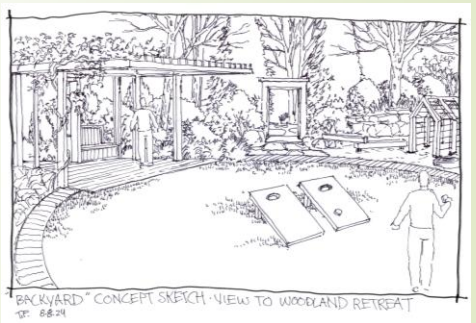
Gardens are dynamic

Scope of renovation project:

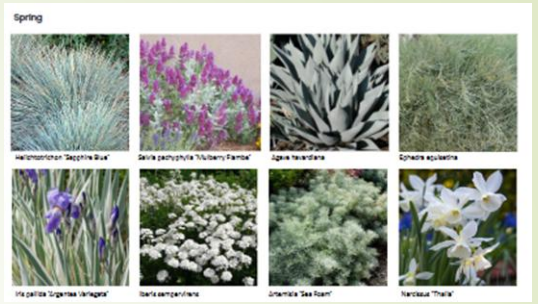
- The creation of 4 new themed "yards" with varied styles:
  - Formal
  - Modern
  - Traditional Backyard
  - Woodland
- Demonstrating ordinances/ standards needed for future demand reductions

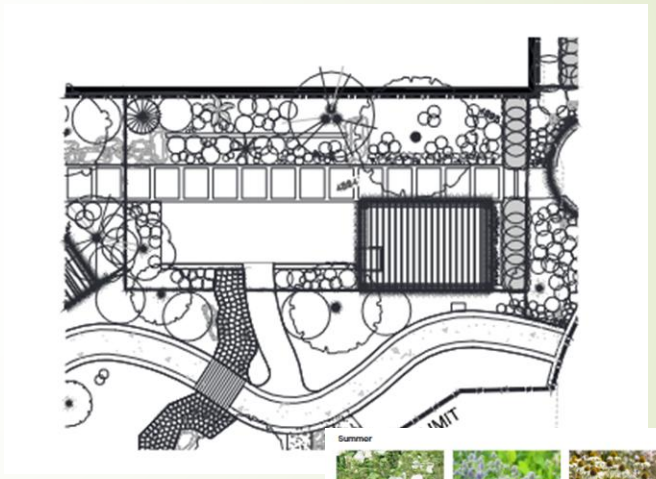


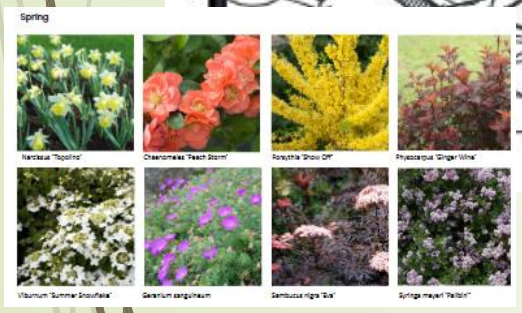


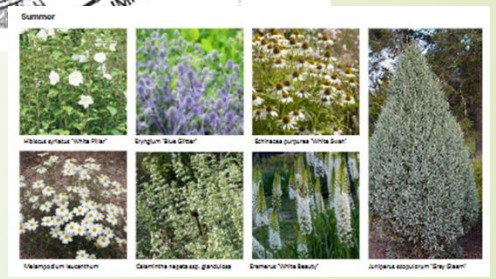


The Ideas:









Remove Existing Lawn

- Herbicide
  - 2-3 applications
  - Cover with compost
  - Till (4 weeks)
- Sod Cutter
- Solarization
  - Clear Plastic for 6 weeks

Sheet Mulching

- Cardboard overlap (4-6 inches)
- Topsoil/Compost (2-4 inches)
- Mulch (2-4 inches)

