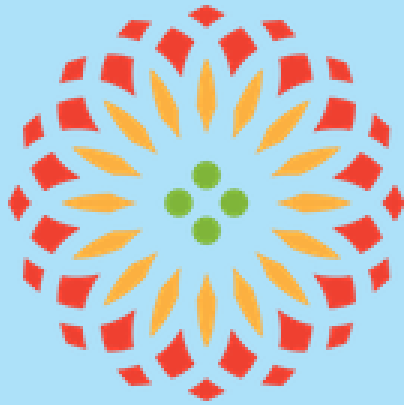


The Colorado Cactus & Succulent Society promotes education, enjoyment, cultivation, and conservation of cacti and other succulents among our members and the larger community



Colorado Cactus & Succulent Society

Remember, Dues are due

Newsletter editor, [Linda Meyer](#)
Please send ideas, comments,
critiques, and kudos to enhance
future newsletters

February Show Plants:

Stenocactus, *Echinofossulocactus*
Haworthia

Meeting Saturday February 8, 2020 The Designer's Cactus Garden

In each of the over 300 home gardens Scott Calhoun has designed, he strives to surprise and delight homeowners with cactus and succulent plantings. Join Scott on a virtual tour of his favorite gardens. His talk will highlight unconventional techniques such as planting prickly pear cactus in 55-gallon drums and steel boxes. Scott will also discuss integrating in-ground plantings of cactus and succulents with annuals, perennials, and shrubs.

Date: Saturday, February 8, 2020
Time: 6-9 pm
Location: Plant Society Building
Denver Botanic Gardens

Scott Calhoun has gardened in the American Southwest for over 20 years and is the author and photographer of six books about the region. He was the recipient of the 2014 Phoenix Home & Garden "Master of the Southwest" award for garden design. His work has been featured in The New York Times and The Wall Street Journal. Scott runs Zona Gardens, a design studio based in Tucson, Arizona. He designs, writes, and lectures throughout the United States. Find out more at www.zonagardens.com.

Photos from Scott Calhoun's house and garden



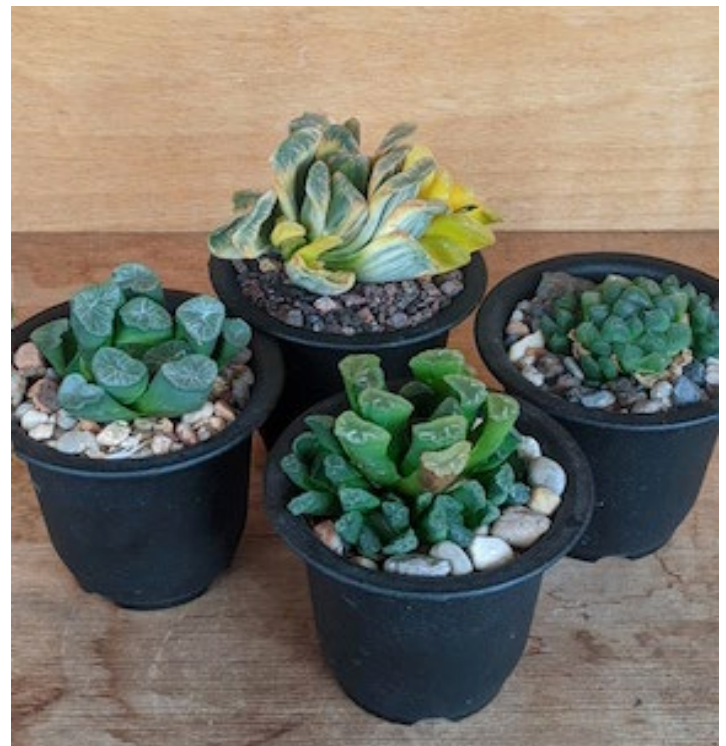
February Plant Show

Haworthia

Haworthia is a large genus of small succulent plants endemic to Southern Africa. Like aloe, they are members of the subfamily, Asphodeloideae, they generally resemble miniature aloes, except in their flowers, which are distinctive in appearance. Plants are generally green in appearance, some species have striations on their leaves, while others have leaf windows with translucent panels through which sunlight can reach internal photosynthetic tissues. In cultivation these plants can handle a shadier spot in your greenhouse or windowsill as most species have adapted to semi-shade conditions (in habitat they tend to grow under bushes or rock overhangs). A well draining medium is a must, some species are summer or winter growers but most tolerate a variety of watering routines. These plants can be propagated via seed or through offsets. There are many species of this plant and even more cultivars due to the popularity of this genus with collectors, some rare cultivars fetch upwards of hundreds of dollars.



