

Learning about Which Plants can Thrive in a Changing Climate by Observation

Look around and see what plants reveal about the effects of climate change

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LIVING AND GARDENING IN THE DESERT

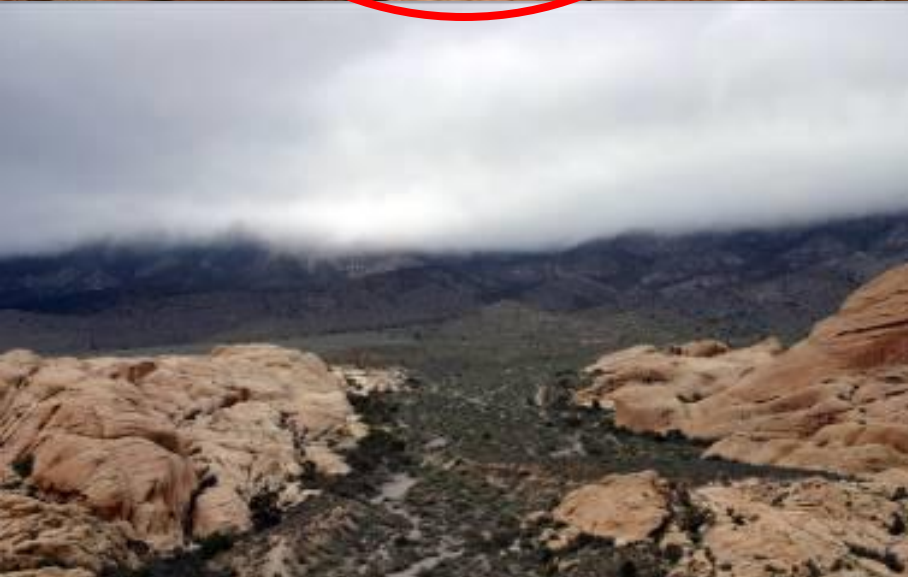
- **DESERT-**
 - **LOW PRECIPITATION**
 - **EVAPORATION EXCEEDS THE AMOUNT OF WATER THAT ENTERS THE SOIL**
 - **TEMPERATURE- EXTREME HIGHS AND LOWS**
 - **DRY WINDS- REMOVE MOISTURE FROM PLANTS**
 - **AND GETTING HOTTER**

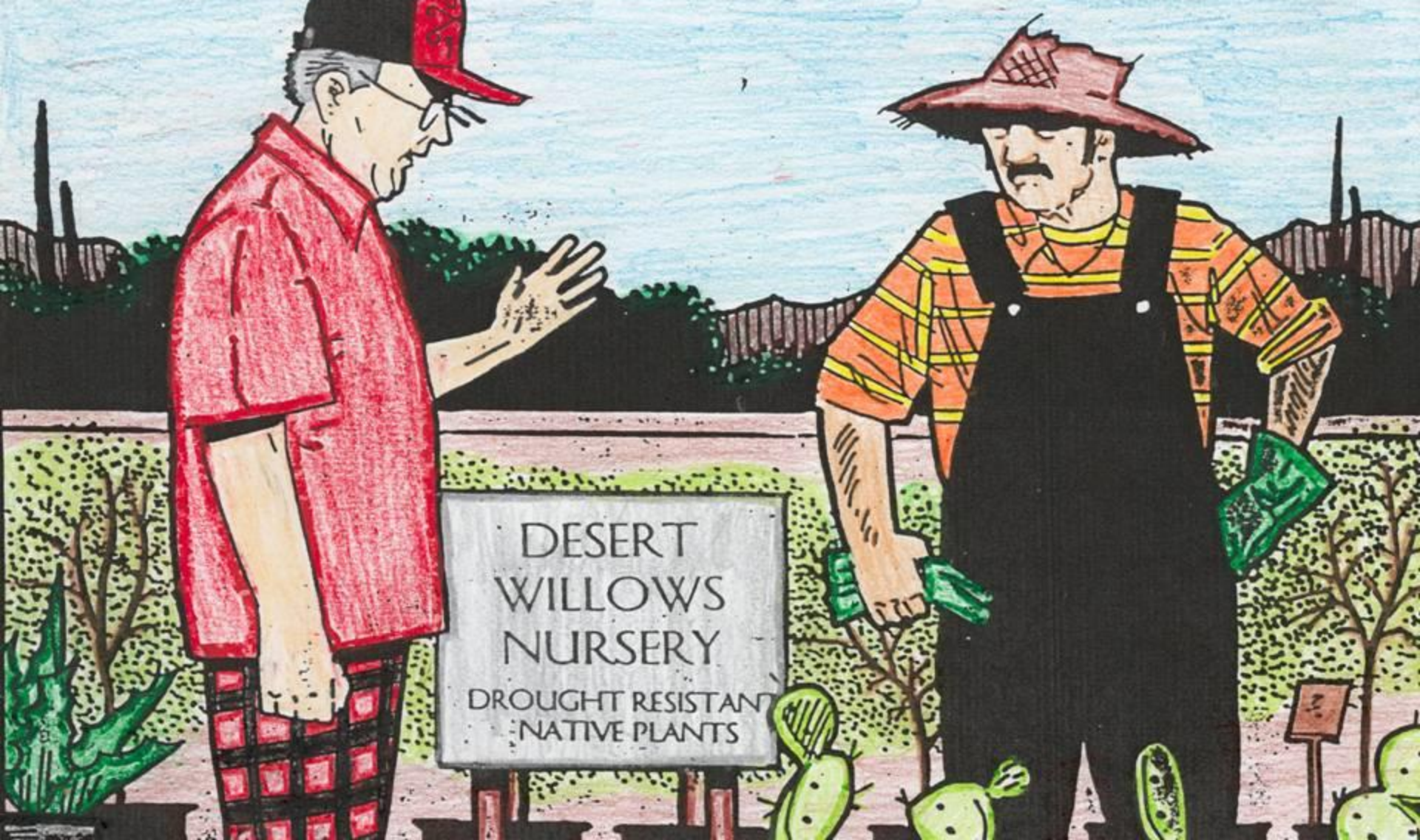
IT IS A HARSH CLIMATE

**MANY DESERT PLANTS
LITERALLY LIVE ON THE
EDGE.**



IT IS A HARSH CLIMATE





**HEY, DON'T GET ME WRONG. WE JUST LOVE LIVING IN THE
SOUTHWEST. IT'S JUST ALL THIS DESERT STUFF THAT
THE WIFE AND I CAN'T STAND.**

