



## Colorado Cactus & Succulent Society

2022 GUEST EDITOR:  
**SCOTT BURKHOLDER**

Happy New Year!

## MONTHLY PLANT SHOW

As we revive our monthly meetings, the MPS will return!

[Club News!](#)

[Meeting Information!](#)

[Botany Science!](#)

[2022 Dues are Due!](#)

January 2022, Vol 26 No. 1

The Colorado Cactus & Succulent Society promotes education, enjoyment, cultivation, and conservation of cacti and other succulents among our members and the larger community.



*Christmas Cactus at Christmas!*

Scott Burkholder photo

## UPCOMING MEETING

- Date:** Tuesday, January 18, 2021
- Time:** 7:00 PM
- Location:** Sturm Family Auditorium (in person)  
Zoom (on-line)
- Speaker:** Scott Preusser: "Potpourri: 19 years of Collecting and Growing"

### Details:

This will be a hybrid meeting, both at the Sturm Family Auditorium in the Freyer–Newman Center at the Denver Botanic Gardens on York Street **AND** on Zoom.

If you can, and are comfortable doing so, please join us at the Botanic Gardens. However, if you prefer the Zoom meeting, please join us online. Watch your email for the link!

# SUCCULENT BITS

## ***Succulents on the Rocks!***

*The North American Rock Garden Society, aka NARGS, is hosting a webinar this month, featuring news & information about many of our favorite plants. Contact Panayoti Kelaidis or click on the*

[Information Link](#)

## **2022 CCSS Show and Sale -**

As hopefully everyone knows by now, this year's Show and Sale is April 22nd & 23rd. We need to start planning.

There's a lot to be done, and it's always later than you think!

Plus, start looking through your plants to pick those show ribbon winners!



*Lithops karasmotana v. lateritia*  
Scott Burkholder Photo

## **SEE YOUR NAME AND PICTURES IN PRINT!**

Submissions for the next newsletter are due at the end of the month.

We need your articles and pictures! Do you have an interesting plant? How about an interesting plant story? That you would like to see in print? Send it to me at [seisnoir@comcast.net](mailto:seisnoir@comcast.net).

Please send photos as either JPG or PNG files. As for stories and news, send those as DOC or RTF, or TXT files, please!

## ***Mid-States Cactus and Succulent Conference will be this June!***

June 9-12, 2022 in Kansas City  
Stoney Creek Hotel & Conference Center, Independence, Missouri.  
[www.kccactus.com](http://www.kccactus.com) for details!

## **CSSA Biennial Meeting -**

It hasn't been canceled, just delayed. The 2021 CSSA National Meeting has been postponed until 2023. So stay tuned for more information, and in the meantime attend those webinars! Contact Rod Haenni at [rhaenni@comcast.net](mailto:rhaenni@comcast.net) for the latest news.

# NOTES FROM THE RE-POTTING BENCH

*News and Notes from and for January!*

**Club Dues** - With a new year comes the call for dues! Either locate Adrian at the new meeting or pay online with the website.

**Jackson Burkholder Grant** - I am quite pleased to announce that we've handed out another grant. Jackson Burkholder, who is finishing his Master's in Botany at Texas State University, was awarded \$2000. This money will help offset the equipment he needed to continue his research at home during the coronavirus pandemic.

Do you have a succulent project or a cactus cause that could use a little push? Do you know a student who wants to be a naturalist, horticulturist, or botanist? Write us a letter, send us a proposal, or make us a deal!

Look for a sample of Jackson's work later in this newsletter!

**Board of Directors** - For those who didn't attend the our business meeting in October, Courtney Cowgill stepped up and volunteered to be the Club Secretary, and David Landes has volunteered to co-chair the Show and Sale. Please make a chance to thank both Courtney and David!

Remember that we still have a couple more positions on the Board of Directors, if you would also like to step up and help out, please contact anyone on the Board! Thanks!!

**2022 Show and Sale** - April is not that far away, so we need to get rolling! David and I met to discuss organizing, including starting a few committees. At the meeting next week we will select a date for the 2022 Show and Sale Kick-off Meeting!

