



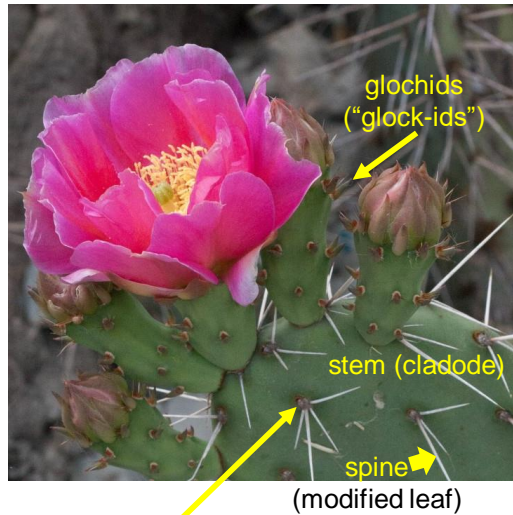
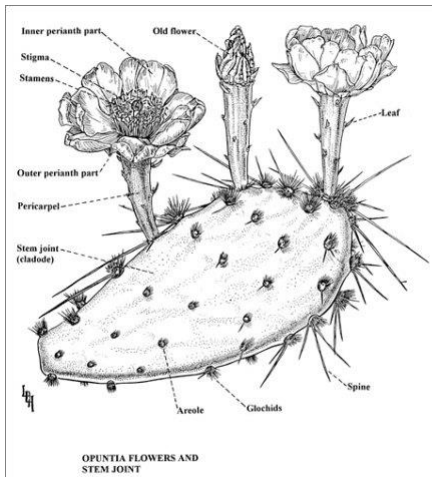
Cold Hardy Cacti and Succulents



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Twitter @CSUturf

1



areole: small bumps on stems of cacti from which spines, flowers, roots and branches grow. Succulents with areoles are called cacti.

2



Keys to success: **DRAINAGE!!!** Full sun! Gravel mulch! Little/no water!
Sanitation (dead pads, weeds)

3



Growing Cold Hardy Succulents

Soil

- Sand or sandy-loam is best; drainage is essential
- Can grow on heavier soils by planting in raised beds, planting “high” (the crown), mulching with fine stone – and being very careful to avoid excess irrigation

Water

- Only during extended drought – and if the plants show stress
- Occasional irrigation on better-draining soils is beneficial (or if growing in containers)
- Stop all watering in fall; none in winter; begin in early spring if it is a dry winter/spring

Fertilizer

- Very little is needed (none after mid-summer)
- More regular fertilization is needed if growing in containers

4



Pediocactus simpsonii

5



Prickly pear (*Opuntia*)

- *O. polyacantha*



6



7



Prickly pear (*Opuntia*)

- *O. rhodantha*



8



9

Prickly pear (*Opuntia*)

O. phaeacantha



10



11



Prickly pear (*Opuntia*)

O. fragilis

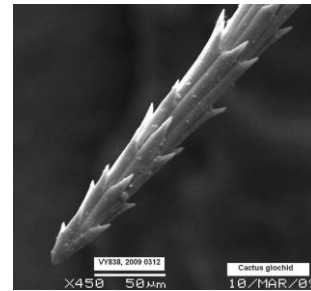
- Most cold hardy *Opuntia*
- Yellow and pink flowers
- Breaks apart easily; broken pads root easily



12

Glochids

- Especially common with opuntias
- Incredibly annoying
- Incredibly difficult to remove
- Can become infected
- Avoid your eyes, mouth!
- Removal?
 - tweezers
 - duct tape
 - Elmers glue
 - pumice stone



13

Cactus Bug (*Chelinidea* spp.)

- True bugs that can be a very severe Opuntia problem
- Feeding causes chlorotic spots
- Feeding can introduce disease organisms
- These WILL kill Opuntia!



14

Cochineal scale (*Dactylopius* spp.)

