



High on the Desert Cochise County Master Gardener

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Book Review . . .

I avoid buying landscaping books with large lists of plants because the lists are 99 percent redundant with the ones I already have—Phillips, Hodoba, Sunset, Epple, Jaeger, Lamb, Art, *etc.*—and I'm not willing to spend the price of a book just to get a description of the one additional plant not described in the books I already own. But—and this is a big BUT for me—I just bought a new book with an extensive list of landscaping plants. In fact, that is basically all this book is. Why? Simply because it's the best book of its type I have ever seen. The book is *Landscape Plants for Dry Regions* by Warren Jones and Charles Sacamano (ISBN 1-55561-190-7, Fisher Books, 2000).

Warren Jones, Fellow of the American Society of Landscape Architects, and Charles Sacamano, PhD, are Professors Emeritus of the University of Arizona. Warren Jones is the man who assembled the fantastic plant collection that now makes up the University of Arizona Arboretum.

After his retirement Charles Sacamano settled in Puerto Vallarta, Mexico where he consults on tropical landscaping projects.

Their book is an encyclopedia of more than 600 species of drought tolerant plants from around the world. It is organized alphabetically by plant scientific name and presents data on each plant for cold hardiness, landscape value, cultural requirements (including sun exposure, water requirements, soil types, propagation, and maintenance), possible problems, and a physical description. Each plant is not only described in the text, but every plant in the book is pictured in color photographs, often more than one.

Plants are rated into three zones for cold hardiness: low, intermediate, and high. Low zone plants thrive in low desert areas ranging up to 2000 feet in altitude with warm climates. Interme-

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Cochise County Cooperative Extension

www.ag.arizona.edu/cochise/mg/

1140 N. Colombo, Sierra Vista, AZ 85635

(520) 458-8278, Ext. 2141

450 Haskell, Willcox, AZ 85643

(520) 384-3594

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diate zone plants do best in areas with an average altitude of 2,500 feet and slightly cooler temperatures. High zone plants are those that like the cooler temperatures found in areas ranging from 3,300 to 5,000 feet. The book describes each zone in more detail and provides additional descriptions of the effects of climate on plants. Based on the descriptions of plants and their habitats in the book, I would place Sierra Vista in the intermediate to high zone, depending upon the microclimates found in a specific location. Other areas of Cochise County may be better classified as belonging to the high zone.

One of the things I particularly appreciate is that Jones and Sacamono are not snobbish about "native" plants. In my humble opinion, plants don't have citizenship. They live where they live because they are adapted to a particular environmental niche not because they are citizens of some country or region. Plants adapted to arid environments, wherever in the world they may originate, are fair game for us to use in our landscapes as long as they don't pose the threat of uncontrolled invasion.



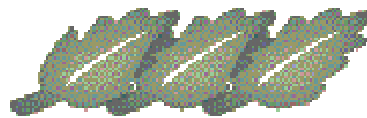
Robert E. Call
Extension Agent, Horticulture

Carolyn Gruenhagen
Editor

As a professional database developer, I like structured data. The plant data in this book are highly structured. This makes it easy to compare different plants and to choose between them. I would like to see (and will probably create) a computer database of the plants in this book so I can quickly locate plants with specific characteristics.

If you are interested in landscaping in the High Desert of Cochise County and could only afford to buy one book, I would highly recommend that this be the book you buy.

Gary A. Gruenhagen, Master Gardener



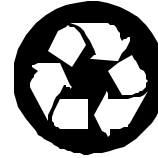
Cuttings 'N' Clippings

☞☞ Cochise County Master Gardeners Association (CCMGA) next meeting will be November 6 at 5:00 at the Sierra Vista library. The scheduled speakers are Marty Haverty and Ed Bohanick from the City of Sierra Vista Public Works Department with a presentation on the city's award winning compost facility.

(Note: See related article on this page.)

☞☞ The *Water Wise* lecture series continues on Saturday, November 2. The presentation will be *Drips, Toilets, and Tricks* by Struse Plumbing. The free lecture takes place at the University of Arizona South, 1140 N. Colombo, Sierra Vista at 9:00 a.m.

