

**The University of Arizona  
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# NATIVE PLANTS

Low Water, Drought Tolerant Native Plants  
and the Guests they Attract

Lesley Alward, Presenter





# GO NATIVE!

## WHY



**WORDS, WORDS, WORDS**

**“NATIVE PLANTS”**

**Plants that occur naturally in a particular region, ecosystem, or habitat without direct or indirect human intervention.**

**“REGIONALLY ADAPTED”**

# **NATIVE PLANTS:**

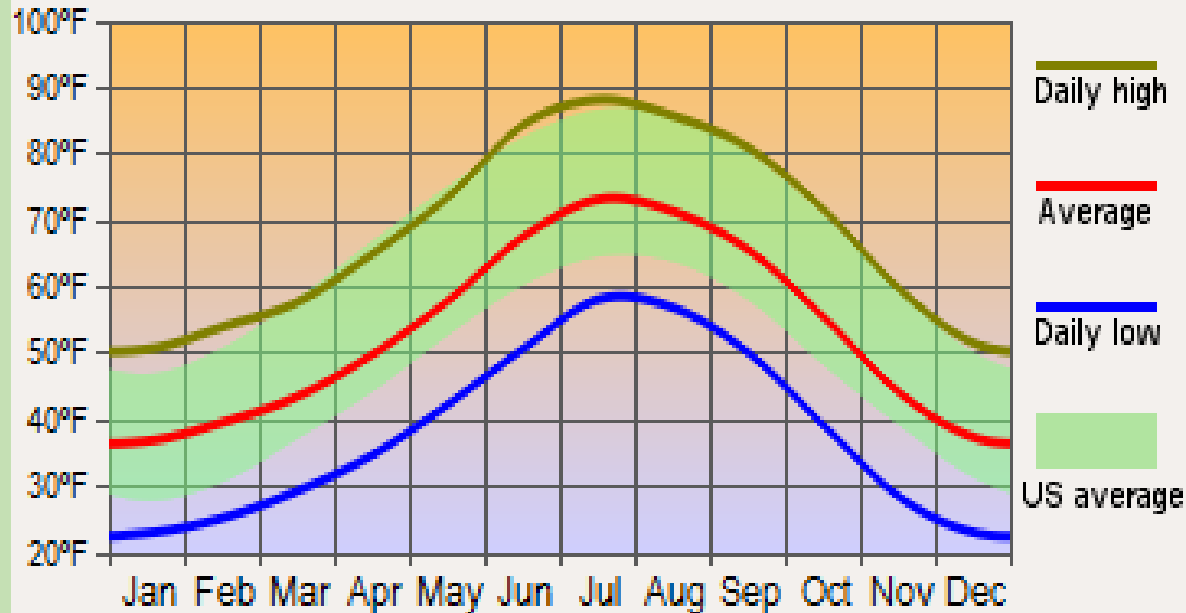
1. ARE ADAPTED TO OUR LOCAL CLIMATE
2. ARE ADAPTED TO OUR NATIVE SOILS
- 3. SUPPORT BIOLOGICAL DIVERSITY  
& PROVIDE HABITAT**
4. ARE BEAUTIFUL & LOW MAINTENANCE

# #1 ADAPTED TO OUR LOCAL CLIMATE

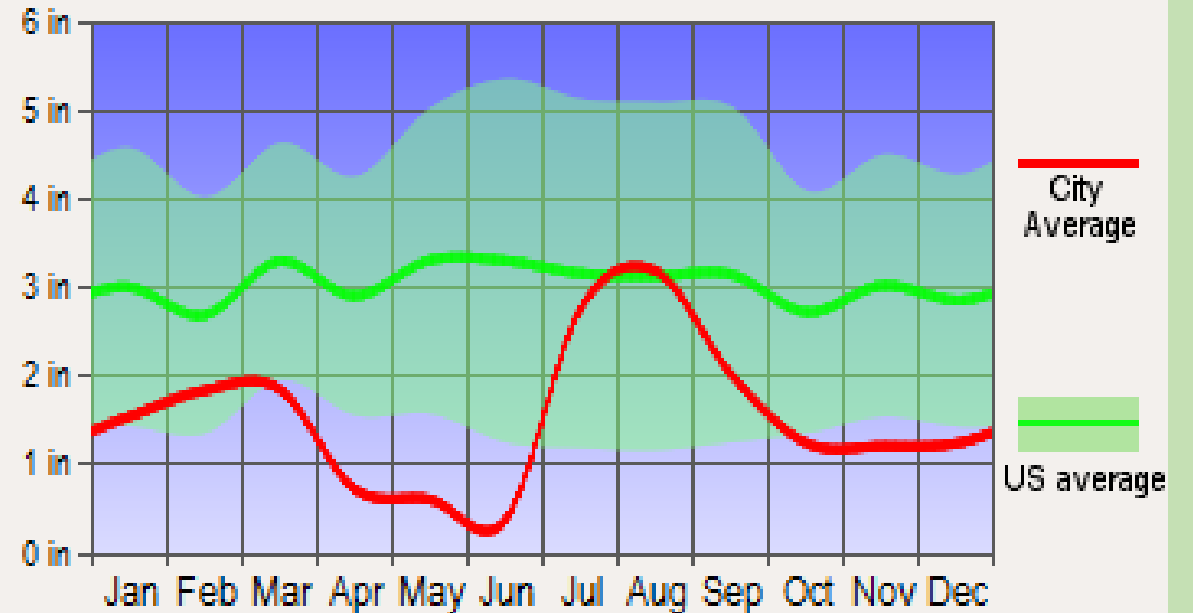
- Tolerate wide ranges of temperatures & periodic drought
- Are typically more drought tolerant & require less water than non-natives