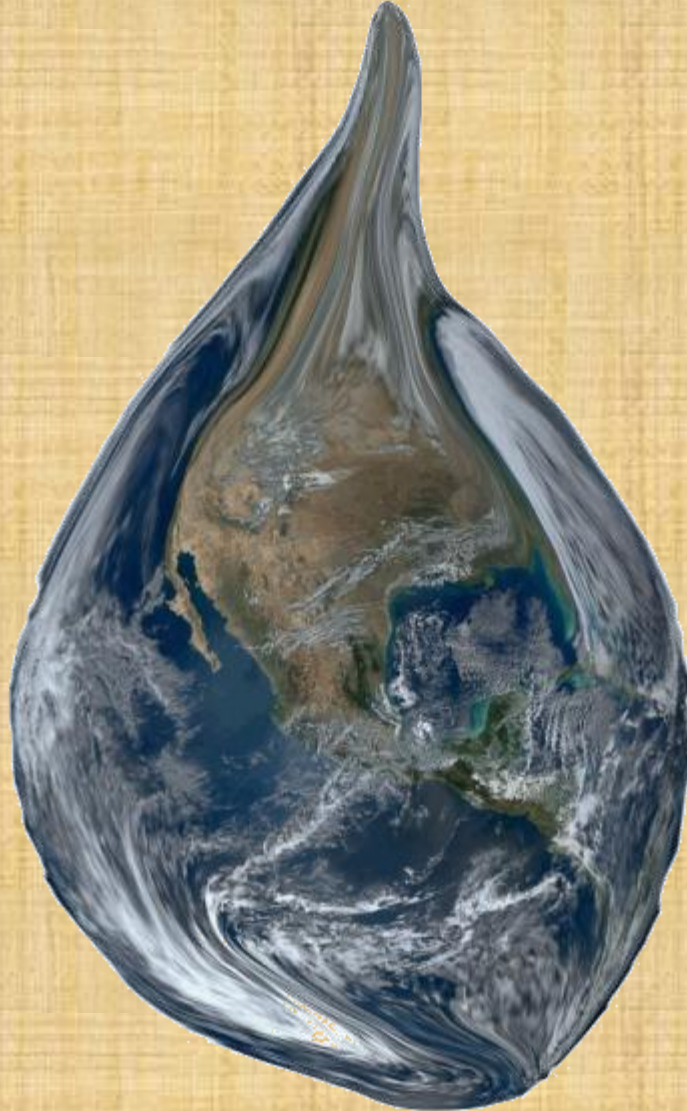
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Taken from the Tucson News

WHY NATIVE AND NATIVE LIKE PLANTS AND GARDENS?

- By surrounding ourselves with landscapes that reflect the true nature of our region, we embrace the unique character that makes the area such a wonderful place to live. The native garden is what nature intended in miniature. It's not about the plants. It's about generosity. It's about giving back to the land and giving oneself the pleasure and satisfaction of loving, getting involved, and tending a garden modeled after the natural beauty of the region. It's about giving to everyone that sees and enjoys it the opportunity to experience the authentic natural area you live in... (adapted from the Tree of Life Nursery web page MIKE EVANS)

WATER: A WORLDWIDE PROBLEM



Considerations for Plants in the Future:

- **1. Native plants may not survive future climate changes. Just because a plant is native to an area doesn't guarantee its survival under future climate shifts. Changing temperatures, precipitation patterns, and other environmental factors may challenge even the most climate-adapted plants.**
- **2. Look both to the south and north of your region. Plants from the southern regions, like northern Mexico, may flourish as warmer temperatures spread. However, there may also be exceptions, such as unexpected cold extremes in some winters. For example, Texas has seen fluctuations in temperature that impact plant survival of both native and native-like plants.**
- **3. Current climates are not fixed; regions have had different climates in the past. Our local climates today are a snapshot in time and have fluctuated historically. Plants that thrived in past climates may still offer valuable indications of what can survive under future conditions.**

DESERT PLANTS ARE TOUGH !



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DESERT PLANTS ARE TOUGH !



DESERT PLANTS ARE TOUGH !

14 March 2025



DESERT PLANTS ARE TOUGH !





DESERT PLANTS ARE TOUGH !



DESERT PLANTS ARE TOUGH !



DESERT PLANTS ARE TOUGH !





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Desert Carpet Acacia

Acacia redolens



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**Look at other plants in the bed. It
may be lack of water??**



CHECK OUT NURSERIES. WHAT PLANTS ARE DOING WELL IN CONTAINERS WHEN TEMPERATURES ARE EXTREME?



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Cold Damage in a Nursery



DESERT PLANTS ARE TOUGH !



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DESERT PLANTS ARE TOUGH!

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DESERT PLANTS ARE TOUGH!



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DESERT PLANTS ARE TOUGH !



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WHY ARE NATIVE AND NATIVE-LIKE PLANTS UNDER-USED?

- HARD TO FIND IN MANY NURSERIES
- DIFFICULT TO PROPAGATE
- LOOK POORLY IN CONTAINERS AT THE NURSERY
- COST MORE
- TAKE LONGER TO ESTABLISH IN THE LANDSCAPE, NO INSTANT DISPLAY
- MANY PEOPLE THINK OF THEM AS WEEDS









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A NATURAL WASH IN A NURSERY DISPLAY



**NATIVE DESERT PLANTS AND
ADAPTIVE PLANTS ARE NOT
ONLY PRACTICAL, BUT
BEAUTIFUL.**



**LET NATURAL AREAS
INSPIRE YOUR
LANDSCAPING**

NATIVE PLANTS



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NATIVE PLANTS



NATIVE PLANTS



NATIVE PLANTS



NATIVE PLANTS IN THE LANDSCAPE









Jacaranda

Jacaranda mimosifolia



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**Plant small trees
or large growing
shrubs for street
trees. Buy smaller
containers, 5 or 10
gal.**



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NATIVES ARE TOUGH



**when this week literally killed
you but then you remember
you have plants that depend
on you**



REMEMBER CLIMATE CHANGE IS REAL

- **The USDA and Forest Service Ordered to Remove Climate Change References, suppressing Critical Public Data.**

