

Cactus of Grand Staircase-Escalante

Marc Coles-Ritchie & Jared Higgs

Marc is BLM Ecologist at Grand Staircase-Escalante National Monument

Jared is a botany consultant and cactus expert based in Price, Utah

Kanab Public Library

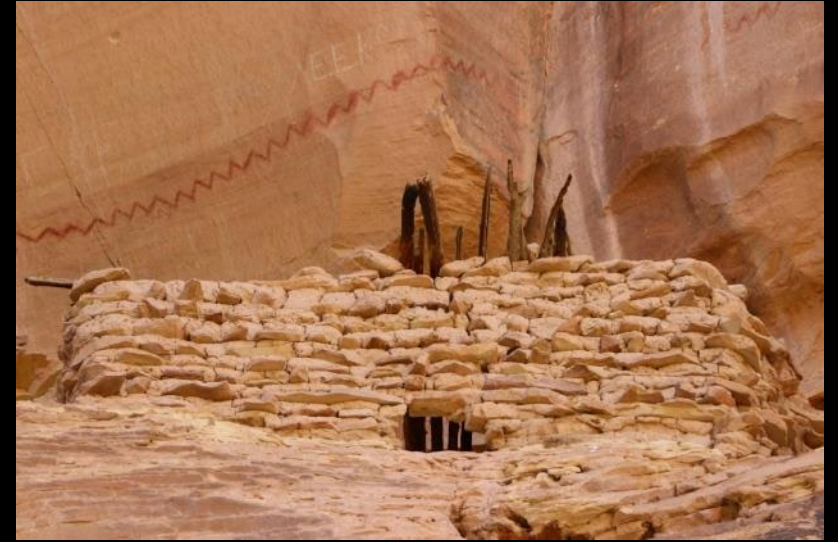
January 2025

Photos by authors unless otherwise noted



Recognizing Indigenous People and Knowledge

- Tribes with connection to this land include
 - Southern Paiute
 - Hopi
 - Zuni
 - Pueblo
 - Dine' (Navajo)
 - Ute
 - others
- Indigenous people lived off this land.
- Indigenous knowledge holders knew and know the many uses of plants.



Flora of Grand Staircase-Escalante National Monument

- 1,003 species
- 26% of plants of Utah are in GSENM
- At least 43 endemic plants (grow nowhere else)
- Past talks at Kanab Library (pdf's available)
 - Flora: Wildflowers, Grasses, Shrubs, Lichens
 - Cultural Site Stewardship, Wildlife
- Upcoming talks at Kanab Library
 - Flora: Riparian plants, Landscaping with native plants
 - Bighorn sheep, bumblebees, dinosaurs
 - ?



Cactus sampler



Cactus family: Cactaceae

Where

- Americas, from Patagonia to Canada
- Dry places

Characteristics

- No true leaves
- Spines, both large and small
- Stems (or pads or joints) photosynthesize
 - often ribbed or pleated
- Succulent, to conserve water, can expand or contract
 - some shrink to below ground surface!

Cultural and economic importance

Tallest Cactus

“Mexican giant cardon”
(*Pachycereus pringlei*), with
a maximum recorded height
of 63 feet.



Genera in Cactus Family

- Pricklypear (*Opuntia*)
- Cholla (*Cylindropuntia*)
- Hedgehog & Claretcup (*Echinocerus*)
- Fishhook (*Sclerocactus*)
- Pincushion (*Pelecyphora/Escobaria*)
- Snowball cactus (*Pediocactus*)

Glochids

hair-like spines or short prickles, generally barbed, found at base of spine clusters in the prickly pears and cholla



Pricklypear (*Opuntia*)

- Stems: “pads” that are jointed, flat and round; pads (leaves) fleshy and edible
- Glochids: small but very sharp, detachable and barbed
- Spines: 1 or more stout spines (a few are spineless)
- Flowers: various colors (yellow, pink, purple, red)
- Fruits: dry or fleshy prickly pears, sometimes with smaller spines
- Size: 3” to 4’ tall; occasionally can be much taller