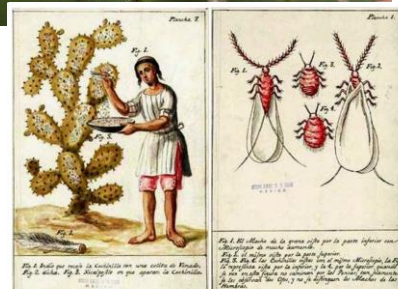
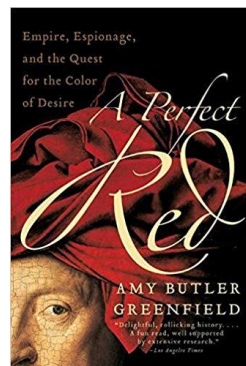
- Pretty much a problem of *Opuntia*
- Will kill plants if left untreated
- Acetamiprid or imidacloprid applied AFTER BLOOMING can provide control of a mild infestation
- Remove heavily infested plants – just not worth it!



15

Cochineal scale for dye

- Almost no naturally occurring sources for the color crimson/scarlet
- Takes 70,000 insects to produce 1 pound of dye
- If you see names like carmine, carminic acid, crimson lake, natural red 4, or E120 on a label, its likely source is cochineal scale



An illustration of cochineal collection by Mexican priest and scientist José Antonio de Alzate y Ramírez, 1777. (Newberry Library, Edward E. Ayer Manuscript Collection)

16

Cactus Borer (*Moneilema spp.*)

Cactus longhorned beetle

- Prefer Opuntia, but will also feed on Cholla and barrel cacti
- Adult lays eggs on outside of stem; larvae tunnel through the plants, leaving frass on outside
- These WILL kill Opuntia!
- Scouting for and handpicking the adults (early morning) can be effective control



17

Prickly pear for eating

- Fruit is edible
 - Syrup, candy, jam, jelly
- Pads are edible
 - Raw, steamed, fried



18



Using Opuntia fruit

- Spines, but worse - glochids!!!
- Fruit is very seedy
- You really want the juice



19

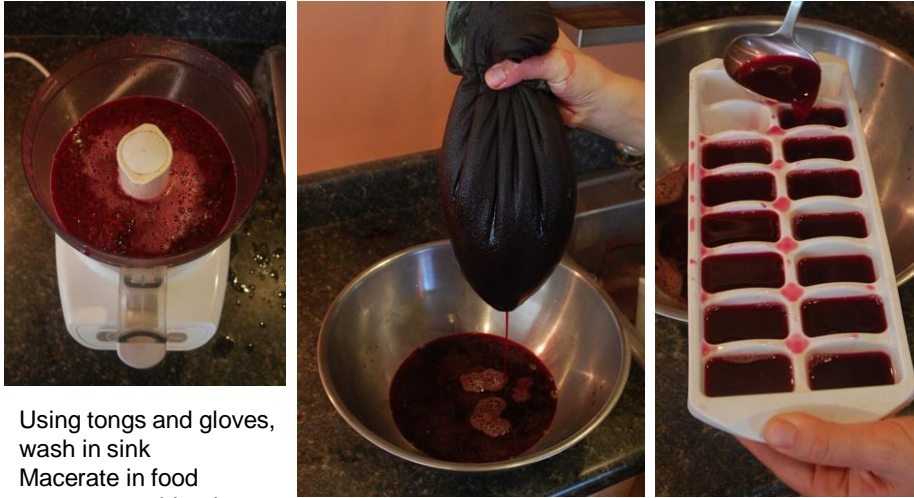


Using Opuntia fruit

- Spines, but worse - glochids!!!
- Fruit is very seedy
- You really want the juice
- So...
 - Boil until softened – strain
 - Freeze overnight, boil – strain
 - Or just put fruit in a blender and blend until you have “mush” – strain
 - Strain using an old t-shirt or other cloth (NOT cheesecloth – too porous, so glochids might get through!)