THERE ARE MANY OTHER PLANTS OUT THERE TO BE TRIED

**XANTHORRHOEA
QUADRANGULATA**



JUNE 2006



JUNE 2006



JUNE 2008



MARCH 2011

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SEPTEMBER 2016

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51

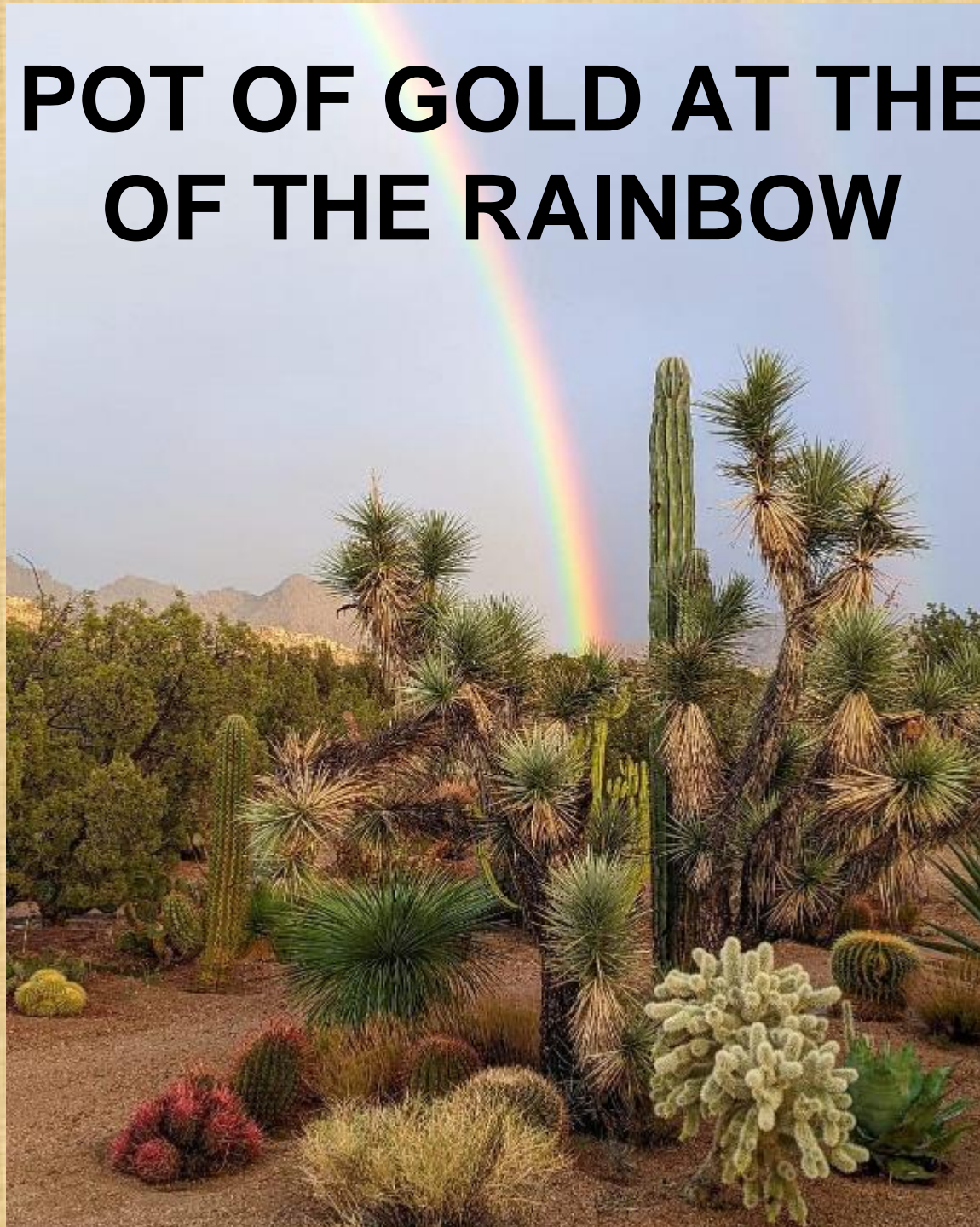


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March 2020

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OUR POT OF GOLD AT THE END OF THE RAINBOW



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DESERT DENIAL

GET OVER IT

AND ON THE 8TH DAY,
WE BULLDOZED IT



THE GOAL

TO FIND TOUGH
BEAUTIES FOR
THE
LANDSCAPE



A photograph of a desert landscape featuring prominent red rock formations and cliffs under a clear, bright blue sky. The foreground is filled with jagged, reddish-brown rocks and sparse, dry vegetation. The text "SOME NATIVE AND NATIVE-LIKE PLANTS TO TRY" is overlaid in the center in a bold, black, sans-serif font.