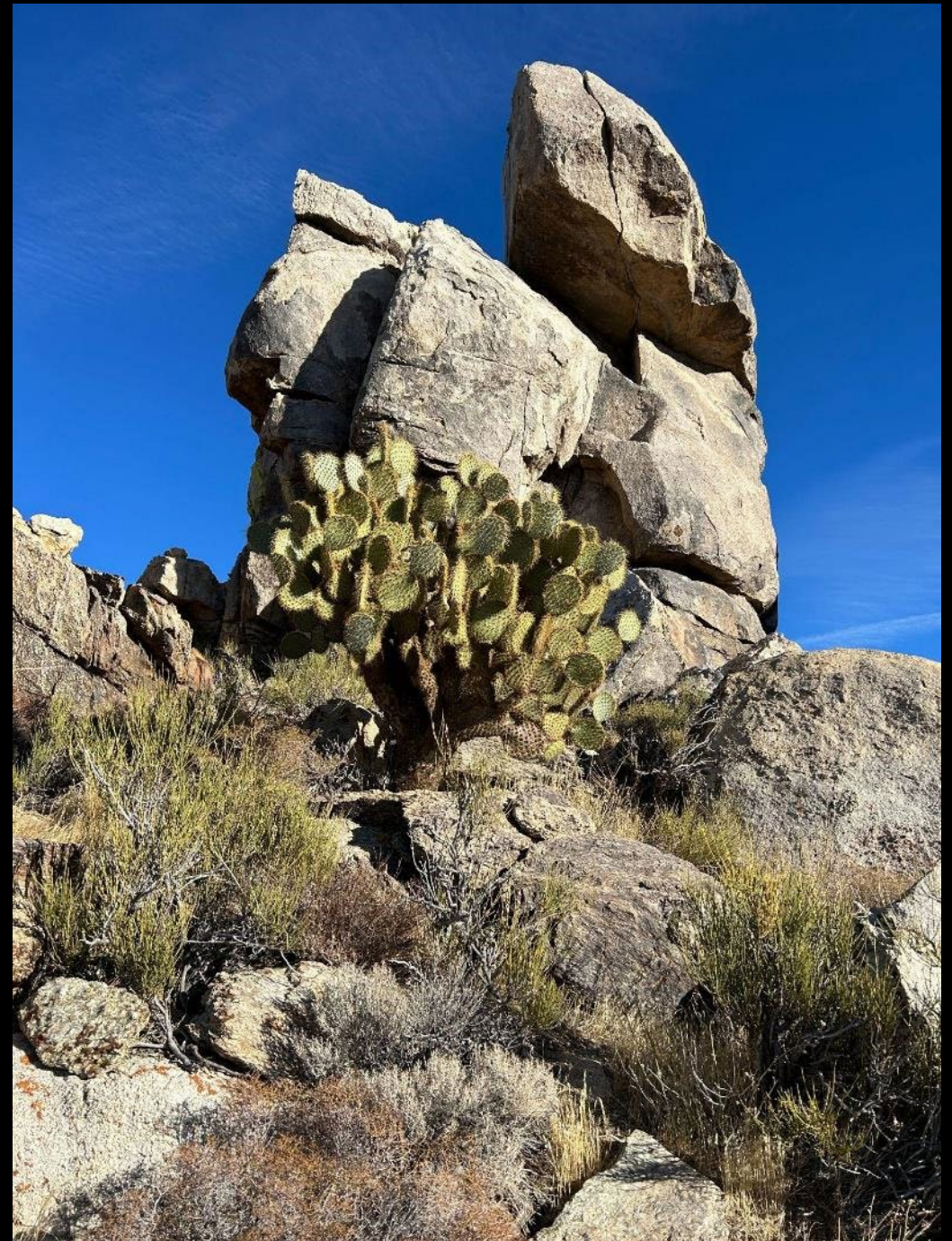


So many hybrids!



7-foot tall prickly pear
(*Opuntia chlorotica*)!

Mojave National
Preserve (California)



Cholla (*Cylindropuntia*)

- Stems: cylindrical, many branches
- Glochids: Yes in various arrangements
- Spines: typically present
- Flowers: yellow to red
- Fruits: various
- Size: 4-5 feet or to 7 feet tall



Hedgehog (*Echinocereus*)

- Stems: 1 to many rounded to cylindrical stems; can form clump
- Glochids: none
- Spines: straight (not hooked)
- Flowers: red or pink (can be many)
- Fruits: have spines, seeds small ~1mm
- Size: 3-12" tall x 12" diameter clump



Fishhook (*Sclerocactus*)

- Stems: mostly single, round to cylindrical, stout
- Glochids: none
- Spines: fishhook on end of central spines; lateral spines not hooked, can be different colors
- Flowers: rose pink to violet (can be yellow/white); born on apex
- Fruits: spineless, seeds several mm wide
- Size: usually to 10" tall and 5" wide



Foxtail

(*Pelecyphora/Escobaria*)

- Stems: single or clump, round
- Glochids: none
- Spines: straight (not hooked) and short (less than 1 inch long)
- Flowers: pink, yellow, white, green, or brown
- Fruits: red, green or brown
- Size: a few inches to a foot tall



