



Central SPINE

CENTRAL ARIZONA CACTUS & SUCCULENT SOCIETY

www.centralarizonacactus.org

President's Letter March 2003

Hello, Everyone: Looks like Spring is around the corner. The flowers are coming out, the butterflies are flapping around, the birds are singing, and our ever-wandering Society is on the move once again to meet in Webster. After this month, we will be settling down in Dorrance for the rest of the year until the end of the year Holiday party in Webster. The board meetings will all be held in the Education conference room. The management at the Garden wants us all to know how much they value CACSS and their long-time association with us, and that these recent scheduling changes in no way reflect a lack of appreciation on their part, merely the increasing demands on Webster as a venue. I for one like Dorrance as a meeting place, because it is quiet, out of the main traffic patterns, and easily accessed from the parking lot. This means a lot to those of us bringing plants to next month's show, as well as items for the monthly silent auctions.

With all the color that's emerging in the landscape, what better subject for this month's program than photography? John Trager is going to show us some of the finer points of photographing plants, including cacti and succulents. John is curator of the Desert Collections at the Huntington Botanical Gardens and has had over 1600 of his images published in such works as the Cactus and Succulent Journal, the Euphorbia Journal, the Genus Conophytum, a Conograph, and other books and journals.

Don't forget that if you intend to show plants in the juried part of next month's show, you must pick up your entry cards and a copy of the show rules at this meeting. We will be signing up exhibitors who missed last month's meeting and Leo will be going over the details of checking in on registration day.

See you at the meeting! Scott McMahon

TRANSPLANTING SAGUAROS by Jim Elliott

The following article originally appeared in the October, 1994, Central Spine.

This subject is the source of more myths and misinformation than the Dutchman's gold. Unfortunately, once bad information is printed it takes on a life of its own and is referenced over and over again. Most authors have very little experience with the subjects they write about, but are very good at searching the "literature" for references. Thus the same weary, inaccurate sources are used.

My experience has been gained over the past seventeen years as co-owner and operator of Arizona Cactus Sales, Inc. During that time I have relocated thousands of saguaros from seedlings to mature specimens. Some have died, most have lived. In an average year we are successful more than 95% of the time and in good weather we may go months without losing a saguaro. This success rate contrasts sharply with published statements by 'experts' who twist the facts to fit their personal agenda. I have read stories where an 'expert' has stated that less than (5) per cent of saguaros survive transplanting for as long as five years! I guess he has never driven through Sun City,

Sun Lakes, Sunland Village, or hundreds of other neighborhoods in the Valley where there are thousands of healthy saguaros. Using his ratio there would have to be 19 dead plants for every one left standing. Yards having four specimen plants would thus have had 80 to start with! Some expert.

The success rate of saguaro transplants is inversely related to the size of the plant. The smaller (younger) plants have a much greater chance of survival. In fact, it is almost impossible to kill a saguaro that is two feet or shorter. By contrast, the very large saguaros of twenty-five feet and taller rarely survive. These giants do not re-establish due to a combination of problems: their own weight often causes tissues to be crushed allowing rot to begin, they have to be planted so deeply that new roots do not reach the surface, and the trauma of transplanting may accelerate conditions within the plant that would have killed it eventually without the move.

If a saguaro of reasonable size (less than 20' tall) is relocated, the primary factors in determining its success are how it is han-

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CACSS Library News, March 2003

WEB SITE OF THE MONTH:

In the February 2003 issue of the *Central Spine*, Leo Martin authored the first of a series of articles about drip irrigation systems. If you would like additional information about drip irrigation there is a web site you may wish to visit. The website www.amwua.org is presented by the Arizona Municipal Water Users Association (AMWUA). If you click the Xeriscape button then click the Drip Irrigation Guidelines button you can read a document entitled *Guidelines for Landscape Drip Irrigation Systems*. It's a 58-page set of guidelines about irrigation systems. It has in-depth instructions for design, installation, and repair of drip systems and watering tables written for homeowners up to professional landscapers.

NEW BOOKS AND JOURNALS:

Arizona Gardener's Guide, Mary Irish, 2003, paperback, 271 pages. Description: See the February 2003 issue of the *Central Spine* for an excellent review by Muriel Beroza.

