



## The Virtual Gardener—*Phoradendron californicum* The Tree Thief

We've all seen it. Many of us even have it in our own mesquites—mistletoe. *Phoradendron* (from Greek *phor* meaning thief and *dendron* meaning tree) *californicum* or desert mistletoe is a specialist, mostly infesting leguminous desert trees growing below about 4,600 feet. Its native range extends from Southern California east to the boot heel of New Mexico and from Southern Utah and Nevada south through Arizona into Sonora, Sinaloa, and Baja California.

Mistletoes are angiosperms—flowering plants that produce fruits and seeds—and are *hemiparasitic*, meaning they are parasitic but only depend on their host for “half” their sustenance. The rest they provide for themselves through photosynthesis. *P. californicum* is one of about 235-240 species of the genus *Phoradendron*, a genus that also includes *P. macrophyllum* (AKA *P. serotinum* and *P. flavescens*) that parasitizes oaks and is famous for eliciting kisses at Christmas time. The genus is native to warm temperate and tropical areas of North and South America and its distribution

appears to be centered in the Amazon rainforest.

Desert mistletoes have straight, green stems that grow to 3 feet in length and are clustered into clumps up to 3 feet in diameter. The stems are covered with tiny, scale-like leaves. According to [University of Arizona Cooperative Extension Publication AZ1308](#), the plants are dioecious, meaning there are separate male and female plants. Female plants have white flowers that appear from January through March and produce small (to 3mm), spherical, one-seeded fruits. When ripe the fruits are translucent and range in color from white to pinkish to red. The male plants have small inconspicuous flowers that produce pollen.

Mistletoe fruit-eating birds distribute the seeds to host plants in their droppings or by wiping their beaks. Some bird species swallow the fruit whole and disperse the seeds to another tree, while other bird species pick out the seed, leaving it on the host plant, and swallow

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only the pulp. Silky flycatchers (*Phainopepla nitens*) are especially fond of desert mistletoe fruits and spread the seeds in their feces. But birds are not the only consumers of mistletoe fruits. Native Americans also ate the fruits.



desert mistletoe

According to [Wikipedia](#), the Seri and Tohono O'odham harvested the ripe fruits of *P. californicum* and ate them raw, while the Akimel O'odham (Pima) and Cahuilla peoples boiled the fruits to make a pudding-like paste. The Arizona-Sonora Desert Museum [reports](#) the fruits growing on most legumes are sweet but that those growing on Palo Verdes are somewhat bitter.

Mistletoes can also be poisonous. While the fruits of *P. californicum* are edible, the plants themselves contain toxic proteins called *phoratoxins* that increase blood pressure, slow heart rate, and can lead to death if ingested in sufficient quantity. If you are tempted to try eating mistletoe fruits, be careful. Not all mistletoes are created equal. A cousin of the desert mistletoe that grows on broadleaf trees, *P. macrophyllum*, of Christmas-kissing fame, bears poisonous fruits.

Despite its reputation as a pest by many people, mistletoe is

recognized as a keystone resource by ecologists. This means that even though it has a small presence in the environment, it has a relatively large effect on the abundance of other species. One [study](#) of mistletoes in Australia published in *Proceedings B* of the Royal Society found that removal of mistletoe from a woodland resulted in a loss of nearly 21 percent of total species, including over a quarter of bird species.

A [presentation](#) to the Environmental Planning and Advisory Committee of Pima County states that *P. californicum* provides nesting areas and materials for 80 percent of silky flycatchers (phainopepla), 50% of Albert's towhees, 18% of cactus wrens, and lesser percentages of many other birds. Desert mistletoe is not only the dominant winter diet of eleven bird species but also provides food for pronghorn antelope, mule deer, and white-tailed deer. In addition it provides pollen and nectar for bees and other insects and a larval hosting site for Great Purple Hairstreak butterflies (*Atlides halesus*). Because of these benefits, the Tucson Audubon Society [recommends](#) desert mistletoe be left in trees because it is such an important resource for wildlife, and contrary to popular opinion, does not cause significant harm to the trees.

Next month we will discover fascinating details of the life cycle of desert mistletoe and what to do to control infestations in your mesquites and other desert trees. Stay tuned.

Until next time, happy surfing.

Gary Gruenhagen, Master Gardener  
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## High on the Desert Conference Highlights

The poop doctor, better known as Dr. Paula Kahn-Rivadeneira, had the audience's attention right from the start when she shared her unusual nick-name. She was one of sixteen speakers who gave talks at the 22<sup>nd</sup> annual High Desert Gardening & Landscaping Conference at Cochise College, in Sierra Vista, on March 12 and 13. Dr. Kahn-Rivadeneira, an assistant professor and extension specialist stationed in Yuma, is an expert on food safety and animal contamination. She explained her timely research about how wild animals occasionally carry pathogens into commercial produce fields and into our backyard gardens and herb patches. She showed lots of slides about how she and a researcher from Arizona Game and Fish humanely caught birds and rodents to sample their feces and material from their feathers and fur that might contain pathogens that can make people sick. She demonstrated that critters do contaminate fields. She was a breakout session speaker this year, but her talk was so good we hope she will come to our next conference and speak a bit longer as one of our keynote speakers.

We had two great keynote presentations: Dr. Mark Carroll, Research Entomologist, on the status of honey bees in a stressful world and Dr. Steven Leavitt, Professor of Dendrochronology, on tree rings and the tales they tell. There were so many great break out talks at this conference most of us wished we could clone ourselves so that we could attend more than one that were held

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## This Month In the High Desert Garden Has Spring Sprung For Gardeners?