Species of Cactus in Grand Staircase-Escalante

Pricklypear (*Opuntia*): 5 species

Cholla (*Cylindropuntia*): 1 species

Hedgehog/Claret Cup (*Echinocereus*): 2 species

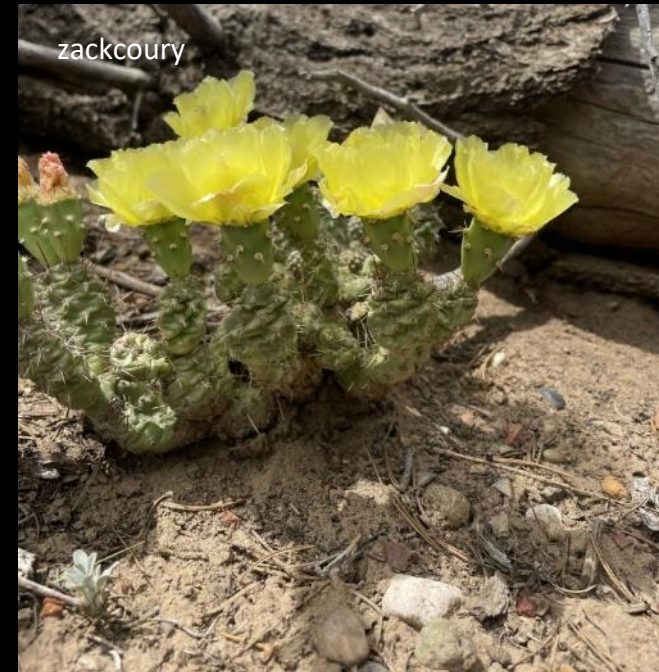
Fishhook (*Sclerocactus*): 1 species

Foxtail (*Pelecocyphora*): 2 species

Ball cactus (*Pediocactus*): 1 species

Pricklypear (*Opuntia*)

- golden pricklypear (*Opuntia aurea*): no spines, bluish color, green stigma
- brittle pricklypear (*Opuntia fragilis*): small round pads



golden pricklypear (*Opuntia aurea*)

jeromeb76



brittle pricklypear
(*Opuntia fragilis*)



Pricklypear (*Opuntia*) *continued*

- twistspine pricklypear (*Opuntia macrorhiza*):
medium sized pads, wet fruited, yellow
flowers with red center, often somewhat
flabby, widely spaced spine clusters
- Navajo Bridge pricklypear (*Opuntia nicholii*):
dry fruited, small to medium sized pads,
yellow, orange, pink, red flowers, closely
spaced spine clusters



twistspine pricklypear (*Opuntia macrorhiza*)



Navajo Bridge pricklypear (*Opuntia nicholii*)



Pricklypear (*Opuntia*) *continued*

- tulip pricklypear (*Opuntia phaeacantha*): large pads, wet fruited



ladyliatris



tulip pricklypear (*Opuntia phaeacantha*)

mikefink



patcooper



gustafsonja



mikefink



Whipple cholla (*Cylindropuntia whipplei*)

- Stems: cylindrical, cigar shaped
- Flowers: yellow
- Fruits: fleshy and drying after two years
- Size: 1-7 feet tall



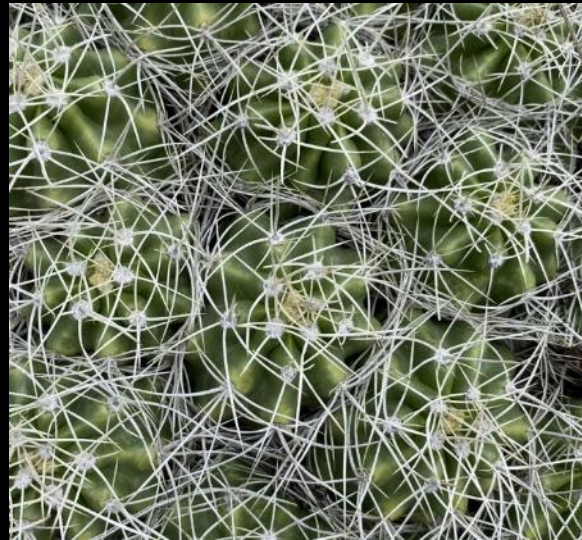
Engelmann's hedgehog cactus (*Echinocereus engelmannii*)

- Stems: 1 to a few, loosely clustered, ribs 10-13
- Spines: of different thicknesses
- Flowers: pink
- Fruits: with spines, seeds small ~1mm
- Size: 3-12" tall and 2-4" thick



Mojave claret cup cactus (*Echinocereus mojavensis*)

- Stems: 1 to many, rounded to cylindrical, often with many stems forming a mound, ribs 9-10
- Spines: of same thickness
- Flowers: red
- Fruits: with spines, seeds small ~1mm
- Size: mostly 3-10" tall and 12" wide



Smallflower fishhook cactus (*Sclerocactus parviflorus*)

- Stems: round to cylindrical, stout, ribs 13
- Spines: typically with a fishhook on the end of the central spines, 8-17 radial spines, 4-6 central spines
- Flowers: rose pink to violet to yellow/white; born on apex
- Fruits: spineless, seeds several mm wide
- Size: usually to 10" tall and 5" wide



Smallflower fishhook cactus (*Sclerocactus parviflorus*)



photos of Andrey Zharkikh

Spinystar (*Pelecyphora vivipara*)

- Stems: 1 to many, projection holding spine cluster with groove on one side (use a stick)
- Spines: 3-12 central spines, 12-20 radial
- Flowers: pink with very pointed petals
- Fruits: olive sized, green to reddish
- Size: a few inches to 1 foot tall



Missouri foxtail cactus (*Pelecyphora missouriensis*)

- Stems: round and flattened, usually solitary
- Spines: not obscuring the stem
- Flowers: yellow-ish
- Fruits: bright red, pea sized
- Size: 1-3 inches wide



Mountain ball cactus (*Pediocactus simpsonii*)

- Stems: 1 to several, spherical with the flattened top, projection holding spine cluster with no groove
- Spines: 4-10 central spines, 10-25 radials
- Flowers: white, pink, yellow
- Fruits: small
- Size: 1-6" tall, 1-8" wide



Test time!