Thanks,

**Scott Burkholder**  
**Current President**  
[seisnoir@comcast.net](mailto:seisnoir@comcast.net)



Happy New Year!

# --- JANUARY'S MEETING ---

## OUR SPEAKER: SCOTT PREUSSER



*A mature Preusser & Preusser seedling*  
Scott Preusser photo

Hi wonderful members of the CCSS. I will be scouring and sharing photos and stories of the coolest and neatest plant related things my eyes have ever seen. I will also give a more in-depth look at the renovation of the Cactus and Succulent House at Denver Botanic Gardens (DBG) and share more of the current and future things I will be working on at DBG. I hope to see you there

## SUCCULENT POTPOURRI: 19 YEARS OF COLLECTING AND GROWING



*Denver Botanic Gardens' Cactus House*  
Scott Preusser photos

# 2022 CCSS SHOW AND SALE COMMITTEES

*We are less than four months from this year's Show and Sale. That means it's time to get started and get going! One of our first tasks is to set up committees, and here's our list of tasks and projects:*

## Committee Descriptions:

Publicity: Publicize the S&S in social media, print and broadcast media, garden centers, and hobby groups.

Food truck: Book one or two food trucks for S&S attendees.

Food: Provide food for volunteers during the event.

Beer Flats: Find cardboard beer flats for attendees to carry their purchases.

Cash Register: Ring up sales and take payment for all purchases.

Electronics: Wire up cash registers, ticket scanners, and any other electronics.

Admission/tickets: Sell tickets and scan prepaid admission tickets.

Show: Arrangements and functioning of the show portion of the event

Security: Monitor exits to ensure no items leave without being purchased.

Classes/talks: Decide topics, recruit, and schedule speakers.

Plant Potting: Pot up purchased plants in purchased pots.

Storage Unit: Transport S&S equipment from the storage unit to Jeffco and return at the event's end.

***See something you can do and would like to help? Contact me at [seisnoir@comcast.net](mailto:seisnoir@comcast.net)!***



2021 CCSS Show and Sale Floor - Scott Burkholder Photo

# DECEMBER 2021 MEETING MINUTES

## CCSS Club Meeting Minutes

Saturday, December 18, 2021

Holiday Pot Luck Lunch

Denver Botanical Gardens

Noon to 2:00 PM

The meeting started with a pot-luck lunch supplied by members. When that was done, Scott opened the business portion of the meeting with a presentation by Jackson Burkholder on his grant request to the Club. A copy of that grant request is attached to these minutes. There was commentary and discussion by the CCSS members in attendance. At the end of the discussion, a motion was made and seconded by members in the audience to approve the grant request and presented and written. With little discussion, the motion passed unanimously.

The vote closed the business portion of the Holiday Pot Luck lunch meeting and a slide show presentation of various cactus and succulents owned by members followed. This was followed by a cactus/succulent plant exchange. The club meeting adjourned at the end of the plant exchange at 2:00 PM.



2021 Trail of Lights  
Scott Burkholder Photo

## SUCCULENTS ON THE ROCKS



We are a mere eight days from the first ever Webinar devoted to the subject of hardy succulents and rock gardens with a stellar list of presenters from the four corners of North America. For a measly \$25 (if you're a NARGS member) you can learn a great deal about how a tremendous variety of succulents adapt to all manner of gardens in the cold Midwest, in the hot and humid Southeast, or in the Maritime Northwest (and more). Rod Haenni, Vice President of the Cactus and Succulent Society of America (and lifelong Colorado rock gardener) will present as well as moderate along with Elisabeth Zander! [Information Link](#)

Panayoti Kelaidis



Panayoti Kelaidis photos - Check out the NARGS webinar for more exciting photos!

# A FEW INTERESTING FEATURES OF PERESKIA ACULEATA STEM ANATOMY

Jackson Burkholder

Besides the presents of areoles, it might be difficult to identify members of *Pereskia* as cacti. They have slender stems covered in large slightly succulent leaves and originate in the tropical forests of Central and Southern America as well as the Caribbean.