20



- Using tongs and gloves, wash in sink
- Macerate in food processor or blender
- Strain using cloth (old pillowcase, t-shirt) that you **will** throw away
- Use juice immediately, or freeze for later use

21

Nopales “slime”



22

Preparing nopales



1. Boil...boil...boil...to de-slime them
2. Grill whole scored, nopales (slime seeps out)
3. Slice/dice; bake at 375 F for 25-30 minutes
4. Saute until the slime disappears
5. Dry (dehydrate) sliced/diced nopales

23

Spineless Cactus



Luther Burbank in Spineless Cactus Bed

Luther Burbank's Spineless Cacti: Varieties and Culture

Between 1907 and 1925, Luther Burbank introduced more than 60 varieties of spineless cacti. These were developed mostly from hybrids of varieties of the Indian fig (*Opuntia ficus-indica*) and the Mexican prickly pear (*Opuntia tuna*), and were offered in two main types: the fruiting varieties, grown for their variously colored and flavored prickly pears, and the forage varieties, grown for their edible pads (properly called thalli), which could be fed raw to livestock or cooked for human consumption.

24



Chollas (*Cylindropuntia*)

Tree chollas

Cylindropuntia imbricata (hardy to -15°F)

C. echinocarpa (-15°F)

C. kleiniiae (-20°F)

C. leptocaulis (-20°F)

C. spinosior (-15°F)

- To 6 feet tall; tree-like growth
- **Nasty, quite painful, spines**
- Magenta flowers in July
- Plant out of traffic areas
- Give it room to spread
- Tops of plant often winterkill, planting in sheltered location may help



25



Cylindropuntia whipplei

Whipple's cholla

- 'Snow Leopard'
- Dwarf types, and up to 3-4 feet tall
- **Nasty, quite painful, spines**
- Appears more winterhardy than the other tree chollas
- Bright white spines year-around
- Small, greenish-yellow flowers in late summer



26

Cylindropuntia whipplei 'Snow Leopard'



27

Echinocereus (Claret cup cacti)

- *E. triglochidiatus* var. *gonacanthus* (White Sands form)
– hardy to -20 F



28



29

Coryphantha (Ball Cacti)

- *C. vivipara*
- Hardy to -20°F



- *C. sulcata*
- Hardy to -10°F
- Needs PERFECT winter drainage to survive

30



Pediocactus

P. simpsonii

- Mountain Ball Cactus
- Hardy to Zone 2



31



Pediocactus simpsonii

32



Escobaria missouriensis

- Hardy to -25
- Native to the Great Plains
- Needs full sun, excellent drainage



33



Echinocereus (Hedgehog cacti)

- *E. viridiflorus* (hardy to -20 F)
- Smells like lemon



34



35



Echinocereus (Lace cactus)

- *E. reichenbachii* (hardy to -25 F)



36



Echinocereus reichenbachii

37



Escobaria sneedii var. *leei*

- Hardy to -20
- Very rare in native range (Texas), but easily propagated and available from growers
- Great example of an endangered plant being rescued by horticulturists and the gardening community
- Needs full sun, excellent drainage



38



Escobaria sneedii var. *leei*

39



40



Escobaria missouriensis

- Hardy to -25
- Native to the Great Plains
- Needs full sun, excellent drainage



41



Yucca

- *Yucca neomexicana*
- Zone 5
- Small, compact yucca (8-12 inches across)
- Needs excellent drainage
- Very rare; available from High Country Gardens



42



Yucca

- *Hesperaloe parviflora*
- Texas Red Yucca
- Favorite of hummingbirds
- Excellent drought tolerance and cold-hardiness

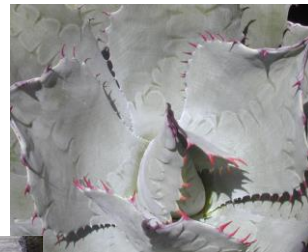


43



Agave

- *A. havardiana*
- *A. parryi*
- *A. utahensi*
- All hardy to about -15-20 F
- Die after flowering (which is rare)
- "Pup" formation is quite prolific