Haworthia from Jerry Vaninetti's collection

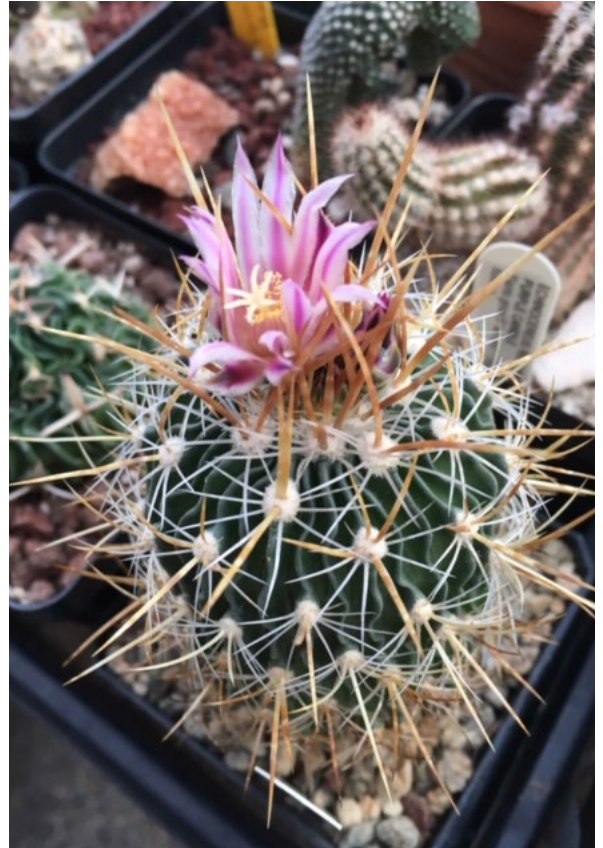


Haworthia photos from Pedro Galvez's collection

February Plant Show

Stenocactus

Stenocactus (*Echinofossulocactus*) is a genus of cactus native to the Chihuahuan desert in Mexico. They are globose and remain relatively small making them very manageable in pots. Additionally, they grow easily and flower readily - often one of the first in a cactus collection to flower in the spring. In addition to their ball-shape, most species in this genus have unique fin-like ribs that are very numerous. The genus name comes from the ancient Greek “steno”, meaning “narrow” and referring to the ribs which are very thin on most species in this genus. This genus thrives in strong bright light conditions, full sun if possible, a fast draining rich substrate is recommended and regular waterings during the growing season (spring and summer) is encouraged. Propagation is done readily through seed, you’ll need more than one plant as this genus is not self fertile.



Stenocactus from Jerry Vaninetti's collection



Stenocactus from Jerry Vaninetti's collection



Stenocactus from Jerry Veninetti's collection

2020 Monthly Show Plant Schedule

Month	Cactus	Succulent
January	Mammillaria	Aloe
February	Stenocactus, Echinofossulocactus	Haworthia
March	Echinocereus	Adromischus
April	Favorite Cactus	Favorite Succulent
May	Gymnocalicium	Caudiciforms
June	Rebutia, Aylostera, Sulcorebutia, Weingartia,	Echeveria
July	Astrophytum	Stapeliads (Stapelia, Huernia, Orbea, etc.)
August	Mini (3in or less)	Mini (3in or less)
September	Discocactus, Uebelmania	Agave, Manfreda, (inc. x Mangave)
October	Variegated Cactus	Variegated Succulent
November	Turbinicarpus	Pelargonium, Sarcocaulon, Tylecodon
December	Holiday Party	Holiday Party