The internal anatomy of *Pereskia aculeata* stems is consistent with their tropical appearance, having relatively little water storage capacity in their cortex and pith (Fig.1, A&B). These tissues are filled with spikey, vaguely rounded crystals of calcium oxalate called druses, with an especially high concentration in the tightly packed first layers of cortical cells beneath the epidermis (Fig.2). In addition to a few solitary druses (Fig. 3, B), the pith tissue contains many starch granules (Fig 3, A) used by the plant to store food. The calcium oxalate and starch are arranged in crystalline structures that exhibit birefringence, meaning that they can cause light rays to rotate in a specific way. By using two polarizing filters, microscopists can take advantage of this property to highlight these structures.

There is a third birefringent structure present in *P. aculeata* stems, this time associated with the vascular (water and sugar conducting) tissue of the plant. These are called stone cells, or sclerids, which are the same kind of cells that give pear flesh a grainy texture. The strength of these cells comes from their many concentric secondary cell walls, which take up almost all of the space within the cell (Fig.5). In *P. aculeata* stems, these cells occur just outside each vascular bundle and give strength to the adjacent phloem (sugar conducting cells) (Fig. 4). When viewed with polarized light, it is easy to see the characteristic interference pattern of light and dark called a Maltese cross (Fig. 5). In the young stem I examined, sclerids were only found in association with two of the many vascular bundles.

Works Cited:

Anderson, E. F. 2001. *The Cactus Family*. Timber Press, Portland, OR.

Crang, R., Lyons-Sobaski, S, and Wise, R. 2019. *Plant Anatomy - A concept Based Approach to the Structure of Seed Plants*. Springer, Cham, CH.

Bailey, I. W. 1961. Comparative Anatomy of the Leaf-Bearing Cactaceae II: Structure and Distribution of Sclerenchyma in the Phloem of *Pereskia*, *Pereskopsis*, and *Quiabentia*. *Journal of the Arnold Arboretum*. 42: 144–156.

Gibson, A. C. and P. S. Nobel. 1986. *The Cactus Primer*. Harvard University Press, Cambridge, MA.



## PERESKIA ACULEATA STEM ANATOMY (CON'T)

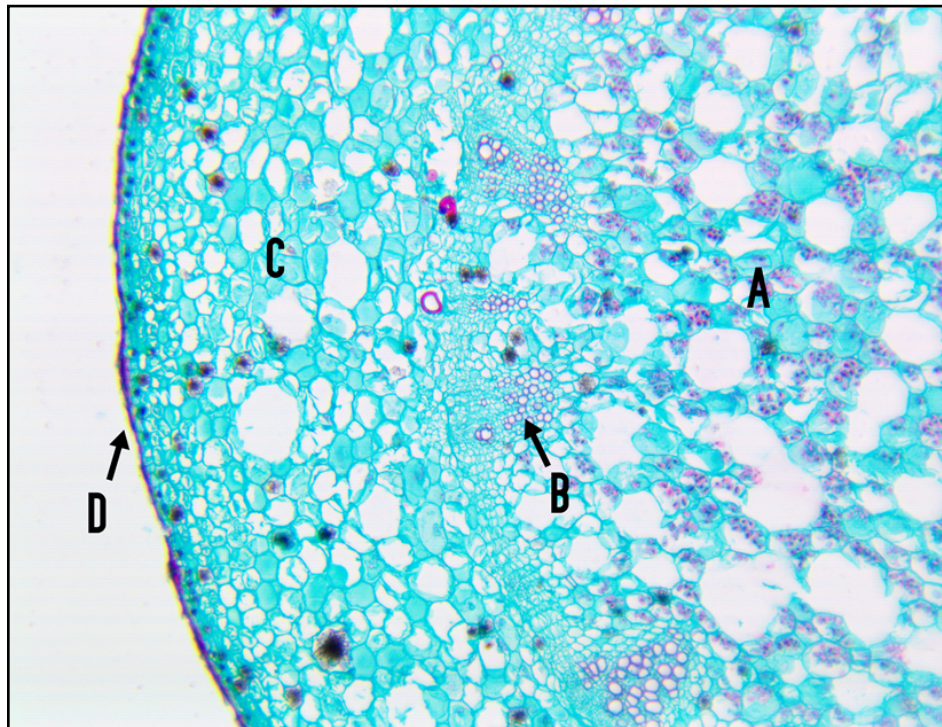


Figure 1- Cross section of a young *P. aculeata* stem showing pith (A), Vascular bundles (B), cortex (C), and epidermis (D)

