

Matching your landscape to Chihuahuan Desert habitats

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2/27/2025



Outline

What is a desert?

Habitats of the Chihuahuan Desert

What is a native plant?

What are the benefits of planting native?

Some plant suggestions

Q&A

Learning Goal

Successfully
incorporate native
(and desert-adapted)
plants into your
landscapes



What is a
desert?



Browser tabs: Garden Exhibit 2024 - Home, deserts - Google Search

Address bar: google.com/search?q=deserts&lscv=427fd9fc564ca397&rlz=1C1GCEA_enUS920US920&udm=2&biw=1866&bih=1032&isrsf=ADLYWIL69C2WFL1wTWvL0oPiKFWnyk8FuA...

Google Search: deserts

Navigation: All Images Books Maps Videos News Shopping More Tools

Filters: Food Animal Cactus Sahara Sand Dry Arizona Wallpaper Africa Landscape Fantasy Drawing Oasis Sunset

Image 1: Desert landscape with sand dunes. Source: Britannica. Desert | Definition, Climate, Animal...

Image 2: Desert landscape with a body of water. Source: Condé Nast Traveler. The Most Beautiful Deserts in t...

Image 3: Desert landscape with camels. Source: Britannica. How Do Deserts Form? | Britan...

Image 4: Desert landscape with a sunset. Source: Condé Nast Traveler. The Most Beautiful Deserts in t...

Image 5: Desert landscape with camels. Source: ThoughtCo. Learn About the Sahara Desert

Image 6: Desert landscape with a sunset. Source: Geographical. Geo explainer: How are deserts for...

Image 7: Desert landscape with sand dunes. Source: Smithsonian Magazine. What Really Turned the Sahara De...

Image 8: Desert landscape with dead trees. Source: Wanderlust Travel Magazine. 15 of the world's greatest deserts ...

Image 9: Desert landscape with sand dunes. Source: Adopt An Animal Kits. Types of Deserts - Wild Earth News & F...

Image 10: Desert landscape with sand dunes. Source: National Geographic Education - Natio... Desert

Image 11: Map of the Desert Areas. Source: Kids World Travel Guide. Desert Facts for Kids | Deserts for ...

Image 12: Desert landscape with a sunset. Source: Daily Sabah. Majestic mirages of scorching heat: The...

Image 13: Desert landscape with cacti. Source: Botany Today. Desert Habitat - Botany Today

Image 14: Desert landscape with sand dunes. Source: Live Science. The Sahara: Earth's largest hot desert ...

Image 15: Desert landscape with cacti. Source: Science | HowStuffWorks. 5 of Earth's Highest Deserts ...

Image 16: Desert landscape with sand dunes. Source: National Geographic Kids. Desert Habitat

Image 17: Desert landscape with a sunset. Source: Lone Star Investments. Importance Of Maintaining Our Desert...

Image 18: Desert landscape with sand dunes. Source: Oklahoma Policy Institute. Food deserts are a big reason behind ...

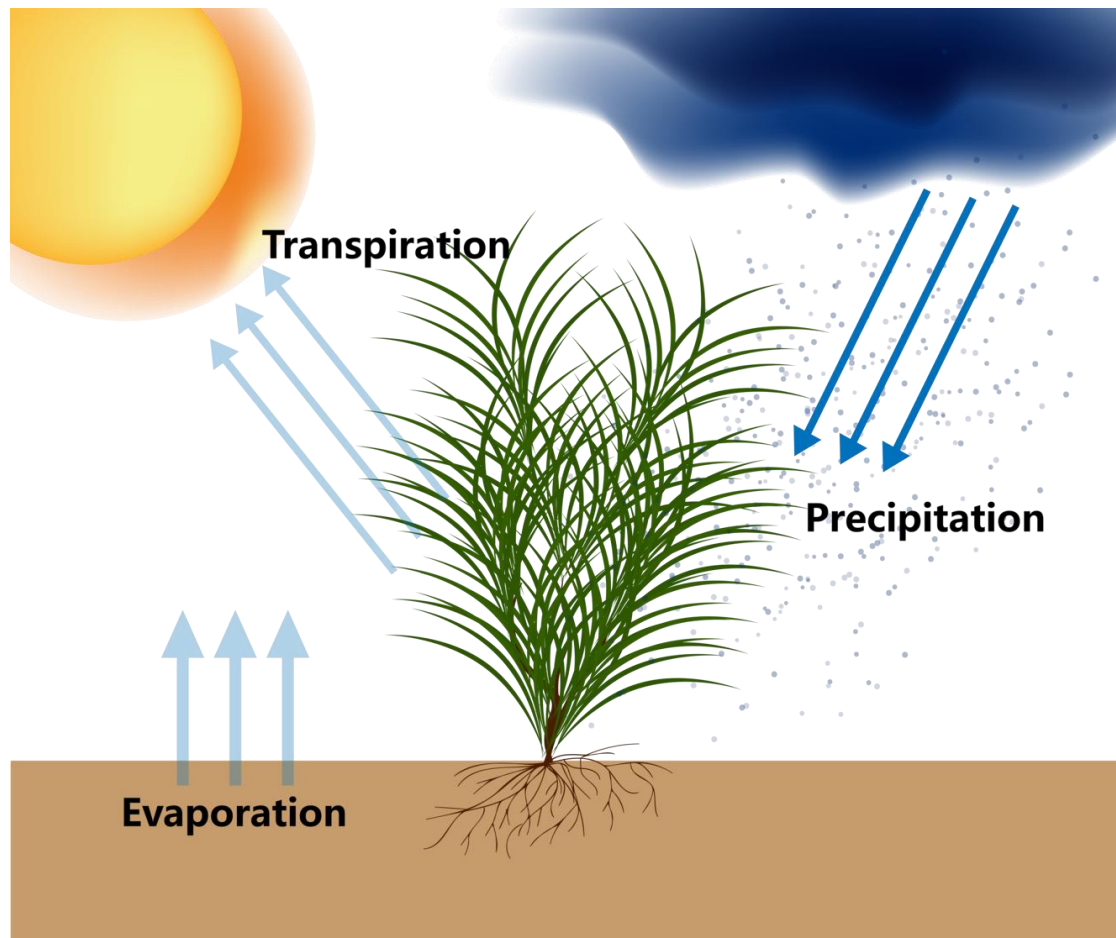
Image 19: Desert landscape with sand dunes. Source: Wikipedia. List of deserts - Wikipedia

Related searches: [Search results]

Deserts are defined by a lack of water



Precipitation is **much less** than water loss due to evaporation from the ground and from plant leaves (“evapotranspiration”)



DESERTS of North America



Great Basin Desert



Mojave Desert



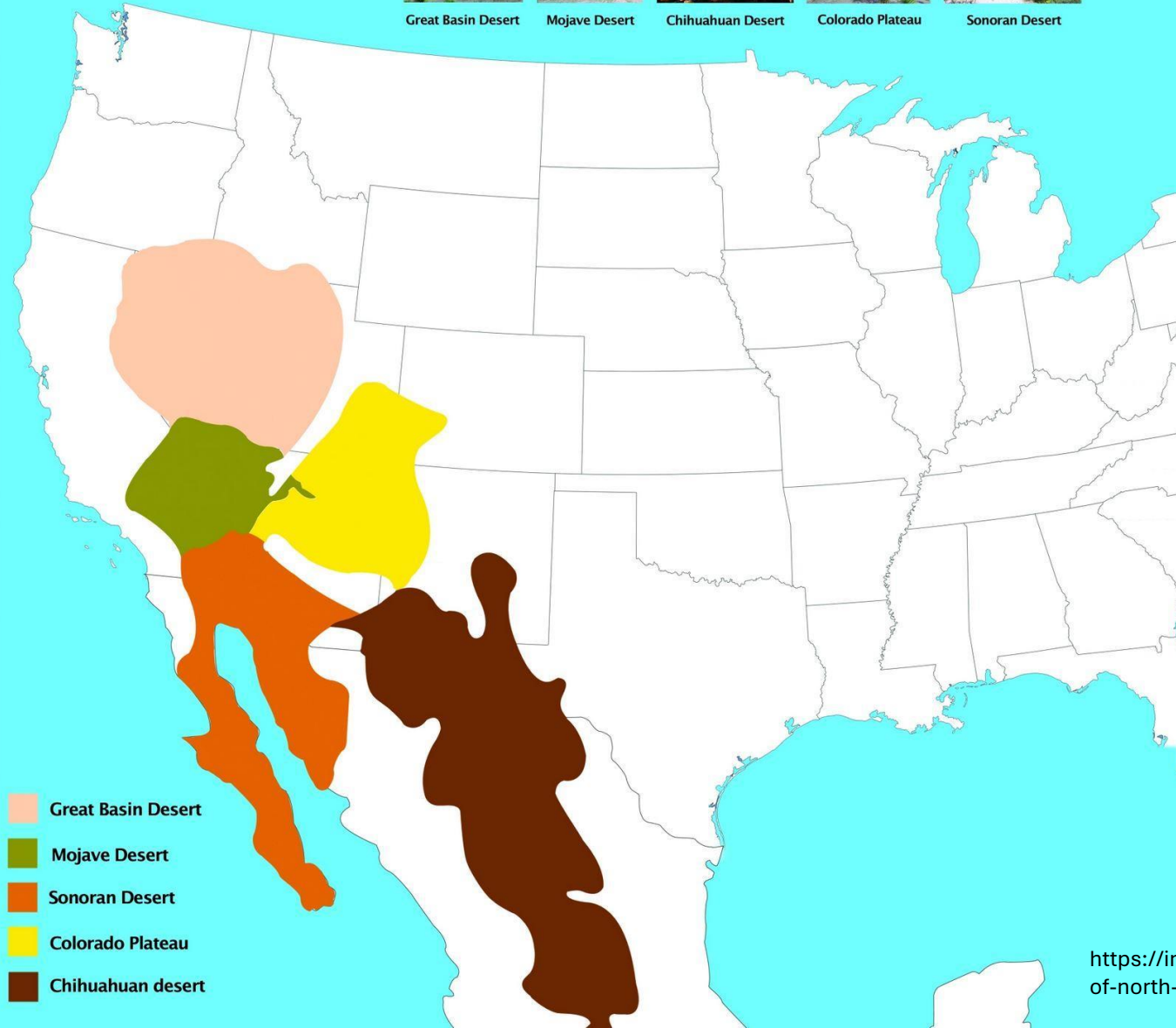
Chihuahuan Desert




Colorado Plateau



Sonoran Desert



-  Great Basin Desert
-  Mojave Desert
-  Sonoran Desert
-  Colorado Plateau
-  Chihuahuan desert