January cacti winner, Jackson Burkholder



January succulent winner Sharon Bolton



Notes from the Re-Potting Bench

by Jerry Vaninetti

Jorge Lopez, our new Social Media guy, has asked that I provide a little background on myself, so here goes: I'm your interim President, succeeding Sara Randall who is no longer involved in the CCSS. I've been a CCSS member for five years, and a Board Member since October 2018, responsible for the Industry Partner program, and collecting beer flats for the Show & Sale from Argonaut Liquors. I'm a recently-retired geologist/management executive, and I live in Lowry and have a greenhouse at my cabin near Granby, at 8,400' elevation. I have more than 900 cacti and succulents, about half of which were inherited from my mother who had been raising them in her greenhouses since the 1940s. In fact, my first words as a child may have been *Gymnocalycium* and *Astrophytum*. I'm well connected with both the Santa Fe and Chinle clubs and enjoy visiting cacti and succulents in habitat (intermountain West and South Africa, respectively) and at botanic gardens in London (Kew), Glasgow (Scotland), San Jose (Costa Rica), and Bryce Thompson (Arizona). I'm a regular contributor to the CCSS' Facebook page, along with Dan Sawyer. I look forward to getting to know all CCSS members.

We're giving consideration to making some changes, and we'd like your input on the following topics, so please let us know:

- Would you rather meet on a weekend, rather than on Tuesday nights? We had double the turn-out at our recent Saturday meeting, which prompts this question.
- We want to know your preference for receiving updates and information from the CCSS: newsletters, website, and/or social media?
- Do you want vendors to bring plants to sell at Member meetings?

Call for Volunteers: We need 6 volunteers to do morning or afternoon shifts at the CCSS booth at Echter's Echxpo on March 6, 7, and 8 (free admission and vouchers to the food trucks). Also, Scott needs more volunteers for the Show & Sale for March 26, 27, and 28 for myriad tasks. He'll be sending out an Eventbrite sign-up, so watch for an email about this, and a social media posting.

Jerry Vaninetti: vaninetti_jerry@yahoo.com (303) 229- 5927



Ecuadorian Cactus Absorbs Ultrasound, Enticing Bats to Flowers

synopsis reprinted here from The Scientist

Many plants reflect ultrasonic waves, thereby attracting the pollinators, but one cactus takes a different approach.

Jan 17, 2020

EMILY MAKOWSKI

Plants pollinated by nectar-drinking bats often have flowers that reflect ultrasonic waves, making it easier for the animals to locate flowers through echolocation. But one cactus does the opposite—it absorbs more ultrasound in the area surrounding its flowers, making them stand out against a “quieter” background, according to a preprint published on bioRxiv last month.

Espostoa frutescens is a type of column-shaped cactus found only in the Ecuadorian Andes mountains. It has small flowers on its side that open at night, attracting bats as they fly from flower to flower in search of nectar. One of its main pollinators is Geoffroy’s tailless bat (*Anoura geoffroyi*).



ABOVE: *A. geoffroyi* drinks nectar from *E. frutescens*

RALPH SIMON

“Bats are really good pollinators,” Ralph Simon, a postdoc in Wouter Halfwerk’s lab at Vrije Universiteit Amsterdam and the lead author of the preprint, tells *The Scientist*. “They carry a lot of pollen in their fur, and they have a huge home range so they can transport pollen from plants that grow far apart. For plants with a patchy distribution pattern like this cactus, it’s especially beneficial to rely on bats for pollination,” he says.

For bats to find the flowers at night, they use echolocation, emitting ultrasonic calls too high for humans to hear that bounce off objects and allow the bats to form a mental map of their surroundings. Some plants have evolved techniques that take advantage of this sonar system and allow bats to better

Ecuadorian Cactus Absorbs Ultrasound, Enticing Bats to Flowers

synopsis reprinted here from The Scientist

detect flowers, such as making their petals more concave, forming a more reflective surface that can bounce more echolocation back to the bat. But *E. frutescens* takes a different approach.

A cactus has no sense of what it is to be a bat—it can't see, smell, or echolocate—but here it is, sending a bat a message in a language that a bat can understand.

—May Dixon, *The University of Texas at Austin*

Each of *E. frutescens*'s flowers are surrounded by an area of wooly hairs called the cephalium. Simon and colleagues knew from past measurements that the hairs were sound-absorbent, and were interested in seeing whether this part of the cactus could be involved in helping bats find the flowers. They attached a microphone and speaker to a device resembling the shape and size of a bat head in order to mimic a bat, and played prerecorded echolocation calls to the cacti and measured how much sound was reflected back to the bat replica.

