



The Virtual Gardener—Watching Weather on the Web

The monsoon in southern Arizona is one of the most exciting times for weather watchers. This month I want to tell you about a website that not only provides a wealth of useful and interesting information to keep you abreast of what’s happening with the weather, but can also provide you with the ability to make short term naïve predictions about what’s likely to happen at your location within the hour—sort of a “heads-up” when violent weather approaches.



extends from as far west as the Colorado River to as far east as the Rio Grande. Phoenix and Tucson are labelled and current temperatures are shown for reporting stations throughout the area. Superimposed on the map will be an animation of Doppler radar returns.

This website, the **KOLD Channel 13 Interactive Radar**, provides a lot more information than its name implies. It not only provides current Doppler radar coverage for the entire United States as well as Canada and Mexico, but can also provide you with a snapshot of current weather conditions for cities around the world. Let’s take a quick tour of the site and see what it has to offer.

The radar returns are shown in shades of green, yellow, and red in order of increasing storm intensity. They usually represent reflections of a radar beam from falling rain or snow but may also be reflections off other things in the air, including virga (rain that evaporates before it hits the ground), dust, or even clouds of flying insects. The green shades—especially the lightest shades of green—do not necessarily indicate rain that is hitting the ground.

When you first bring up the site, you are presented with a map of southern Arizona and northern Mexico that

A single click with the left mouse button on any of the temperature readings pops up a callout box with the name of the reporting station and the latest reported weather data for that location. Depending upon the station,

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COLLEGE OF AGRICULTURE AND LIFE SCIENCES
COOPERATIVE EXTENSION
Cochise County

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data reported may include sky conditions, wind, humidity, visibility, and barometric pressure in addition to the temperature. Buttons in the box allow you to look at a five-day general weather forecast for the location as well as graphs of hourly predicted temperatures and other weather parameters for the next 48 hours.

A standard navigation control on the left side of the map allows you to move the view east, west, north, and south and a slider control allows you to zoom the map in or out. You can actually zoom in to street level to see what's happening in your specific location. I have used this feature to predict exactly when an approaching storm will reach my location and how intense it will be.

As I have already mentioned, there are many more features available for display than Doppler radar and general weather information. If you head over to the right edge of the map, you will see a vertical menu with two items—"Layers" and "Map Type." Clicking on the item labelled "Layers" will show fifteen displays that you can overlay on your map, either individually or in combination. Combining several of the overlays provides a great view of the current weather situation. Combining "Rainfall", "Lightning", and "Storm Attributes" with the default Doppler radar display gives you a very comprehensive picture of a current storm situation.

The rainfall overlay can be switched to show 1-hour or 24-hour accumulations. The 1-hour mode shows a color-coded display of total accumulations ranging from a trace to 3 inches. When a

particular display is turned on, you can see how to interpret the color codes by clicking the "Legend" button in the upper left corner of the display.

Real time data on lightning strikes is furnished from the World Wide Lightning Location Network and provides another measure of storm intensity. I have not yet found another general weather reporting website that shows lightning strikes, so this may be a unique feature of this site.

The storm attributes overlay places icons on the map. By placing your mouse cursor on the icon you can see what kind of activity is occurring in a particular storm cell, the direction of movement of the cell, and a scale indicating the speed of movement. A related option is to display "Storm Reports." These reports by people on the ground—probably National Weather Service Storm Spotters—in the storm area give more detail on what's happening.

Other overlays can give you more information about the general weather situation. The "Clouds" overlay shows infrared and visible satellite imagery. Other displays show various warnings about impending weather conditions, hurricanes, and snow conditions (including conditions at your favorite ski resort). Clicking on "Current" will not only toggle the displays of temperatures on the map but even show weather reports from ships at sea!

If weather-watching is your thing, I recommend you bring up the KOLD Interactive Radar site and spend some time exploring all the things it has to offer.

Until next time, happy surfing!

Gary Gruenhagen, Master Gardener
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July Reminders

- ◆ *Keep the pests under control*
- ◆ *You can still plant something*
- ◆ *Keep watering!*

Cuttings 'N' Clippings

✿ CCMGA elected officers for the new year at their June Annual Business Meeting. They are:

Pres. Jody Sharp-Webb

V. Pres. Jan Groth

Sec. Olivia Sinks

Treas. Donna Blackburn

✿ CCMGA will not be meeting in July. The next meeting will be August 7—watch for details on the web site.