Great Basin

Coldest, summers only last a few months

Precipitation averages 9-12 inches, majority in winter



Great Basin by
Fred Moore, Flickr

Mojave

Hottest with summer temps well above 100F

Driest with precipitation 2-6 inches

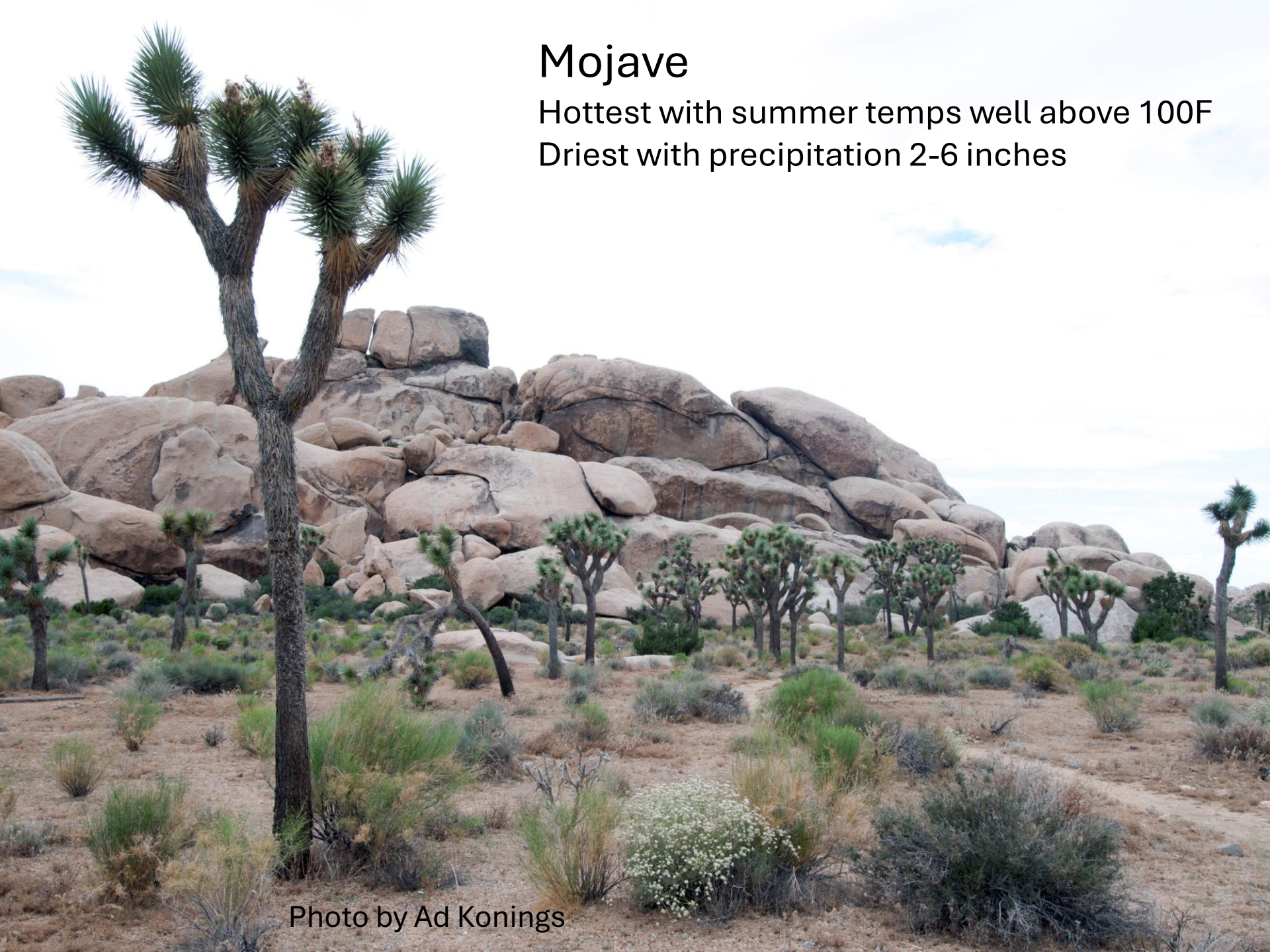


Photo by Ad Konings

Sonoran

Low elevation leads to hot
summers and mild winters
Precipitation is 4-20 inches



Photo by Ad Konings

Chihuahuan

High elevation means cooler summers but hard freezes

Precipitation is 6-16 inches

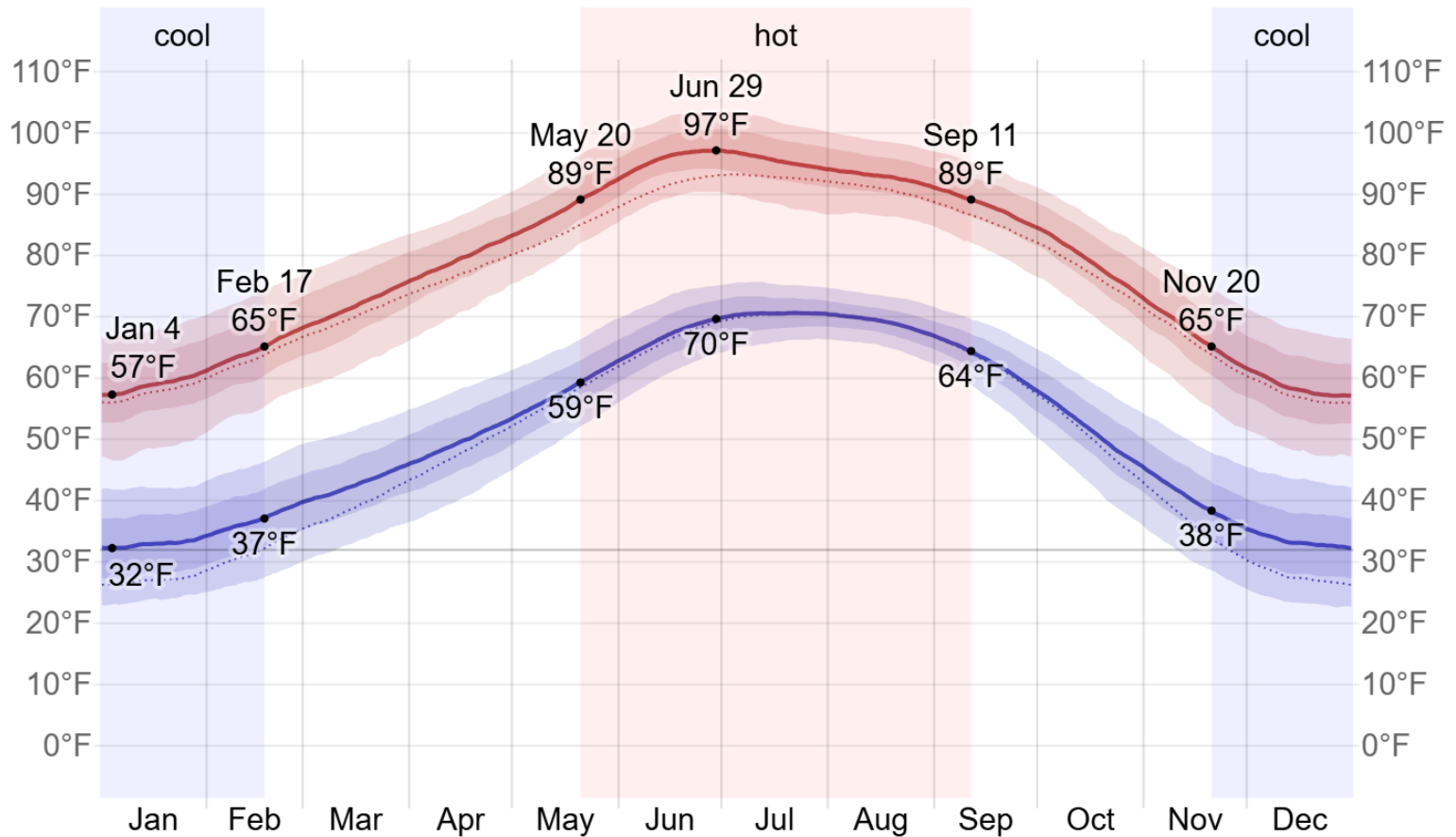


Big Bend National Park by Carol
Highsmith, Library of Congress

- Largest desert in North America
- Majority in Mexico
- Most above 4000'
- Rainy season in late summer (monsoon)



Las Cruces temperatures



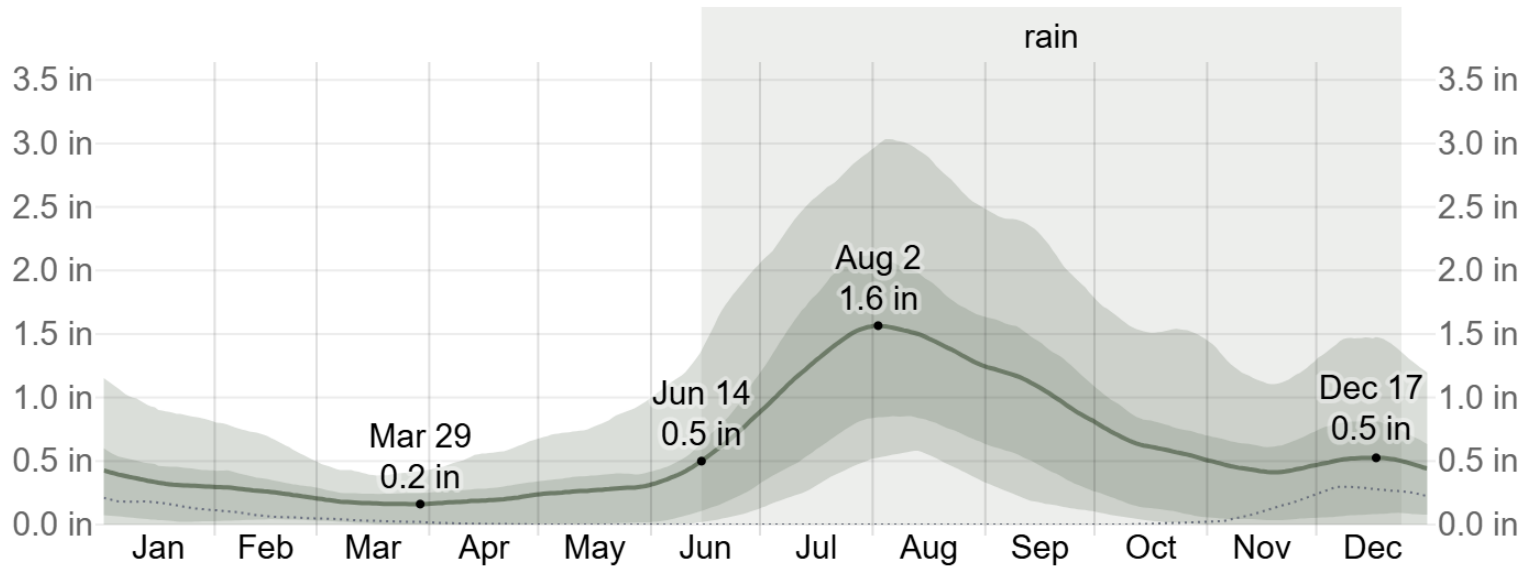
Las Cruces precipitation

For El Paso:

Average annual 8.67"

Max annual 18.2"

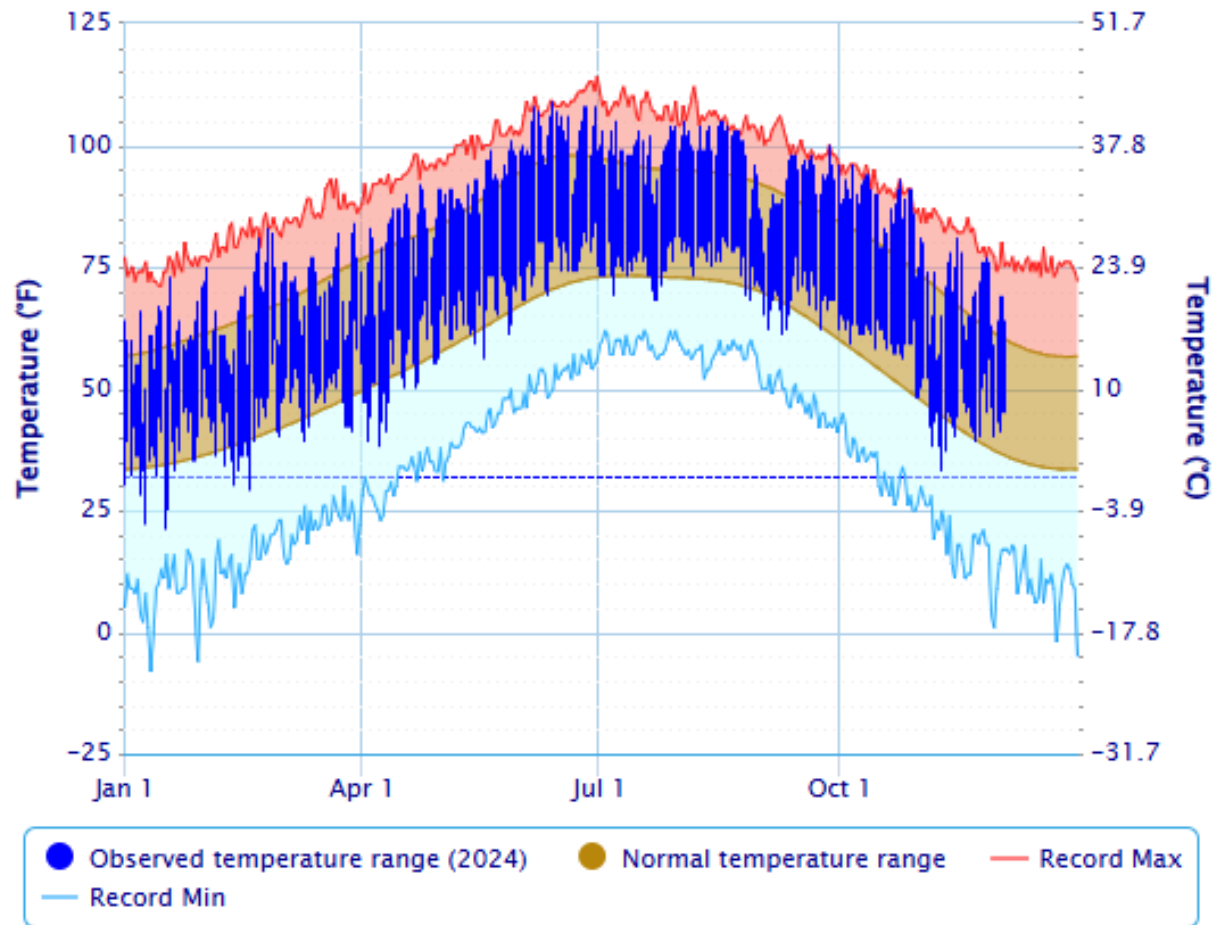
Min annual 2.2"



Rainfall accumulated over a sliding 31-day period
centered around each day of the year

Average is
not reality

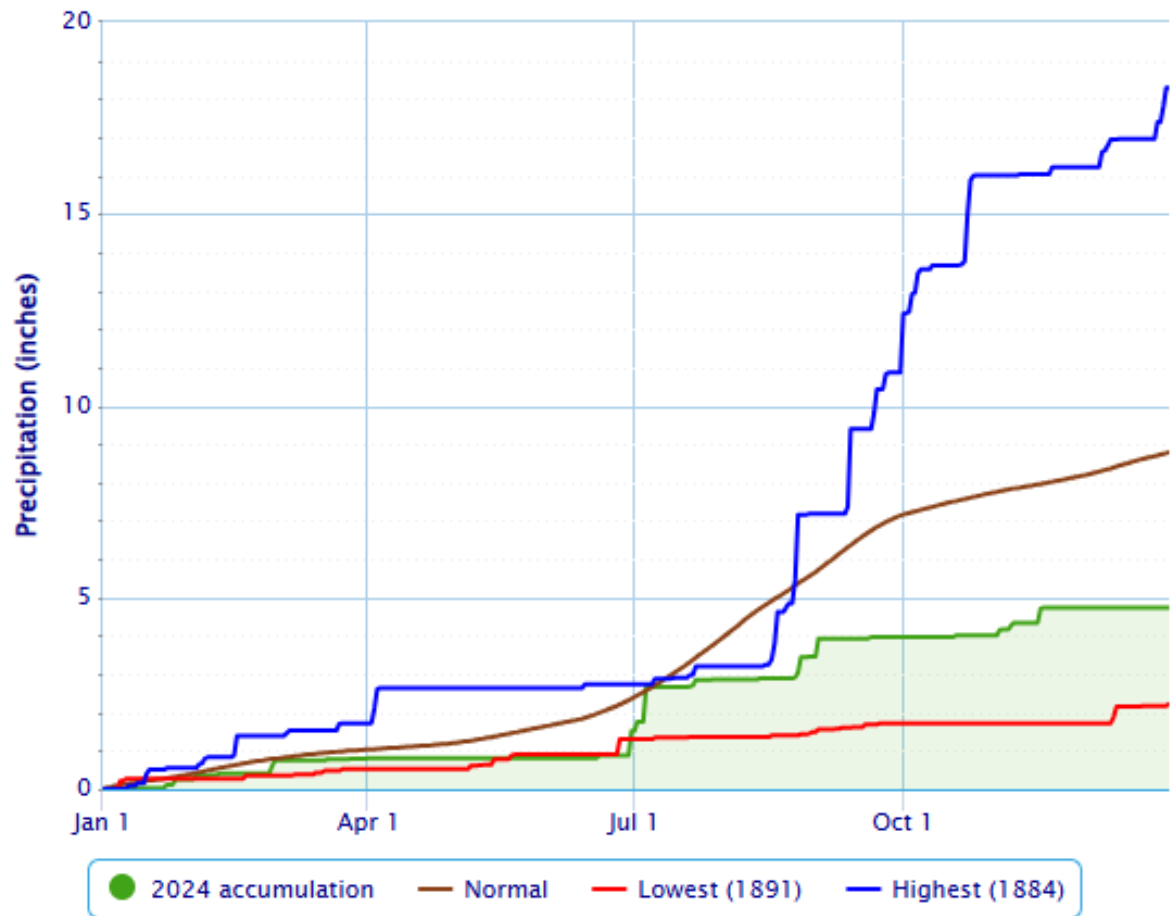
Daily Temperature Data – El Paso Area, TX (ThreadEx)



Powered by ACIS

2024 was dry – 4.7”

Accumulated Precipitation – El Paso Area, TX (ThreadEx)