The team found that the hairy cephalium absorbed ultrasound, and that the greatest absorption occurred above 90 kHz, in the range of the frequency of Geoffroy's tailless bat's echolocation call. The sound that bounced back to the microphone from the cephalium area was about 14 decibels quieter than the sound that bounced off the non-hairy part of the cacti.

It's a "totally different mechanism" than the reflection method other cacti use, says Simon. "Instead of making the flowers conspicuous, it dampens the background. The background absorbs the ultrasound, and the flowers show up in [the middle of] this absorbent fur."

This mechanism makes sense from a communication standpoint, writes May Dixon, a graduate student studying bat behavior in Mike Ryan's lab at the University of Texas at Austin who was not involved with the study, in an email to *The Scientist*. "If you are trying to send a message, you have to think not only about the message itself but also the context. For example, if you are calling someone, you should be loud enough for them to hear, sure, but you should also call from a quiet place," she says.

"There is something wonderful about the ways that plants have found to communicate with animals through evolution," Dixon notes. "A cactus has no sense of what it is to be a bat—it can't see, smell, or echolocate—but here it is, sending a bat a message in a language that a bat can understand."

The cephalium appears to have originally evolved to protect flowers from environmental stressors such as UV rays, drying out, getting too cold, or being eaten, but "during evolution, it co-opted another function, and it functions as a sound absorbing structure as well," says Simon. The evolution of this

Ecuadorian Cactus Absorbs Ultrasound, Enticing Bats to Flowers

synopsis reprinted here from The Scientist

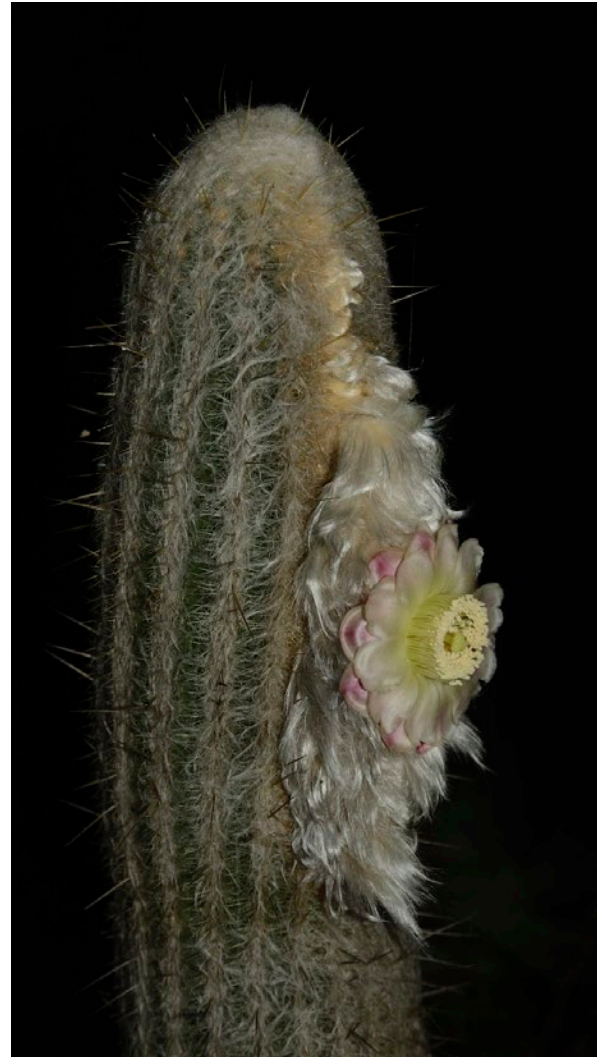
mechanism benefits both cactus and bat. “From the bat point of view, with this mechanism, they save time. And for them, it’s important to save time, because they have to visit several hundred flowers each night to get enough energy,” he says.

The current study did not look at whether sites on the plants with the highest sound absorption in the bats’ echolocation range “indeed resulted in the highest detection and visitation rates by bats,” says Jan Komdeur, an evolutionary ecologist at University of Groningen in the Netherlands who did not participate in the research, in an email to *The Scientist*. In the future, researchers could investigate how often real-life bats approach hairy versus experimentally manipulated hairless flowers, he suggests.

Jorge Schondube, an ecologist at the Universidad Nacional Autónoma de México who was not involved with the study, agrees that research on real-life bats is needed. “The pattern’s very clear, but now [researchers] need to show how the mechanism is actually changing the behavior of the bats,” he says.