SOME NATIVE AND NATIVE-LIKE PLANTS TO TRY

CERCIS CANDENSIS



14 March 2025

CERCIS



Chilopsis linearis

Desert Willow



Chilopsis linearis

Desert Willow



Many Cultivars

**Art's
Seedless™**



**Warren
Jones™**



**Lucretia
Hamilton™**



Many Cultivars



RIO SALADO



**DESERT
DIVA**



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Many Cultivars



**SWEET
BUBBA™**



BUBBA™



FICUS AFGHANISTANICA

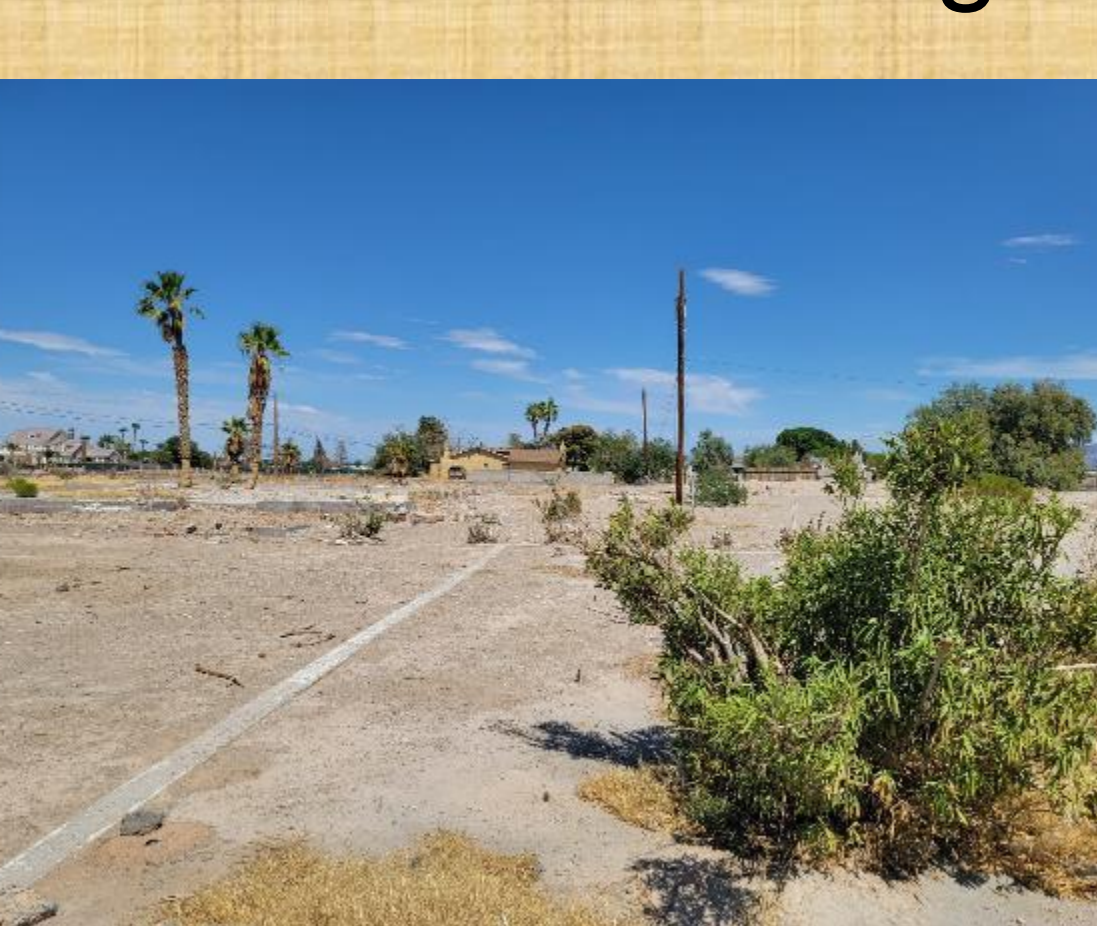


- SURVIVED TWO COLD WINTERS
 - NO DAMAGE WITH TEMPERATURES AS LOW AS 8 F
 - DECIDUOUS
 - WILD HEIGHT 80 FEET' CULTIVATED UNKNOWN
 - SMALL EDIBLE FRUIT
 - DROUGHT TOLERANT TWO YEARS WITH NO IRRIGATION OR RAIN
 - NATIVE TO AFGHANISTAN
- CONTACT YUCCADO.COM**



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NERIUM OLEANDER Growing in a Vacant Lot no Irrigation Las Vegas NV.



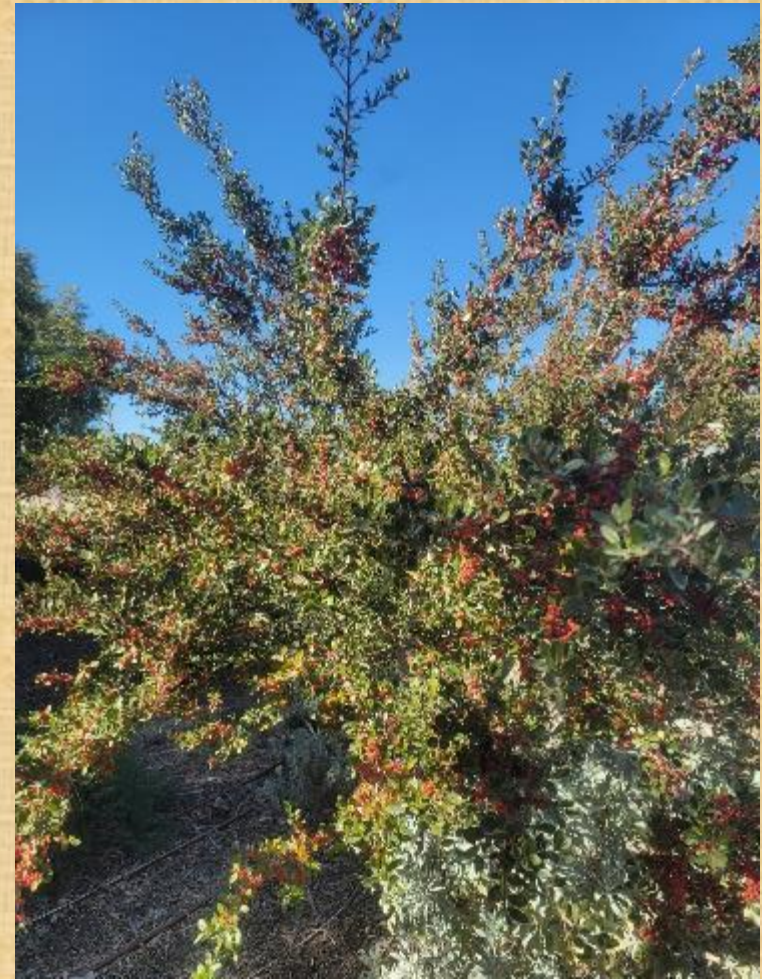
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SIMPSON STOPPER