Answers



Mojave claret cup
(Echinocereus mojavensis)



Smallflower fishhook
(Sclerocactus parviflorus)



Pricklypear (*Opuntia*)



Pricklypear (*Opuntia*)

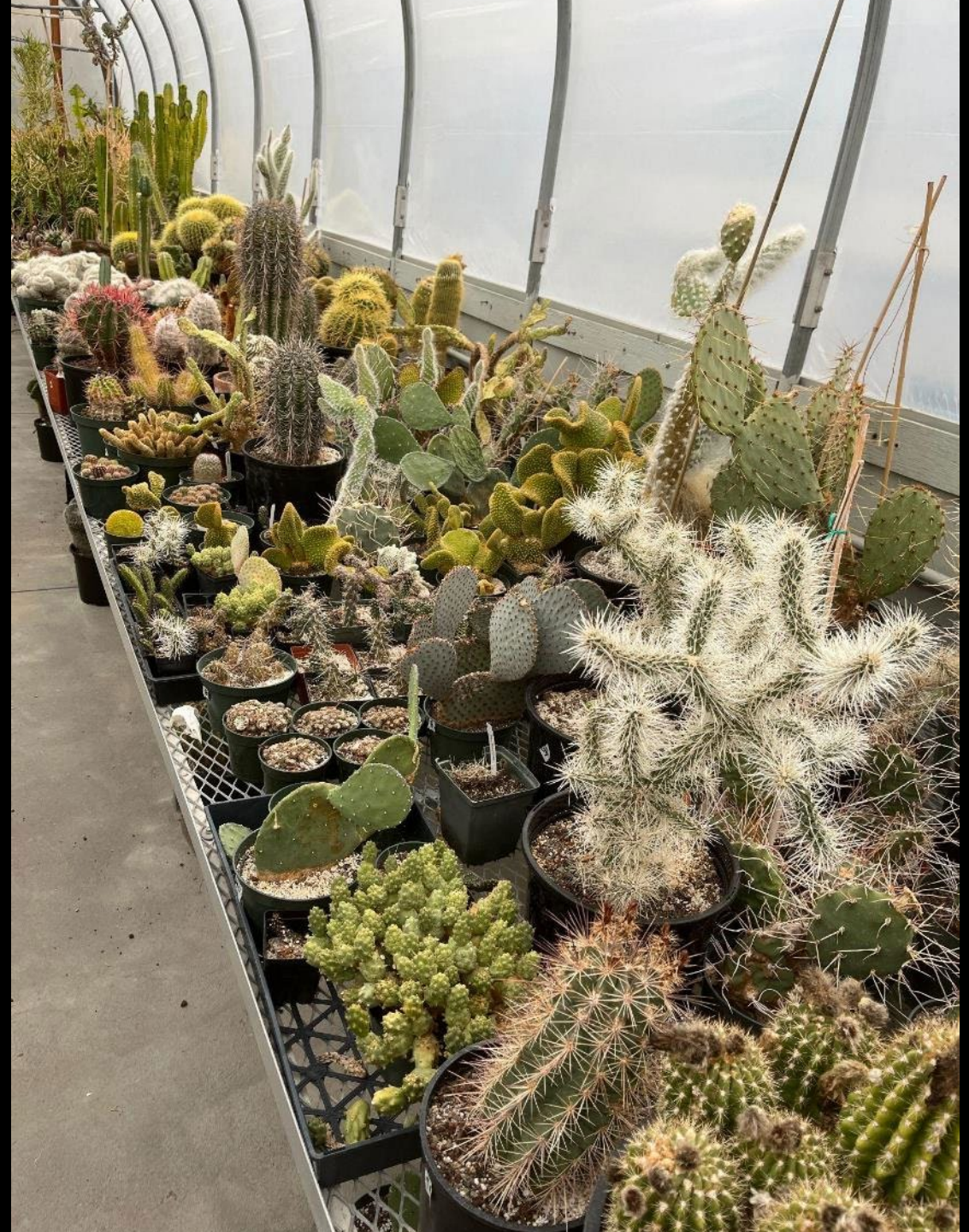


Whipple cholla
(Cylindropuntia whipplei)



Pricklypear (*Opuntia*)