Still, he’s impressed by the findings so far. “Nature is very creative. And by being creative, it allows the origin of completely new and unimaginable things. It’s really surprising that something like this can happen, and the paper shows it really, really beautifully. . . . What we’re seeing here is something that has not been seen before in terms of sound.”

Emily Makowski is an intern at *The Scientist*. Email her at emakowski@the-scientist.com.



Cactus flower surrounded by hairy cephalium

RALPH SIMON

On Your Calendar 2020 Meetings

2/8/2020	6p-9p	PSB
3/17/2020	630-9p	PSB
4/21/2020	630-9p	FNC Auditorium
5/19/2020	630-9p	FNC Auditorium
6/16/2020	630-9p	FNC Auditorium
7/21/2020	630-9p	FNC Auditorium
8/18/2020	630-9p	FNC Auditorium
9/15/2020	630-9p	FNC Auditorium
11/21/2020	10:30a-1p	FNC Auditorium
12/5/2020	10:30a-1p	FNC Auditorium

Editors note: FNC Auditorium listed above is “Freyer Newman Center”, the name for the large new building to the north of the Boetcher education Building at DBG. It should be operational by late spring!



Drive to the meetings or create a succulent garden

Support our Industry Partners

Nurseries and Garden Centers

Tagawa Gardens

Full-service garden center, with a good selection of cacti & succulents

7711 S Parker Rd, Centennial, CO 80016

303-690-4722

Nick's Garden Center

Full-service, garden center, with a good selection of cacti & succulents

2001 S Chambers Rd, Aurora, CO 80014

(303) 696-6657

Southwest Gardens

Locally owned – with a passion for growing succulents & plants

4114 N Harlan St, Wheat Ridge, CO 80033

303-423-5606

Echter's Nursery & Garden Center

Full-service garden center, with a good selection of cacti & succulents

5150 Garrison St, Arvada, CO 80002

303-424-7979

O'Tooles Garden Center

Full-service garden center, with a good selection of cacti & succulents

1404 Quail St, Lakewood, CO 80215 – Phone 303-232-6868

5201 S Federal Blvd, Littleton, CO 80123 – Phone 303-347-8027

9400 Wadsworth Pkwy, Broomfield, CO 80021 – Phone 303-423-8361

Support our Industry Partners

Nurseries and Garden Centers cont.

Front Range Gardens (Emerald Leaf affiliate)

Full-service garden center, with a good selection of cacti & succulents

10195 Wadsworth Blvd, Broomfield, CO 80021

(303) 469-3369

<http://www.frontrangegardens.com/>

Growers

Cold Hardy Cactus/Prairie Storm Nursery (Kelly & Jorge)

Cactus and succulent nursery, selling via mail-order and visits by appointment. Also does mail order

Arvada, CO

501-786-5569



Container planting

Blazing Star Greenhouse (Gary Davis)

Local grower of cacti & succulents, selling at local farmers' markets

Bennett, CO

720-883-3047

Precision Cactus (Jackson Burkholder)

New local cactus & succulent grower, by appointment only

Ken Caryl, CO

Ethical Desert (Donnie & Don Barnett)