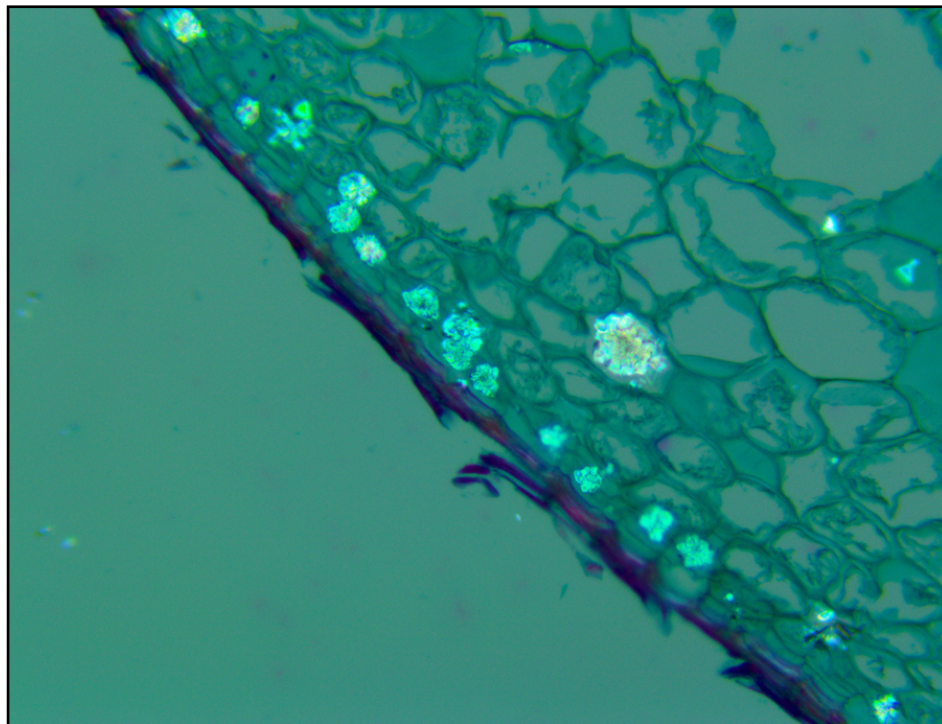


Figure 2- Polarized light micrograph showing the concentration of druses in the first layers of cortex under the epidermis