Myrcianthes fragrans



Ilex vomitoria



Ilex vomitoria



Osage Orange

Maclura Pomifera



About 15 years old

OLNEYA TESOTA

IRONWOOD



OLNEYA TESOTA

IRONWOOD



OLNEYA TESOTA IRONWOOD SCULPTURES



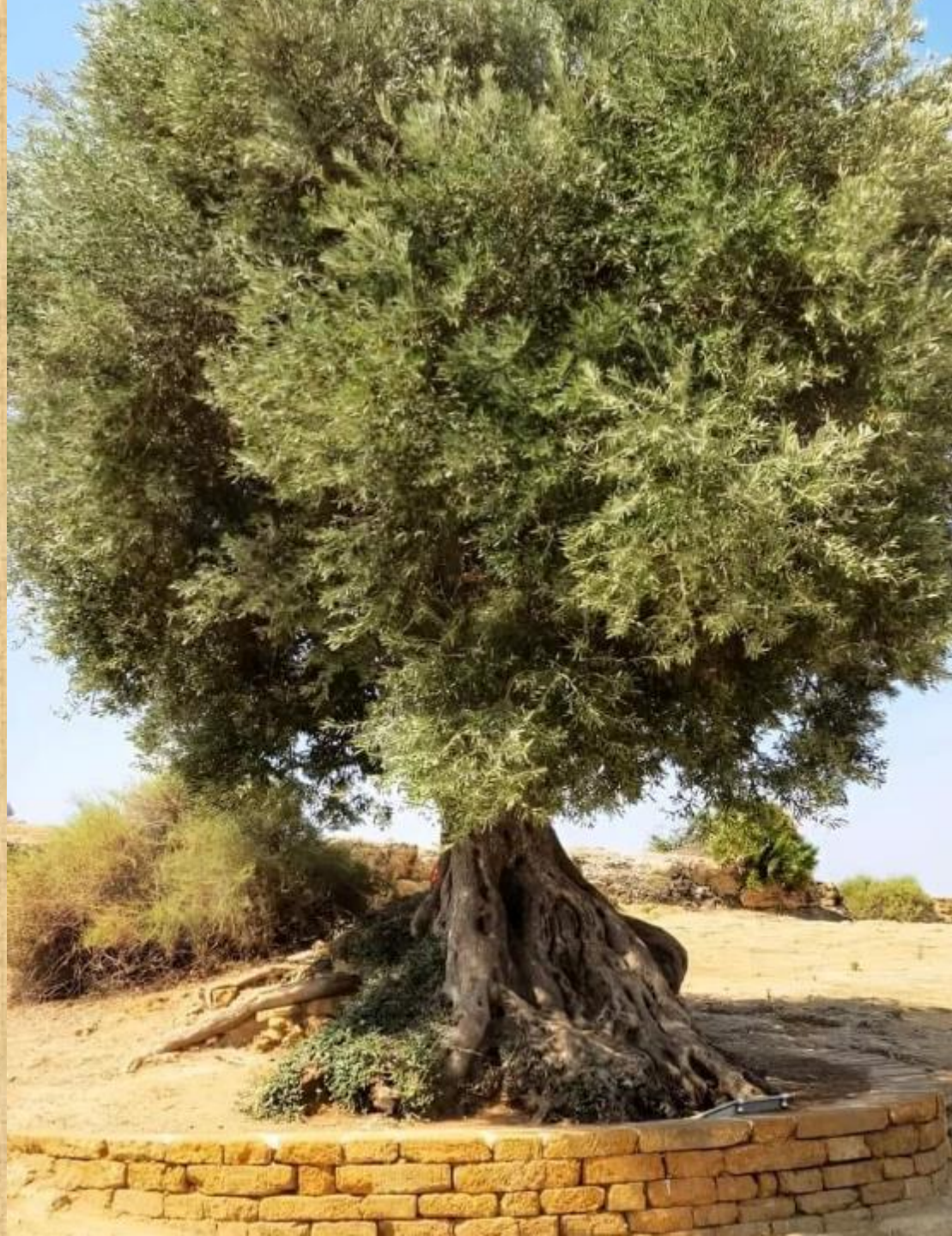


OLIVE TREE

The Science And Nature Page 3,00 Year Old Olive Tree



600-Year-Old Olive Tree



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OLIVE TREE



SOPHORA SECUNDIFLORA

TEXAS MOUNTAIN LAUREL



SOPHORA SECUNDIFLORA

TEXAS MOUNTAIN LAUREL





A VERY OLD TREE

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VAUQUELINIA CORYUMBOSA

NUEVO LEON OR WEEPING ROSEWOOD



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XANTHOCERAS SORBIFOLIUM



XANTHOCERAS SORBIFOLIUM



XANTHOCERAS SORBIFOLIUM



XANTHOCERAS SORBIFOLIUM

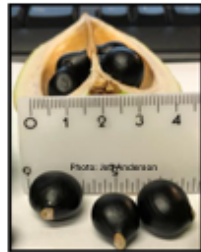


NMSU-ACES Fact Sheet

The Remarkable Yellowhorn Tree: A Botanical Marvel

Xanthoceras sorbifolium

BE BOLD. Shape the Future. New Mexico State University



Introduction (<https://academic.oup.com/gigascience/article-pdf/9/6/giz070/28864615/giz070.pdf>)

The **Yellowhorn tree** (*Xanthoceras sorbifolium*) is a captivating and lesser-known plant that deserves our attention. Native to northern China and Korea, this deciduous shrub or small tree offers not only ornamental beauty but also a host of edible delights. In this paper, we will explore the fascinating world of the Yellowhorn tree, from its appearance, medicinal properties, and drought tolerance, to its culinary and cosmetic industry potentials.

Appearance and Growth

1. **Size and Foliage:**

- o Yellowhorn trees typically reach a height of **6 to 24 feet**.
- o Their glossy dark green leaves resemble those of a sumac, with paler undersides.
- o In spring, before leafing out, Yellowhorn burst into sprays of **white blossoms** adorned with greenish-yellow streaks and a blush of red at their base.

2. **Fruit and Seeds:**

- o The resulting fruit is **round to pear-shaped**, resembling a tennis ball.
- o These fruit capsules start green and gradually mature to a yellow-tan color.
- o Inside, they are sectioned into 3-4 chambers, each containing up to **12 shiny, black seeds**.
- o When ripe, the fruit splits into 3-4 sections, revealing a spongy white interior pulp and the round, purplish black seeds.
- o Recent results indicate that xanthoceraside, a novel triterpenoid saponin extracted from Yellowhorn husks, has an antitumor effect and the potential to treat Alzheimer disease.

Culinary Delights

1. **Edible Leaves and Flowers:**

- o All parts of the Yellowhorn tree are edible.
- o The leaves and flowers can be incorporated into culinary creations.
- o Imagine adding delicate Yellowhorn blossoms to salads or infusing them into teas.

NMSU-ACES Fact Sheet

The Remarkable Yellowhorn Tree: A Botanical Marvel

Xanthoceras sorbifolium

- o Yellowhorn leaves contain 14-18% protein, making them an excellent leaf tea.

2. Nutty Seeds:

- o The real star of the show is the Yellowhorn's seeds.
- o These seeds taste remarkably like **macadamia nuts**, albeit with a slightly waxier texture due to the high oil content.
- o Imagine cracking open a Yellowhorn seed and savoring its rich, buttery, and nutty flavor.

3. Oil Content:

- o Yellowhorn tree fruit husks can contain **<40% oil**, and the seed alone is an impressive **40-72% oil**.
- o Currently, Yellowhorn trees are being cultivated for use as **cooking oil**, **cosmetics**, **tea**, **medicinal properties**, and **biofuel**.

Etymology and History

1. Name Origins:

- o The genus name, **Xanthoceras**, has intriguing roots.
- o Some sources suggest it comes from the Greek words for "yellow" and "horn," referring to the yellowish horn-like glands between the petals.
- o Regardless, the name evokes the tree's unique beauty.

2. Cultivation and Spread:

- o Yellowhorn trees have been cultivated since the 1820s in Russia.
- o German botanist Bunge bestowed the official name in 1833.
- o **They traveled from China to France in 1866 and eventually reached North America sometime in the late 19th Century.**
- o Trees are cultivated for their high oil content, medicinal properties, and ability to survive drought conditions.
- o **Seed oil is high in Nervonic Acid (3.04%)**, used for cognitive brain function, Alzheimer's, and other neurological functions.
- o **Today, China cultivates Yellowhorn for use as biofuel due to its high oil content, drought tolerance, and sustainability.**

Conclusion

The Yellowhorn tree, with its edible seeds and striking appearance, is a testament to nature's creativity. As we appreciate its beauty, let us also celebrate its medicinal and culinary contributions. Next time you encounter a Yellowhorn, remember that it's not just a rare specimen—it's a botanical marvel waiting to be explored!

