



The Virtual Gardener Gets a New Job — Weather Observer

For the past 34 years, Fire Station #1 on east Fry Boulevard has been the National Weather Service (NWS) Cooperative Observer Program (COOP) station for Sierra Vista, reporting the official high and low temperatures and precipitation amounts for the city. That changed on February 25, 2017 when the Virtual Gardener became the new Cooperative Observer for Sierra Vista. Here's how that came about.

Some months ago, the Fire Station asked the National Weather Service to be relieved of its weather reporting responsibilities and a search began for a new location and volunteer observer. The new location had to meet certain technical requirements for the siting of equipment and be relatively near the old location to maintain continuity of the data. Since I was already a weather spotter for the NWS and my property met the technical and locational requirements, I was asked if I would be interested in volunteering to host the site. I agreed.

The equipment—a rain gauge, an electronic thermometer, and display console for viewing temperature data—

were installed on February 25 and I was up and running. My duties are to record the 24-hour high, low and current temperatures and daily rainfall amounts. The readings are to be taken each morning and reported to the NWS. And—oh, yes—I am also responsible for reporting the depth of any snowfalls.

The rain gauge is a standard 8-inch NWS model that collects rainfall in a smaller diameter tube inside the larger 8-inch tube. Rainfall is measured in the smaller tube with a dipstick. If the total amount exceeds 2 inches, the excess spills over into the larger outside tube and must be poured into the smaller tube to be measured. The overflow amount is added to the original 2 inches to obtain the total rainfall.

The new gauge is located immediately next to the small plastic Tru-Check gauge I have been using for a number of years to report rainfall to the University of Arizona Rainlog program. It will be interesting to see how the amounts

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measured in the new NWS gauge compare with the amounts measured in the Tru-Check gauge. It will also be interesting to compare these measurements to the amounts reported by the tipping gauge located in the Weather Underground weather station on the roof of the house. My previous experience is that the tipping gauge usually under-reports rainfall amounts.



The second piece of equipment is the Maximum Minimum Temperature System (MMTS) which is located on a pole at roughly eye height and positioned so that it does not receive any reflected heat from buildings or pavement. It contains an electronic temperature sensing device called a thermistor. The MMTS is connected by a data cable to a Nimbus console that displays the temperatures sent to it by the MMTS. The console unit is located



inside the house and is continually updated to display the current temperature. It also remembers the highest and lowest temperatures since it was last reset. Each morning I observe the high, low, and current temperatures displayed on the unit, reset the unit, and report the temperatures along with any rainfall to the NWS.

The Cooperative Observer Program was formally established by Congress in 1890 with the

passage of the National Weather Service Organic Act, but weather observations in what is now the United States began many years before that. John Campanius Holm, a Swedish Lutheran missionary to the Lenape Indians in New Sweden (in present-day Delaware), was the first person to begin recording regular weather observations starting in 1644. Many years later, George Washington, Thomas Jefferson, and Benjamin Franklin also made and recorded regular weather observations. Jefferson's records were maintained almost unbroken for 40 years from 1776 to 1816. Washington recorded his last observation just a few days before he died. Today the Cooperative Observer Program is maintained by approximately 11,000 observers in cities, towns, and rural locations all across America.

There are over 40 observation sites just in southern Arizona alone. Some of these sites have been reporting since long before the system was formally established. For example, observers in Willcox have been reporting since 1875. Many other reporting stations in Southern Arizona also came online in the late 19th century, including San Carlos Reservoir (1881), San Simon (1882), Tombstone (1888), Cascabel (1894), Cochise (1899), and Black River Pumps (1899). In addition to the sites in Southern Arizona, there are other sites located all over the northern half of the state.

So what happens to the data collected by the COOP site volunteers?

The volunteers enter their observations into an online database where they are stored and processed. Processing involves using statistical tools to check the data for errors and combine and summarize them to create products suitable for different users. For

example gardeners and farmers are especially interested in average first and last frost dates, chill hours, and patterns of precipitation, among other things. Other user communities—lawyers, hydrologists, insurance companies, engineers, medical researchers, and climatologists, just to name a few—are interested in different products. All of these users are supported by the National Oceanic and Atmospheric Administration's National Climatic Data Center and the six Regional Climate Centers covering the United States and Puerto Rico.

If you would like to look at the data submitted for Sierra Vista go to <http://scacis.rcc-acis.org/>. In the column on the left side of the page you will see four buttons. Click the top button labelled "**Product Selection**," choose "**Single Station Products**," and select "**Daily Data Listing**" from the drop-down list. Under "**Options selection**," enter the date range of interest and check the Value boxes for **Max and Min temp and Precipitation**. Click the button labeled "**Station/Area selection**" and type "**SEVA3**" into the ID box. That is the station ID for Sierra Vista. From the Type list select "**NWS LI**." (Note: the type should be "Coop" vice NWS LI and a correction should be made in the near future).