Powered by ACIS



Chihuahuan Desert Habitats

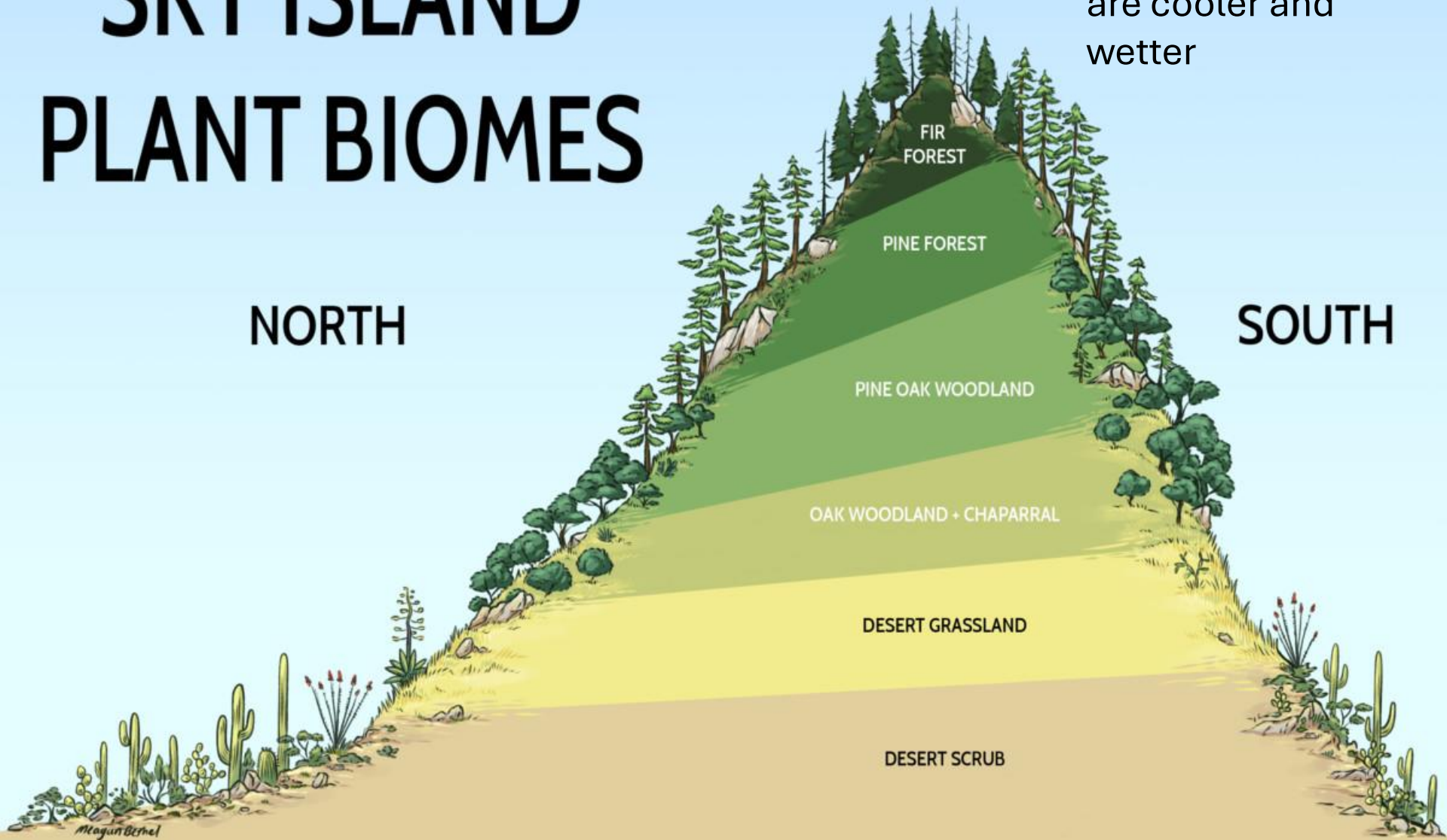


SKY ISLAND PLANT BIOMES

Higher elevations
are cooler and
wetter

NORTH

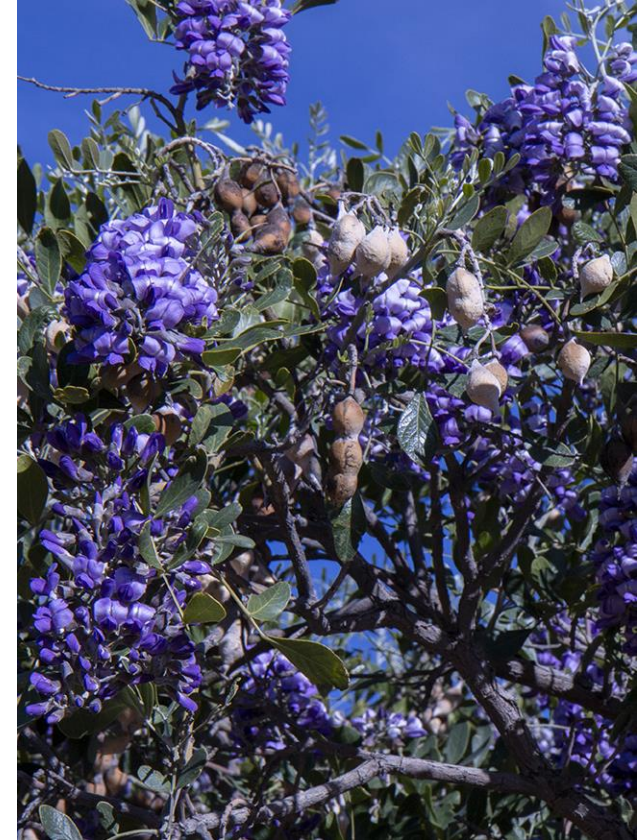
SOUTH





Montane woodlands

- Above 6000', up to 20 inches rain, colder
- Davis Mountains, Chisos Mountains
- Example plants:
 - Pinyon Pine, Emory Oak, One-Seed Juniper



Oak-Juniper- Pinyon woodlands

- Mid elevation slopes and valleys
- Example plants:
 - Texas Madrone, Bigtooth Maple, Texas Mountain Laurel



Marfa Grasslands by
Gary Nored, Flickr

Desert grasslands

- Middle elevations (4000-6000')
 - Bit wetter
- Example plants
 - Blue Gramma, Agarito, scrub oaks, sotols



Ad Konings



Chihuahuan Desert Scrub

- Lower elevations 2000-4000'
 - Hotter and drier
- Example plants:
 - Creosote, Honey Mesquite, Lechuguilla, Ocotillo, yuccas



Ad Konings



https://www.wildflower.org/gallery/result.php?id_image=81185

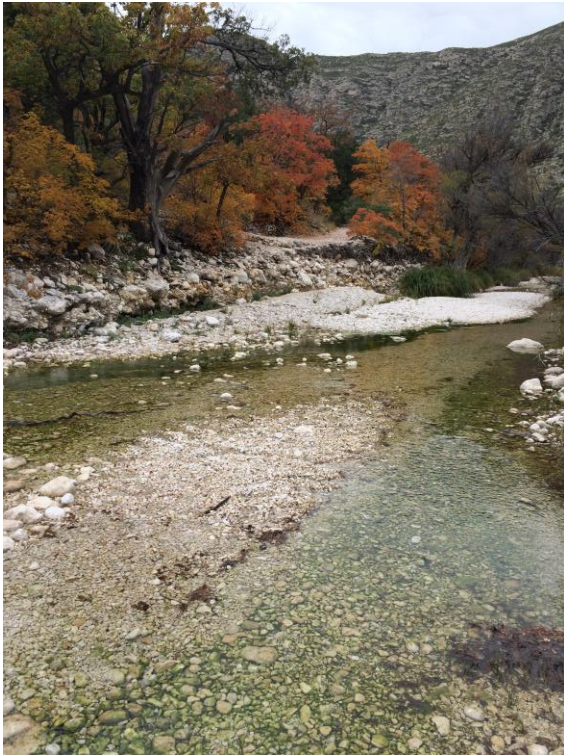
Sand Dunes

- Low elevations, often shores of ancient lakes
- Example plants:
 - Honey Mesquite, Soaptree Yucca, Sand Sage



Riparian and wetlands

- Along Rio Grande, Pecos, Rio Concho
 - Generally lower elevation, so warm, but plenty of water much of the year
- Example plants:
 - Cottonwood, willows, cattails, Salt Grass



Springs

- Form when water travels underground from higher elevations
- Example plants:
 - Arizona Sycamore, Texas Bluebells, Hummingbird Trumpet

Microclimates in your yard

- How much sun?
- Protection from the wind?
- Walls add thermal protection
- Low points collect water



Include zoning of plants

- Grouping plants based on their requirements of water and soil type
- High water use plants together in “oasis”





Take home message

- Wide diversity of plants adapted to many environmental conditions
- Match your yard to a natural habitat type
- Look for inspiration when out in nature

What is a
native
plant?



Native plants

- Species that have evolved and occur naturally in a particular region, ecosystem, and habitat
- Species that have relationships with co-occurring species
- Species that grow in a region without human intervention



DESERTS of North America



Great Basin Desert



Mojave Desert



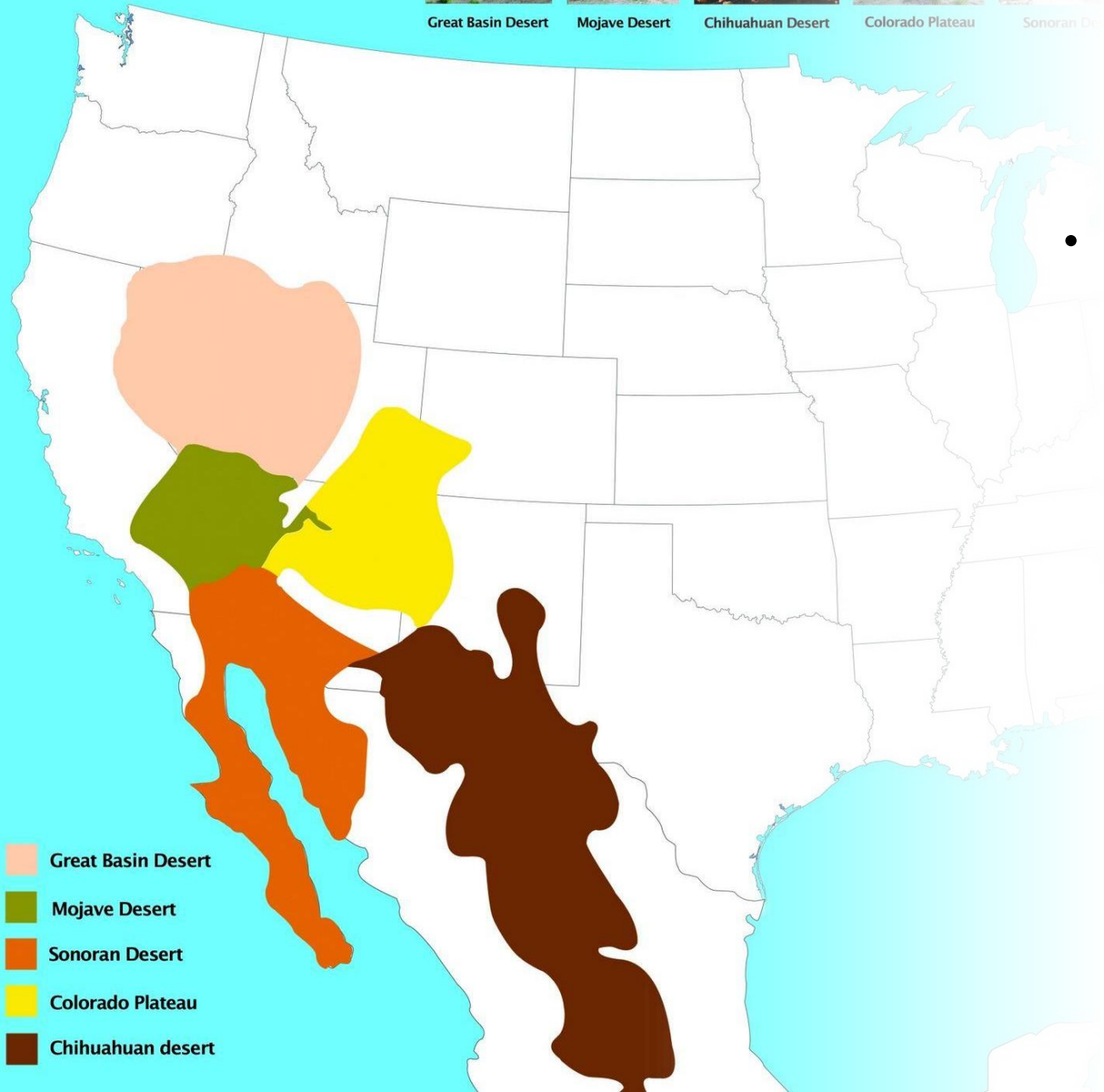
Chihuahuan Desert



Colorado Plateau



Sonoran Desert



- Great Basin Desert
- Mojave Desert
- Sonoran Desert
- Colorado Plateau
- Chihuahuan desert

- For your yard
 - Native to Dona Ana County?
 - To the Trans-Pecos?
 - To the Chihuahuan Desert?
 - To the Southwestern US?