City of Sierra Vista Recycling



Sierra Vista operates Arizona's only municipal yard waste composting program. It is one of the most popular environmental

programs. City residential refuse customers may deliver yard waste to the facility free of charge. (Be sure to bring a copy of your City refuse bill to show the attendant.) You may also call 458-7530 to arrange for a free special pick-up of yard wastes. No other city in the state offers this service to its residential refuse customers. Local businesses and County residents may also use the facility for a small fee. In addition, both mulch and compost are sold to the public at the site at bargain prices. The compost site is located adjacent to the County Transfer Station on Hwy 90 East (just past the entrance to the City Wastewater facility).

November Reminders

- v This is a good time to install a drip system
- v Replace summer mulch with fresh mulch
- v Start a winter herb garden
- v Protect plants from frost (The bulletin *Frost and Frost Protection* is available from the Cooperative Extension offices)

The Virtual Gardener—Drought

As I wrote last month, governments need a good operational definition of what constitutes drought so they can intelligently distribute aid to drought-stricken areas. Giving aid when its not really required wastes money, but not giving it when it is really required has disastrous economic consequences. What to do?

One of the tools used by governments to solve this problem are drought indices. The indices are calculated from meteorological and other measurements and have the advantage of being consistent and reproducible. This means they provide a more or less “objective” standard to be used in determining the severity of shortfalls in precipitation.

The Palmer Drought Severity Index (PDSI) is a sophisticated drought index widely used by the U.S. Department of Agriculture (USDA) to track drought conditions. It is defined as an interval of time, usually weeks, months, or years in duration, during which the actual moisture supply falls short of what is climatically expected. The index is calculated recursively so that the index for each period depends on the index for the previous period as well as conditions in the current period. One of the advantages of this means of calculation is that it filters out short term anomalies. Drought conditions are slow to be announced but once established are slow to be declared over.

Factors included in the calculation of the PDSI are actual measured precipitation and climatologically adjusted evapotranspiration, recharge, runoff, and water held in the root zone. The popularity of the

PDSI results from its objectivity and universality. As long as you know the necessary input data for several periods for an area, you can calculate the index and the index values for different regions can be compared..

Although the words “drought severity” in the title of the PDSI imply that it only measures droughts, in fact it also measures “non-droughts” as well. When the index takes on negative values, it implies a shortage of moisture. When it takes on positive values, however, it implies a surplus of moisture. Although values of the index can theoretically have a wider range, the USDA considers only the ranges from -4.0 to $+4.0$. The following table shows the adjectives the USDA applies to various ranges of the PDSI.

Value of PDSI	Descriptive Term
4.00 and above	Extreme moist spell
3.00 to 3.99	Very moist spell
2.00 to 2.99	Unusual moist spell
1.00 to 1.99	Moist spell
0.50 to 0.99	Incipient moist spell
0.49 to -0.49	Near normal
-0.50 to -0.99	Incipient drought
-1.00 to -1.99	Mild drought
-2.00 to -2.99	Moderate drought
-3.00 to -3.99	Severe drought
-4.00 and below	Extreme drought

The PDSI for Southeastern Arizona currently is -3.9 and that means we are in a severe drought. Conditions in the northern part of the state are even worse. Unfortunately many of us who live in urban areas and draw our water from the tap are often unaware of the

seriousness of this drought. For us there is no drought as long as the water comes out of the faucet when we turn it on. People who make their living on the land, however, have a different perspective. They see crops withering and cattle dying.

Monthly values for the PDSI for Southeastern Arizona for this year as reported by the Climate Prediction Center of the National Oceanic and Atmospheric Administration are shown below:

Month	PDSI	Drought Condition
Jan	-1.9 to $+1.9$	Near normal
Feb	-1.9 to $+1.9$	Near normal
Mar	-2.0 to -2.9	Moderate
Apr	-2.0 to -2.9	Moderate
May	-3.0 to -3.9	Severe
Jun	-4.0 or less	Extreme
Jul	-4.0 or less	Extreme
Aug	-3.0 to -3.9	Severe
Sep	-3.0 to -3.9	Severe
Oct	-3.0 to -3.9	Severe

If you would like to learn more about the drought and drought indices, here are some Web sites to check out:

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/cdus/palmer_drought/wpdanote.html

<http://www.npwrc.usgs.gov/resource/2001/tempanom/theo.htm>

<http://www.drought.unl.edu/whatis/indices>

Until next month, happy surfing.

Gary A. Gruenhagen, Master Gardener
gruenha@sinos.com

Creating a Wildlife Habitat Garden—Resources

Here are my favorite wildlife resources. Many of the books are available at the public library. Please note that any products, services, or organizations that are mentioned or indirectly implied in this article do not imply endorsement by the University of Arizona Cooperative Extension or the Cochise County Master Gardeners.