If you would like to learn a little more about the Cooperative Observer Program, check out this [link](#) or Google "National Weather Service Cooperative Observer Program."

Until next time, happy surfing!

Gary Gruenhagen, Master Gardener
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3rd Annual Spring Plant Sale

Time to celebrate Spring and start planting! And just in time, the 3rd Annual Cochise County Master Gardener Spring Plant Sale is all set for Saturday, April 22, 2017 at the University of Arizona Sierra Vista.

The Plant Talk will begin at 8:45 AM in classroom 503 and will cover the growth habits and care of each plant being sold.

The Plant Sale begins at 10:00 AM and runs to 2:00 PM, and will offer a wide variety of Arizona native and desert adapted plants. The sale will feature trees, shrubs, perennials, groundcovers, cacti/succulents, and vines, and will be held on the shaded, front north patio of Groth Hall right outside the Public Meeting Room.

All proceeds from the Plant Sale will benefit the Discovery Gardens at the U of A Sierra Vista, which are being developed by the Cochise County Master Gardeners in conjunction with the UA Cochise County Cooperative Extension, as demonstration gardens for our community. The Discovery Gardens feature multiple theme gardens with pollinator habitats running throughout, as well as hardscape features, rainwater harvesting in our new 20,000 gallon tank, and other concepts to motivate and educate garden visitors for their own homes.

Don't miss this opportunity to take home a wide variety of new additions to your gardens! And . . . Thank you for your support of the Discovery Gardens!

Jan Groth, Master Gardener Program Coordinator



Cuttings 'N' Clippings

✿ Look for the Master Gardeners at the Sierra Vista Farmers Market on **Thursday, April 6 from 10:00 AM—2:00 PM**. The CCMGA April meeting will be held on **Thursday, April 13 in Room 503 UAS at 2:00 PM** with Jim Koweek sharing tips for incorporating native plants into your landscaping. **The Master Gardener Spring Plant Sale will be held on April 22 at the UA Sierra Vista beginning at 8:45 AM with a plant talk followed by the sale from 10:00AM—2:00 PM.** On **Thursday April 20** the Master Gardeners will be back at the Sierra Vista Farmers Market in honor of Earth Day. For Cochise County Master Gardeners Association information contact Valerie at:

valeriedvidson@email.arizona.edu

or the Cochise County Master Gardeners web site at:

<http://cals.arizona.edu/cochisemg/>

You can also follow them on Facebook at:

www.Facebook.com/CochiseCountyMasterGardeners

WAM! April is Water Awareness Month!

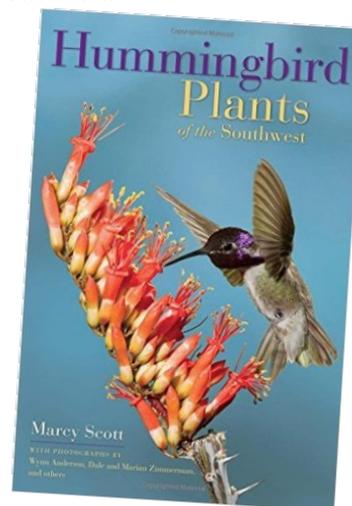
✿ Water Wise will be holding a *Drip Irrigation Clinic* **Saturday, April 8 from 9:30—11:00 AM** at UA Sierra Vista. The presenter will be Steve Poe, PhD, UA Extension Specialist. On **Saturday, April 15** a *Family Day at the UA Sierra Vista* will be held from **9:00—noon**, and on **Saturday, April 22**, a discussion on *Graywater: Laundry to Landscape* will be held from **9:30—11:00 AM** at the UA Sierra Vista. The presenter will be Val Little, Research Specialist, UA College of Architecture & Landscape Architec-

ture. Contact the Cooperative Extension at 458-8278, Ext. 2141 for more information. Check out the Water Wise web site for their 2017 schedule at:

<http://waterwise.arizona.edu/>

✿ The Cochise Chapter of the Arizona Native Plant Society's next program will be held **Friday, April 21 at 5:00 PM**. They meet in the Cochise County Community Development Office conference room, 4001 Foothills Dr. Sierra Vista. The speaker will be Marcy Scott, a birder, botanizer, former wildlife rehabilitator, and garden consultant from Las Cruces, NM. Her topic will be:

Hummingbird Plants of the Southwest.



