High on the Desert Cochise County Master Gardener Newsletter

Vol. 29, No. 1 January 2018

The University of Arizona and U.S. Department of Agriculture Cooperating

The Virtual Gardener — Leaves! Leaves! Leaves!

Have you ever thought about tree leaves? I think they are one of Mother Nature's best inventions.

Tree leaves are tiny solar panels that allow trees to convert solar energy into sugars and tissues. They are covered with tiny openings (stomata) that allow trees to breathe in and out. They have "sweat glands" that allow trees to cool themselves by evaporation. They draw water from the ground by transpiration. They contain part of the "plumbing system " that trees use to transport gases, water, and nutrients to the rest of the plant. They provide protection to other parts of the tree from the harsh rays of the summer sun, and they shade and cool the soil beneath the tree. They are even used as warehouses to temporarily store excess sugars produced during the day until they can be sent on their way to other parts of the tree at night when photosynthesis stops. Oh…and did I mention that trees even recycle them?

That's just what they do for the trees. They also provide food for other organisms. For us they provide beauty and shelter from sun and rain. They even can help us manage our heating and cooling bills. But many of us find them annoying at certain times of the year.

All leaves eventually fall from the trees, littering the ground or blowing into piles on porches and patios. For most deciduous trees this happens annually, usually in the fall, but not always. Needle-bearing "evergreens" continuously shed their leaves throughout the year. My eucalyptus trees start losing their leaves in the spring and continue to lose them all summer long.

For many gardeners leaves on the ground are an unsightly mess that cannot be tolerated and must be cleaned up as quickly as possible. These gardeners attack them with rakes and blowers and either bag them for removal or burn them. In the best case, the bags are sent to a composting facility such as the one operated by the City of Sierra Vista, but all too often they are put in the trash and sent to a landfill or burned, wasting a valuable resource.

Wasting a resource? How's that? To answer that question, let's take a look at what's in a leaf, where it comes from, and how we can use it.

Leaves are manufactured onsite by the tree. They are mostly made of carbohydrates—cellulose and sugars More than 95 percent of their dry weight comes from

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the elements oxygen, carbon, and hydrogen derived directly from air and water and nitrogen derived indirectly from the air through the action of microorganisms in the soil. The 12 elements making up the other 5 percent of the weight of the leaves are derived directly from the soil. These 12 elements—the micronutrients—are present in extremely small quantities, but they are essential to the growth of the tree.

Trees use their roots to "mine" the soil to obtain the micronutrients. Although these elements are usually present in the soil in sufficient quantities to support plant growth, they are mostly found in forms that are not accessible to plants. The elements are held tightly in the mineral grains that make up the soil. In order for these elements to be available to plants, they have to be dissolved out of the minerals and carried in solution. The breakdown of the minerals by weathering and the action of microbes is a slow process. Trees and other plants remove available minerals from the soil faster than they can be replaced by weathering. Over time this can lead to a loss of fertility. Mother nature solves this problem by recycling the nutrients taken up by the plants.

In a forest, leaves fall and accumulate under the trees. In relatively short periods of time, the leaves decay. That is, they are consumed and digested by microbes that release the mineral nutrients contained in the leaves. Rainwater dissolves the nutrients and carries them back into the soil where they can be reused by the trees. In this way Mother Nature keeps the soils from becoming depleted and maintains their fertility.

Smart gardeners take a hint from Mother Nature and recycle the leaves from their own trees rather than burning them or sending them off to the landfill. The process is easy, requiring very little effort, and can save you money. According to one study, leaves from a large shade tree can be worth up to $50 in fertilizer and humus.

The best tool for the job is a leaf blower. But in this case you're not going to blow the leaves but suck them up with the blower. Many leaf blowers can be used "backwards" to vacuum leaves and collect the results in a bag as well as to blow them. Even better, the blower/vacuum also functions as a shredder as it sucks the dried leaves into the bag. Shredded leaves compost much more efficiently than whole leaves. Just empty the shredded leaves into a pile and forget about them. Over time, they will begin to compost on their own from the bottom up. All you may want to add is a little water—not too much, though—to compensate for our very low humidity. Adding nitrogen-rich materials is optional and can speed the process along but is not necessary. The composting process will operate slowly through the cool winter weather and then accelerate when the weather warms up in the spring.