# PRESCOTT CLIMATE DATA

## Average Temperatures

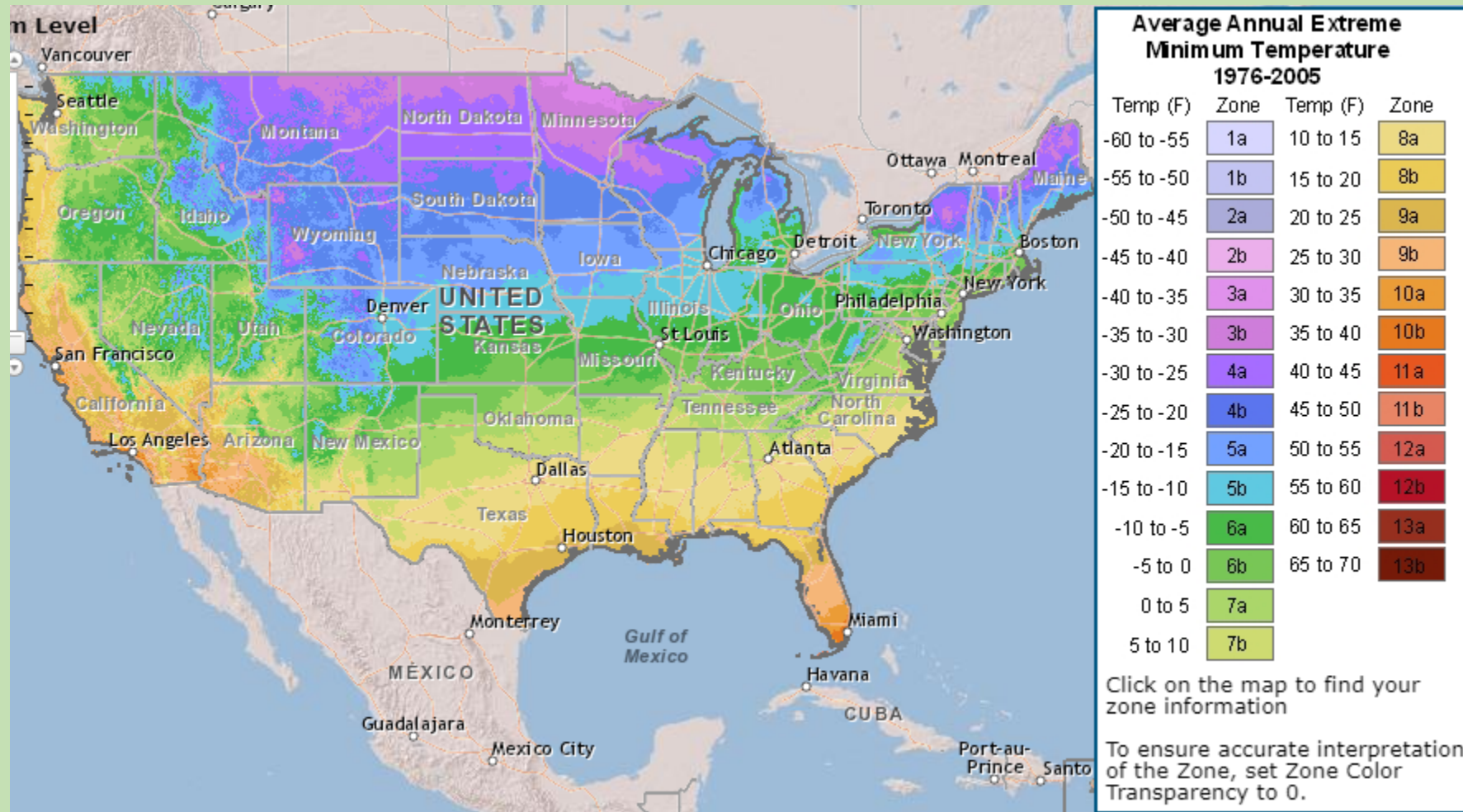


## Precipitation





# USDA PLANT HARDINESS MAP



Interactive map at <http://planthardiness.ars.usda.gov/PHZMWeb/>

# Arizona 2012 USDA Hardiness Zone Map

Zone 5a  
-20°F to -15°F

Zone 5b  
-15°F to -10°F

Zone 6a  
-10°F to -5°F

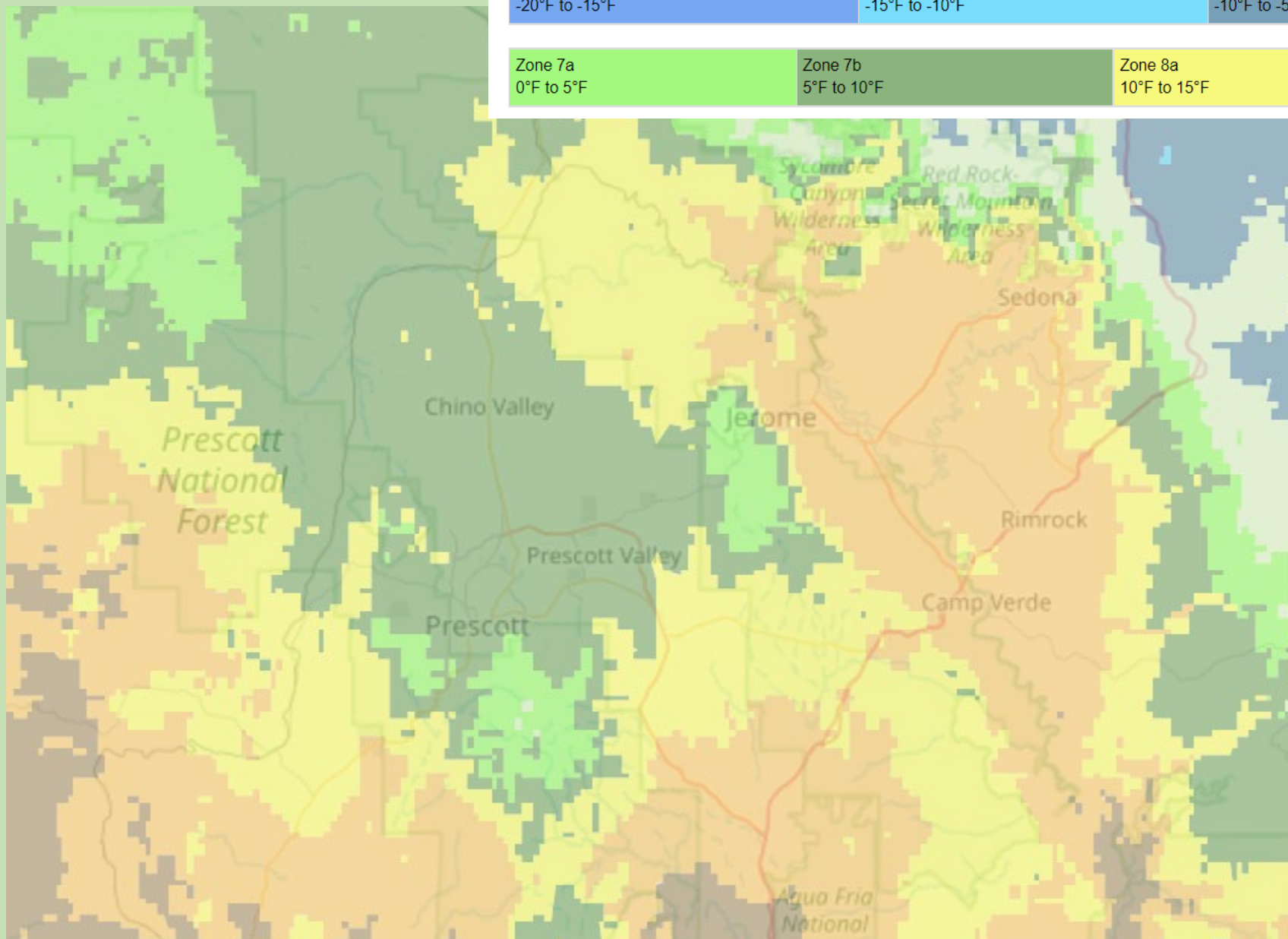
Zone 6b  
-5°F to 0°F

Zone 7a  
0°F to 5°F

Zone 7b  
5°F to 10°F

Zone 8a  
10°F to 15°F

Zone 8b  
15°F to 20°F



## Average Annual Extreme Minimum Temperature 1976-2005

Temp (F)	Zone	Temp (F)	Zone
-60 to -55	1a	10 to 15	8a
-55 to -50	1b	15 to 20	8b
-50 to -45	2a	20 to 25	9a
-45 to -40	2b	25 to 30	9b
-40 to -35	3a	30 to 35	10a
-35 to -30	3b	35 to 40	10b
-30 to -25	4a	40 to 45	11a
-25 to -20	4b	45 to 50	11b
-20 to -15	5a	50 to 55	12a
-15 to -10	5b	55 to 60	12b
-10 to -5	6a	60 to 65	13a
-5 to 0	6b	65 to 70	13b
0 to 5	7a		
5 to 10	7b		

# MICROCLIMATES

- TOPOGRAPHY / ASPECT
- SHADE FACTORS

# WORDS, WORDS, WORDS

- Low Water
- Water-wise
- Xeric
- Drought Tolerant
- Drought Resistant

# LOW WATER

- ❑ Plants which need no, little, or moderate supplemental irrigation *once established*.
- ❑ Per the Prescott AMA, that means a maximum of 12” of supplemental irrigation annually, *not including rain*.
- ❑ FYI: .62 gallons of water is equivalent to 1” of precipitation on 1 square foot of soil

# XERIC

Term coined by Denver Water Board in 1980s, describing plants that evolved with drought & which function completely in dry conditions. They flower, set seed, and generally thrive in dry conditions.