She will review and show illustrations from her new book *Hummingbird Plants of the Southwest*. For more information, follow AZ Native Plant Society on their web site:

<http://www.aznps.com/chapters/cochise/cochise.htm>

April Reminders

**Stake new trees
Fertilize
Prepare for pests**

Six Tips for Your Spring Gardening

1) Start by cleaning out all debris from under and around your shrubs and trees which has accumulated over the winter months. Folks often think that leaving this debris is a good idea, as they believe it will decompose and add organic material to the ground. But this debris has served as a wintering-over spot for insect eggs and fungal spores just waiting for the warmth of spring to stimulate their growth and activity.

2) Trim all dead and broken branches from your trees and shrubs, taking care to not leave remaining stubs. Dead wood and ragged pieces of broken wood are excellent entry points for fungal, bacterial, and viral infection, as well as desirable sites for insects to lay eggs. Plus, it's amazing how

much more beautiful your plant will look when the unsightly branches are gone!

3) Before the winds of spring take hold and the temperatures begin to rise, check your drip irrigation system to ensure that all emitters are flowing as they should. If you do not have drip irrigation and you're watering multiple plants by hand, you might consider installing drip. While drip irrigation systems have a reputation of requiring a lot of maintenance, the good aspects far, far outweigh the bad in performance of plants, water saved, and personal time spent on watering.

4) Prune back any shrubs and perennials that might be showing leggy and thin growth, as pruning will stimulate new, branching growth and encourage a much fuller



growth habit.

5) Now is a great time to give a spring dose of fertilizer. We have had great results in the Discovery Gardens with diluted fish emulsion. It's quickly becoming a favorite. Just remember: Never give a stronger dose of fertilizer than what is recommended in the package directions!

6) Now, do a little shopping and bring home some new plantings for your garden! . . . And don't forget the Master Gardener Spring Plant Sale on Saturday, April 22 at UA Sierra Vista.

Jan Groth, Master Gardener Program Coordinator

When to Plant Vegetables in the Arizona Garden

Vegetables differ in their climatic requirements making it necessary to know when to plant them in order to have a successful garden.

Some vegetables will withstand cool and even slight freezing weather. Others need warmer conditions to germinate and to produce. Generally vegetables are placed in two categories—cool-season crops and warm-season crops.

Cool-season vegetables include beet, broccoli, cabbage, carrot, lettuce, onion, pea, potato, radish, spinach, and turnip. These are hardy or frost tolerant plants and germinate in cold soil. They can be planted in the fall, winter or early spring depending on location. For best quality these crops need to

mature during cooler periods rather than in the heat of the summer.

Warm-season vegetables include beans, cucumber, eggplant, melons, pepper, pumpkin, squash, sweet corn, sweet potato, and tomato. These do not tolerate frost but need warm temperatures to set and properly mature fruit. However, high temperatures reduce quality—Examples: sunburned fruit, poorly colored tomatoes, and poor ear fill of sweet corn.

Elevation is indicative of climate. In Arizona, gardening occurs from almost sea level to over 7,000 feet. Two problem periods exist—the hot summer at lower elevations and cold winter at higher elevations. Since these conditions should be avoided for many vege-

tables, considerations should be made when planning the garden planting schedule.

At lower elevations up to 3,000 feet, two main planting periods are generally followed—early spring period for warm-season vegetables and late summer to winter period for cool-season crops. In the higher elevations 3,000 to 7,000 feet, there is one main cropping period which is planted during the spring and early summer. Although, at these elevations in Central and Southern Arizona, an early fall planting of cool season vegetables is usually productive.

- University of Arizona Cooperative Extension

Ten Steps to a Successful Vegetable Garden

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1435-2015.pdf>

Ten carefully taken steps will produce many enjoyable moments and an abundant harvest of fresh vegetables during much of the year. The ten steps are: 1) Select a good location. 2) Plan your garden layout. 3) Grow recommended varieties. 4) Obtain good seed, plants, equipment, and supplies. 5) Prepare and care for the soil properly. 6) Plant your vegetables properly. 7) Irrigate with care. 8) Mulch & cultivate to control weeds. 9) Be prepared for pests and problems. 10) Harvest at peak quality.

Gardening with vegetables can be fun and can provide delicious and highly nutritious fresh food. Watching and working with plants can add a new di-

mension of enjoyment to life, and bring an awareness of the wonderful world of nature in the backyard. The marvels of nature will have special personal meaning when nurturing a small seed into a colorful productive plant with your own hands. These accomplishments can be obtained regardless of the size of garden. A few plants or a large plot will give rewarding experiences for both young and old. The path to a successful vegetable garden is not difficult or long. Ten carefully taken steps will produce many enjoyable moments and an abundant harvest of fresh vegetables during much of the year.