✿ **Saturday, July 12, Rainwater Harvesting Open Houses.** Has Sierra Vista been busy harvesting water? You bet! Come "ooh and aah" over commercial and residential rainwater systems during open house hours. Guaranteed you will be impressed so much that you may just start collecting too! Call for maps and details. **Location:** Sierra Vista (See flier on Page 6 of this newsletter.) For information call (520) 458-8278, Ext 2141, or contact Joyce at:

jwilliam@ag.arizona.edu

You can visit Water Wise at:

waterwise.arizona.edu

Cochise County Master
 Gardener Newsletter Editor
 Carolyn Gruenhagen

Book Review: *The Dose Makes the Poison*

Ever since becoming a gardener about six years ago, I have been interested (perhaps even obsessed) with the “organic” versus “chemical” controversy. Is “organic” food more nutritious? Are there “chemical” poisons on our food? If there are enough residues left on our produce to render them in some sense toxic, why do government regulatory agencies permit them? Are “organic” pesticides safer than “chemical” ones? I’ve read enough now to understand that there are no simple or obvious answers to these questions. Furthermore, most of the content in popular magazines and on the Internet is questionable at best and downright often incorrect.

So, the latest book I’ve read in my quest for truth, justice, and the American Way is *The Dose Makes the Poison* by Patricia Frank and M. Alice Ottoboni. It is not a book about agriculture; it is a book about poisons, both natural and synthetic. It’s a book about the science of toxicology, written by two trained toxicologists. The book is not a textbook; it’s written for the lay person. It covers all aspects of toxicology, from a discussion of just what a poison is, routes of exposure, carcinogenesis, mutagenesis, toxicology study design, and the evaluation of risk. It is neither “pro” nor “anti” chemical; it is simply a book about toxicology.

Some fascinating facts from the book: One tablespoon of botulin, the toxin produced by *Clostridium botulinum*, is sufficient to kill roughly three billion (yes, billion with a “b”) people. Ordinary table salt can be toxic; two tablespoons will kill a typical one-year old. At the same time, some salt is an absolute requirement for life. When Congress passed the Hazardous Substances Labeling Act in 1960,

it specifically exempted salt from requiring a hazard label.

Mercury, of all things, is not acutely poisonous. A person can swallow straight mercury and it will just be passed right through the digestive tract with little or no adverse effect. (I do not recommend this!) On the other hand, chronic exposure to mercury is a serious health risk. Mercury salts are both acutely and chronically dangerous.

Two common household items, aspirin and Vitamin D, are both deadly if consumed in excess. Roughly 100 aspirin pills is a fatal dose for humans, yet two or three aspirin tablets pose no significant health risks and are quite useful in controlling pain and “thinning” blood. Vitamin D is essential for health (400 IU (International Units, roughly 10 picograms, is the Recommended Daily Allowance for adults), yet a dose of 400,000 IU, or 10 nanograms, is potentially fatal. Fluoride is another substance that is beneficial for dental health in small doses, yet not so safe in higher doses. Metals like selenium and copper are necessary for proper nutrition, but toxic in larger quantities.

One of the things the book makes clear is the difficulty of establishing precise doses to define toxic limits. In addition to obtaining adequate funding to do the research, how can testing be performed without harming human subjects? If a chemical is

toxic to rats, rabbits, or frog embryos, will it be toxic to humans? Conversely, it is possible for a substance to be toxic to humans, but not to some other species. For instance, wood alcohol (methanol) is very dangerous for humans to consume, yet not significantly toxic to most other mammals. Humans can take acetaminophen, but it is toxic to cats. Simply designing a proper test is far more difficult than one might expect. In one example given in the book (involving the effects of radiation) it was noted that, in order to pinpoint the effect of a specified dose of radiation exposure with a high degree of confidence (95%), the necessary testing would have required eight billion (yes, with a “b” again) mice. Factors like this often result in setting dose and exposure limits far below what would be a more realistic, but difficult to evaluate, limit just to ensure safety.

Perhaps the book expresses its premise best with the following sentence: “Every chemical, synthesized or naturally occurring, has some set of exposure conditions in which it is toxic.” Even water can be fatal, drinking two gallons quickly is sufficient to kill a person. Read this book. Your reaction to a discussion of “poisons” should be better informed than a simple gut level response like “OMG, Kemiculz!”

Bill Schulze, Master Gardener
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Did You Know . . .

According to Mr. Know-it-all, Gary Clothier, the smell of the ground after a summer rain has a name: petrichor. The word comes from the Greek “petros,” which means “stone,” and “ichor,” the fluid that flows in the veins of the gods in Greek mythology. The word was created by two researchers in the mid-1960s when they discovered that certain plants excrete an oil during dry periods that is absorbed by soil and rocks. During a storm, the oil is released into the air.