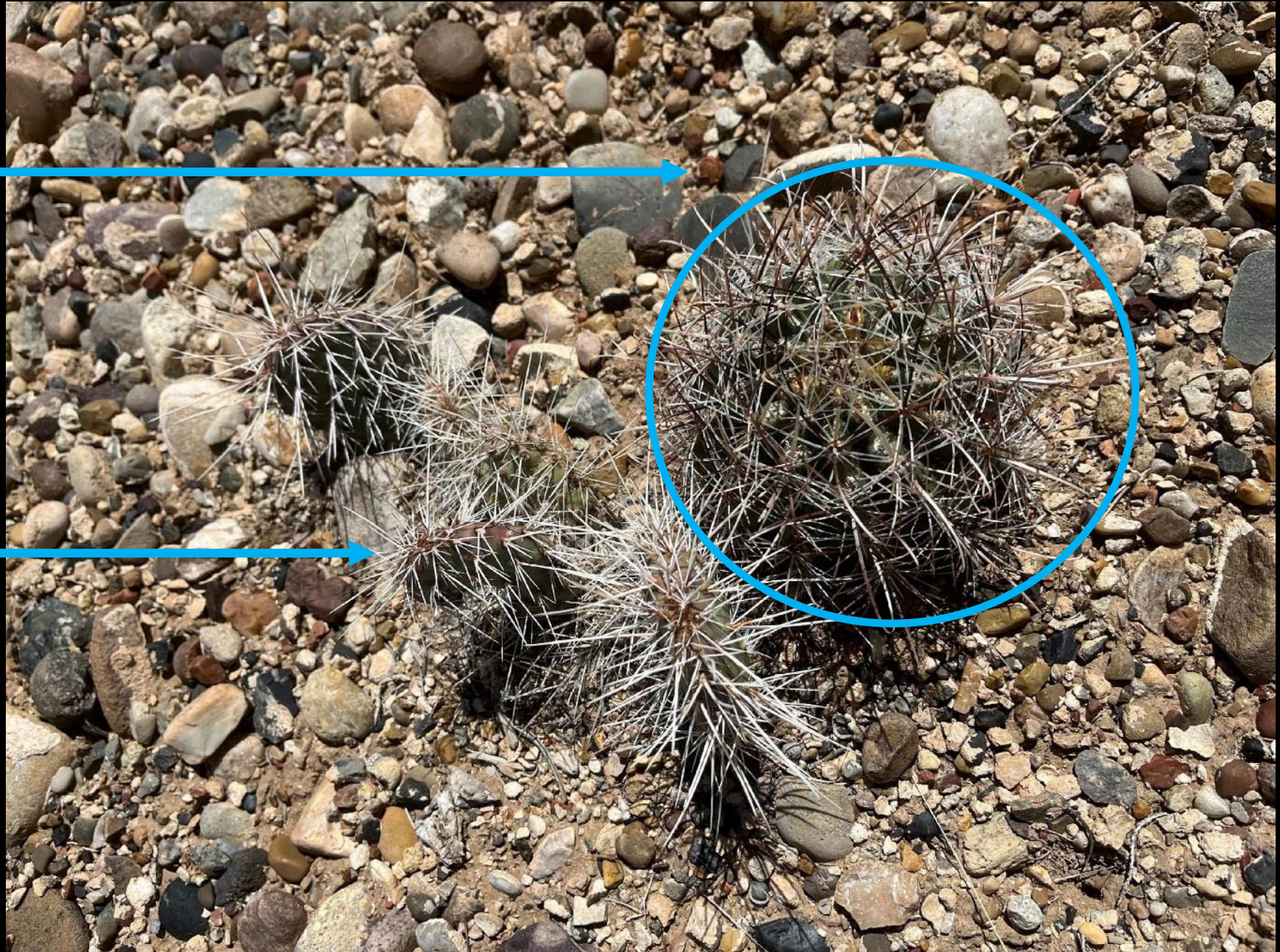
Anything familiar?



Fishhook cactus
(*Sclerocactus*)

&

Pricklypear (*Opuntia*)



Growing Cactus- Propagation

Cuttings- Opuntia, Cyllindropuntia

Seeds- Echinocereus (easy), Sclerocactus (hard), Pediocactus (medium)

- *Mesa Garden*- huge variety of seeds including rare and endangered species

Plants- just buy a plant? They do much better!

- Geoscape Nursery (Idaho)- ethical collection of many Opuntia, Cyllindropuntia, Echinocereus, etc.
- Cold Hardy Cactus (Colorado)- most popular but expensive cactus nursery
- Cistus Nursery (Oregon)- variety of interesting collections of Opuntia and Cyllindropuntia.
- Intermountain Cactus (Utah)- Local and nice.

Growing Cactus- Cultivation

- ****Why would you grow something from thousands of miles away when we have amazing plants in our backyards!****
- Mimicking the habitat of the plant not always a 1:1
- General cactus mix should be well draining (plenty of gritty material).
 - Sclerocactus, Echinocereus englemanii, Pediocactus- Use **Ralph Peters mix of 25% ¼" red lava rock/pumice, 25% sandy loam, 50% builders sand**
 - Opuntia, Cylindropuntia, Echinocereus mojavensis, Escobaria vivipara- Use R.P.'s mix or if in an area with less than 12" rain/year can add more organics to retain more moisture.

Growing Cactus- Cultivation from Seed

Very rewarding and informative

Chance to see what you might not see in nature

Easy easy easy!

Collecting???





Ethics of Cactus Growing

Poaching is a big problem.... International trade... Ignorance....

Question: How do I know if collected ethically?