ALOE: Journal of the Succulent Society of South Africa. Vol. 39, No. 3&4. 2002. Articles of interest:

- The Southern genera of the stapeliads by P. V. Bruyns
- An arid paradise in a true desert: the Desert Botanical Garden in Phoenix, Arizona by Gideon F. Smith & Christopher K. Willis
- Gallery; The genus *Delosperma* in Gauteng. III. The species with yellow flowers by H.E.K. Hartmann; A new species of *Stapeliopsis* from Namaqualand and a new combination in *Stapeliopsis* (Apocynaceae - Asclepiadoideae - Ceropegieae) by P. V. Bruyns
- Notes on Zambian Aloes by Graham Williamson; *Sedum praealtum* ssp. *praealtum* (Crassulaceae): a common Mexican species in South African horticulture by Gideon F. Smith & Elsie M.A. Steyn
- Conservation Column: Gamsberg Zinc Mine by Alex Fick

Cactus and Succulent Journal Vol. 74, November-December, 2002, No. 6. Articles of interest:

- *Mammillaria* – a splitter's review (series Ancistracanthae) Part I By John Pilbeam.
- *Zygosityos pubescens* (*Cucurbitaceae*), reclassified and renamed By Gordon Rowley.
- Superb Succulents By Duke Benadom.
- In search of rock-garden habitats. Part I By Andrew Wilson & Graham & Francoise Williamson.
- Three new Peruvian species of *Echeveria* by Myron Kimnach.
- Introducing a new fellow: Carlos Ostolaza By Larry Mitich.

Cactus and Succulent Journal Vol. 75, January-February, 2003, No. 1. Articles of interest:

- The boojum tree By Myron Kimnach.
- Boojum trees in cultivation By Bill Thornton.
- A taller - The Tallest? - cirio By Robert R. Humphrey.
- Transplanting boojums By Bob Perrill.
- Growing boojum trees from seed Reprinted from K. Newland et al.
- Humphrey dies at 97 By Eric Swedlund.
- *Huernia khalidbinsultanii*, a new species from the Kingdom of Saudi Arabia By Darrel C.H. Plowes & Tom A. McCoy.
- *Mammillaria* – a splitter's review (series Ancistracanthae). Part II By John Pilbeam, Photography by Bill Weightman.
- Three new taxa of *Peperonia* from northern Peru By Guillermo Pino, Olivier Klopfenstein & Nelson Cieza.
- In search of rock-garden habitats. Part 2 By Andrew Wilson & Graham & Francoise Williamson.
- Superb Succulents By Duke Benadom.

NEED HELP?

Contact the CACSS librarian, Paul Schueneman:
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Featured Speaker

The March 30th program will feature John Trager, Curator of Desert Collections at the Huntington Botanical Gardens in San Marino, CA. John will present a program on how to photograph succulent plants.

Boxes Boxes Boxes

We need cardboard boxes for people buying plants during the show and sale. Please save boxes to bring in next month before the sale. Good sources would be your local super market or hospital. The next time you go shopping bring some extra boxes home with you or drop by your local hospital after work and grab some there. Collapse them for storage and bring as many as you can!

Volunteers Needed

Some of our members would like to show plants in our show but are unable to move their plants on their own. Volunteers are needed to help these members get their plants to the show. Transportation for these plants is also needed. Please call or email your editor or speak up at the next meeting! We want to fill Dorrance Hall! **So far no one has volunteered for this so step up folks. You can help a member in need and the club at the same time!**

Dues R Due!

If you have not paid your dues this will be your last issue of the newsletter! Send those checks to Judy Brody or bring them to her at the next meeting. If you are not sure you have paid, give Judy a call to make sure you don't miss an issue.

New Roster

The new roster will be sent out soon so any changes in contact information (address, phone, email, etc) should be given to Judy Brody.

dled, an appropriate planting site, and the correct watering regimen. There are situations where a saguaro is the worst possible plant to use as its special adaptive features are ignored. Unfortunately the current trend to build very large homes on very small lots is a classic scenario for failure for reasons that will become clear.

PROPER HANDLING

This consists of two parts: protect the saguaro from damage and protect yourself from the saguaro. For saguaros shorter than eight feet tall this can be a do-it-yourself project if you have several strong willing friends to help you. Be realistic about your abilities as a healthy saguaro can weigh as much as 100 pounds per foot of height. Most of the smaller plants are much lighter of course, but once you have dug the plant out of the ground your options are very limited.

For exceptionally fat saguaros and any saguaro over ten feet tall I would heartily recommend calling a professional nurseryman. Be prepared to pay anywhere from \$10 to \$15 per foot to relocate saguaros without arms (called "spears") and from \$200 to \$400 for armed plants (1994 rates).

If the saguaro you are moving goes from one property to another you also have to call the Arizona Department of Agriculture (255-4933) to obtain a trip permit. Moving a native plant without a permit may result in a fine or confiscation of the plant.

Before you begin to dig the saguaro have your tools and packing material together. You will need a good shovel, a saw to trim the roots, a couple of ropes about 10-12 feet long and several layers of carpet or foam rubber to pad the plant. Given the nature of most of Arizona's soils you may need a pick or digging bar (we use an electric demolition hammer!).