## PERESKIA ACULEATA STEM ANATOMY (CON'T)

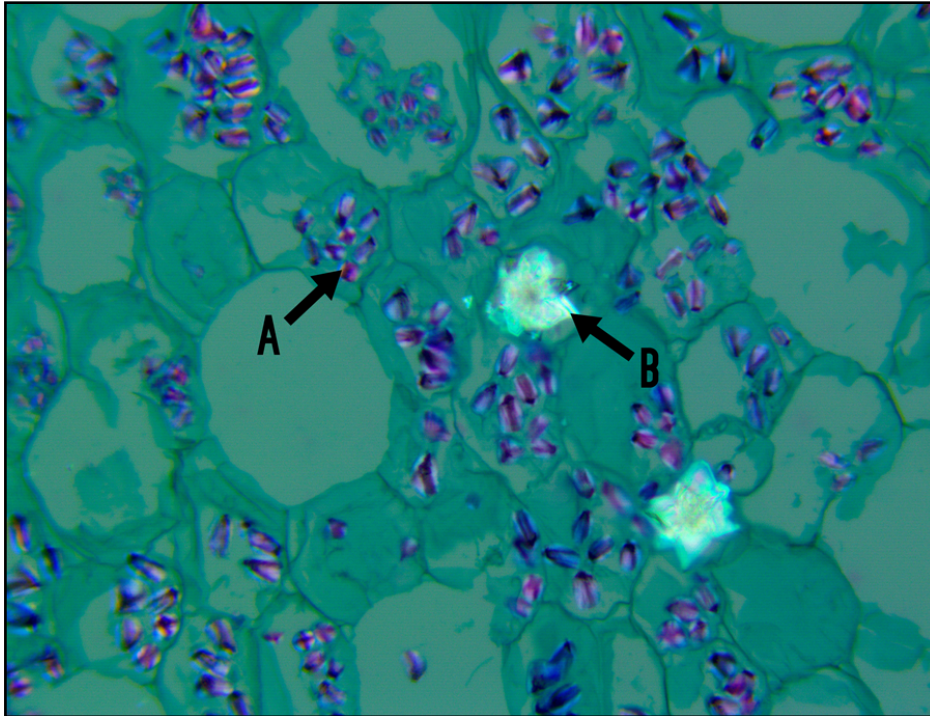


Figure 3- Close up of pith, showing starch granules (A) and druses (B)

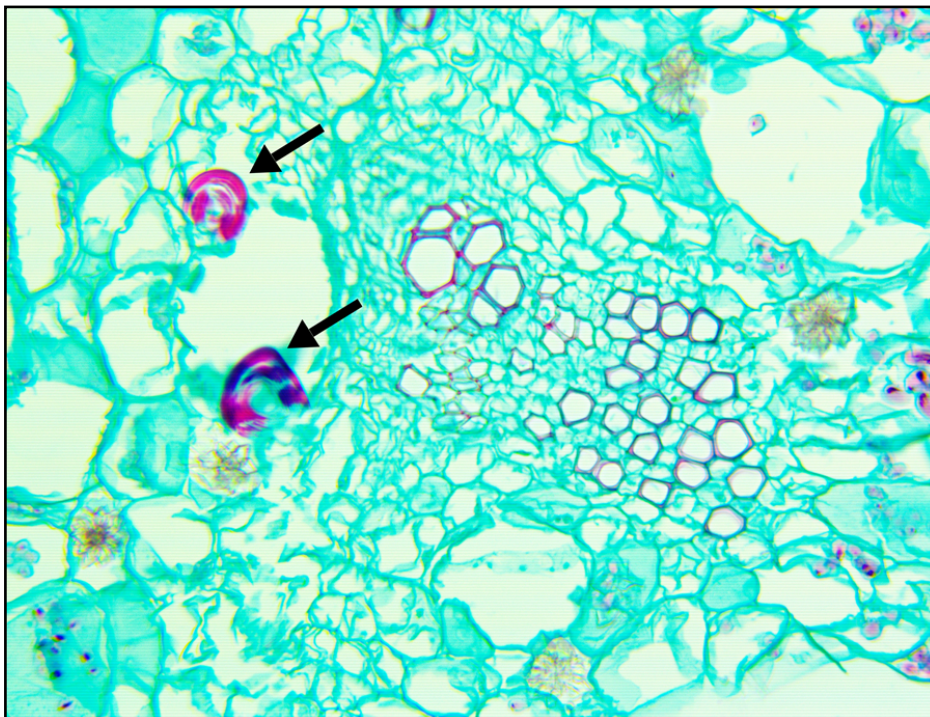


Figure 4-*P. aculeata* vascular bundle. The water conducting cells (xylem) are stained red and towards the right of the image next to the pith. The green-stained phloem is between the xylem and the sclerids (arrow). Unfortunately the sclerids were torn out of the surrounding tissue during sectioning and are not quite in situ.