Irrigation 101

Utah is the 2nd driest state in the nation

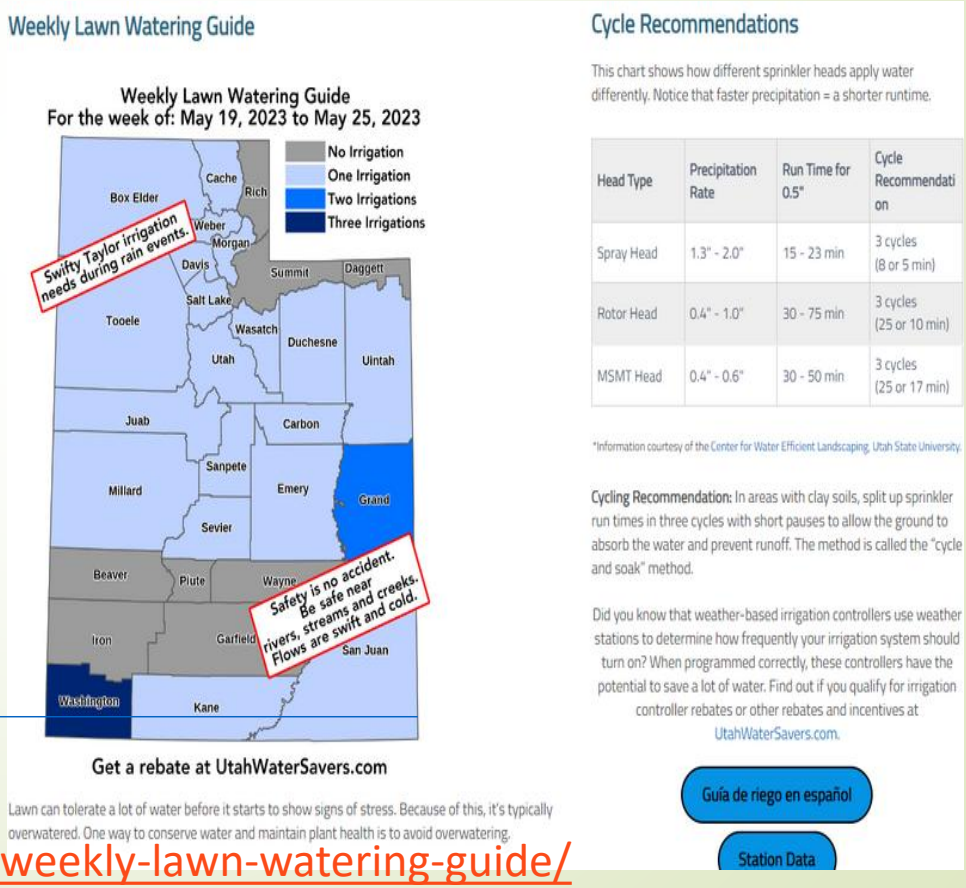
Urban landscape irrigation in Utah uses up to 65% Municipal Water

Water facilitates nutrient uptake for plants

- Turf-cool season vs. warm season
  - Cool- summer dormancy
  - Warm-generally heat and drought resistant
- Perennials
  - Deep and less frequent watering
  - Soil and site conditions
- Trees and Shrubs
  - Deep, less frequent watering
  - More often over watered, or not watered deeply (trees planted in turf)

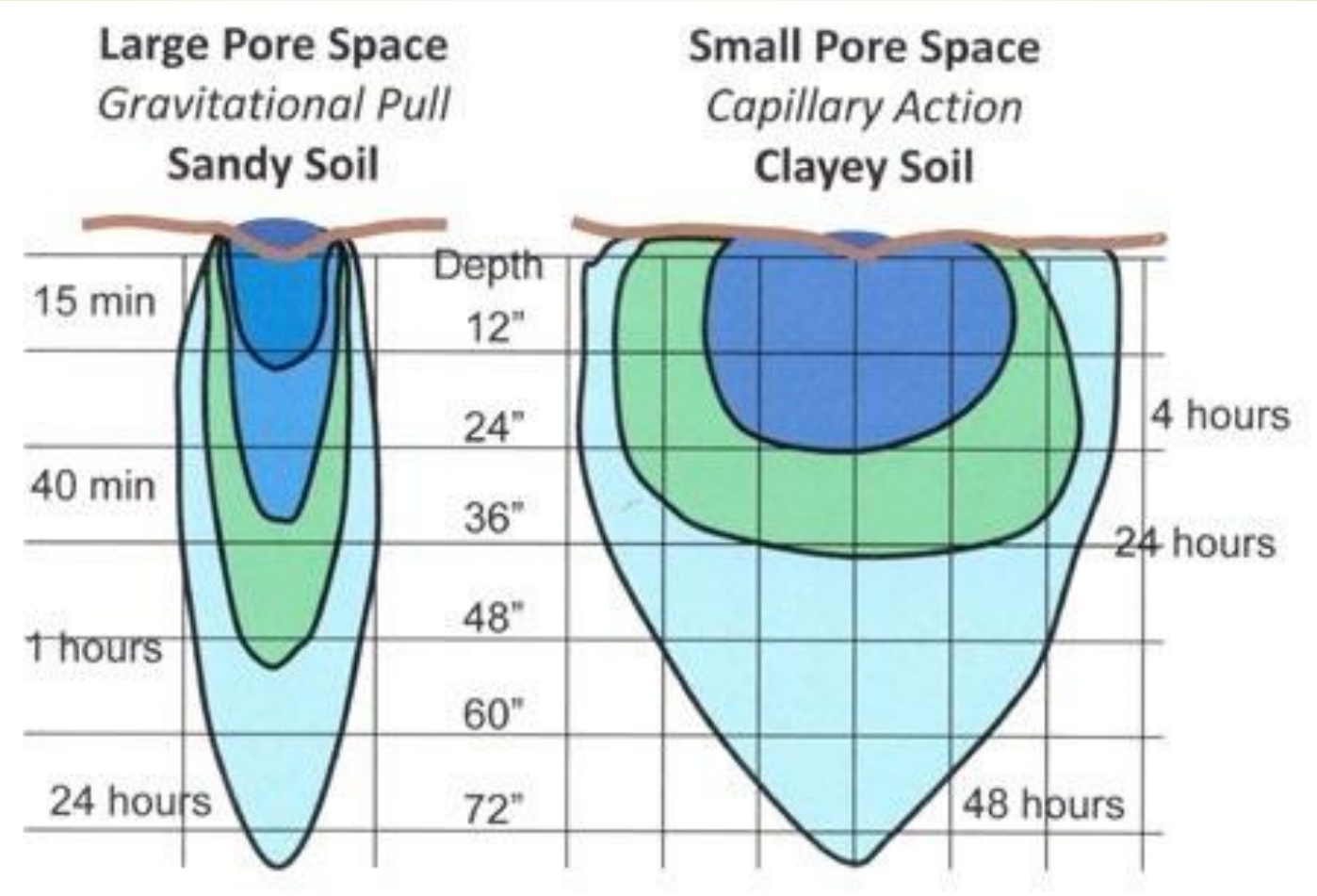
Why do we Irrigate?