- Hard to know with many species
- Best way to know is to go to good sources!!!!

Question: Can I take cuttings of cactus for myself in the wild?

- In some cases but..... land ownership? Permits? Ethical? Someone already legally collected a plant that is better, easy to obtain.

Question: Should I dig this up?

- Never!!!



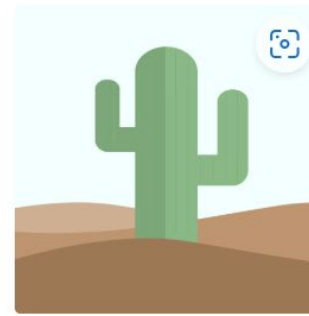
Mesa Garden sells seeds and plants of common, rare, and endangered species.



Sclerocactus
wetlandicus (SB1324)
#1244.57

Catalog #1244.57
\$3.00 – \$18.00

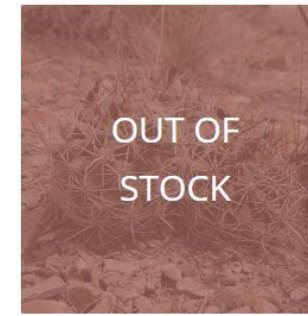
[Quick View](#)



Sclerocactus
wetlandicus
'brevispinus' #1244.573

Catalog #1244.573
\$2.00

[Quick View](#)



Sclerocactus
wetlandicus
'brevispinus' (RP171)
#1244.561

*Catalog #1244.561 – var.
husky*
\$5.00

[Quick View](#)



Sclerocactus
wetlandicus
'brevispinus' (RP25)
#1244.58

Catalog #1244.58
\$2.50 – \$54.00

[Quick View](#)



Sclerocactus
wetlandicus 'glaucus'
(SB1323) #1244.56

Catalog #1244.56
\$2.00 – \$12.00



With so many options available the best way to enjoy wild plants is in the wild.



OP105: *Opuntia aurea*
'Coombe's Winter Glow'
(Winter Glow Beavertail
Cactus) COLD HARDY
CACTUS
\$18.00 USD



OP097: *Opuntia* hybrid WALK
IN BEAUTY™ Solar Flair COLD
HARDY CACTUS
\$21.00 USD



OT006: *Echinocactus texensis*
'The Horse Crippler Cactus'
COLD HARDY CACTUS
\$24.00 USD



EC023: *Echinocereus*
triglochidiatus v. *gonacanthus*
forma *inermis* COLD HARDY
CACTUS
\$30.00 USD



EC009: *Echinocereus*
engelmannii COLD HARDY
CACTUS
\$20.00 USD



OP096: *Opuntia* hybrid WALK
IN BEAUTY™ Garnet Glow
COLD HARDY CACTUS
\$21.00 USD



OP129: *Opuntia basilaris* v.
brachyclada 'Baby Blue'
COLD HARDY CACTUS
\$20.00 USD



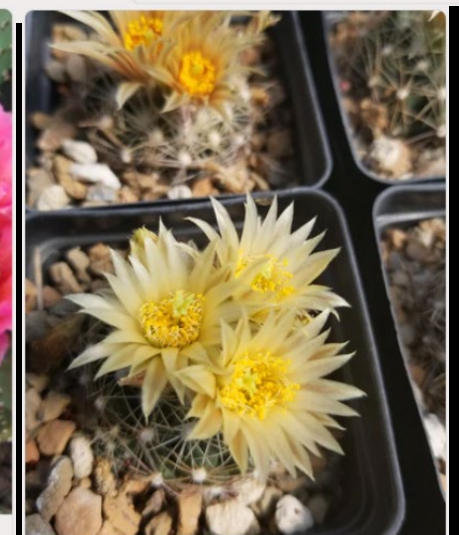
OP100: *Opuntia* hybrid WALK
IN BEAUTY™ Ruffled Papaya
COLD HARDY CACTUS
\$21.00 USD



OP101: *Opuntia* hybrid WALK
IN BEAUTY™ Apricot Glory
COLD HARDY CACTUS
\$21.00 USD



OP099: *Opuntia* hybrid Walk
In Beauty™ Watermelon Man
COLD HARDY CACTUS
\$21.00 USD



ES003: *Pelecypora*
(*Escobaria*) *missouriensis*
COLD HARDY CACTUS
\$20.00 USD

X-Situ Conservation

Some species already gone

- climate change
- poaching, development, etc.

Some species losing ground quickly

Protect genetics and the species

- Educate!!!
- Share plants with friends



Resources for growing cactus

[Growing Pediocactus, Sclerocactus, and Toumeyia](#) by Ralph Peters (PDF)

[Soil update and Sowing Seeds](#) by Mesa Garden (YouTube)

[How to Grow Cactus from Seed \(A beginners guide\)](#) by Cactus Caffeine (YouTube)

[A lazy way to grow cactus from seed](#) by Cookie's Cacti (YouTube)

[How to Grow Cacti and Succulents from Seed 2021](#)

[Updated Methodology](#) by Cactus Quest (YouTube)

<https://cactiguide.com/forum/> (online forum)

Experiment and see what works for you!