Wrap the packing material around the saguaro while it is still upright.

Remember that you will want to re-orient the saguaro in the new location to minimize sunburn problems so mark the north side of the plant or the packing so you can get it right. Normally the plant will be set somewhat deeper in the ground when replanted so leave the packing away from the bottom foot to foot and one half. Tie the packing to the saguaro with your ropes so that you have equal lengths of rope to each side of the knot. These rope ends are your handles to lower, carry, and raise your plant as very few of us are macho enough to just put a bear-hug on the saguaro and carry it off.

I recommend digging about a foot away from the base of the plant and be careful not to cut into the body. You will normally find at least three major roots that radiate from the saguaro just a few inches under the surface. These hold the plant up as the term "taproot" for saguaros is misleading. Even a twenty foot specimen rarely has a taproot more than three feet deep. Once you have dug down about 12" to 18" you are deep enough to cut the roots. I prefer to use a bow saw as the blades are easily replaced. The combination of soil, rocks, and roots will ruin a blade very quickly.

Remove or carefully pad any sharp rocks or debris where you are going to lower the plant so you don't puncture the saguaro. Gently lower the saguaro to the ground and stub back the roots to about 4" for laterals. Shorten the taproot to a diameter of about 3" to 4" so it will have the strength to support the plant. New roots begin in the fleshy ring around the woody core of the roots so it is essential that your cuts be clean and square. I have read experts advise to save all of the taproot -- balderdash! Standing a heavy plant on such flimsy roots would be comparable to a human standing on his fingertips for an eternity. The tissues will inevitably be crushed which creates the perfect place for rot to begin. Cut them as outlined above. In Arizona's hot dry climate the cuts normally dry within hours so normally no special treatment is necessary. If it is cold and wet and you can't wait for better weather, you can disinfect the cuts with a 10% bleach

solution and use soil sulphur to speed the drying.

Carrying the padded saguaro is relatively easy as you have the rope ends as handles. If you place it on a vehicle be sure to tie it down. Remember also that a horizontal saguaro is very vulnerable to sunburn so don't leave it exposed. Even a few minutes can cause sunburn during the hottest days of summer so cover your plant.

THE PLANTING SITE.

To determine an appropriate planting site you should take into consideration at least the following: drainage of the soils, overhead obstructions, safety, future access if removal becomes necessary, and satisfying visual design.

Saguaros are very efficient at obtaining and storing water. They can not stand being wet. This presents your first major problem in choosing the right location for the plant. Eliminate those areas that are low or can not drain. Always remember that your saguaro's roots are from 12" to 30" below the surface so merely moving the plant a few inches up a slope may still leave their root area in the retention basin. You have to study the drainage patterns off your house to see where the water will go. Planting directly in front of a downspout or valley of the roof could be a disaster. Conversely, planting directly in front of the apex of a gabled roof may be genius as all runoff is directed away from the saguaro. Every situation is different and most are not perfect, but search out the highest and driest location and you are on the right track. Do not plant in areas that are surrounded by concrete or behind a low wall that will trap water.

Check your chosen spot(s) for overhead obstructions. Will the saguaro grow into the eave of your house? Don't laugh, I have been called out many times to remove a plant that is jammed under a roof overhang. I guess the urge to be cute overpowered any other thought processes when these locations are selected.

Safety is yet another concern. It comes in two sizes, yours and the plants. For your safety avoid putting a saguaro close to walkways and high traffic areas. For a plants safety don't locate it where vehicles are likely to hit it such as immediately alongside a driveway.

Future access is seldom considered when planting a saguaro. This lack of planning can be expensive when you have a mature specimen that may weight thousands of pounds with no access for heavy equipment. Try to find a place that can always be reached by a truck and you will not have to face the extra expense of hand labor to remove it.

DIGGING THE HOLE.

Before you dig, call the utilities free Blue Stake service (263-1100).

Omitting this step and cutting a telephone cable or an electric line can sure ruin your day.

Add a few inches to the widest dimension of the roots to get a reasonable width for the hole. Obviously, the depth will vary with the overall size of the plant so I will give you some basic depths we use:

| Original standing height | Depth of hole |
|--------------------------|---------------|
| 1' - 2' | 6" - 8" |
| 3' - 4' | 10" - 12" |
| 6' | 15" |
| 8' | 18" |
| 12' | 24" |
| 15' - 20' | 30" - 32" |

I try to make the walls of the hole as vertical as possible to minimize the amount of soil disturbed. Your biggest immediate danger with saguaros is that they will fall over shortly after transplant. Stand the saguaro up and have your friends hold it while you backfill. Put in a few inches of soil, tamp it down firmly. Continue this process until the hole is full. We also leave a tapered mound (cone) of soil around the base of the saguaro to divert rainwater away from the soft disturbed soils that hold the saguaro up. This cone will gradually erode but by that time the soil has stabi-

lized and the plant is secure.