- Replace Water Loss – **Evapotranspiration (ET)**
  - Evaporation
    - Water evaporation from the soil surface
  - Transpiration
    - Water loss in the plant (plant sweat)
  - Fluctuations based on:
    - Solar radiation, temperature, humidity, wind



https://conservewater.utah.gov/weekly-lawn-watering-guide/

Soil Texture and Drainage



Efficient Irrigation

- Uniformity of water application
- Regular maintenance and annual audits
- Smart clocks and scheduling
  - Plant type
  - Soil type
  - Evapotranspiration (ET) rates

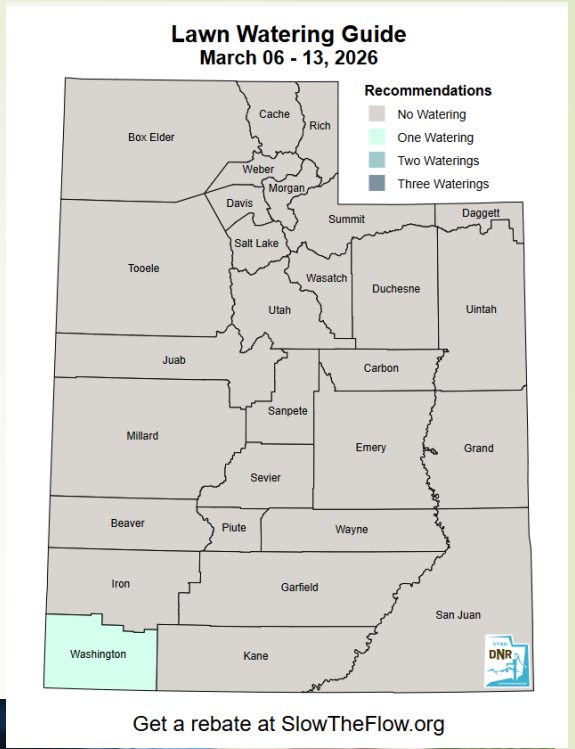
Irrigation Schedule

- *Seasonal* ET
- Soil Type

‘Cycle Soak’