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February 16, 2024



Ziziphus jujube

Jujube tree



Pictures
from the
internet



PSOROTHAMNUS FREMONTII
NEVADA NATIVE



ENCELIA FARINOSA BRITTLEBUSH



FORESTIERA NEOMEXICANA

NATIVE PRIVET



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LEUCOPHYLLUM

TEXAS RANGERS OR SAGES

LEUCOPHYLLUM
‘LYNN’S LEGACY’

LEUCOPHYLLUM
‘GRAY TEXAS SAGE’



LEUCOPHYLLUM
‘THUNDER
CLOUD’



LEUCOPHYLLUM 'CONVENT'





LARREA TRIDENTATA

CREOSOTE BUSH



**14 YEARS IN
THE
LANDSCAPE
WITH LITTLE
OR NO
IRRIGATION**





LARREA TRIDENTATA
CREOSOTE BUSH



**20 YEARS IN THE
LANDSCAPE WITH
LITTLE OR NO
IRRIGATION**

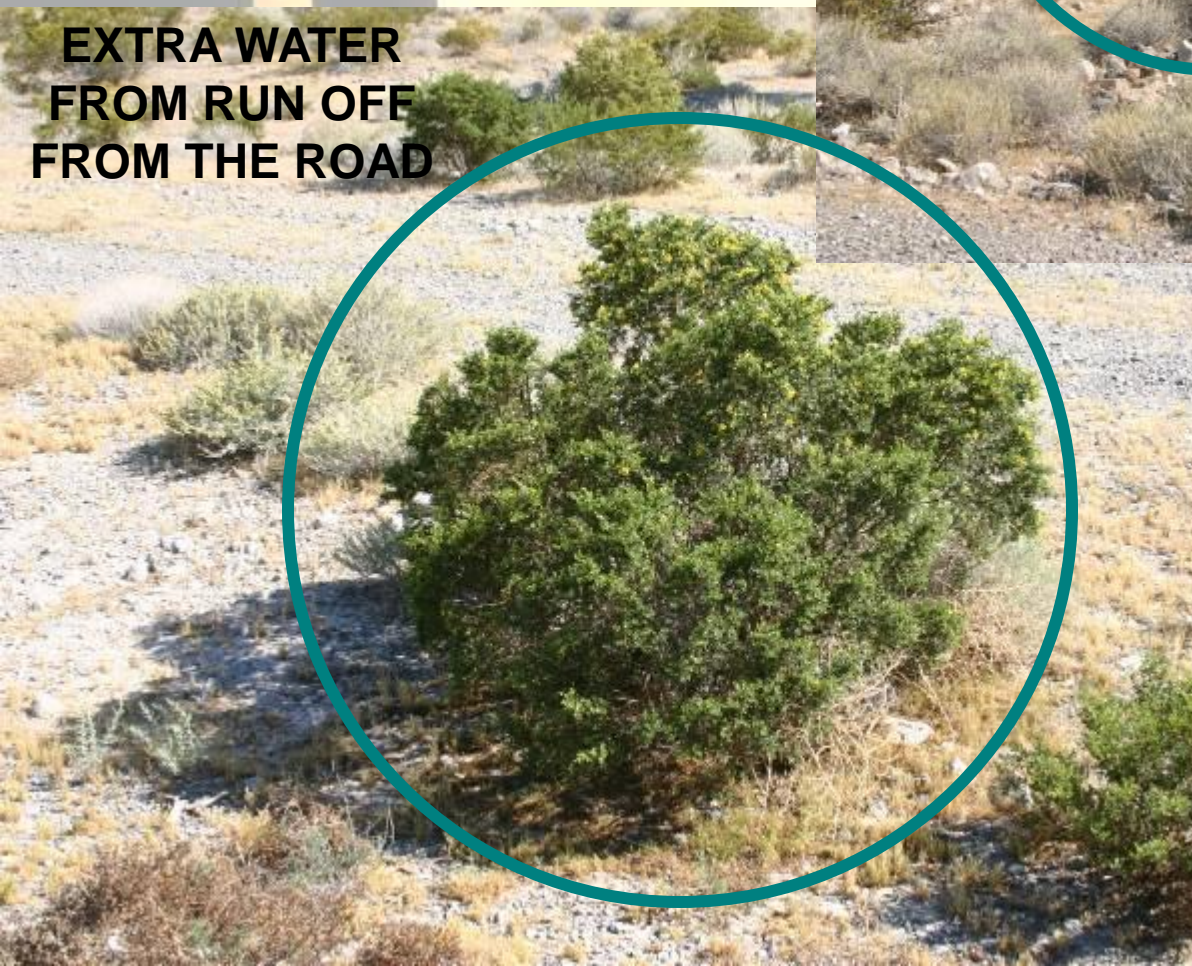


LARREA TRIDENTATA
CREOSOTE BUSH

ONLY RAIN FALL



EXTRA WATER
FROM RUN OFF
FROM THE ROAD



EVEN MORE
WATER FROM
RUN OFF FROM
THE ROAD





DON'T PRUNE IN BALLS
OR SQUARES



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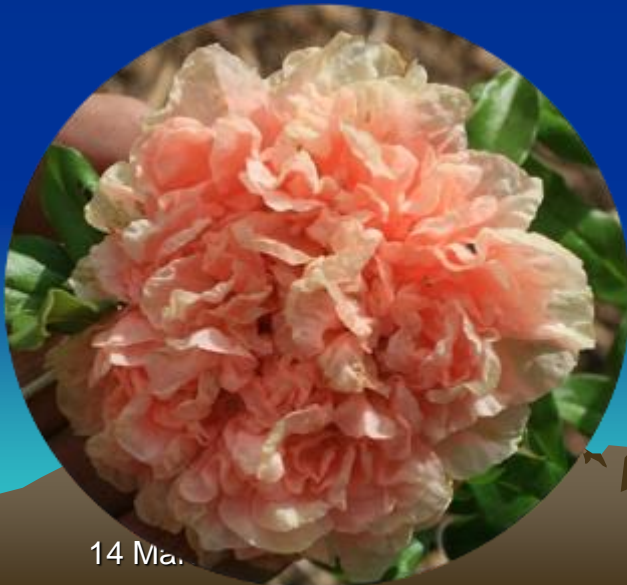
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St. Therese Mission Catholic Church

How deep do you plant these and what kind of birds do they grow?