44



Where to Buy Cold Hardy Succulents

Kelly Grummons

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

Local source; inexpensive plants and even less expensive cuttings

Intermountain Cactus (Utah)

<http://www.intermountaincactus.com>

Inexpensive way (cuttings) to get started

Almost everything is in the \$6-10 range

Geoscape Desert Nursery (Idaho)

<http://www.geoscapenursery.com>

45



Coldhardycactus.com Kelly Grummons (Denver)

CHECK OUT OUR "DISCOUNT BIN"

25% OFF YOUR ENTIRE ORDER (minimum purchase of \$20)

OR

FREE SHIPPING ON ALL ORDERS OVER \$100 USE CODE: WILD2019
AT CHECKOUT

Follow us on Facebook and Instagram @coldhardycactus!

[Learn More](#)

Collections



OPUNTIA/CYLINDROPUNTIA

(89 items)



ECHINOCEBUS

(21 items)



AGAVE

(14 items)



OTHER VARIETIES

(19 items)



YUCCA

(19 items)



CORYPHANTHA

(5 items)



ESCOBARIA

(5 items)



PEDICACTUS

(2 items)

46



Coldhardycactus.com Kelly Grummons (Denver)

Kelly Grummons Selections

Sort by: Alphabetically, A-Z

TAGS

- Everything in Kelly Grummons Selections
- Apricot Flowers
- Gold Flowers
- Golden Flowers
- Kelly Grummons Selection
- Orange Flowers
- White Flowers
- Yellow Flowers
- zone 3
- zone 4

USEFUL LINKS

- Agave
- Coryphantha
- Echinocereus
- Escobaria
- Opuntia
- Other Varieties
- Pediocactus
- Yucca
- Giftcards

OP007: OPUNTIA 'EAST MEETS WEST' (O. FRAGILIS/HUMIFUSA HYBRID)
\$6.00

OP026: OPUNTIA FRAGILIS (SPINY CAT'S PAW CACTUS)
\$6.00

SOLD OUT

OP043: OPUNTIA POLYCANTHA PETER PAN
\$8.00

OP079: WALK IN BEAUTY™ OPUNTIA HYBRID PRAIRIE FIRE
\$10.00

OP080: WALK IN BEAUTY™ OPUNTIA HYBRID EMERALDS AND RUBIES
\$12.00

YU022: YUCCA GLAUCA (SKY BLUE FORM)
\$15.00

47



Intermountain Cactus (Utah) intermountaincactus.com

Welcome to Intermountain Cactus!

Celebrating over 40 years selling winter hardy cactus, agaves and yuccas

Some of our newer varieties and enduring favorites include:

- Opuntias (Prickly Pears) with different colored flowers and unusual spines
- Echinocereus (Barrel cactus) and cactus from South America, specifically from Patagonia in Argentina
- Agave Utahensis Var. Eborispina with its white spines and Agave Havardiana with its blue leaves.
- Yucca Harrimaniae and Yucca Nana are two dwarf varieties we specialize growing
- Joshua Trees may be limited so please inquire before ordering

We invite you to visit us...

Just give us a call to arrange a visit to our farm.
Phone: 801.846.2006

[Visit us](#)

All your winter hardy cactus needs in one place:

- Shipping between Mid-April through Early November (weather dependent)
- Large collection of winter hardy cactus
- 100% customer satisfaction is our goal
- Feel free to contact us for specific needs or questions

48



<http://www.highcountrygardens.com/gardening/planting-cold-hardy-cacti/>

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The High Country Gardens Blog

Gardening Tips and Know-How

Garden Design | Helpful Tips | Gardening in Your Zone | Landscaping | Native Plants

Home / Gardening / Native Plants / Gardening With Cold Hardy Cacti - Part I

Gardening with Cold Hardy Cacti - Part I

This entry was posted on 02/02/09 by David Saliman.