Soil probe

Soil moisture meter

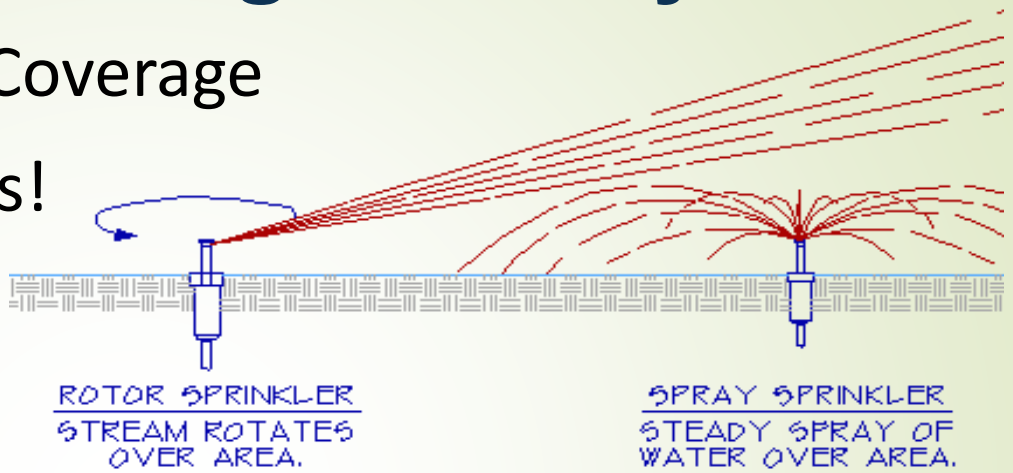


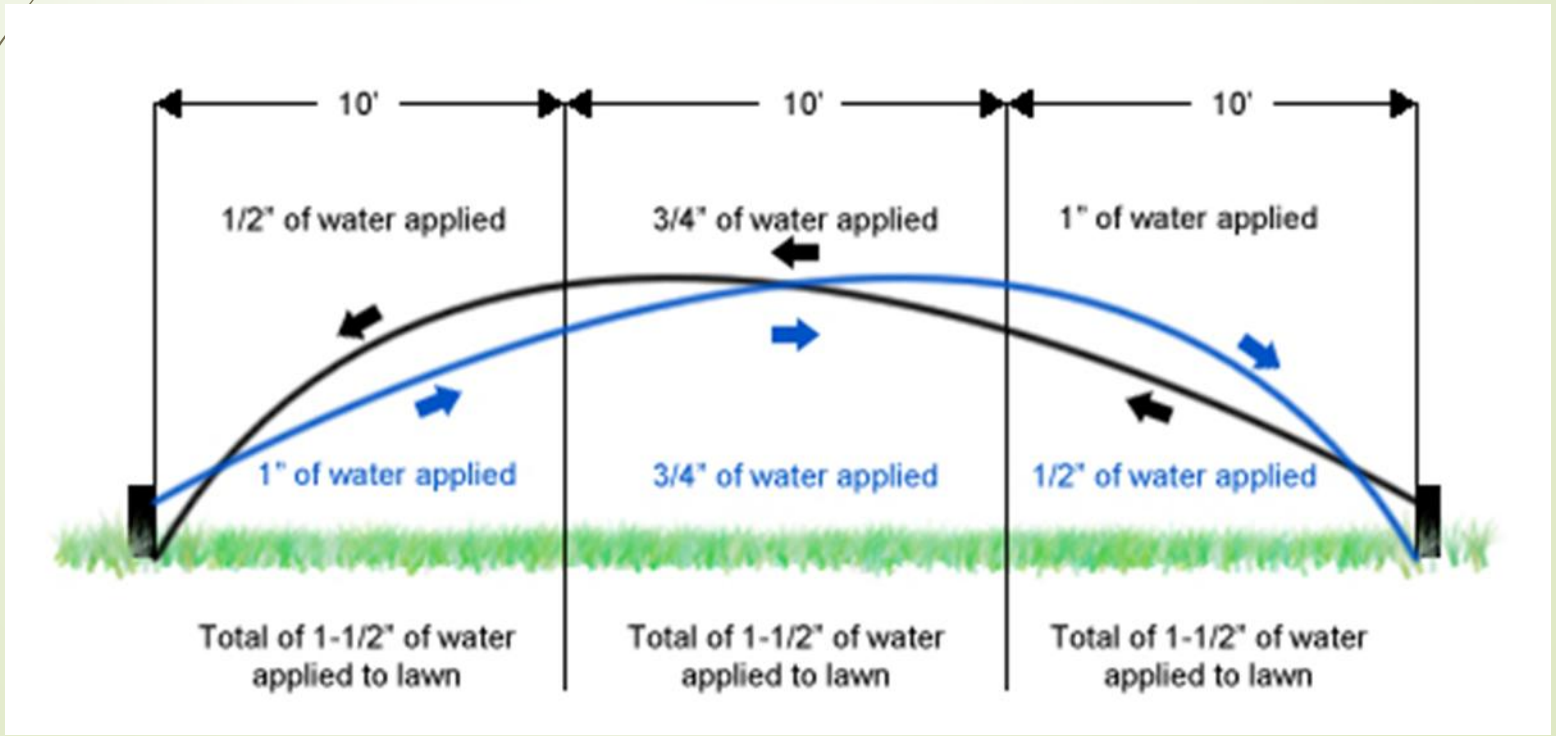
Know your Irrigation System

- Sprinkler Types
  - Rotor
    - Large Areas
    - Low Precipitation Rate, or "P.R." – 0.4-1 in/hr.
  - Spray
    - Small Areas
    - High P.R. – 1.3 – 2 in/hr
  - Multiple Stream (MP Rotor)
    - Small-Medium Areas
    - Medium P.R. – 0.4 – 0.6 in/hr
    - High efficiency

Know your Irrigation System

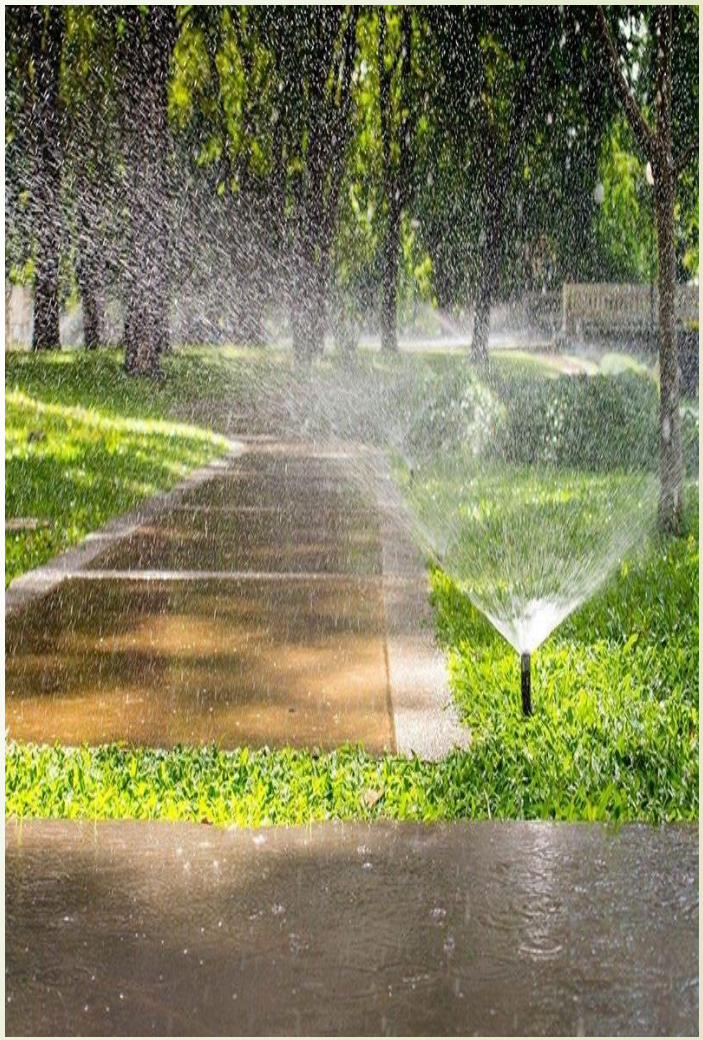
- Head-to-head Coverage
- No mixed heads!