PUNICA GRANATUM POMEGRANATE



PUNICA GRANATUM POMEGRANATE IN THE LANDSCAPE







NANNORRHOPS RITCHIANA



9 YEARS FROM A 5 GAL.



NANNORRHOPS RITCHIANA



Phoenix theophrastus





SABAL MINOR



SABAL MEXICANA

3/14/2025



BISMARCKIA NOBILIS

LAKE HAVASU AZ



SIMMONDSIA CHINENSIS JOJOBA



VITEX ROTUNDIFOLIA

VINING OR BEACH VITEX



VITEX ROTUNDIFOLIA

VINING OR BEACH VITEX





**EPHEDRA
VIRIDIS**

MORMON TEA



**20 BY 30 FEET
(MEXICO)**



EPHEDRA EQUISETINA

MONGOLIAN EPHEDRA



LANTANA SP





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120

RHODOPHIALA BIBIDA

TEXAS OXBLOOD LILY



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Yuccado.com

RHODOPHIALA BIBIDA

TEXAS OXBLOOD LILY



RHODOPHIALA BIBIDA

TEXAS OXBLOOD LILY



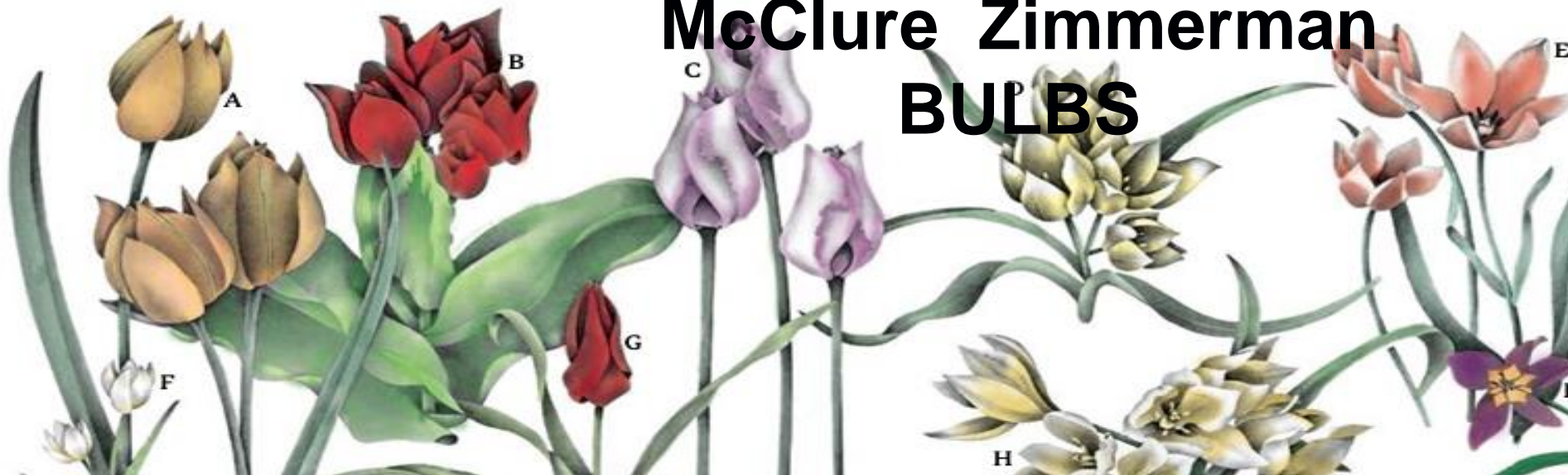
SPECIES TULIPS



14 March



McClure Zimmerman **BULBS**



Abronia angustifolia

Purple sand verbena



VERBENA RIGIDA

SANDPAPER VERBENA



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ZAUCHNERIA CALIFORNICA

CALIFORNIA FUCHSIA



14 March 2025

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ZAUSCHNERIA GARRETTII, Z. CALIFORNICUM, Z. ARIZONICA

CALIFORNIA FUCHSIA



**(SOME REFERENCES ARE NOW USING
EPILOBIUM CANUM)**



ORANGE CARPET

WINE GRAPES



14 March 2025

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**TUCSON DESERT MUSEUM
PARKING LOT**





NO IRRIGATION PAHRUMP





BE CREATIVE

**I'M PRETTY CONFIDENT
MY LAST WORDS WILL BE**



[Facebook.com/DiedLaughing](https://www.facebook.com/DiedLaughing)

"WELL SHIT, THAT DIDN'T WORK"

Considerations for Plants in the Future:

- **1. Native plants may not survive future climate changes. Just because a plant is native to an area doesn't guarantee its survival under future climate shifts. Changing temperatures, precipitation patterns, and other environmental factors may challenge even the most climate-adapted plants.**
- **2. Look both to the south and north of your region. Plants from the southern regions, like northern Mexico, may flourish as warmer temperatures spread. However, there may also be exceptions, such as unexpected cold extremes in some winters. For example, Texas has seen fluctuations in temperature that impact plant survival of both native and native-like plants.**
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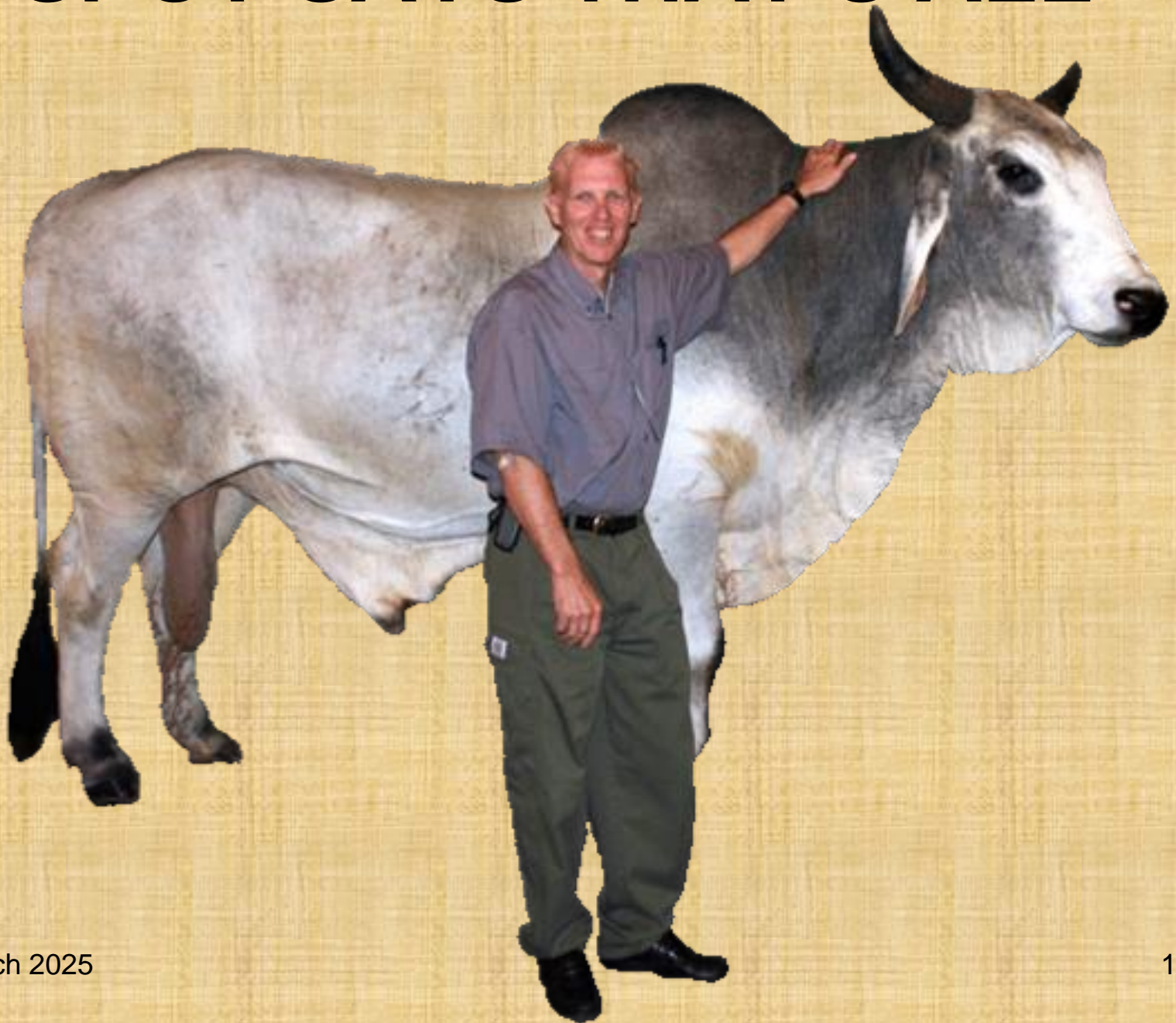
WHERE TO FIND NEW PLANTS