# **DROUGHT TOLERANT & DROUGHT RESISTANT**

Plants which use survival mechanisms, such as defoliating or going dormant, to survive abnormally dry conditions but that need moisture to resume normal lifestyle.

# WHAT DO LOW WATER PLANTS LOOK & FEEL LIKE?

- Typically, have fine, lacy foliage or small leaves with reduced leaf surface to reduce water loss
- Thick, succulent, waxy leaves to trap moisture
- Resinous coating on leaves retards water loss
- Hairy or fuzzy leaves to trap moisture
- Grey foliage
- Deep, extensive root systems



# Succulence / Succulent

- ❑ Plants with fleshy leaves or stems that store water
- ❑ Waxy coatings on leaves and/or few or no leaves
- ❑ Includes all cacti, agaves, yuccas and others



- 🦌 Deer Resistant
- 🐦 Attract Hummingbirds
- 🐰 Rabbit Resistant
- ✓ Native
- 🌲 Evergreen
- ☀️ Full Sun
- 🌞 Morning Sun & Afternoon Shade

- 🦌 Deer Resistant
- 🐰 Rabbit Resistant
- ✓ Native
- ☀️ Full Sun
- 🌞 Morning Sun & Afternoon Shade



HIGH COUNTRY GARDENS

Agave parryi /  
Parry's Agave

Yucca baccata  
Banana Yucca

# Cacti

- ❑ Have scales or spines instead of leaves
- ❑ Have thick hard-walled stems, either spongy or hollow, which store water
- ❑ Stems are photosynthetic



*Echinocereus triglochidiatus*  
Claret Cup or Hedge Hog Cactus



*Opuntia engelmannii*  
Engelmann's Prickly Pear

# Small Leaves



*Cercocarpus montanus* / Mountain Mahogany



*Linum lewisii*  
Blue Flax



*Fallugia paradoxa*  
Apache Plume



Many Native Grasses  
ie. Sideoats Grama

# Arizona Cypress *Cupressus arizonica*



# Drought Avoidance

- ❑ Annuals which complete life cycles in 1 year
- ❑ Only seeds persist in times of drought



*Eschscholzia californica*  
E. Mexicana

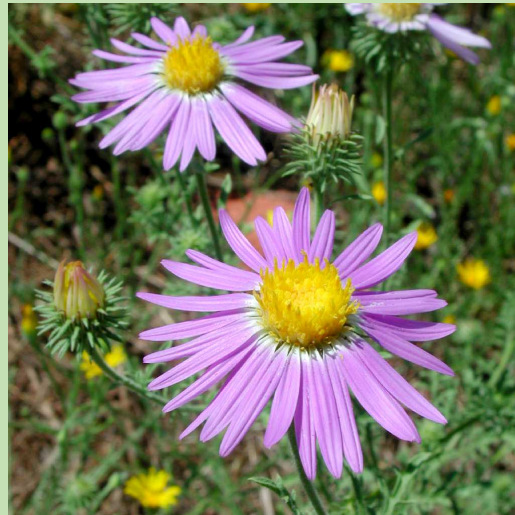
Poppies

Lupine

*Machaeranthera tanacetifolia*  
Tansey leaf tansyaster



*Gaillardia pulchella*  
Indian blanket



*Ratibida columnaris*  
Prairie Coneflower



Mexican Hat



*Helianthus annuus*  
Common sunflower



*Lupinus arizonicus*  
AZ Lupine

## #2 ADAPTED TO OUR NATIVE SOILS

- Require no **amendments** to correct for the **alkalinity** of our soils
- Require no **fertilizers**