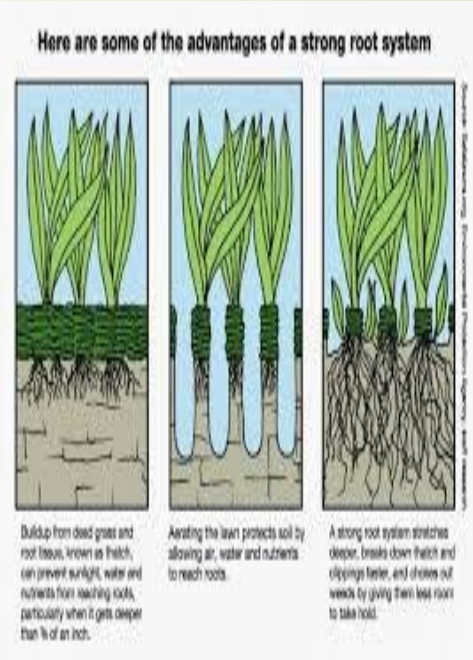
Irrigation Water Wasted

- Spray patterns – over spray
- Sunken, tilted, broken, obstructed sprinkler heads



Landscape Action Items

- Sloped Areas
  - "Cycle Soaking"
- Mulch Needed
  - Using mulch where there is bare soil will reduce evaporation, moderate soil temperatures, and discourage weeds.
- Mismatched Plant Types
  - A single sprinkler zone is watering plants with different water requirements.
- Soil Compaction
  - Core Aeration, or the removal of plugs from the soil, increases air and water transfer to the root zone, which is vital for a healthy lawn.
- Thatch
  - Removing thatch can be done with a stiff garden rake, but usually is done with a machine called a power rake or a vertical mower.



Days per Week - Lawns/Annuals

	Apr	May	Jun	Jul	Aug	Sep	Oct
Sand	--	2	3	3	3	2	--
Loam	--	1	2	3	2	1	--
Clay	--	1	2	2	2	1	--

Drip Irrigation

- High efficiency 90%+
- Puts water near root zone
- Low flow – no runoff
- Reduces weed growth
  - Reduced labor

Drip Irrigation

- Needs to have its own valve/zone
  - Not on the same zone as spray heads
- Pressure Reducer
- Filter

Drip irrigation types

In-Line Drip

Point Source Drip

Now Let's Talk PLANTS!

Frequently asked questions

1. Plants for “Zero-scaping” (Xeriscaping) aka Water-Wise
2. Plants that bloom all season
3. Plants for tough spots
   - Afternoon sun only
   - Dry, shady areas
   - Deer resistant

Native Vs. Water-Wise

Sego Lily, *Calochotus nuttallii*
Utah Native

Veronica, "Royal Candles"
Water-Wise

Top Performing Native Plants for Low-Water Landscapes

- Lewisii,“Western Blue Flax”
- Sphaeralcea, “Globe Mallow”
- Eriogonum, “Sulphur Buckwheat ”
- Asclepiastuberosa, “Butterfly Milkweed”
- PenstimonSpp., “Rocky Mountain”, Firecracker”, “Pineleaf ”
- Oenothera, “Evening Primrose”
- Epilobium, “Fire Chalice”
- Mirabilis, “Desert Four-O’clock”

Top Performing Garden Perennials for Low-Water landscapes

- Agastache/Hyssop, “Humming Bird Mint”
- Gaura, “Whirling Butterflies” or “Wandflower”
- Buddleia, “Butterfly Bush”
- Lavandula, Lavender
- Baptisia, “False Indigo”
- Heliopsis, “false Sunflower” (Indicator Plant)
- Gaillardia, “Blanket Flower”
- Nepeta, “Catmint”
- Echinacea, “Cone Flower”

Low Water Grasses

Lawn alternatives:

- Blue Gramma Grass
- Buffalo Grass
- Crested Wheatgrass
- Zosia grass

Drought tolerant Ornamental Grasses

- Switch Grass ('Heavy Metal Blue', 'Shenandoah')
- Miscanthus ('Morning light')
- Reed grass ('Karl Foerster')
- Blue Oat Grass
- Pink Muhly Grass

Groundcovers!