BIRD, HUMMINGBIRD, & BUTTERFLY BOOKS:

A Field Guide to Western Butterflies, Peterson Field Guide Series, Paul A. Opler,

ISBN 0-395-79152-9

A Field Guide to Birds of the Desert Southwest, Barbara L. Davis,

ISBN 0-88415-278-2

A Guide to Bird Nests & Eggs, Pinau Merlin,

ISBN 1-886679-17-1

Attracting and Feeding Hummingbirds, Sheri Williamson,

ISBN 0-7938-3580-1

Butterflies of Arizona A Photographic Guide, Bob Stewart, Priscilla Brodtkin & Hank Brodtkin,

ISBN 0-9663072-1-6

Butterflies Through Binoculars: The West, Jeffrey Glassberg,

ISBN 0195106695

Butterfly Gardening: Creating Summer Magic in Your Garden, Xerces Society & Smithsonian Institution (revised edition 1998)

ISBN 0-87156-975-2

How to Spot Butterflies, Patricia Taylor Sutton and Clay Sutton,

ISBN 0-395-89275-9

The Birder's Handbook – A Field Guide to the Natural History of North American Birds, Paul R. Ehrlich, David S. Dobkin, and Darryl Wheye,

ISBN 0-671-65989-8

Bird Watchers Digest has a super collection of publications—*Creating Your Backyard Bird Garden*, *A Guide to Bird Homes*, *Enjoying Bird Feeding More*, *Enjoying Butterflies More* (just to mention a few)—that are loaded with great information with getting started. Locally they can be found at Wild Birds Unlimited and Ramsey Canyon Preserve.

GARDENING, LANDSCAPING, & PLANT BOOKS:

A Field Guide to the Plants of Arizona, Anne Orth Epple,

ISBN 1-56044-563-7

Gaia's Garden: A Guide to Home-Scale Permaculture, Toby Hemmenway,

ISBN 1-890132-52-7

Natural by Design: Beauty and Balance in Southwest Gardens & Plants for Natural Gardens, Boxed set by Judith Phillips,

ISBN 0-89013-283-6

Native Plants for Southwestern Landscapes, Judy Mielke,

ISBN 0-292-75147-8

GOOD THINGS – my favorite miscellaneous garden related books:

A Natural History of the Sonoran Desert, Arizona-Sonora Desert Museum,

ISBN 0-520-21980-5

Gathering the Desert & The Desert Smells Like Rain: A Naturalist in Papago Indian, Gary Paul Nabhan

Gardening for the Future of the Earth, Howard-Yana Shapiro, Ph.D.

and John Harrison,

ISBN 0-553-37533-4

Life in a Small Place and other essays from a desert garden, Janice Emily Bowers,

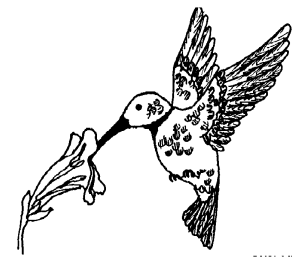
ISBN 0-8165-1357-0

Prodigal Summer, Barbara Kingsolver,

ISBN 0-06-019965-2

WEBSITE RESOURCES:

the following websites have great links to other resources too numerous



to list here.

Arizona Native Plant Society:

www.azstarnet.com/~anps/

North American Butterfly Association (NABA): www.naba.org (free regional gardening information)

Southeastern Arizona Butterfly Association (SEABA): www.naba.org/chapters/nabasa/home.html

National Wildlife Federation:

www.nwf.org/ (800) 822-9919

Wild Birds Unlimited: www.wbu.com

FAVORITE SEED & PLANT RESOURCES:

Diamond JK Nursery, S. Hwy 83, Sonoita (next to Eagle Milling Feed Store) Tel: (520) 455-9262
Desert Survivors Nursery, 1020 W. Star Pass, Tucson Tel: (520) 791-9309

High Country Gardens (Santa Fe Greenhouses) 2902 Runina St., Santa Fe, NM Tel: 1-800-925-9387

www.highcountrygardens.com

Native Seeds/SEARCH, Tucson Tel: (520) 622-5561 www.native-seeds.org

Plants of the Southwest, Aqua Fria, Rt. 6, Santa Fe, NM Tel: 1-800-788-7333 www.plantsofthesouthwest.com