- Sierra Vista Herald

In a Desert Garden

Summer Snapdragons - *Angelonia angustifolia*

I like container gardening—a nice way to add some color to an existing landscape. In winter I have containers filled with pansies, snapdragons, petunias, and geraniums that I place together with the containers of cacti and succulents. In summer I exchange those with plants that do better during our hot months, and I am always on the lookout for something new. Last year, a good friend gave me a little pot with *Angelonia*. I liked it so much that I got several more plants when they were available.

This plant is very showy, reminding me somewhat of snapdragons. It comes in a variety of colors—mauve, violet (my favorite), white, pink, and bicolor. *Angelonia* has a clumping upright habit with small double-lipped flowers that grow around tall spikes, very much like snapdragons, but smaller. The plant is found in Mexico and the West Indies. It is considered tropical and only cold hardy in zones 9 - 10. My plants didn't make it through this last winter, and we had a very mild one. Only the plant that I put in the greenhouse survived. *Angelonia* gave me color through most of the summer, blooming from July through September. It also did very well in full sun, thriving next to my pond without having to water it constantly. It was really low-maintenance, with no dead-heading necessary.

I found my plants in a hardware store. I bought the biggest plants they had and planted them in an oversized clay pot together with different colors of sweet potato vine, *Ipomoea batatas*. This is another plant I like to add to containers in summer because it comes in a variety of very nice colors and some even flower beautifully.

Angel Rutherford, Master Gardener
Photographer



Angelonia angustifolia

Ask a



Cochise County Master Gardeners are available to answer your gardening questions either by a telephone call to the Cooperative Extension Office or on-line on our web site at:

<http://ag.arizona.edu/cochise/mg/question.htm>

The following comes from our web site's Frequently Asked Questions:

Question: My tomatoes have small water-soaked areas that at first appear to be bruises, then turn into brown sunken leathery areas always on the blossom end of the fruit. Some of the sunken areas turn black. These diseased fruits usually ripen before the non-infected fruit. What disease do my tomatoes have?



Answer: This disease, call blossom-end rot, is caused by a localized deficiency of calcium in the fruits. Calcium is required in large quantities by growing cells like those in the blossom-end. When this rapidly growing tissue is deprived of the calcium needed for growth, especially cell-wall construction, tissues break down resulting in blackened, dry sunken spots on the blossom-end of the fruit. Water stress usually creates this disorder because inconsistent watering will not allow the plant to translocate sufficient calcium. Also, high levels of nitrogen can cause vigorous growth early in the season which with water stress can compound the problem. Blossom-end rot is also seen in chili and bell peppers and members of the squash and melon family.

Control: It is important to regulate soil moisture and maintain that moisture at a relatively constant level where possible. Plenty of organic matter in the soil and mulching plants will help maintain consistent soil moisture. Also, avoid high applications of nitrogen to the plants. Some varieties of tomatoes are less susceptible to blossom-end rot. These include Early Girl, Floradel, Floradade, Tropic, and Jet Star. It has been demonstrated that foliar sprays of calcium chloride (1 lb./25 gallons of water) or calcium nitrate (2 lbs./25 gallons of water) can help reduce this problem. Applications must be made before calcium levels fall below critical levels and must be applied weekly for 3 to 4 weeks.

Source: *Vegetable Diseases and Their Control*. A. F. Sherf and A. A. MacNab. 1986. pp. 689-691. John Wiley and Sons, New York.

At a Glance Box

It's a Bloomin' Cochise County Native Plant of the Month

Plant: Desert Spoon, *Dasyilirion wheeleri*

Description: Succulent shrub

Blooms: May-July

Use: Excellent “natural zone” or accent plant

Culture: Native to southwestern U.S., Sonora and Chihuahua, Mexico grasslands

Learn more: Cochise County Herbarium, www.cochisecountyherbarium.org

For an in-depth article, see below.

Cado Daily

Water Resources Coordinator, Water Wise Program

University of Arizona Cochise County Cooperative Extension



Desert Spoon

Oh my gosh. Right now is the BEST time to pay attention to our native desert spoons (*Dasyilirion wheeleri*). The 15-foot tall yellow flower stalks are buzzing with insects. There are so many insects visiting the flowers that you can hear them before you know you are walking past the large rosette of blue-green leaves sporting the tall stalk (hum, that stalk wasn't there last week, was it?).

Craning your neck skyward, you will see some stalks are covered with hundreds of fuzzy yellow flowers, many with little bee butts sticking out of them. The flowers are very attractive to insects that burrow deep into the flowers getting something to eat, meanwhile pollinating the ovary.