We think of cacti in small pots or dish gardens for use as house plants, but cold hardy members of this diverse family have the potential for much broader use.

As often happens with native plants, we tend to overlook them when we plant our gardens and landscapes. This certainly is the case with the group of succulent plants known as [cacti](#). Mostly we think of cacti as grocery store items grown in small pots or dish gardens for use as house plants. However, the cold hardy members of this large and diverse plant family have the potential for much broader use. They are very showy in outdoor plantings where their spectacular flowers, fascinating spination

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49



Geoscape Desert Nursery (Idaho)

geoscapenursery.com

Geoscape Desert Nursery

Cold hardy cactus, succulents, and perennials for the rock gardening enthusiast.

1-208-884-1251 (voice mail)

geodesert@yahoo.com



Opuntia polyacantha X rhodantha "Big Red"

Opuntia dulcis

Opuntia polyacantha X rhodantha "Pink Supernova"

- Home
- Cultivation
- Cactus
- Cactus ?
- Succulents
- Perennials

Cactus Plants, Page 1 - Cholla's & Prickly Pears. Last Updated 11/6

50



Geoscape Desert Nursery (Idaho)

geoscapenursery.com

Cultivation Home Cultivation Cactus Cactus 2 Succulents Perennials

Selection & Planting Guide

Step 1 of 3: Determine your zone hardiness. Remember this includes both heat as well as cold tolerance. If you're not sure what your zone is, I've provided a link to the USDA Zone Hardiness map. This will open a new window.

[Click Here for USDA Zone Hardiness Map link](#)

Once there, enter your zip code to determine your zone. On both the Cactus & Succulent plant pages, each plant description will list the compatible zones for that plant, such as Z4a-7a. The further the plants are grown outside of these parameters, the more likely the plant can be lost from excessive heat or cold exposure. Also keep in mind if your growing in containers to shave one full zone off the hardiness scale. This is because the whole plant (roots and all) are fully exposed above the ground level and are less protected from extreme weather.

Step 2 of 3. Determine your soil composition. All of the following mixes are formulated for optimal growth based on the average annual rainfall for your area. Cacti and "Type 1" perennials are water sensitive and therefore all planting beds should be raised a minimum of three feet above the surrounding area for the best drainage. See the rain map further down the page for reference.

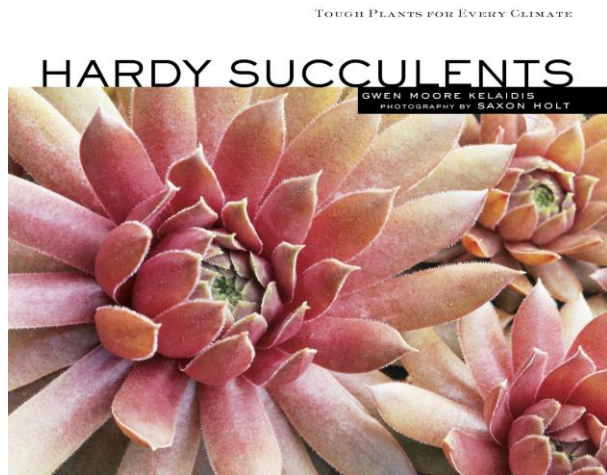
Less than 15 inches per year	16-30 inches per year	30+ inches per year
9 parts pea gravel. 3 parts washed sand 1 part active soil mix *trace minerals	16 parts pea gravel 3 parts washed sand 1 part active soil mix *trace minerals	25 parts pea gravel 3 parts washed sand 1 part active soil mix *trace minerals

51



Information on Cold Hardy Succulents

Hardy Succulents: Tough Plants for Every Climate. 2008. Gwen Kelaidis and Saxon Holt. (\$17 new, on Amazon; \$6 used)