# ABOUT OUR SOILS...

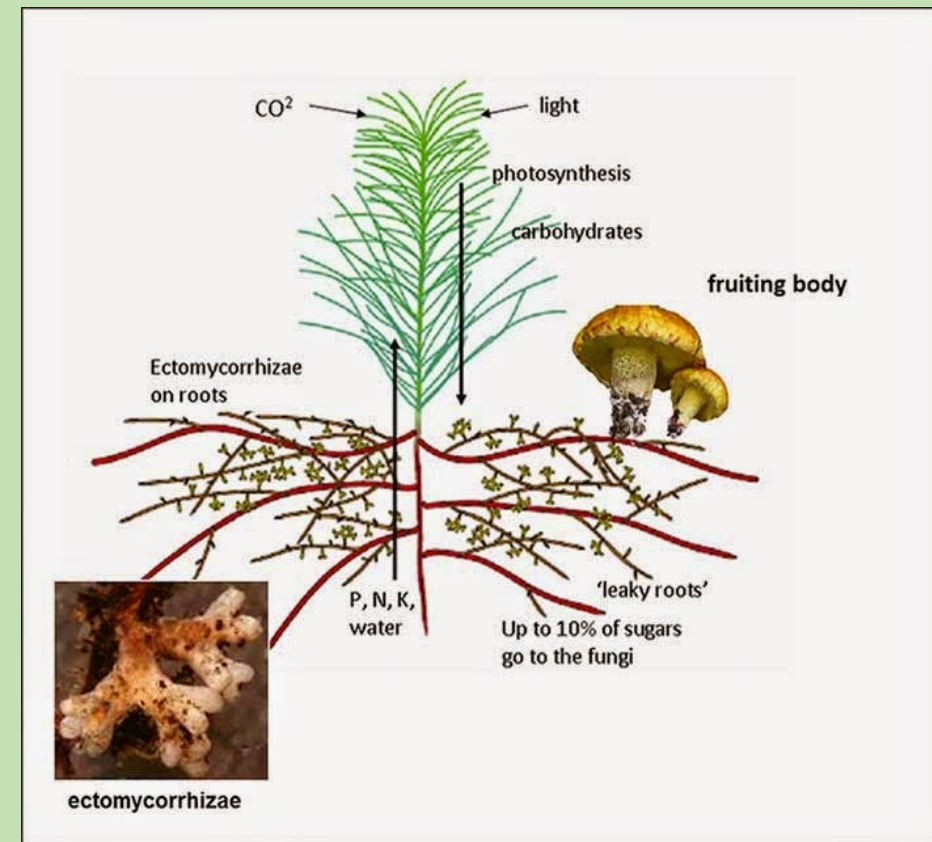
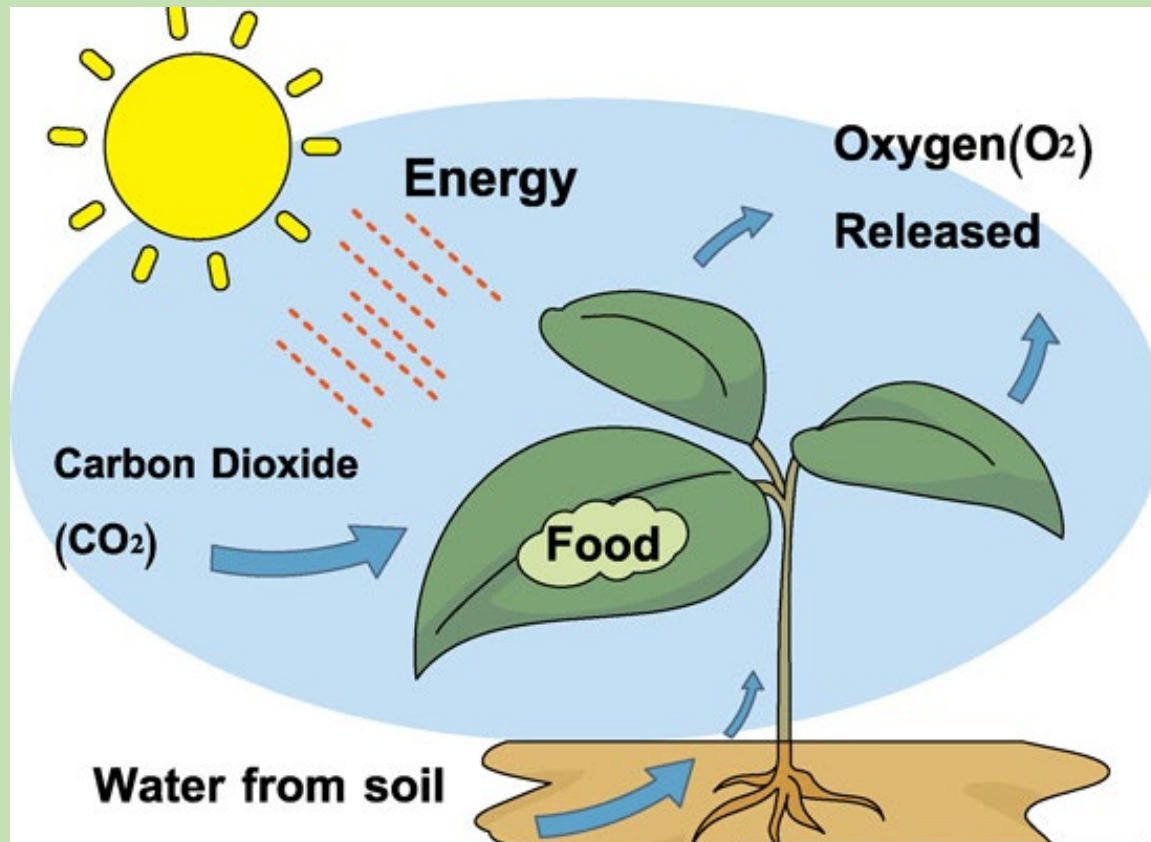
## Nutrient Availability Chart