## PERESKIA ACULEATA STEM ANATOMY (CON'T)

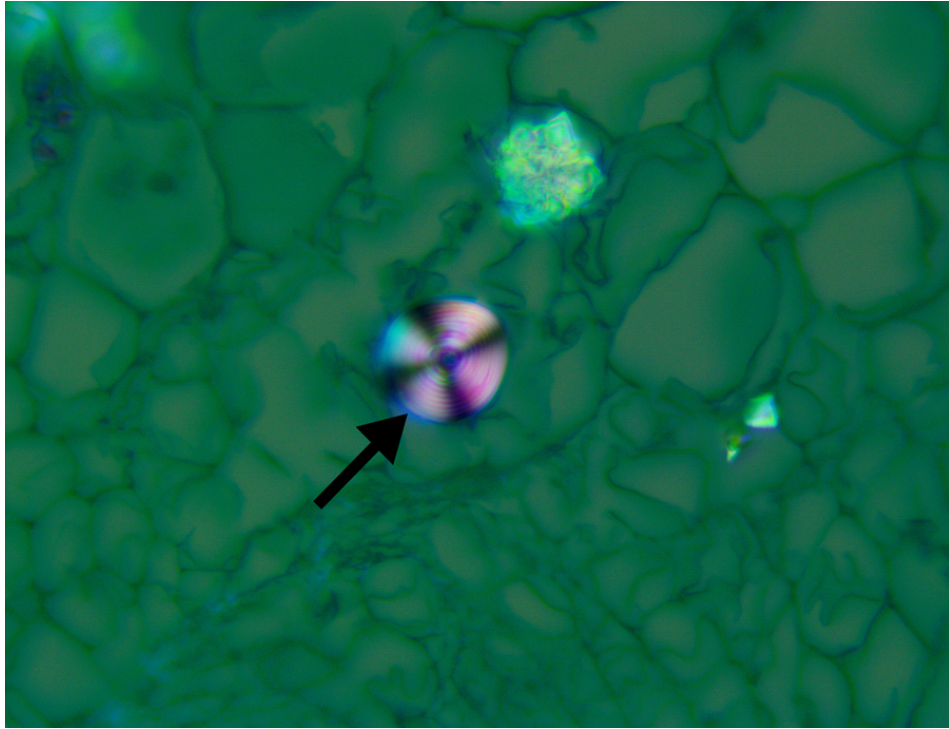


Figure 5- A single sclerid (arrow) shown under polarized light. Note the dark "Maltese cross" interference pattern and the many concentric layers of cell walls.



The Author preparing his cold frame for the winter.

# 2021 SHOW AND SALE VENDORS

*We want to thank all the vendors from the Show and Sale!*

**Data Cactus Plants**

Woody Minnich  
[cactusdata@msn.com](mailto:cactusdata@msn.com)

**Front Range Gardens (Emerald Leaf)**

Scott Jefferies & Larry Wyzgala  
[frontrangegardens.com](http://frontrangegardens.com)

**The Clay Center of Northern Colorado**

Tim Preston  
[ClayCenterNC.com](http://ClayCenterNC.com)

**Penny Woolsey**

[eyeferget@gmail.com](mailto:eyeferget@gmail.com)

**Ethical Desert**

Donnie Barnett  
[ethicaldesert.com](http://ethicaldesert.com)

**Carol Wichern**

[Carolwichern@gmail.com](mailto:Carolwichern@gmail.com)

**Blazing Star Greenhouse**

Gary Davis  
[davis6605@esrta.com](mailto:davis6605@esrta.com)

**Sills Alive**

Jill Marble  
[sillsalive.colorado@gmail.com](mailto:sillsalive.colorado@gmail.com)

**All Its Own**

William Haggerty  
[all-its-own.com](http://all-its-own.com)

**Precision Cactus Growers**

Jackson Burkholder  
[PrecisionCactus@gmail.com](mailto:PrecisionCactus@gmail.com)

**The Succulent Garden**

Sam Hitt  
[sam@wildwatershed.org](mailto:sam@wildwatershed.org)

**Andrew Dolan**

[adoolen87@gmail.com](mailto:adoolen87@gmail.com)

**Rocky Mountain Fresh**

Kylee Hix  
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# 2019 COLORADO CACTUS AND SUCCULENT SOCIETY BOARD OF DIRECTORS

## SCOTT BURKHOLDER

Pandemic President  
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## NEWSLETTER

Newsletter **(open)**

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## SHOW & SALE

David Landes (Co-Chair)  
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## MICHAEL ROLL

Conservation and Hiking;  
MichaelJRoll@gmail.com

## UPCOMING PROGRAMS & EVENTS:

January 18 - CCSS Hybrid Meeting

February 15 - CCSS Hybrid Meeting

April 22 & 23 - CCSS 2022 Show and Sale

## JOIN THE CONVERSATION:



<https://www.facebook.com/CoCSS>

<https://www.instagram.com/coloradocactus/>

<http://www.coloradocactus.org/>