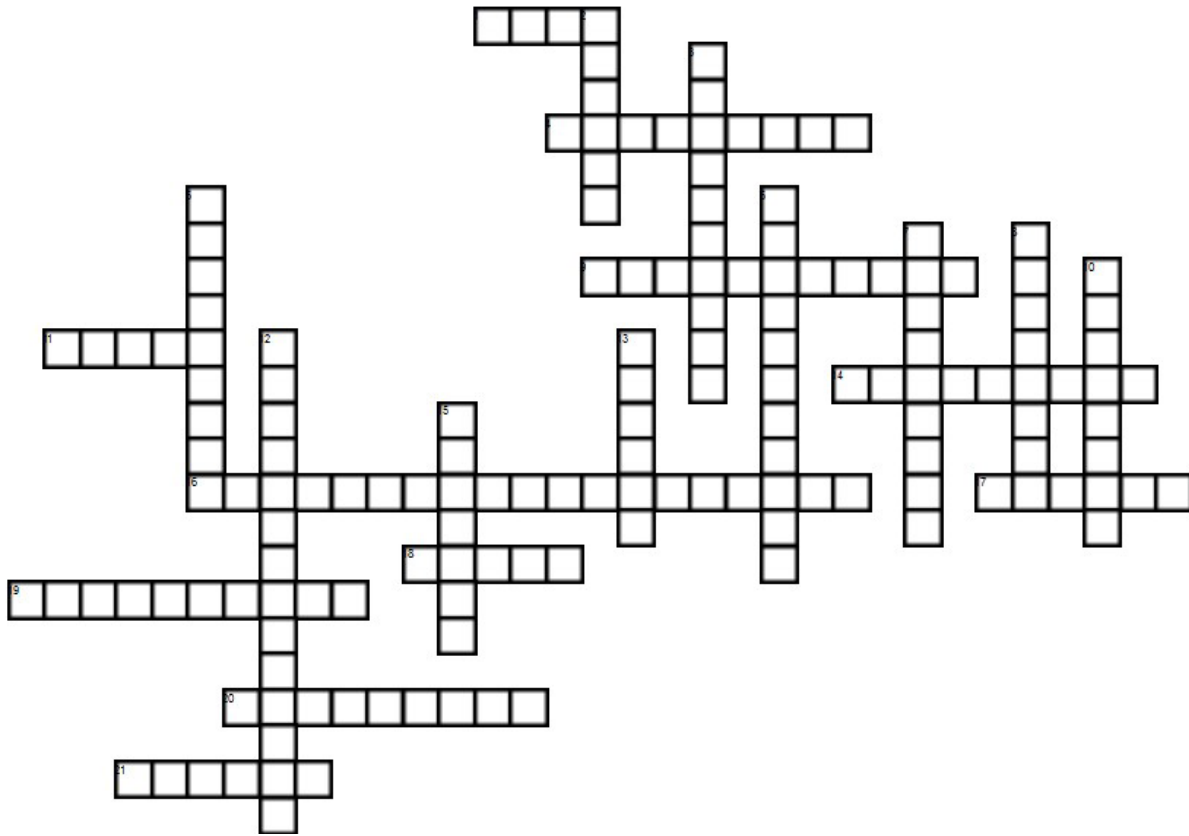
Grower of outdoor cacti & succulents suited to Colorado, authors of "Cacti of Colorado" book, selling via mail-order