Published Resources

Books

[Field Guide to the Cacti and Other Succulents of Arizona by Breslin, Romero, Starr, Watkins](#)

Guide to the Cacti of Utah by Stock, Lee, Wellard, and others coming soon

Websites

[Utah's Opuntias \(UNPS\)](#)

[iNaturalist](#)- helpful down to genus level but less so with species.

Plants Identification Tools

- iNaturalist – post, others will identify


- List of books, apps and websites:

<https://www.grandcanyontrust.org/plant-identification-resources>

iNaturalist Explore Community More Log In or Sign Up


Observations Cacti Location Go Filters

The World 756 OBSERVATIONS 15 SPECIES 88 IDENTIFIERS 323 OBSERVERS




165 observations CC0

Kingcup Cactus
(*Echinocereus triglochidiatus*)



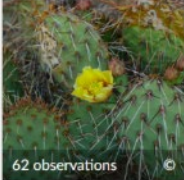
136 observations CC

Plains Pricklypear
(*Opuntia polyacantha*)




120 observations CC0

Smallflower Fishhook Cactus
(*Sclerocactus parviflorus*)



62 observations

Brown-spined Pricklypear
(*Opuntia phaeacantha*)



35 observations CC

Golden Pricklypear
(*Opuntia aurea*)

iNaturalist Explore Community More Log In

Observations Cacti Location Go Filters

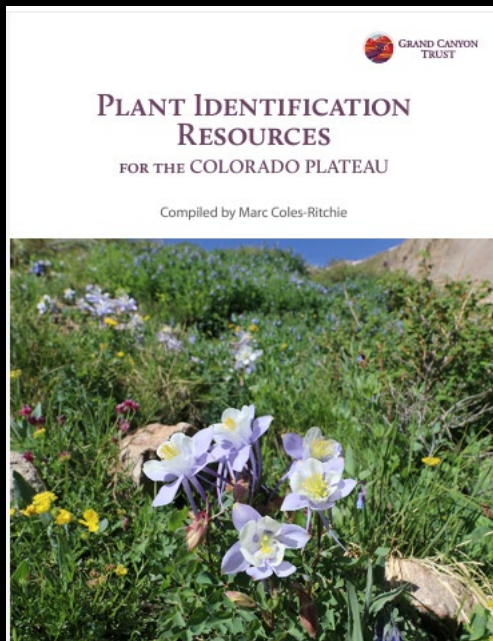
The World 756 OBSERVATIONS 15 SPECIES 88 IDENTIFIERS 323 OBSERVERS

Map Grid List Places of Interest Redo search in map

Mojave Kingcup Cactus (Echinocereus triglochidiatus mojavensis) Grand... • Dec 18, 2024 Research Grade 4 9d

Mojave Kingcup Cactus (Echinocereus triglochidiatus mojavensis) Grand... • Dec 18, 2024 Research Grade 5 9d

Mojave Kingcup Cactus



TITLE	GEOGRAPHIC FOCUS	DESCRIPTION	AUTHORS AND PUBLISHER
Forbs/Wildflowers (may include some shrubs, trees, and grasses)			
A Field Guide to the Plants of Arizona	Arizona	Color photographs and descriptive text for 850 plant species found in Arizona.	Anne Orth Eppin, Falcon Guides, 1998.
* Capital Reef Wildflowers	Central Utah	Field guide to 200 plants of the Capital Reef area, with color photographs; includes 48 endemic species.	Deborah J. Clark, Published by Impact Photography Inc. 2006.
Rocky Mountain Flora: A Colorado Mountain Club Field Guide	Colorado	Organized by color, with images, taxonomy, and detailed descriptions of each flower.	James Elin, Colorado Mountain Club, 2012.
* Sandstone Country Wildflowers: Mountain Edition: A Field Guide to the Wildflowers of the Moab Region and Beyond	Southeast Utah and adjacent states	Descriptions and color photos for many of the common wildflowers and shrubs of the foothills and mountains of southeastern Utah.	Anne Dutt and Dave Montgomery, Red Shoe Guides, 2018.
* Sandstone Country Wildflowers: The Red Shoe Guide	Southeast Utah and adjacent states	Descriptions and color photos for 135 of the common wildflowers and shrubs of the canyons, cliffs, and mesas of southeastern Utah.	Anne Dutt and Dave Montgomery, Red Shoe Guides, 2015.
* Spectacular Wildflowers of Utah's Red Rock Desert	Southeast Utah and adjacent states	Features 500 common spring wildflowers, trees and grasses of the red rock deserts with photographs and full descriptions of about half these plants.	Peter Lenka and Walter Fertig, Published by Trillium Press, 2018.
* Wildflowers & Other Mesquiteous Plants of Utah: A Field Guide	Utah	A handy booklet with descriptions and color photos of 83 of the common wildflowers in Utah.	Roger Banner, Mindy Pratt, James Bowers, and Chad Reed, Utah State University Cooperative Extension, Logan, UT, 2013.
Wildflowers of the Mountain West	New Mexico, Colorado, Wyoming, Idaho, Utah, Nevada and Oregon	Descriptions and color photos organized by flower color.	Richard M. Anderson, Jay Oen Gurnell, Jerry L. Goldspink, Utah State University Press, Logan, UT, 2012.