SUN

- Veronica (creeping speedwell)
- Creeping Thyme
- Phlox
- Rock Cress
- Candytuft

SHADE

- Veronica (creeping speedwell)
- Sweet Woodruff
- Ajuga
- Lamium

SUN

Creeping Thyme

Rock Cress

Veronica/ Creeping Speedwell

SHADE

Sweet Woodruff

Ajuga

Low - Water Shrubs

- Elderberry Fern bush
- Smoke bush Russian
- Sage Bluebush Spirea
- Gro-low Fragrant Sumac
- Globe or Nest spruce

Deer Resistant Options

- Daffodils
- Iris
- Daylilies
- Lavender
- Desert 4-O-Clock
- Agastache / Hyssop
- Coreopsis / Tickseed
- Globe mallow
- Ornamental grasses
- Sedum
- Galardia
- Nepeta / Ctamint
- Papaver / Oriental Poppy
- Helianthemum / Rock Rose
- Epilobium/ Hummingbird trumpet
- Aquilegia / Columbine
- Liatris / Blazing Star
- Callirhoe / Wine cups

- Lamiastrum / Yellow Archangel
- Veronica / Turkish Speedwell
- Penstemon / Beardtongue
- Salvia / Medow Sage
- Helianthus / Maximilian's Sunflower
- Lamium / dead nettle
- Echinops / Globe Thistle
- Gaura / Whirling Butterflies
- Asclepias / Milkweed

Callirhoe, Wine Cups

March 2018 Horticulture/Landscape/2018-01pr

Landscaping in Dry Shade

15 Great Landscape Plants for Dry Shady Areas

Helen Muntz and ***Larry Rupp***

Finding the right landscape plants for dry areas that are also shady can be challenging. Most of the drought tolerant plants used in Utah's residential and commercial landscapes come from dry environments and are adapted to full sun. Therefore, these plants do not grow well in shaded environments.

Shade produces a microclimate with unique cooling effects, reduced soil evaporation and reduced plant transpiration (Lin & Lin, 2010). In spite of the common perception that shade gardens are always cool and moist, often there is not ample soil moisture. Often the very conditions that create shade can reduce soil moisture. For example, the soil beneath the canopy of a mature blue spruce is heavily shaded; however, between the canopy's ability to shed snow and water to the drip zone and the water demand of the tree itself, the soil immediately underneath the tree can be very dry. This is especially true in Utah where high elevation and low humidity increases solar radiation and transpiration from the very canopy that may be

Typically, shade plants have developed certain traits such as thin, shade adapted leaves that are less adapted to resist water loss. On the other hand, adaptive traits of most drought tolerant plants to full sun, such as small pubescent or thick succulent leaves, reduce their ability to grow in a shaded environment. The end result is a paradox where the adaptations which make a plant shade tolerant may also make it drought intolerant and the adaptations that make a plant drought tolerant may also make it shade intolerant.

The challenge to gardeners is to find plants that are tolerant of both shade and drought. In spite of the challenges of dry shade, there are a number of plants that can perform well in such an environment. Utah State University Extension compiled a list of plants that grow in dry shade. The list was sent in survey form to the Utah Public Garden Network to verify excellent performance of these plants when grown in dry shade. The following is a list of 15 plants that perform well in dry shade areas.

Plants that bloom all summer

- Consider season-long *interest*
  - Colorful foliage
  - Textures
  - Supplementing with annuals, biennials, flower containers & garden décor
  - Mixture of bloom times

Perennials!

Partridge Feather & Dianthus

Creeping Phlox

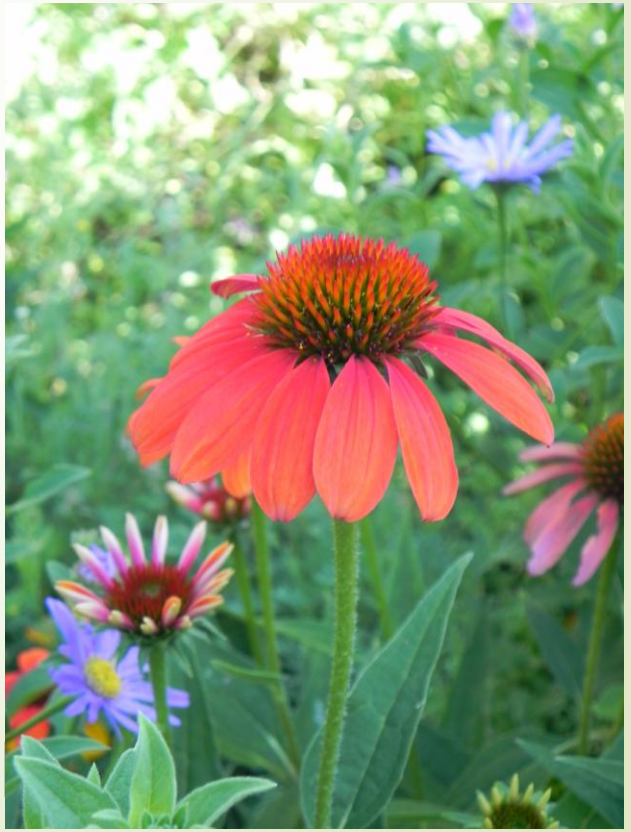
Flowering Oregano,
"Hops Flower"

Perennials!