Don't take shortcuts and don't think if a little is good, a lot is better. Put in the effort to get the proper depth, because if you plant shallow the plant will fall. If we recommend 30" deep, don't think that 36" or 48" is better - the plants new roots will return to within a few inches of the surface before spreading sideways to form new laterals. If you have buried them too deeply this may never occur.

Several sources of gardening information right now are claiming that saguaros must be planted at their "original depth" to survive. They recommend these shallow plantings with a series of braces held together by cables, etc. The braces will rot away long before the plant can grow strong enough laterals to hold itself up if planted this shallow. You only have to realize that a 12' saguaro may be sixty to one hundred years old to see that your braces must last quite a long time. If you follow the procedures outlined in this article you will be planting from 12" to 15" deeper than "original depth". The plant will live very well without the ugly braces.

Another 'expert' requirement is some form of soil amendment. Whenever you change the composition of the soil in such a relatively small area you create an uneven water absorption. Inevitably one side or the other will hold the water better. This can have two effects; either the planting hole will stay wet (disaster) or the surrounding area will wick the water away which is also bad for the plant. Our success rates have been achieved by simply replanting in the native soils.

WATERING REQUIREMENTS.

Plant the saguaro dry. This does not mean just a little water -- it means none. Saguaros have a very high water content that is locked up in their tissues. This allows them to survive for extended periods without adding water. The stress of transplanting occasionally causes some rotting in the root area. If the plant and soils are dry, the saguaro's evolved defenses halt the problem and the plant lives.

This dry regimen should be followed through the first six months or more to give the plant its best chance of survival. If your saguaro is very dehydrated after this period of time, you can remove the cone of soil around the base and dig a shallow watering well right at the plant. The well should hold no more than two or three gallons of water for a large plant and somewhat less for a plant shorter than eight feet tall. Give the saguaro about five gallons of water once a week to help build it back up. This watering should not be started in winter -- wait until temperatures get back to the 90s.

If your saguaro has not dehydrated badly and the color looks good, I would never water it -- ever. Saguaros in urban settings have so much more water than in the desert that they average over one foot per year in growth.

When you get a half inch of rain on your roof, the flow into your yard may be several inches. Add this runoff to the supplemental watering for your other plants and there is an abundance of water for the saguaro. You will be better served to have a healthy plant that grows slower and does not become a bloated monster. Thankfully the use of black plastic under gravel toppings is declining as we have found plastic causes many problems for saguaros.

The plastic makes a nearly perfect vapor barrier so when the soil becomes wet it may take months to dry out. This constant wetness encourages the growth of organisms that cause rot. If you have plastic under your toppings, it is a good idea to remove it at least six to eight feet in all directions from the saguaro so it has a chance to dry out.

After reading this article you may determine that your location just isn't right for a saguaro. Saguaros have evolved as a species dependent on quick-draining soils with intermittent rainfall and fairly well spaced vegetation. If you can not provide a site that fairly well meets those criterion, you may need to select other desert plants that handle water better.

Upcoming Events - CALENDAR

General meetings are at 2:00 pm unless otherwise noted. Board meetings are one hour earlier. Members are welcome to attend board meetings.

March 30, 2003 John Trager of the Huntington Gardens - Photography of Cactus & Succulents

NOTE: March 30, 2003 meeting will be in Webster Auditorium

April 9-13, 2003 CACSS Annual Show and Sale, Dorrance Hall

May 18, 2003 Guided Tour of DBG Greenhouses, Dorrance Hall

June 29, 2003 CACSS Member Gard Roper - Agave, Dorrance Hall

July 27, 2003 Pete Petrie: Argentina, Dorrance Hall

August 24, 2003 CACSS Board Member Doug Dawson - CSSA Tour to Richtersveld & South Africa

September 28, 2003 CSSA President Duke Benadom - Echinocereus of Mexico, Dorrance Hall

October 26, 2003 Silent Auction of Member's Plants, Dorrance Hall

November 23, 2003 Leo Martin - Convention report, Dorrance Hall

December 7, 2003 Holiday Party 12:00 p.m. - 3:00 p.m., Webster Auditorium

D E A D L I N E F O R N E X T I S S U E !

The deadline for material submission for the next issue of *Central Spine* is:

April 4, 2003

Please make a note of this!

Central Spine is the newsletter of the Central Arizona Cactus and Succulent Society. All opinions are those of respective authors. Publication herein does not imply that CACSS or any CACSS members agree with any statements published.

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