Pueblo, CO



Dryer buddies from Rod Haenni's collection

February Plant Puzzle



ACROSS

- 1 Some cactus species can survive this type of weather event.
- 4 This very variable succulent has tapered leaves and bands of white both on its outer and inner sides of its leaves.
- 9 This year we have one on the last day of February.
- 11 This month's cactus genus is sometimes referred to as this organ.
- 14 This little gem is regarded as one of the smallest and most rare type of Haworthia.
- 16 Plants in this genus have been moved to other genera.
- 17 A family (Cactaceae) of plants that have succulent stems and branches with scales or spines instead of leaves and are found especially in dry areas.
- 18 A common name for a type of Haworthia that has stripes and resembles this animal.
- 19 These are plants with parts that are thickened, fleshy and engorged, usually to retain water in arid climates or soil conditions, storing water in stems, leaves, or roots.
- 20 This Stenocactus is one of the most popular species with pretty funnel shaped flowers that are pinkish with a dark midstripe, sometimes called 'hastatus'.
- 21 Stenocactus are native to the Chihuahuan desert in this country.
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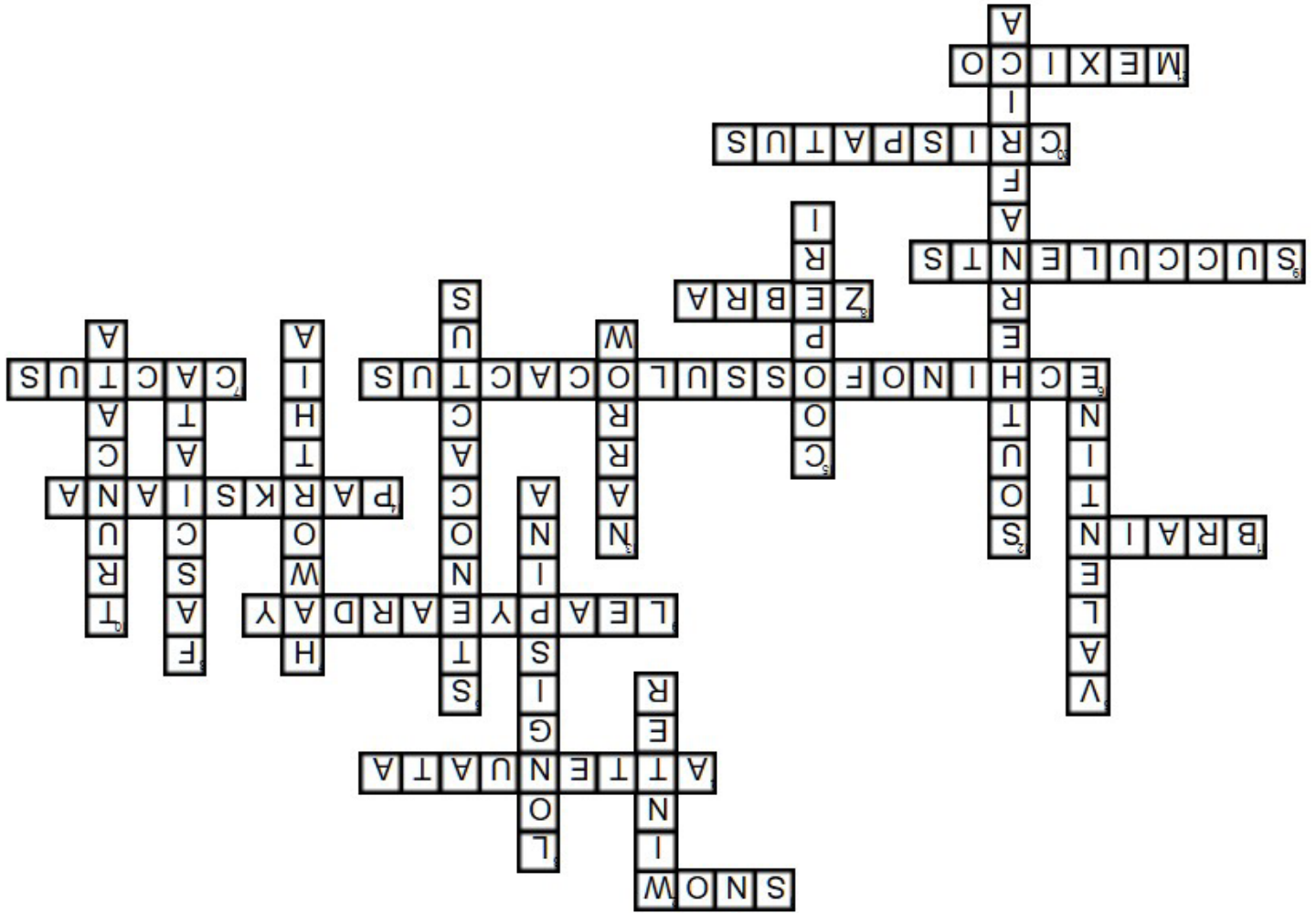
DOWN

- 2 The season in which Haworthia's grow.
- 3 This species has very long spines but is unpublished and might be *S. crispatus*.
- 5 It wouldn't be February without this holiday. Do you have yours?
- 6 A genus of cacti naïve to Mexico
- 7 This is a large genus of small succulent plants endemic to Southern Africa, with distinctive flowers.
- 8 This succulent has thick, dark green leaves with white horizontal stripes on the outside of the leaves that are smooth on the inside.
- 10 This Haworthia is sometime called 'horse's teeth', has small, warty surfaced leaves, is very popular in cultivation and has many unique types and cultivars.
- 12 Haworthia's are endemic to this region but are very popular in many greenhouses locally.
- 13 Stenocactus have very _____ ribs, sometimes numbering 50-100.
- 15 A diverse and varied species which features leaves which have transparent streaks around their tips. With some varieties, the entire leaf tip is transparent. In the wild the sun is very bright, and the plant grows mostly buried by sand with only these transparent tips above the ground.

WORD BANK

Attenuata, Brain, Cactus, Cooperi, Crispatus, Echinofossulocactus, Fasciata, Haworthia, Leapeyarday, Longispina, Mexico, Narrow, Parksiana, Snow, Southernafrica, Stenocactus, Succulents, Truncata, Valentine, Winter, Zebra

February puzzle solution



February Crossword