		Soil pH										
		4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0
Nutrients	Nitrogen	NA	SA	MA	MA	HA	HA	HA	HA	MA	MA	SA
	Phosphorus	NA	NA	SA	MA	HA	HA	HA	MA	MA	SA	MA
	Potassium	NA	SA	MA	MA	HA	HA	HA	HA	MA	MA	MA
	Sulfur	NA	SA	MA	MA	HA	HA	HA	HA	MA	MA	MA
	Calcium	NA	NA	SA	MA	MA	MA	HA	HA	HA	HA	MA
	Magnesium	NA	SA	SA	HA	HA	HA	HA	HA	MA	MA	MA
	Iron	HA	HA	HA	HA	HA	MA	MA	SA	SA	SA	SA
	Manganese	HA	HA	HA	HA	HA	MA	MA	SA	SA	SA	SA
	Boron	MA	MA	HA	HA	HA	HA	HA	MA	SA	SA	MA
	Copper	NA	SA	MA	HA	HA	HA	HA	MA	SA	SA	SA
	Zinc	HA	HA	HA	HA	HA	MA	MA	SA	SA	SA	SA
	Molybdenum	NA	NA	SA	SA	MA	MA	HA	HA	HA	HA	HA
						-----Optimum pH Zone for Soil-----						
Acidic											Basic	

Key:

NA = Not Available
SA = Slightly Available
MA = Moderately Available
HA = Highly Available

- Native plants have **symbiotic relationships** with mycorrhizal fungi & bacteria that allow them to acquire needed nutrients & phosphorous from the soil without using fertilizers or **amendments**



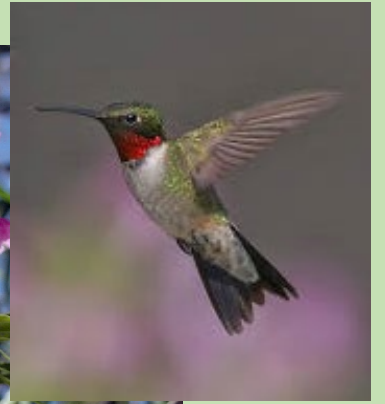


# #3 SUPPORT BIOLOGICAL DIVERSITY & PROVIDE HABITAT

- ❑ Food sources for young & mature species
- ❑ Shelter from predators & the elements
- ❑ Places to nest & raise young



# TREES



*Chilopsis linearis*  
Desert Willow



*Cercis occidentalis* / Western Redbud



*Cercis Mexicana* / Mexican Redbud

*Cercis reniformis* 'Oklahoma'  
Oklahoma Redbud



# Salvia greggii

## Autumn Sage



## Furman's Red

<b>Zones</b>	6 - 10
<b>Advantages</b>	<ul style="list-style-type: none"><li>✓ Easy To Grow</li><li>🦋 Attract Hummingbirds</li><li>✓ Attract Birds</li><li>🦌 Deer Resistant</li><li>🐰 Rabbit Resistant</li><li>✓ Native</li><li>✓ Low Maintenance</li><li>✓ Fragrant Flower / Foliage</li><li>✓ Good For Cut Flowers</li><li>✓ Good For Containers</li><li>🌲 Evergreen</li><li>✓ Extended Bloom Time (more than 4 weeks)</li><li>✓ Good Rockgarden Or Alpine Plant</li></ul>
<b>Light Requirements</b>	☀ Full Sun
<b>Water Tolerance</b>	💧 Low-Water
<b>Mature Height</b>	24-36" tall
<b>Mature Spread</b>	18" wide
<b>Bloom Time</b>	Early summer to fall

# Potentilla fruticosa / Shrubby Cinquefoil



# Chrysothamnus nauseosa

## Rubber rabbitbrush or chamisa



<b>Zones?</b>	4 - 8
<b>Advantages</b>	<ul style="list-style-type: none"><li>🦋 Attract Butterflies</li><li>🐝 Bee Friendly</li><li>🦌 Deer Resistant</li><li>✓ Native</li><li>✓ Fragrant Flower / Foliage</li><li>🌲 Evergreen</li><li>✓ Multiplies / Naturalizes</li><li>✓ Good For Erosion Control</li><li>✓ Good For Hedge / Screen</li></ul>
<b>Light Requirements</b>	☀️ Full Sun
<b>Water Tolerance</b>	☪️ Xeric
<b>Mature Height</b>	5-6' tall
<b>Mature Spread</b>	5-6' wide
<b>Bloom Time</b>	Early to mid fall