Soledad
Canyon

Take home message

- Species that naturally occur closer to Las Cruces are more native than those farther away

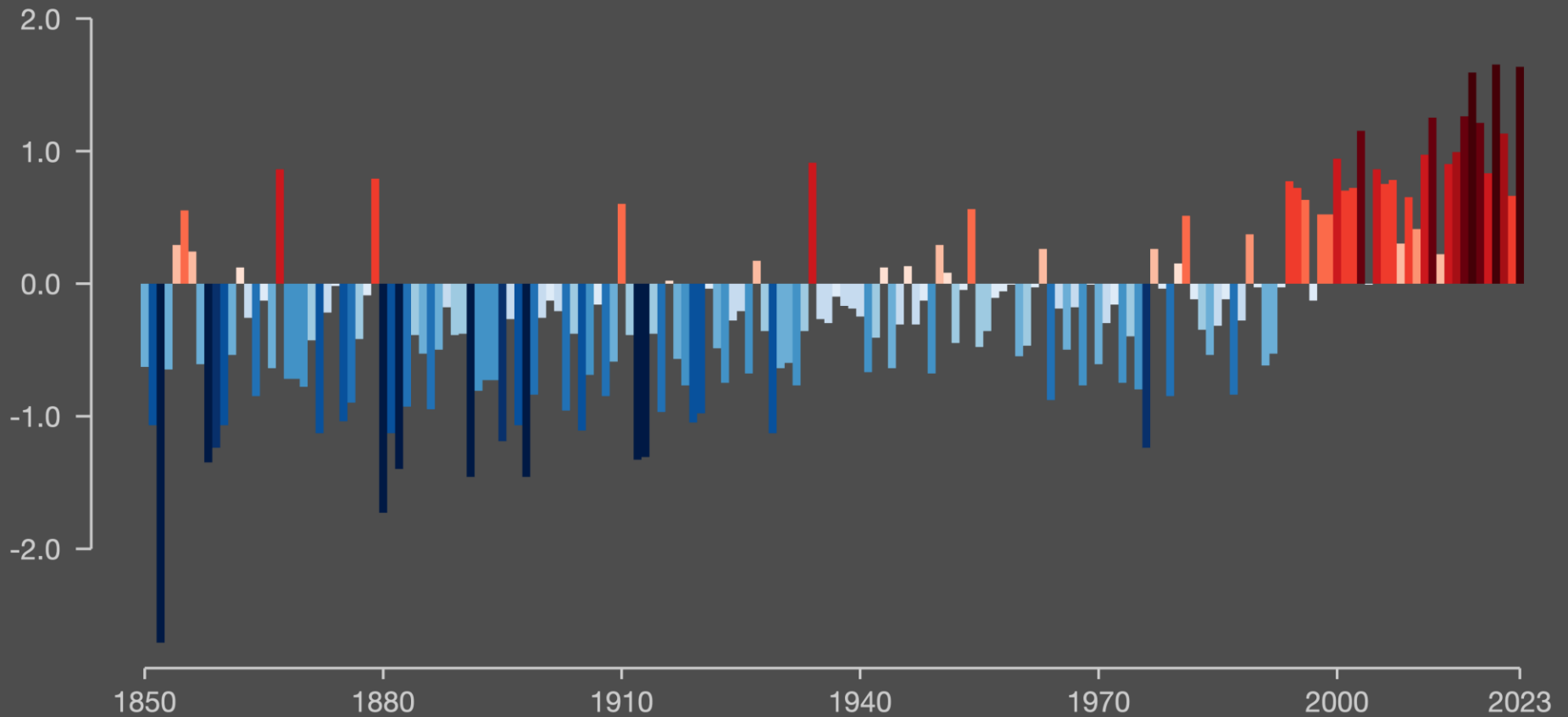
What are
the benefits
of planting
native?



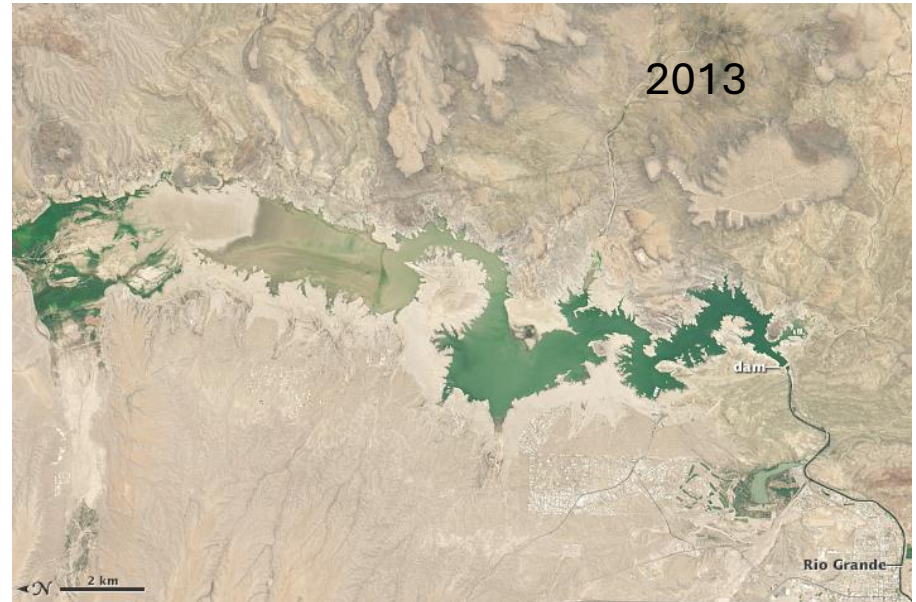
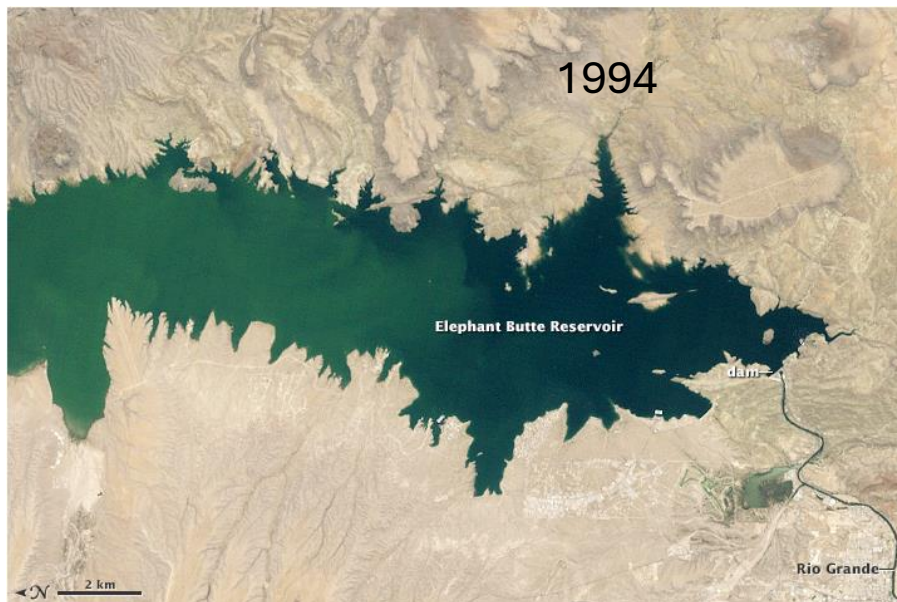
Environmental challenges: Climate change

Temperature change in El Paso

Relative to average of 1961-2010 [°C]