Engagement with Grand Staircase-Escalante Landscape

- GSENM Citizen Science website:
[https://www.blm.gov/working-us -](https://www.blm.gov/working-us-)
- GSENM Science & Research website:
[https://www.blm.gov/programs/national-conservation-lands/utah/grand-staircase-escalante-national-monument/science-research -](https://www.blm.gov/programs/national-conservation-lands/utah/grand-staircase-escalante-national-monument/science-research-)



Images

Marc's photos of GSENM plants are here
(sorted alphabetically by scientific name):

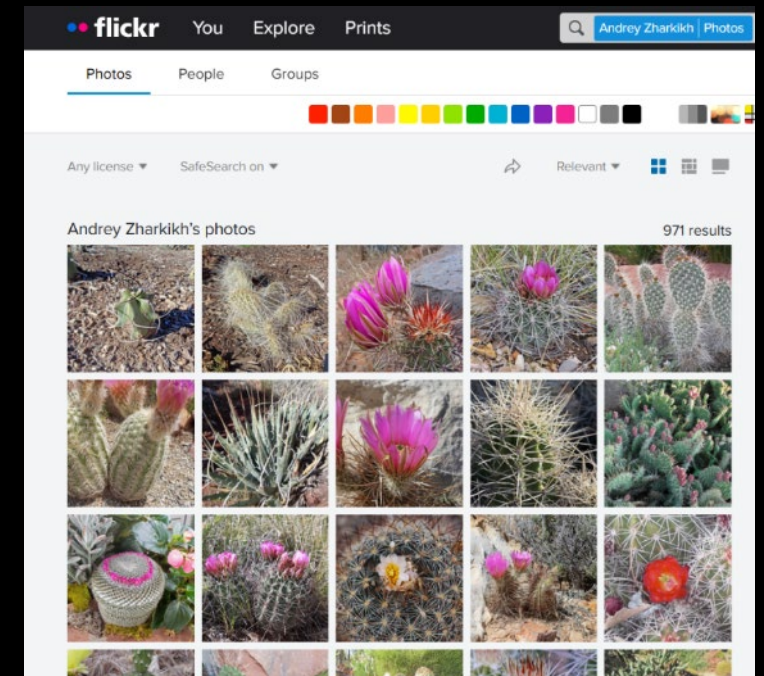
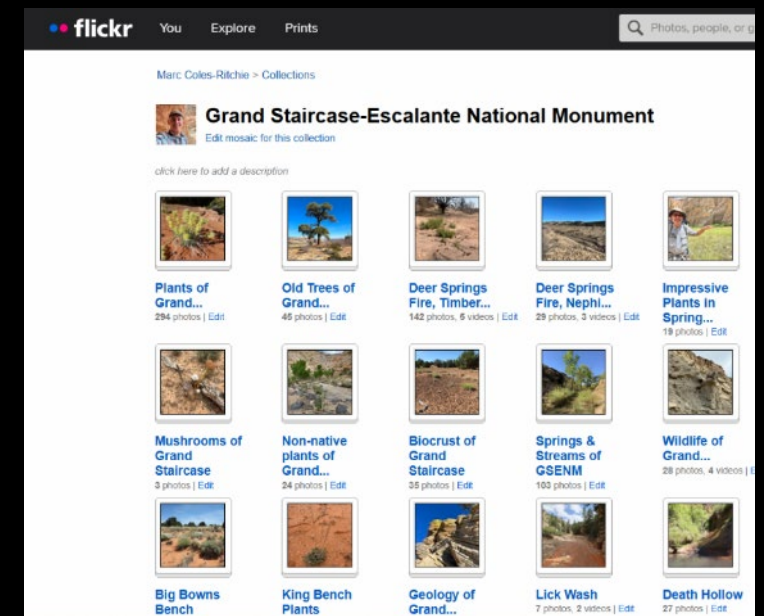
<https://flic.kr/s/aHsmVnwKU8>

Marc's photos with word "cactus" in them
are here:

https://www.flickr.com/search/?user_id=97636754%40N04&view_all=1&text=cactus

Andrey's photos with word "cactus" in
them are here:

https://www.flickr.com/search/?user_id=33497841%40N02&view_all=1&text=cactus



Upcoming Science Talks at Kanab Library

February 12: Riparian and wetland plants (Marc Coles-Ritchie)

February 26: Bighorn sheep in Grand Staircase (Joel Berger)

March 12: Walking with Tyrants: Grand Staircase-Escalante's Tyrannosaur Renaissance (Dr. Alan Titus)

April 9: Landscaping with Native Plants (Marc Coles-Ritchie & Tim Clarke)

April 16: Bumblebees & Citizen Science (Amy Dolan)

(summer hiatus)

Fall 2025 ?

Note: Grand Staircase-Escalante Regional Symposium March 20-22 in Escalante, Utah