Seeds of Change, Santa Fe, NM Tel: 1-888-762-7333

www.seedsofchange.com

Tohono Chul Park, 7366 N. Paseo del Norte, Tucson Tel: (520) 742-6455

Wild Birds Unlimited, Hwy 92, Sierra Vista Tel: (520) 378-9441

Cheri Melton, Master Gardener

The Agent's Observations

Q My ash, plum and pomegranate leaf margins are turning brown and drying up. The leaves are yellowish in color with some green remaining between the veins. I have been watering the trees using a well. They are planted in my lawn. I used "Weed and Feed" on the lawn this spring and again during the summer. The trees are just looking sick and I am feeling like the trees.

A The trees are showing the signs of herbicide damage. "Weed and Feed" products contain fertilizer and 2,4-D herbicide. Inert particles like clay are coated with the herbicide which releases into the soil when watered. The herbicide 2,4-D will kill many broadleaf weeds in the lawn. However, the herbicide also can damage or kill other broadleaf plants. These trees are showing symptoms but did not receive a large enough dose to kill them. The herbicide reached the shallow rooted trees, was absorbed, and you see the symptoms in the leaves.

Control: Do not apply 2,4-D type herbicides (as a spray or in a "Weed and Feed" product) where desired broadleaf plants will absorb them through the roots or leaves. Many broadleaves like roses and grapes are very sensitive to 2,4-D type herbicides. The trees will most likely not show symptoms in the spring. For now the leaves will have to drop so that the trees will not look sick. Just a note on the herbicide 2,4-Dichlorophenoxyacetic acid (the



chemical name) or 2,4-D for short and related compounds. This herbicide comes in several different formulations. If it is to be used around plants that are susceptible, i.e. broadleaf plants, use an amine formulation. It is less volatile and will not cause "spray drift" that ester formulations can. You must read the label and find the chemical name. If amine or ester appears in the chemical name you will know the type of formulation.

*Robert E Call
Extension Agent, Horticulture*

**If we had no winter,
the spring would not
be so pleasant:
If we did not
sometimes taste of
adversity, prosperity
would not be so
welcome.**

- Anne Bradstreet

It's All In the Water

I often hear people say, "I cannot keep houseplants—I kill them all." Most houseplants are easy to take care of. So, why can they not be kept alive? It's all in the water. Proper watering is very important for healthy plants. More plants have been killed by over watering than under watering. Plants like their soil kept evenly moist, never soaking wet nor bone dry. Some plants prefer that their soil dries out completely between watering.

How do you tell if your plant needs water? Here are some watering basics. First of all, when your house is equipped with a water softener, do not use this water for your plants. Soft water contains high amounts of sodium which will be harmful to plants. The best water is water that has been standing for several days and is tepid (warm, room temperature). Water that has been standing has evaporated the chlorine. To check if the plant needs water, there are several methods. You can stick a finger into the soil. If it feels dry to the touch one inch down, it is time to water. Or, you can lift the pot. If it feels light, it is time to water—not very practical if the pot is big. I prefer to use a moisture meter. You stick the moisture meter into the soil and it tells you what the

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moisture is. These meters are readily available. I find them quite handy.

The pot of a plant takes a role in how often you have to water. Very important, whatever pot you use, it must have drainage holes. If you want to use a container without holes, pot the plant in a slightly smaller pot and use the other container as a cache pot, checking it for standing water from time to time. Double containered plants need less water—good to know when you live in the desert. Plants in small pots dry out quickly, so use clay pots. For the house I prefer plastic containers with good drainage holes and they are

lightweight. For looks I set these in fancy containers.

Most people prefer to water from above. In that case water thoroughly until excess moisture runs out of the bottom of the pot. If a plant has dried out entirely, to the point of wilting, this may not be enough because dry soil often repels water. In that case set the pot in water until it soaks up all it can take. If the pot is small enough submerge it into a bucket and wait until it stops bubbling. Don't let the plant dry out too often like this. Some plants need their soil always moist, you should never allow these plants to dry out. You can also water from below, fill the saucer with water and wait 20

minutes. If there is water left, pour it out. If there is no water left, your plant might not have received enough, repeat. With time you will know exactly how much water to give. African violets and cyclamen should be only watered this way. It is always helpful when buying a plant to know exactly what the requirements are. So do your homework—it is always helpful to invest in a good book.

Angel Rutherford, Master Gardener