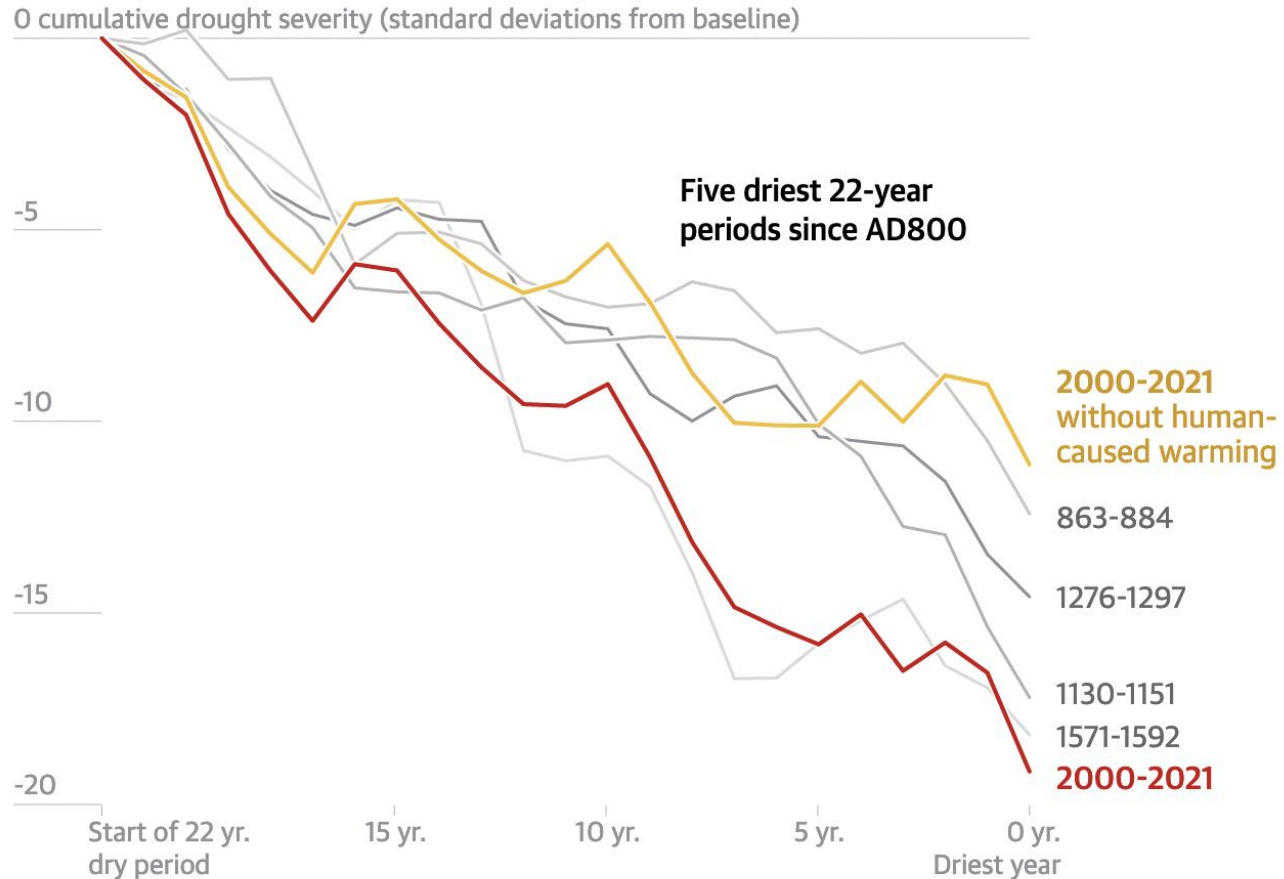
Environmental challenges: Climate change



<https://earthobservatory.nasa.gov/images/81714/drought-dries-elephant-butte-reservoir>

Environmental challenges: Climate change

The south-western US's megadrought is its driest in 1,200 years



Guardian graphic. Source: Williams, et al., "Rapid intensification of the emerging southwestern North American megadrought in 2020-2021", 2022.