- **TREE OF LIFE NURSERY**
SAN JUAN CAPISTRANO, CA
- **HIGH COUNTRY GARDENS**
ALMOST EDEN
- **McClure & Zimmerman BULBS**
- **AUSTRALIAN OUTBACK PLANTATION**
TONOPAH, AZ
- **Civano wholesale Nursery 5301 S**
Houghton Rd, Tucson, AZ. 85747 520
546 9200

WHERE TO FIND NEW PLANTS

- **PLANT DELIGHTS NURSERY**
- **MOUNTAIN STATES WHOLESALE NURSERY, LITCHFIELD PARK, AZ**
(WHOLESALE ONLY BUT GOOD INFORMATION AND YOUR LOCAL NURSERY CAN ORDER FROM THEM)
- **KW PALMS LAKE ELSINORE CA KW**
Palms & Cycads ~ Kevin Weaver
palms4u2@verizon.net
<http://www.kwpalmsandcycads.com/>

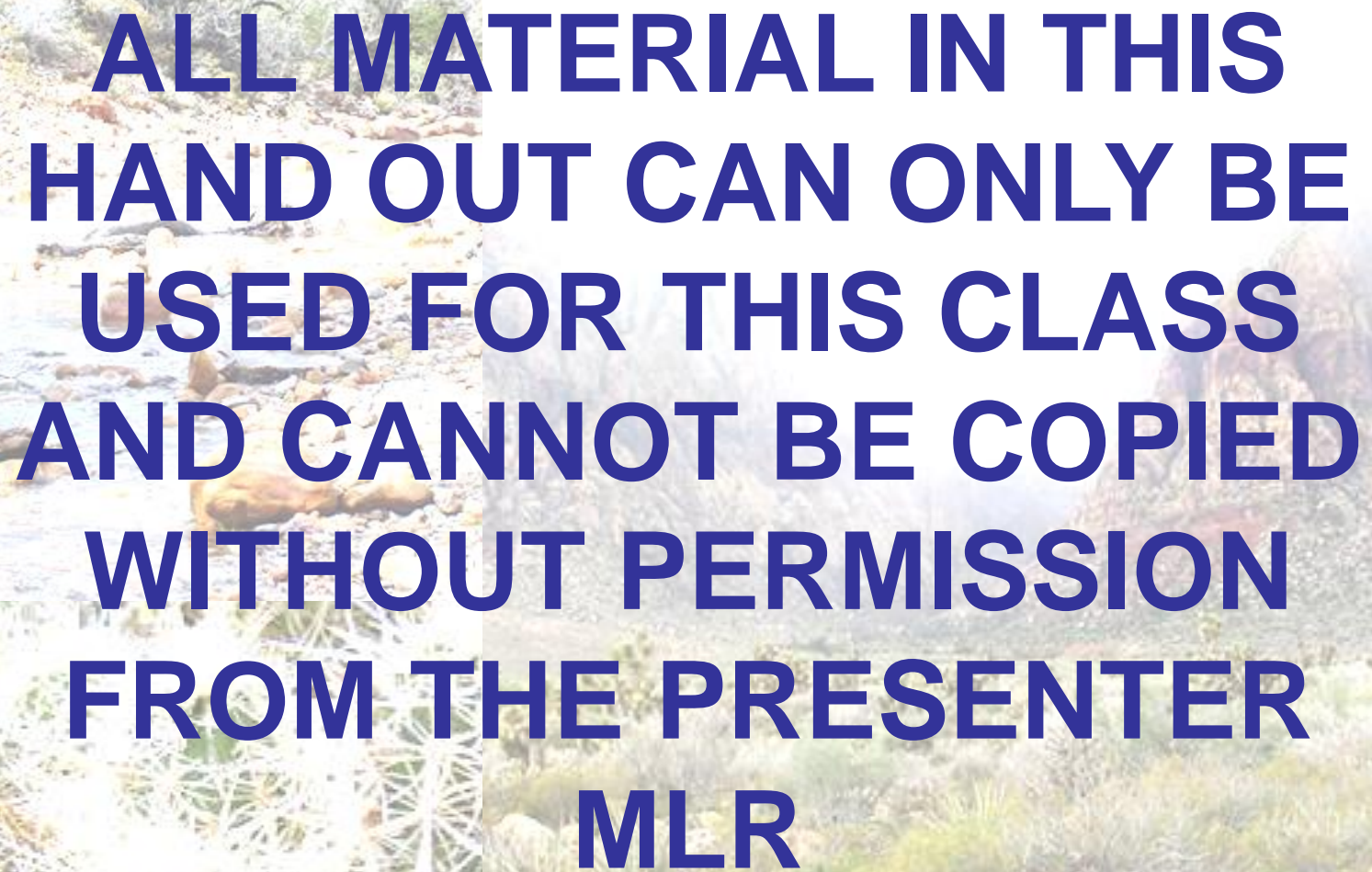
SPOT SAYS THAT'S ALL





REFERENCES

- **THANK YOU TO THE FOLLOWING FOR PICTURES AND INFORMATION**
- **KATHY KASTA, CALIFORNIA DEPT OF AG./PATHOLOGY**
- **DENNIS SWARTZELL, MOUNTAIN STATES NURSERY LAS VEGAS NV**
- **DENIES McConnell, SNWA LAS VEGAS NV**
- **TUCSON DESERT MUSEUM TUCSON AZ (FROM WEB PAGES)**

A desert landscape with a small stream, cacti, and shrubs under a blue sky. The text is overlaid on the image.

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