- *University of Arizona Cooperative Extension*



There's just no way to know. Nonetheless, as gardeners, we must persist in the face of uncertainty. It's in our blood.

If a vegetable garden is your thing, you can still transplant cool season crops into the garden, but it's probably getting a bit late to start most of them from seed. Radishes, greens like mustard, spinach and kale, and short time-to-maturity plants like lettuces and beets would be exceptions and should still be okay to grow from seed. As far as the summer garden, it's definitely time to start tomatoes, eggplant, and peppers from seed for May transplanting. Beans, okra, and corn are best sown directly into the garden when the weather is warm enough. Cucumbers, melons, and squash (summer, winter, and pumpkin) can be transplanted or direct sown. If you decide to transplant these vegetables (technically, they're fruits), sow your seed indoors about three or four weeks before transplant time.

As for putting in new landscaping perennials like trees and shrubs, it is really going to require a lot of work and judicious watering to keep them alive through the increasing temperatures and winds

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This Month in the High Desert . . . Has Spring Sprung for Gardeners?

(Editor's Note: This article written by Master Gardener Bill Schulze was adapted from a April 2012 article published in the *Sierra Vista Herald*.)

Spring has sprung...maybe! It's really too early for tomatoes, but I put them in in March because I am an eternal optimist, plus I desperately want to lay claim to having the first tomato on the block! In general, without excellent frost protection, it's still too early to

plant your warm season crops like tomatoes, peppers, cucumbers, squash, and corn. Night time temperatures should be reliably in the mid-fifties Fahrenheit or higher before planting them, so mid to late May is a good target for summer crop planting and transplanting.

April can be a tough month for gardeners. We might have a just-right, Goldilocks spring. We might have a few more freezes. We might get pretty warm and stay that way.

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(I've been told we have occasional "breezes" in these here parts). Fall and early winter are really the best time to install these kinds of plants, although you can also try to plant during the rainy season as well to increase the odds of survival.

For annual flowers, begin sowing seeds like cosmos, hollyhock, marigold, nasturtium, and zinnia. You can also plant summer season nursery plants, but watch for cold weather and protect them when the frosts come. For herbs, sow dill directly, but don't try to transplant it. It doesn't take well to transplanting and usually dies. Transplant or sow mint, oregano, thyme, lemon grass, and chives, too. Wait another six weeks or so before planting basil. Basil, by the way, transplants well.

Fire season has already started, so, for goodness sake, try and keep your yard and surroundings free of dead or dry grasses and brush. Mow the grasses, chop the brush, then get the branches and heavier materials into the trash and encourage your neighbors to do the same. Alternatively, shred and compost them. Keeping the tall dead grasses short will also help cut down on the chigger population come monsoon time and that is definitely a good thing!

Don't forget to keep your large trees and shrubs watered; it's been a long, long time since we've had enough rain to support an established tree. Water low and slow at the drip line and get deep enough. Deep enough means two and a half to three feet for big trees, two feet for smaller trees and shrubs. If you don't get deep enough, your plants roots will be shallow and more susceptible to drought. I can't stress the value of a soil probe enough. With one, you'll know exactly how deep your water has penetrated.

Happy Gardening!

Bill Schulze, Master Gardener

Earth Day – April 22

Did you know . . .

Earth Day—April 22—marks the anniversary of the birth of the modern environmental movement in 1970?

The idea for a national day to focus on the environment came to Earth Day founder Gaylord Nelson, then a U.S. Senator from Wisconsin, after witnessing the ravages of the 1969 massive oil spill in Santa Barbara, California. Inspired by the student anti-war movement, he realized that if he could infuse that energy with an emerging public consciousness about air and water pollution, it would force environmental protection onto the national political agenda. Senator Nelson announced the idea for a "national teach-in on the environment" to the national media; persuaded Pete McCloskey, a conservation-minded Republican Congressman, to serve

as his co-chair; and recruited Denis Hayes from Harvard as national coordinator. Hayes built a national staff of 85 to promote events across the land. April 22, falling between Spring Break and Final Exams, was selected as the date.

Earth Day had reached into its current status as the largest secular observance in the world, celebrated by more than a billion people every year, and a day of action that changes human behavior and provokes policy changes.

Today, the fight for a clean environment continues with increasing urgency, as the ravages of climate change become more manifest every day. We invite you to be a part of Earth Day and help write many more chapters—struggles and victories—into the Earth Day book.

<http://www.earthday.org/>



*"He who plants a garden . . .
plants happiness."*

Cochise County Master
Gardener Newsletter Editor
Carolyn Gruenhagen