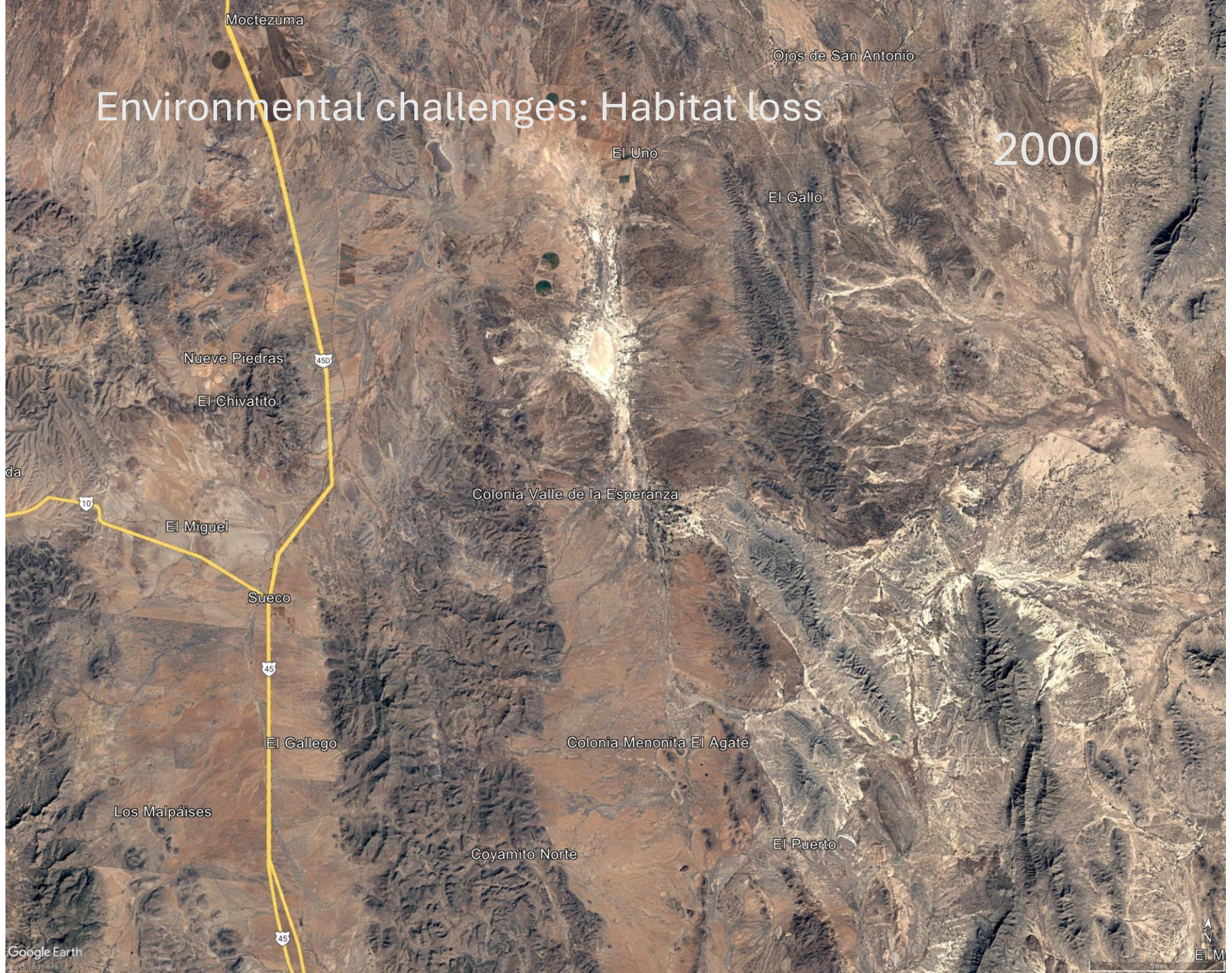
Environmental challenges: Habitat loss

1990



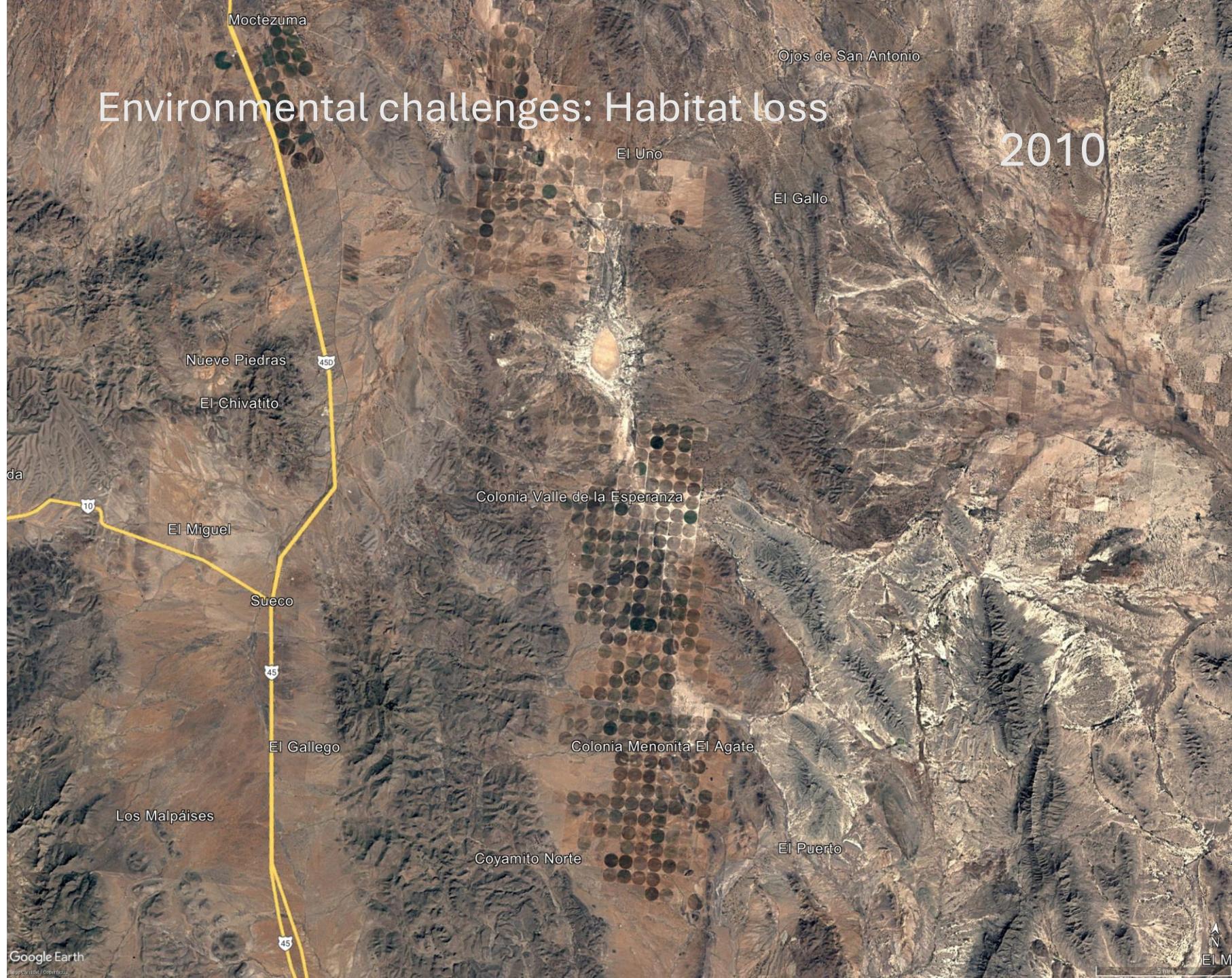
Environmental challenges: Habitat loss

2000



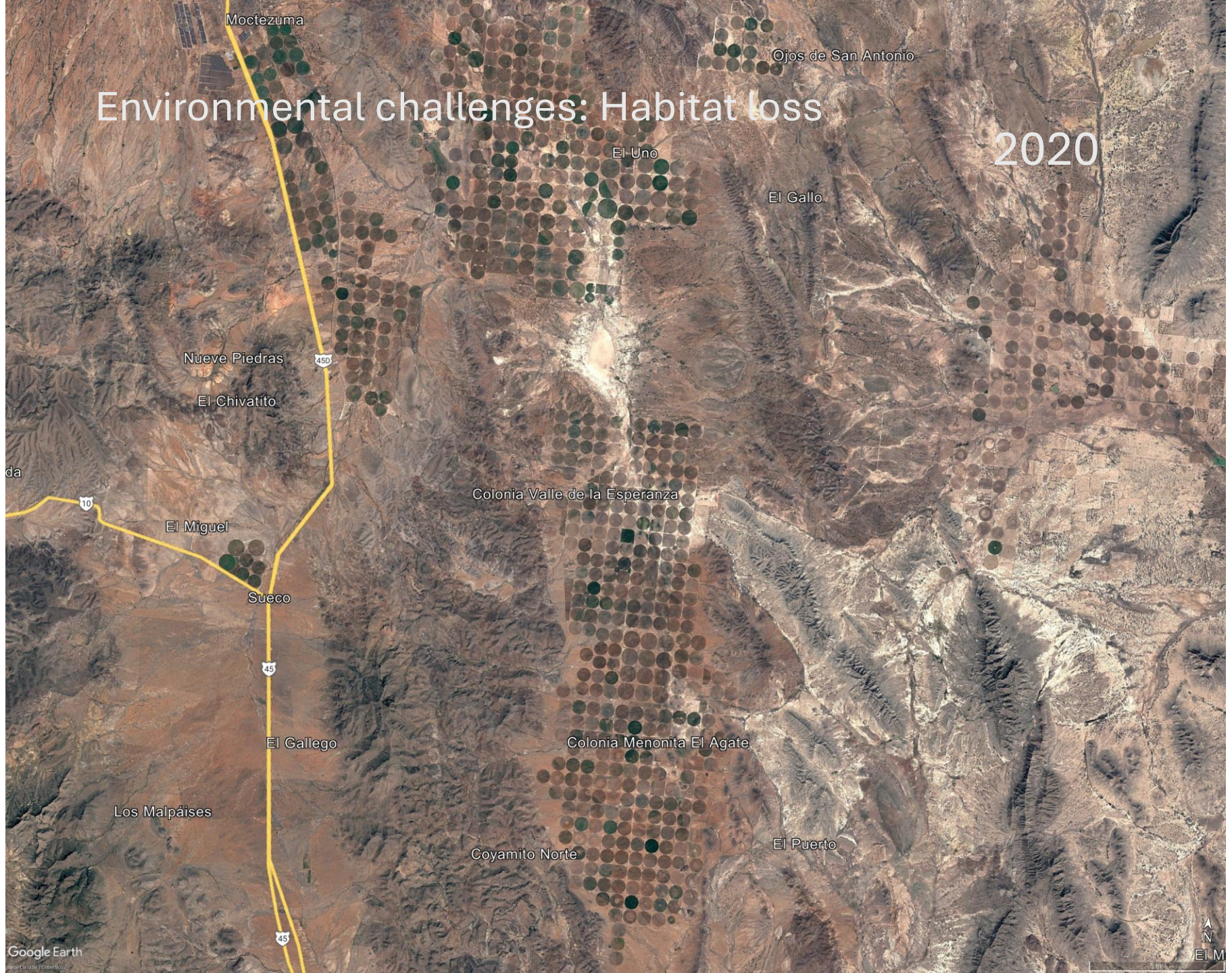
Environmental challenges: Habitat loss

2010



Environmental challenges: Habitat loss

2020



Environmental challenges: Overgrazing



Photos courtesy of the Archive of the Big Bend,
Sul Ross University

Environmental challenges: Invasive species



https://www.columbia.edu/itc/cerc/danoff-burg/invasion_bio/inv_spp_summ/Tamarix_ramosissima.html



<https://www.wlfw.org/why-is-cheatgrass-bad/>



Environmental challenges: Poaching/Overharvesting

Help power Marketplace this winter when you support the show today.

DONATE NOW!

Cactus poachers are picking the Texas desert clean of rare species

Zoe Kurland | Feb 21, 2022

Heard on:  MARKETPLACE

▶ LISTEN NOW



Karen Little, manager of the Sul Ross State University greenhouse, holds a rare *Pelecypora aselliformis* cactus, seized by the U.S. Fish and Wildlife Service en route to markets overseas. Zoe Kurland

<https://www.marketplace.org/2022/02/21/cactus-poachers-are-picking-the-texas-desert-clean-of-rare-species/>

A photograph of a garden area in front of a brick building. The garden features several native plants: a large, bushy white-flowered plant (possibly a species of Malva or similar) in the center-right, a red-flowered shrub (possibly a species of Rosa or similar) in the foreground, and a yellow-flowered plant (possibly a species of Helianthus or similar) on the left. The ground is covered with light-colored gravel. A semi-transparent text box is overlaid on the image, containing the text "Environmental solution: Native plants!".

Environmental solution: Native plants!

Benefits of native plants

- Save water, time, and money
- Support wildlife
- Connect to our home ecosystem



Saving water

Adapted to local
climate = reduced
irrigation



Less maintenance

No/low fertilizer, minimal
pruning

Better survival means fewer
replacements





More on this at 11:10!

Support wildlife

Recreate the local food web

Sense of place

- "I want Texas to look like Texas, and Vermont to look like Vermont," she once said. "I just hate to see the land homogenized." – *Lady Bird Johnson*



https://www.npr.org/sections/talkingplants/2007/07/lady_bird_johnson_in_flower.html



Those characteristics that make a place special or unique, as well as to those that foster a sense of authentic human attachment and belonging



Placeless landscapes are seen as those that have no special relationship to the places in which they are located

They could be anywhere; roadside strip shopping malls, gas/petrol stations and convenience stores, fast food chains, and chain department

Which feels like Las Cruces?

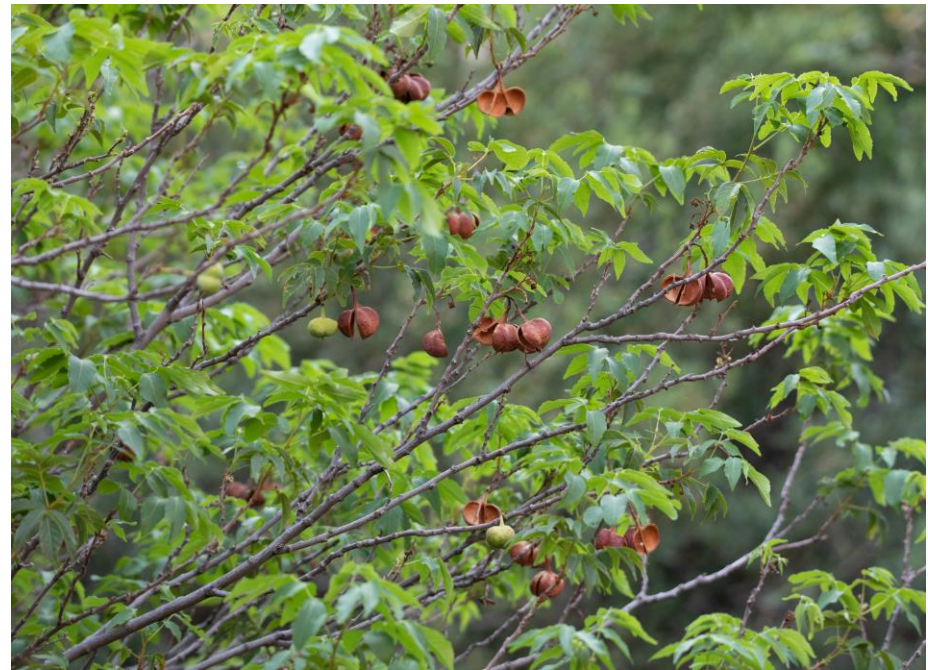


Photo by Ken Steigman



<https://commons.wikimedia.org/wiki/File:Bungalow.jpg>

Celebrate our home!



Challenges of native plants

- Many are not readily available (substitute with desert adapted?)
- Considered messy or unkempt
- Maintenance is different than more common ornamentals (loved to death)
- Less information available



Just a few
recommended
plants



Sandy soil

Honey Mesquite

(*Neltuma* [*Prosopis*]
glandulosa)





Sandy soil

Apache Plume

(*Fallugia paradoxa*)

Sandy soil

Creosote

(*Larrea tridentata*)





Sandy/Rocky soil

Blackfoot Daisy

(*Melampodium leucanthum*)

Rocky soil

Texas Mountain Laurel
(*Sophora secundiflora*)



Rocky soil

Woolly Butterfly Bush

(*Buddleja marrubiifolia*)



Rocky soil

Prairie Zinnia

(*Zinnia grandiflora*)



Rocky soil

Rock Penstemon

(*Penstemon baccharifolius*)



Clayey soil

Rio Grande Cottonwood
(*Populus deltoides* ssp.
wislizeni)



Clayey soil

False Indigo Bush

(*Amorpha fruticosa*)



Clayey soil

Torrey Wolfberry
(*Lycium torreyi*)



Clayey soil

Frogfruit


(*Phyla nodiflora*)



All soils

Desert Willow
(*Chilopsis linearis*)



A close-up photograph of a Yellow Bells (Tecoma stans) plant. The image shows several bright yellow, tubular flowers hanging from a woody branch. The leaves are green, elongated, and have serrated edges. The background is a soft, out-of-focus light brown or tan color.