Butterfly Bush

Orange Globe Mallow

Coneflower & Aster



SPRING - Sun and Partial Shade

Peony

Anemone

False Indigo (Baptisia)

Jacob's Ladder

Variegated Jacob's Ladder

Allium

What's Blooming NOW?

Primula sp.
"Primrose"

Pasqueflower

Lungwort

Hellebore

Brunnera

Spring – Partial to Full Shade

Monkshood

Lamiastrum

Lungwort

Brunaria

Tiarella

spring-summer transition

Spring

Poppies

Sol Dancer Daisy

Columbine

Blue flax

Campanula

Penstemon-Rocky Mountain & Fire Cracker

Late Spring Combinations

- Poppies, Columbine, Iris, Orange Globemallow, Blue Flax

Summer Perennials

Epilobium ‘Wasatch Fire’

Gaillardia

Red hot poker

Delosperma - Ice plant

Stella De Ora Daylily

Hummingbird

Blanket Flower

Yarrow

Coreopsis

Gaura

Hyssop

Lavender

Catmint

Veronica

Lady's Mantle

Corydalis

Campanula

Bee Balm

Coral Bells

Part-sun, Adaptable perennials

More summer perennials

Coreopsis moonbeam

Agastache

Echinacea

Asclepias

Lavender

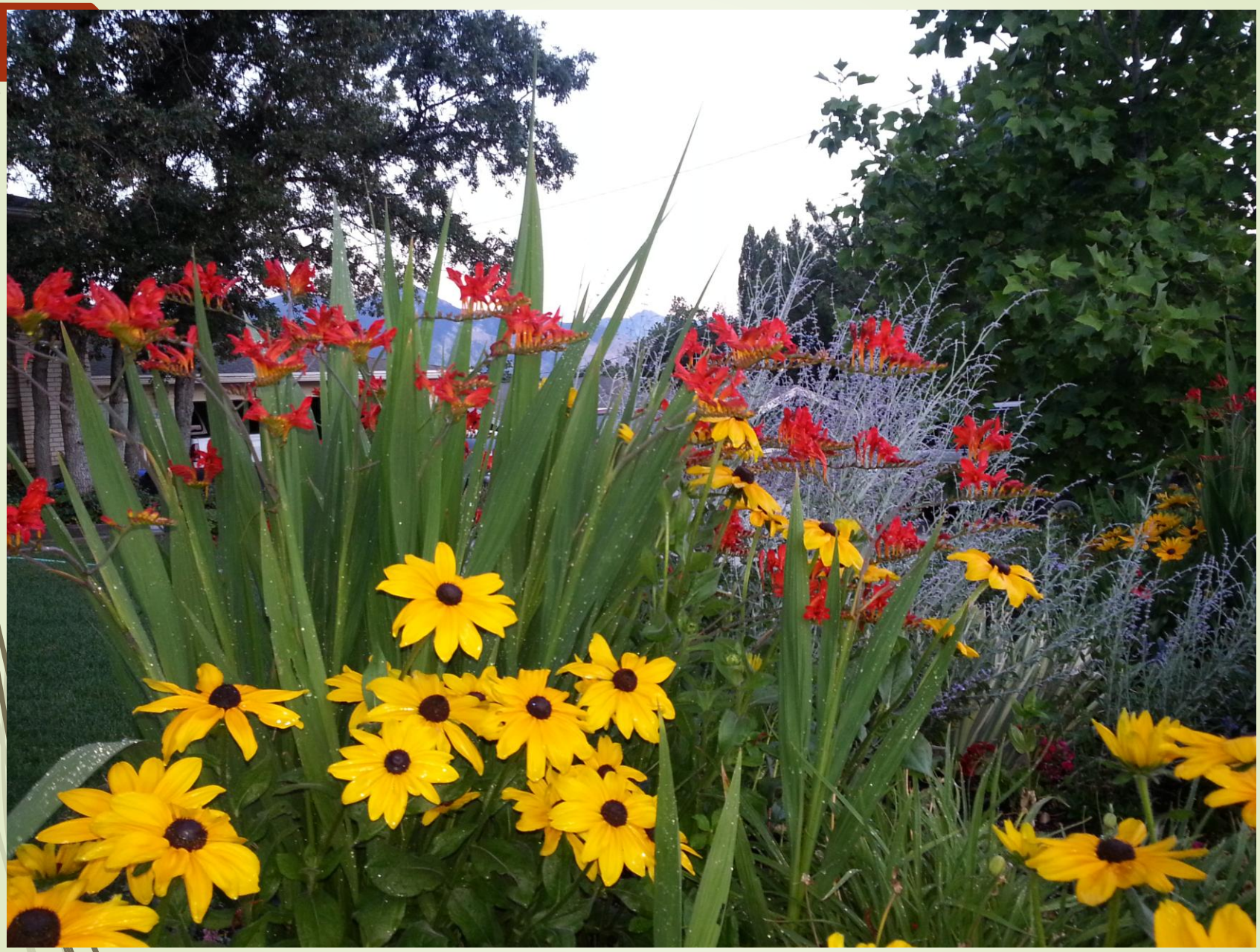
Winecups

Asclepias, Callirhoe, Lavender

Epliobium + Verbena ‘Homestead Purple’