I love it when the common name of a plant actually describes something about it. The common name of the *Dasyilirion wheeleri*, desert

spoon, is a great example of that. When the dead leaves fall off the round base of the plant, the bottom of the leaf is cupped like a spoon. At some earlier time, I bet it was used as a spoon for something! The dead rosette of the plant base is lovely—as it disintegrates, you can see the layers of the cupped leaves in a perfect circle. Some crafty people use the dried plant parts for flower arrangements.

Unlike most agaves that die after flowering, mature desert spoons can put up flower stalks each year. However, like agaves, they shoot up the flower stalk over a period of a couple of weeks and are impressive. Looking at the *Dasyilirion wheeleri*'s blooming around the UA South campus is quite an experience. Not only are the plants themselves great landscape specimens, but with their flowering stalks they are majestic (see photo above).

Dasyilirions are in the *Asparagaceae* (just changed from *Liliaceae*) family and are monocots. Think of them like big grass plants, like palm trees. The difference between

monocots and dicots—monocots have one cotyledon (“seed leaves”) instead of two (mono-one, di-two), but more visually, the vascular bundles are random and not in a ring like dicots. When you cut into the stem of a monocot, you won't see a distinctive ring pattern like you would with a dicot.

OK. Enough of vascular bundles, back to the flowers. The desert spoon is dioecious meaning the male and female flowers are on separate plants. With the flower stalk, you can really see the difference after the female stalk makes seeds later on in the summer. Take a close look at the stalks and see if you can tell which is which.

Another common name in Mexico and adopted in the U.S for *Dasyilirion* is “sotol.”

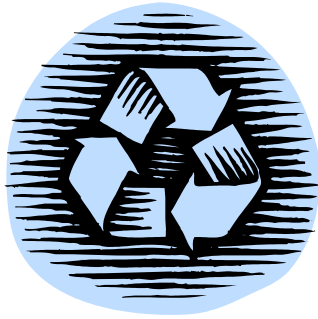
Dasyilirions, like agaves, are plants of many uses. If you like tequila made from agaves, you may be familiar with a type of sotol tequila made from *Dasyilirions*. Both agaves and *Dasyilirions*

(Continued on page 6)

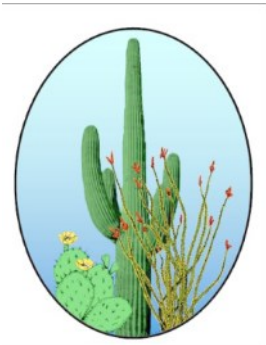
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Water
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Saturday, July 12, 9 a.m. - Noon

High-tech! State-of-the-art! Simple! Easy!
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Open House sites—visit them anytime during tour hours

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 - Sierra Vista Police Station: Harvests stormwater with "earthworks"
 - Sonic Drive-In: Say "rainwater" and get a **FREE OCEAN WATER** (all day!)
 - Two residential sites— for ideas to harvest your own rainwater!
- (residential site addresses will be available at the PDS, BGC and Police Station)

For more information, call *Water Wise*
458-8278 x 2141



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2014 Sonoran Desert Master Gardener Conference

Presented by: The University of Arizona College of Agriculture and Life Sciences Cooperative Extension Master Gardener Program

Thursday, September 11, 2014 for a day of tours
Friday, September 12, 2014 for a day of lectures

Where: Casino del Sol, 5655 W. Valencia Road, Tucson, AZ 85757

Who should attend?

The 2nd annual Sonoran Desert Master Gardener Conference is open to everyone. In addition to being a wonderful opportunity for continuing education for Master Gardeners of Arizona, the conference is available to everyone interested in learning about trees, gardening techniques, eco-design and the good and bad insects that live in your yard and gardens.

Click for [information](#) and [registration](#) form. Early registration for Master Gardeners ends July 15.

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have fibrous leaves and were used for making baskets, shoe soles, and mats.

There are other species of *Dasyliiron* used in landscapes. There is the green desert spoon, *D.acrotriche*, that looks much like the *D. wheeleri* but the leaves are greener. Both of these species have teeth on their leaves. The *D. quadrangulatum (longissimum)* or Mexican tree grass has smooth green leaves with a trunk that can grow to ten feet.

Dasyliirions are terrific landscape plants. They are spectacular accents, fun to watch their changes and best of all need little care from the gardener. These are a group of plants to let grow naturally and enjoy the show.

Cado Daily, M.A.
Water Resources Coordinator