For an interesting and humorous introduction to leaf composting, check out this video: **Everything You Know About Composting is Wrong: Mike McGrath at TEDxPhoenixville**

For additional information about the importance of composting leaves, check out: **Don't Bag Your Leaves: An Analysis of Nutrient Loss and Soil Depletion for Leaf Removal**

Until next time, happy surfing!

Gary Gruenhagen, Master Gardener
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Cuttings 'N' Clippings

❄ For CCMGA information contact Valerie at: **valerieda-vidson@email.arizona.edu** or the Cochise County Master Gardeners web site at: **http://cals.arizona.edu/cochise/mg/**

❄ The January 2018 Water Wise free presentation will be **Saturday, Jauary 13, 10:00 AM** in Groth Hall UA Sierra Vista. *Arizona Climate, Past, Present, and Future* will be presented by Mike Crimmins Climate Science Extension Specialist for AZ Cooperative Extension. Check out the Water Wise web site at: **http://waterwise.arizona.edu/**

❄ AZ Native Plant Society meets **Friday, January 19 at 5:00 PM**, Cochise County Community Development Office, 4001 E. Foothills Drive, (Corner of Highway 92 and E. Foothills Drive) Sierra Vista. The speaker will be Jim Verrier, a botanical researcher at the University of Arizona Herbarium and an expert on the botany of the Southern

Corallorhiza maculata

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A Reminder Note From a Gardener

Just a reminder note to please do as I suggest, and not as I do. I always recommend to folks to remember to water plants in the winter. It is sad how many plants die in the winter from dehydration, especially in the winter we're having so far: no rain, very low humidity, and warm temps. We allow ourselves to take a "gardening break" sometimes in the winter and slow down on the chores. That's what I did, and I've lost two of my longtime favorite container plants just because I didn't water them in time.

Even though plants are in their dormant modes, the evergreen plants still have transpiration activity occurring in their leaves. Both the evergreen and deciduous plants still need to maintain hydrated roots. While you do not need to water nearly as often as in the warm months, a thorough, infrequent watering through the winter months will decrease stress and help ensure the good health of your evergreens, deciduous plants, and perennials.

We Gardeners are never finished!

Jan Groth, Master Gardener Program Coordinator

What Do Master Gardeners Do?

Here are a few things accomplished by the Cochise County Master Gardeners:

1) publish a free monthly newsletter that goes out to hundreds of subscribers,
2) maintain a popular web site at: http://ag.arizona.edu/cochise/mg/,
3) produce an annual High Desert Gardening & Landscaping Conference. On March 15, 16, & 17, 2018 we'll hold our 25th annual Conference,
4) provide scholarships for Conference attendance,
5) answer gardening questions and dispense free gardening literature at local Farmers' Markets,
6) provide speakers for organizations who are interested in gardening programs,
7) remove litter from Campus Drive twice a year,
8) hold monthly meetings with educational speakers. Our meetings are open to the public,
9) grow and maintain the pollinator garden at Kartchner Caverns,
10) grow and maintain the Discovery Gardens, Sierra Vista's first educational demonstration garden,
11) produce educational outreach programs for schools and public in the Discovery Gardens,
12) hold spring & fall plant sales which begin with a 1-hour educational talk on native and desert adapted plants and gardening tips, with proceeds used to help grow the Discovery Gardens,
13) hold a plant clinic for the public in the Discovery Gardens each Wednesday with times varying according to season,
14) open Community Seed Library every Wednesday, Cochise County's first seed library where heirloom, non-GMO, non-hybrid seeds of all kinds can be checked out for free by any community member, hours change with the season.

Master Gardener

Some past Master Gardener activities have included:

1) created and funded a brochure identifying the plants on the UASV Campus Botanical Garden in Sierra Vista,
2) donated plants and provided landscaping assistance to various organizations such as Southern Arizona Veterans' Memorial Cemetery, Buena High School, Bisbee's Vista Park, and the San Pedro House,
3) provided docents and advice for annual Water Wise Xeriscape Garden Tours,
4) donated thousands of dollars' worth of gardening books to the Cochise County Library System and to area high schools,
5) assisted UA field trials to test plants' water requirements and susceptibilities to Texas Root Rot,
6) developed lists of plants specifically recommended for our area to residents, builders, and landscaping companies,
7) helped fund the Cochise County Herbarium which collects & catalogues plant specimens of our region,
8) and planted Campus Drive median landscaping.

As you can see, we are a very busy group! See related article on Page 6 of this newsletter.