Epilobium, Solidago, Veronica, Agastache

Black-eyed Susan, Crocosmia, Russian Sage



Fall bloomers

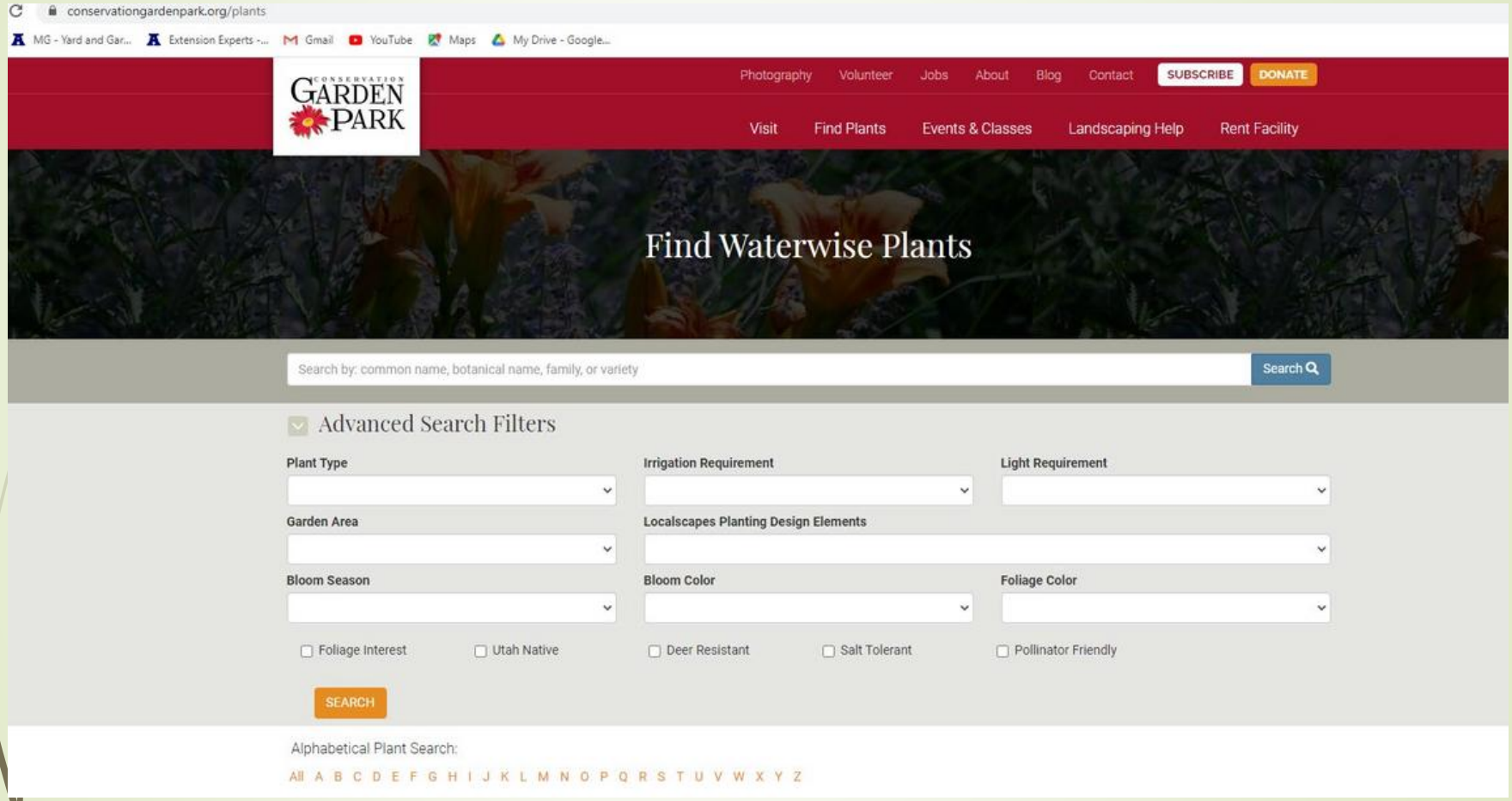
Autumn Joy Sedum

Fall Anemone

Aster “Monch”

Plumbago

Plant Finder



Resources

- Jordan Valley Water Conservancy District **Webinar**: https://www.youtube.com/watch?v=SK3o9idGh24
- https://cwel.usu.edu/-Center for Water Efficient Landscaping
- https://jvwcd.org/-Jordan Valley Water Conservancy District
- https://slowtheflow.org/–Water Audits
- https://localscapes.com/-Low water & Low Maintenance Landscape Design
- https://www.qwel.net/-Qualified Water Efficient Landscaper

Public Gardens: http://www.ogdenbotanicalgardens.org/

- https://usubotanicalcenter.org/
- https://redbuttegarden.org/
- https://conservationgardenpark.org/