# Sphaeralcea ambigua

## Desert Globe Mallow



<b>Hardiness</b>	6 – 9 <a href="#">What's My Zone?</a>
<b>Heat Zones</b>	2 – 11 <a href="#">What's My Zone?</a>
<b>Climate Zones</b>	3, 3A, 3B, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24
<b>Plant Type</b>	Perennials, Shrubs
<b>Exposure</b>	Full Sun
<b>Season of Interest</b>	Spring (Early, Mid, Late) Summer (Early, Mid, Late) Fall Winter
<b>Height</b>	3' – 4' (90cm – 120cm)
<b>Spread</b>	2' – 3' (60cm – 90cm)
<b>Spacing</b>	36" (90cm)
<b>Water Needs</b>	Low
<b>Maintenance</b>	Low
<b>Soil Type</b>	Loam, Sand
<b>Soil pH</b>	Acid, Alkaline, Neutral
<b>Soil Drainage</b>	Well-Drained
<b>Characteristics</b>	Showy, Semi-Evergreen
<b>Native Plants</b>	United States, California, Rocky Mountains, Utah, Southwest, Nevada, Arizona
<b>Tolerance</b>	Drought, Dry Soil, Rocky Soil
<b>Attracts</b>	Butterflies

# Chamaebatiaria millefolium / Fern Bush



<b>Zones</b>	4 - 9
<b>Advantages</b>	<ul style="list-style-type: none"><li>🦋 Attract Butterflies</li><li>✓ Easy To Grow</li><li>✓ Attract Birds</li><li>🐝 Bee Friendly</li><li>🦌 Deer Resistant</li><li>✓ Native</li><li>✓ Fragrant Flower / Foliage</li><li>🌲 Evergreen</li><li>✓ Good For Hedge / Screen</li></ul>
<b>Light Requirements</b>	☀️ Full Sun
<b>Water Tolerance</b>	💧 Low-Water
<b>Mature Height</b>	6-8' tall
<b>Mature Spread</b>	6-8' wide
<b>Bloom Time</b>	Summer






# Rhus aromatica 'Gro-Low' Fragrant Sumac





Zones?

4 - 9

Advantages

-  Attract Butterflies
- ✓ Easy To Grow
- ✓ Attract Birds
-  Bee Friendly
-  Rabbit Resistant
- ✓ Native
- ✓ Low Maintenance
- ✓ Fragrant Flower / Foliage
- ✓ Multiplies / Naturalizes

Light Requirements

-  Full Sun
-  Morning Sun & Afternoon Shade

Water Tolerance

-  Low-Water

Mature Height

18" - 2 feet tall

Mature Spread

8' wide

# VINES

Virginia creeper / *Parthenocissus quinquefolia*



Clings to walls or use as groundcover  
Small berries attract birds



# Succulents



Dessert Spoon  
*Dasylirion wheeleri*



Agave parryi  
Parry's Agave

Red Yucca  
*Hesperaloea parviflora*



Optunia Engelmanii  
Prickly Pear Cactus



Echinocereus triglochidiatus  
Claret Cup or Hedgehog Cactus

# Grasses

*Schizachyrium scoparium* / Little Bluestem



*Bouteloua gracilis* 'Blond Ambition' / Blond Ambition Blue Grama Grass

Muhlenbergia Rigens  
Deer Grass



# Food for Butterfly Larvae



*Bouteloua gracilis*  
Blue Grama






*Bouteloua curtipendula*  
Sideoats Grama



*Lupinus arizonicus* / Arizona Lupine

# Perennials / Forbs

Melampodium leucanthum / Blackfoot Daisy

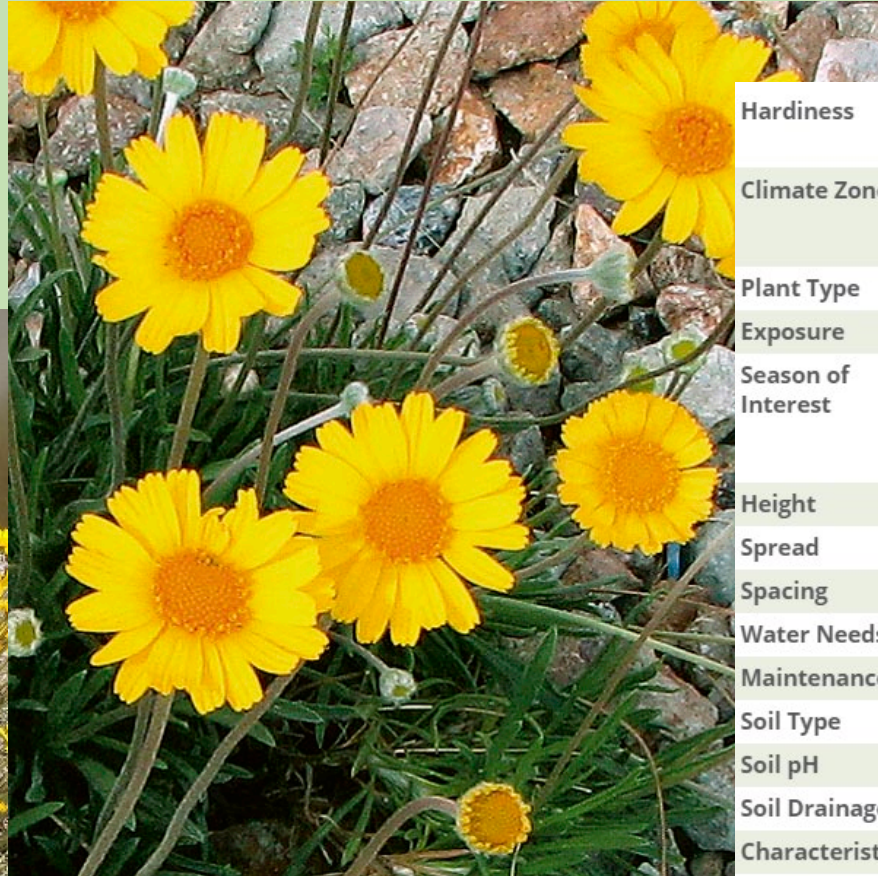
-  Rabbit Resistant
-  Native
-  Extended Bloom Time (more than 4 weeks)