Compiled by Jan Groth, Master Gardener Program Coordinator and Bill Schulze, Master Gardener

Kris Williams—We miss her dearly

On Thursday evening, December 14, Kris Williams and her beloved husband, Steve, attended a cooking class which they had planned to attend together for months. Soon after arriving home from their enjoyable evening, Kris experienced an acute, unexpected health episode, and sadly, she did not recover.

The community has lost a delightful, hard-working Master Gardener. Kris had lots of interests outside the Master Gardeners such as travel, photography, and outdoor adventures, and we will especially remember her for her constant smile, hard work, and contributions to the Master Gardeners.

Kris was a graduate of the 2016 Master Gardener Class. Even while working many hours as a Registered Pharmacist, she was active in working on our High Desert Gardening & Landscaping Conference, worked at our Plant Sales, and regularly wrote cheery articles for our monthly Newsletter. I'm sure many of you have enjoyed them here.

Kris had also become an active crafter in our Friday morning Craft Group and did some beautiful, fun work. Just a few Fridays ago, she showed up with her usual huge smile and showed off the new purple streaks in her hair. She looked spunky and adorable! She then sat down to create an extraordinary image of a lizard painted Mandala style on a garden rock. And while she painted it to sell as a fundraiser at the High Desert Conference, we will now keep it as a Master Gardener keepsake on display in the Discovery Gardens.

Jan Groth, Master Gardener
Program Coordinator

25th Annual High Desert Gardening & Landscaping Conference

The 25th Annual High Desert Gardening & Landscaping Conference, our Silver Anniversary of the event, is set for Thursday. Friday, and Saturday, March 15, 16, & 17, 2018. Once again it will be held in the Student Union Building of the SV Cochise College Campus. This Conference, produced by the Cochise County Master Gardeners in conjunction with UA Cooperative Extension Cochise County, remains the longest running 2-day gardening conference of its kind in the Southwest and will feature multiple classes and workshops on a wide variety of topics for anyone with an interest in gardening.

The event will be kicked off with a pre-conference wine & cheese tasting on Wednesday evening, March 14th, featuring wines from many of our local wineries.

Registration will begin mid-January and will conclude Saturday, March 10. For information and registration, visit **cals.arizona.edu/cochise/mg/calendar** or call the UA Cooperative Extension in Sierra Vista at 520-458-8278, ext. 2141.

Jan Groth, Master Gardener
Program Coordinator

Growing, Connecting, Educating...Gardening and Landscaping on the High Desert

Summer Shade, Winter Sun:
The Benefits of Shade Trees

Shade! The word has a lovely connotation and its benefits are many. A shade tree can reduce the temperature under its boughs by as much as 9° F. Shade also cools smaller plants growing beneath trees as well as the soil. Another great benefit is transpiration. Like all trees, shade trees produce the oxygen that we need to breath, lest we forget! Take a moment to imagine your favorite outdoor place. If it's not a beach, I venture there is a beautiful shade tree somewhere in your scene.

The interiors of buildings can be improved with shade. Growing near an east or west-facing window, a tree can block morning and afternoon sun during hot summer months, cooling the home. Trees can also heat your home with 'passive solar.' Deciduous trees shed their leaves just in time for you to want that extra heat to come through your windows. Trees are also good windbreaks keeping down energy costs. When planting a tree able to grow sixty feet tall or more, be sure to plant it at least thirty-five feet away from the house, and take into consideration utility lines.

We enjoy a shady feel and walkability on our avenues and boulevards, too. The presence of street trees is known to contribute to safer streets. The City of Sierra Vista has plans to redesign Fry Boulevard on its west side. The design includes shade trees that will be watered with storm water directed from street surfaces to basins during rain events. This will help reduce 'the heat island effect' where temperatures in towns exceed those of surrounding natural landscapes due to acres of pavement that reflect heat into the atmosphere and that have replaced vegetation which absorb solar rays.

Once our native trees are established they can live on rainfall and do even better when that rain is stored in the soil above their roots in a donut-shaped, shallow basin loaded with mulch.

What kinds of shade trees are popular (and suitable) for our Southeastern Arizona High Desert? These SE Arizonians have their favorites:

Mesquite shade

Mark in Bisbee, AZ recently planted a Texas Honey Mesquite (*Prosopis glandulosa*) to shade his east-facing wall. These trees give a dappled shade. This tree replaces an ancient Arizona Cypress that gave up the ghost, falling under a heavy load of snow in January 2016. The fact that a mesquite has a deep tap root makes it more efficient at surviving on rainfall alone..