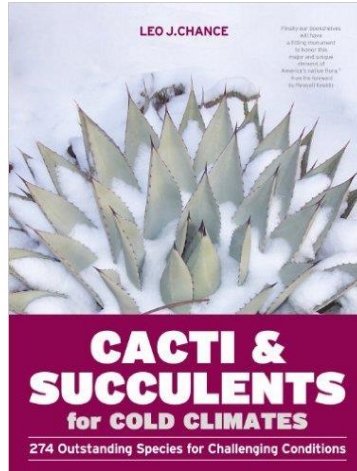


52



Information on Cold Hardy Succulents

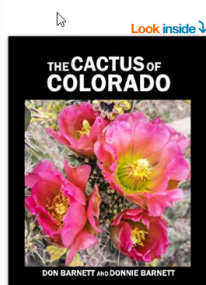
Cacti and Succulents for Cold Climates: 274 Outstanding Species for Challenging Conditions. Leo Chance (\$27 new, on Amazon; \$17 used). Author lives in Colorado Springs.



53



Information on Cold Hardy Succulents



The Cactus of Colorado Paperback – Large Print, November 5, 2016
by Don Barnett (Author), Donnie Barnett (Author)

> See all formats and editions

Paperback
\$39.99 ✓prime

1 Used from \$109.97
1 New from \$39.99

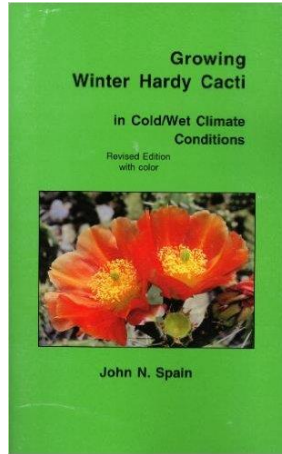
Complete guide to the Cactus flora of Colorado. 24 species and varieties, including 2 new species with range maps and taxonomic keys. Over 270 pictures and diagrams including technical taxonomic species comparisons with text and photos. History of Colorado botanist, vegetation, overview of ecological regions and life zones. Where to view cactus in protected public lands. Cultural uses and history of cactus uses. Biological controls including insects and fungal diseases. Cactus cultivars and where to buy locally.

54



Information on Cold Hardy Succulents

Growing Winter Hardy Cacti in Cold Wet Climate Conditions. John Spain (\$20 new, on Amazon)



55

Coloado Cactus and Succulent Society coloradocactus.org



56



Opuntia Web

opuntiads.com

- Home
- Species A-C
- Species D-M
- Species N-Z
- Categories
- Info
- Other

Opuntia Web

...glochids are forever

Opuntia Web

Like 219



[Opuntia engelmannii fruit](#)

Introduction

Updated August 08, 2019

Opuntias are the prickly pear cacti. There are over 90 species of *Opuntia* in the United States. We describe them here.

Opuntias are unique cacti with unusual shapes and beautiful flowers. They are part of the opuntiad supergroup of cacti.

57



Chinle Cactus and Succulent Society

chinlecactusclub.org

- CHINLE CACTUS & SUCCULENT SOCIETY
- HOME
 - WHAT WE DO
 - CALENDAR
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Welcome to the Chinle Cactus & Succulent Society



Echinocereus hybrid, by Don Campbell

We are a Western Colorado club whose mission is to promote knowledge, enjoyment, cultivation, and conservation of cacti and other succulent plants among its members and other individuals and organizations throughout West-Central Colorado. We created and maintain two beautiful cactus and succulent **Demonstration Gardens** in Grand Junction: one at the Colorado State University Extension office and the other at the Western Colorado Botanical Gardens. These gardens also present xeric and native plants and showcase various garden design strategies that work in our challenging local climate.



November Club Meeting

November's meeting will feature the long-awaited culmination of Chinle club 2019 photo contest: photo viewing, judging and awards.

Thursday November 14, 6:30 – 8:30 pm, Unitarian Universalist Congregation (upstairs), 536 Ouray Ave., Grand Junction.

Guests are welcome! Please see the [club calendar](#) for additional information and any updates.

November Issue of "Succulent Morsels" is Out

58



59