 Full Sun





# Angelita Daisy / *Tetrandeuris acaulis*



<b>Hardiness</b>	6 - 9 <a href="#">What's My Zone?</a>
<b>Climate Zones</b>	1, 1A, 1B, 2, 2A, 2B, 3, 3A, 3B, 7, 9, 10, 11, 12, 13, 14, 18, 19, 20, 21, 23, 24
<b>Plant Type</b>	Perennials
<b>Exposure</b>	Full Sun
<b>Season of Interest</b>	Spring (Early, Mid, Late) Summer (Early, Mid, Late) Fall Winter
<b>Height</b>	10" - 1' (25cm - 30cm)
<b>Spread</b>	1' - 2' (30cm - 60cm)
<b>Spacing</b>	18" (45cm)
<b>Water Needs</b>	Low
<b>Maintenance</b>	Low
<b>Soil Type</b>	Chalk, Loam, Sand
<b>Soil pH</b>	Acid, Alkaline, Neutral
<b>Soil Drainage</b>	Well-Drained
<b>Characteristics</b>	Showy, Evergreen
<b>Native Plants</b>	United States, California, Midwest, Kansas, Nebraska, North Dakota, South Dakota, Pacific Northwest, Idaho, Rocky Mountains, Colorado, Montana, Utah, Wyoming, Southwest, Nevada, Arizona, New Mexico, Oklahoma, Texas
<b>Tolerance</b>	Drought

# Blanket flower / *Gaillardia grandiflora*



# Berlandiera lyrata / Chocolate flower



<b>Zones?</b>	4 - 9
<b>Advantages</b>	<ul style="list-style-type: none"><li>🦋 Attract Butterflies</li><li>✓ Attract Birds</li><li>🐝 Bee Friendly</li><li>🦌 Deer Resistant</li><li>✓ Native</li><li>✓ Fragrant Flower / Foliage</li><li>✓ Good For Cut Flowers</li><li>✓ Extended Bloom Time (more than 4 weeks)</li><li>✓ Multiplies / Naturalizes</li></ul>
<b>Light Requirements</b>	☀️ Full Sun
<b>Water Tolerance</b>	💧 Low-Water
<b>Mature Height</b>	12-15" tall
<b>Mature Spread</b>	18-24" wide
<b>Bloom Time</b>	Late spring to summer

Conoclinium greggii  
Gregg's Mist Flower



# Achillea 'Moonshine' / Yarrow Moonshine



- ✘ Deer Resistant
- ✘ Rabbit Resistant
- ✓ Fragrant Flower / Foliage
- ✓ Extended Bloom Time (more than 4 weeks)

# Achillea millifolium 'Red Velvet' Yarrow 'Red Velvet'



'Paprika'

Rocky Mtn Penstemon  
Penstemon Strictus



Mid to late spring



Late Spring



Penstemon pseudospectabilis  
Desert Penstemon

# Palmer's Penstemon *Penstemon palmerii*



-  Deer Resistant
-  Attract Hummingbirds
-  Rabbit Resistant
-  Fragrant Flower / Foliage
-  Native
-  Evergreen

Early summer  
Fragrant



Late winter -  
spring

Parry's Penstemon  
*Penstemon parryi*



Heuchera  
Coral Bells



Monarda  
Bee Balm



Aquilegia chrysantha  
Golden Columbine



# Perennial Forbs for Monarch Larvae



*Asclepias asperula*  
Antelope Horns



*Asclepias angustifolia*  
AZ Milkweed

## MILKWEEDS



*Asclepias tuberosa* / Butterfly weed



*Asclepias subverticillata*  
Horsetail Milkweed

Ratibida columnifera 'Mexican Hat'  
Prairie Coneflower



Naturalizes! Finches love the seed heads!

**CHALLENGES?**

**SITUATIONS?**

**COMMENTS?**

**SOLUTIONS?**

**QUESTIONS?**

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