All soils

Yellow Bells

(*Tecoma stans*)

All soils

Chocolate Daisy
(*Berlandiera lyrata*)

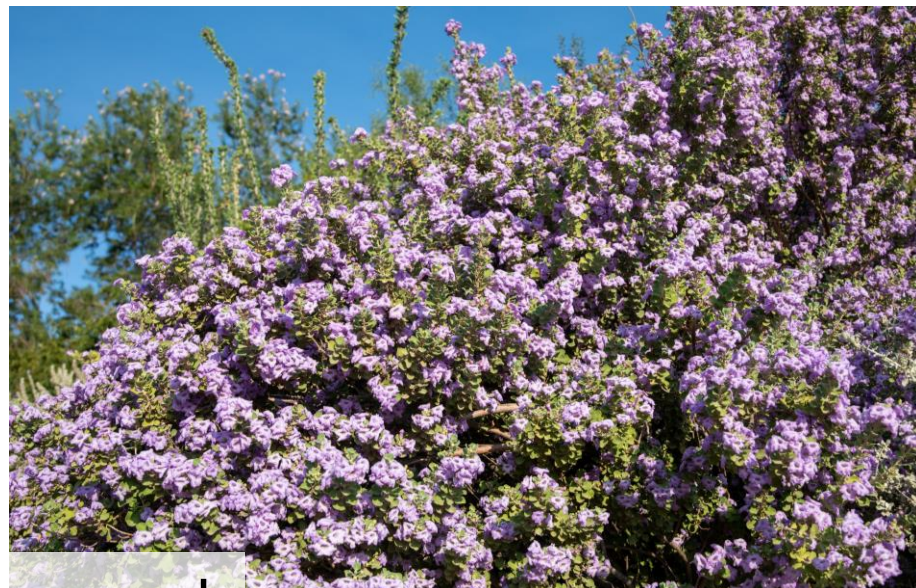


All soils

Blue Grama

(*Bouteloua gracilis*)



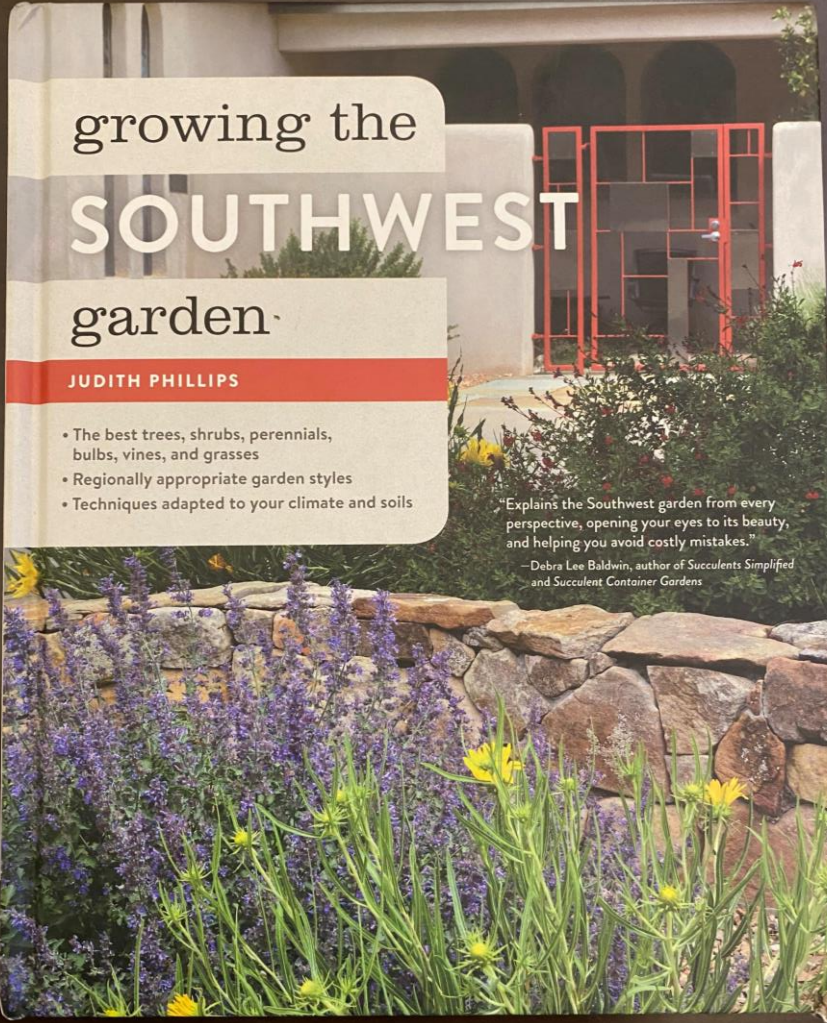


And many more!



Resources for plant selection

- Texas Master Gardeners El Paso
 - <https://txmg.org/elpaso/learn/gardening-topics-links/>
- Desert Blooms El Paso
 - <https://elpasodesertblooms.org/>
- Ladybird Johnson Wildflower Center
 - <https://www.wildflower.org/collections/collection.php?collection=er24>
- Chihuahuan Desert Gardens website (in redesign now)
 - <http://museum2.utep.edu/chih/gardens/gardens.htm>



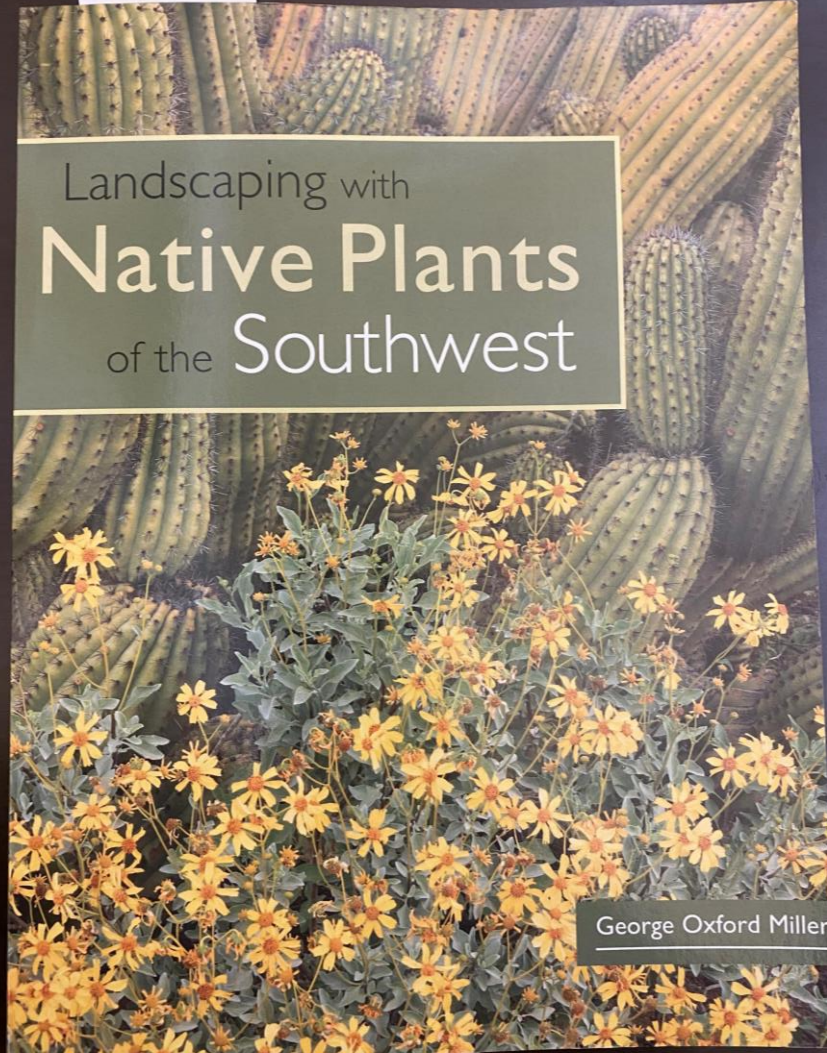
growing the SOUTHWEST garden

JUDITH PHILLIPS

- The best trees, shrubs, perennials, bulbs, vines, and grasses
- Regionally appropriate garden styles
- Techniques adapted to your climate and soils

"Explains the Southwest garden from every perspective, opening your eyes to its beauty, and helping you avoid costly mistakes."

—Debra Lee Baldwin, author of *Succulents Simplified* and *Succulent Container Gardens*



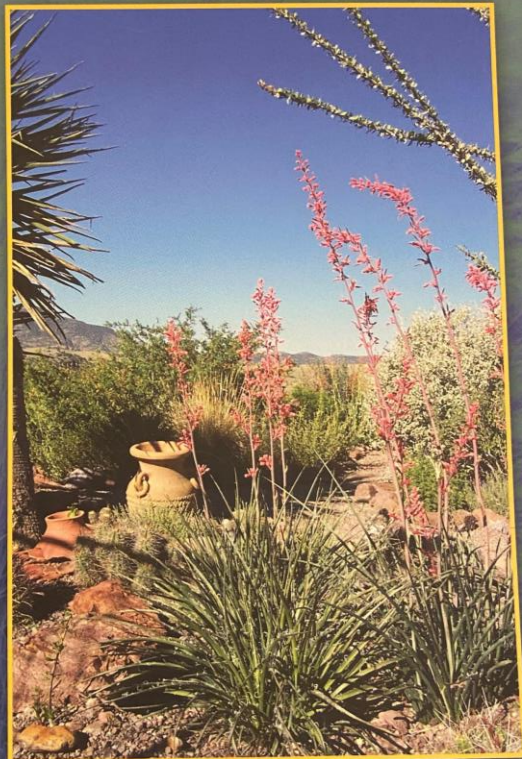
Landscaping with Native Plants of the Southwest

George Oxford Miller

NATIVE PLANTS *in* LANDSCAPING

Trees,
Shrubs,
Cacti,
and
Grasses
of the
Texas Desert
and
Mountains

by
A. Michael Powell
and
Shirley A. Powell



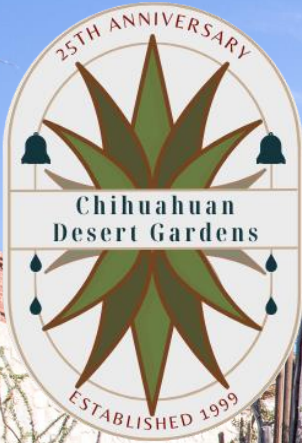
HOW TO GROW *Native Plants* OF TEXAS AND THE SOUTHWEST

REVISED AND UPDATED EDITION



BY JILL NOKES

Illustrations by Kathryn Miller Brown



Visit the Chihuahuan Desert Gardens!

Cultivating Your Home: Embracing Chihuahuan Desert Diversity

Open Until
October 11, 2025



Centennial Museum and Chihuahuan Desert Gardens

CENTENNIAL MUSEUM AND
CHIHUAHUAN DESERT GARDENS



FLORAFEST

NATIVE PLANT SALE

APRIL 12

9 AM - 3 PM

UTEP UGLC PLAZA

utep.edu/florafest

A close-up photograph of a branch with numerous small, vibrant pink flowers. The flowers are in various stages of bloom, with some showing distinct petals and stamens. The background is a soft, out-of-focus blue sky, suggesting a clear day. The lighting is bright, highlighting the delicate structure of the blossoms.

Kevin Floyd
kwfloyd@utep.edu