Elizabeth of Sierra Vista, AZ loves her evergreen conifer for shade. She visits it to find respite from the bright sun when she's out gardening, summer or winter. The lower branches of her tree are pruned so that she can stand under it (and to prevent fire spread). The tree harbors Woodbine hummingbirds and finches who perch on the lower drooping branches. A woodpecker is often busy on the trunk at about eye level. A Great Horned Owl perches on its top and swoops down to catch the rabbits, pack rats and ground squirrels! A dense shade comes from this tree shaped like a wizard's hat! Note that though Elizabeth does not water this tree, her property is purported to have a high water table.

Evelyn in Hereford, AZ is very fond of her Mimosa tree (*Albizia julibrissin)*. She loves its pink flowers and long, narrow seed pods. Her tree casts an umbrella-shaped shade where Evelyn sits during a (rare) quiet moment. Her second favorite shade tree was a beloved Desert Willow (*Chilopsis linearis*) felled during an episode of micro-bursts in the Three Canyons area several years ago.

BJ in Whetstone AZ loves her Arizona Ash trees (*Fraxinus velutina 'Rio Grande'*) for shade. They stand guard outside of her greenhouse and her kitchen window. While established ashes can sustain on rainwater only, they are quick, healthier growers with an occasional additional thorough

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watering. BJ finds them easy to maintain with only a bit of leaf clean up needed in the fall.

Other popular, water wise shade trees are: Sweet Acacia (*Acacia smallii*), Allepo Pine *(Pinus halepensis*), Texas Redbud (*Cercis canadensis* var. *texensis*), Eldarica Pine (*Pinus eldarica*), Texas Mountain Laurel (*Sophora secundiflora*) and Gambel Oak (*Quercus gambellii*).

Though we are separated into our own yards and properties, we all live in connection to the elements of weather, plants, fuel, and wildlife. In light of this interdependency, I'm advocating: plant a new shade tree in your yard to increase the quality of life for us all.

MaryAnn Capehart, Cochise County Cooperative Extention, Instructional Specialist, Senior - Water Wise

The U of A Water Wise Program
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What the Heck is a Master Gardener?

(**Editor's Note:** This article written by Master Gardener Bill Schulze was adapted from a December 2011 article published in the *Sierra Vista Herald.)*

I'd like to describe a bit about what a Master Gardener is and what it is we do. Simply put, a Master Gardener is a volunteer providing assistance to the local Area Horticulture Educator. The Master Gardener program began in 1972 in Washington state as a way to assist Extension Agents disseminate research and information to the public. Today, Master Gardener programs, which are associated with land grant colleges and County Extension Offices, exist in all fifty states. Don't be put off by the word "master," we're really just folks like you who have an interest, sometimes even an obsession, with gardening. We take a fifty hour class in things botanical, far from enough time to make us truly experts, but enough to learn a lot. It extends for 16 consecutive weeks and it runs for three hours each session. In addition to the invaluable horticultural education, you receive a gardening textbook. Upon completion of the class, and after contributing fifty hours of community service, you are acknowledged to be a certified Master Gardener and get a badge engraved with your name to verify your achievement. As mentioned above, the primary mission of Cochise County Master Gardeners, and Master Gardeners everywhere, is to educate people on gardening related issues such as the use of native plants, food production, and environmental stewardship. A primary function is to answer gardening questions, and we answer several thousand questions from the public every year. For more on what the Cochise County Master Gardeners do, see related article on Page 3 of this newsletter.

January Reminders

- **Winter prune**
- **Remove old mulch & replace**
- **Dig tree holes**
- **Prepare soil for spring**
- **Water periodically**
- **Stratify seeds**
- **Fertilize asparagus**
- **General garden clean-up**

(Native Plant Society continued from page 2)

Arizona Sky Islands. This evening he will describe three orchid species of the genus *Corallorhiza* that grow sympatrically in the Santa Catalina Mountains and are entirely parasitic upon specialized fungal partners. He will identify the specific habitat preferences for each species he examined and discuss the consequences of long-term drought for the least common of these rare fungal parasites.

For more information, follow AZ Native Plant Society on their web site:
http://www.aznps.com/chapters/cochise/cochise.htm

Happy Gardening in 2018!

Cochise County Master Gardener Newsletter Editor
Carolyn Gruenhagen