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

Spring has sprung . . . maybe! True to form, the temperature in our yard dropped to 25°F on March 20, 2012, the official first day of spring. Remarkably, the six tomato plants I had put in the ground a couple of weeks earlier survived. 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! My tomatoes survived for only one reason though, they were each well protected from an otherwise killing freeze. In general, then, 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. 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. Here's a link to a handy UA Cooperative Extension vegetable gardening guide:

<http://cals.arizona.edu/pubs/garden/az1435.pdf>.

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. (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. 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. Water Wise, located in the Cochise County Cooperative Extension Office on the UAS campus, sells these great tools for just \$5.

Happy Gardening!

*Bill Schulze, Master Gardener*



### April Reminders

- ◆ **Stake new trees**
- ◆ **Fertilize**
- ◆ **Prepare for pests**



## Cuttings 'N' Clippings

### ✿ **Mark Your Calendars**

The Cochise County Master Gardeners have changed their monthly meeting schedule. They now meet on the **Second Thursday of the month, from 2:00—4:00 PM in the Public Meeting Room (PMR) of the University of Arizona South.** The overall format is changing, too. There will be a mix of Speakers, Discussion Groups, Field Trips, and Social Events. Business Meetings will be included when necessary.

The public is invited to join the first discussion group which will be held on **Thursday, April 9, from 2:00—4:00 PM.** The topic will be *Vegetable Gardening* and Master Gardener Geri Wallace will be the moderator. Geri will share some pictures and information, as well as moderate a group discussion on vegetable gardening. Snacks are planned, too!

The Master Gardeners have returned to the **Sierra Vista Farmers Market on the first Thursday of each month.** You will find Master Gardeners Donna and Cliff Blackburn manning the information booth. They're ready, willing, and able to answer your questions and provide information on a variety of gardening and landscaping subjects. Should they not have your answers they are able to call upon resources within the Cochise County Extension Office and University of Arizona who will.

Master Gardeners have been working diligently on cleaning up The Gardens in the old Plant Sciences Center near the entrance of the University of Arizona South. The Gardens have undergone a major transformation since work began last fall. The first of many events, the **First Annual Master Gardener Plant Sale** is planned for

**Saturday, April 25, in The Gardens.** Joining them will be the Sierra Vista Garden Club. Hard-to-find native and desert adapted plants will be for sale, along with a variety of others. At **9:00 AM, Jan Groth will discuss the growth habits of each plant and from 10:00 AM to 2:00 PM the plants will be offered for sale.** You won't want to miss that. Proceeds will benefit The Gardens.

### **WAM! April is Water Awareness Month!**

✿ The next free Water Wise presentation will be **Saturday, April 4—Real World Watering** Learn how and when to water by applying theory to what is practical for your landscape, programming irrigation controllers and much more!

**Time:** 9:00 to 11:00 AM

**Location:** UA Sierra Vista, 1140 N. Colombo Ave, Sierra Vista, AZ,  
**Presenters:** Cado Daily  
UA Water Wise Program  
Jody Sharp-Webb

### ✿ **April 11—Do it Yourself Drip Irrigation Clinics**

Hands-on practice with cutting pipe, inserting emitters, and connecting parts and pieces. Two Clinics, two locations, two different times!

**CLINIC 1: LOWES**

9:30 - 11:00 AM

**Location:**

3700 MLK, Jr. Pkwy

**Presenter: Steve Poe, PhD**

UA Extension Specialist

**CLINIC 2: THE HOME DEPOT**

**Time: 1:00 to 2:30 PM**

**Location:**

3500 Avenida Cochise

**Presenter: Steve Poe, PhD**

UA Extension Specialist

### ✿ **April 18—Construct a Strawbale Garden**

**Location:**

A residence by Safeway, Hwy 92, Bisbee

**Registration required.**

**Please call (520) 458-8278 ext.**

**2141 to reserve your seat!**

Check the Water Wise 2015 schedule on their web site:

[waterwise.arizona.edu](http://waterwise.arizona.edu)

For more information contact

Valerie at:

[valeriedavidson@email.arizona.edu](mailto:valeriedavidson@email.arizona.edu)

✿ The Sierra Vista Area Gardeners Club Spring Plant Sale will be held on **Thursday, April 23** at the Sierra Vista Farmers Market from **10:00 AM—2:00 PM** in conjunction with their Earth Day Celebration. There should be lots of vegetable starts as well as perennials available for purchase. As usual they will have packets of free seeds from native plants to vegetables.

✿ The Cochise County Chapter of the Arizona Native Plant Society's meeting on **Friday, April 17** at **5:00 PM** will be held in the Cochise County Community Development Office conference room, 4001 Foothills Drive (corner of Highway 92 and Foothills Dr.). The speaker will be Jillian Cowles, Naturalist and Nature Photographer, University of Arizona, **Paradise Found: Wildflowers of the Huachucas.**

In her presentation she will share her beautiful photographs of the Huachuca Mountain wildflowers and many of the insects upon which they are dependent. For information contact Doug Ripley, President, Cochise Chapter, Arizona Native Plant Society, 520-909-3132 or

<http://www.aznps.com/>



## At a Glance Box

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

**Plant:** Locoweeds, verbenas and primrose

**Description:** See article

**Use:** See article

**Culture:** Natural environment

**Learn more:** Cochise County Herbarium, [www.cochisecountyherbarium.org](http://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.*

*Thanks to Mimi Kamp for assistance.*



Sheep Milkvetch (*Astragalus nothoxys*)

Photo: SEINet:

<http://swbiodiversity.org/seinet/index.php>



Woolly Locoweed (*Astragalus mollissimus*)

Photo: SEINet:

<http://swbiodiversity.org/seinet/index.php>



Southwestern Mock Vervain  
(*Glandularia gooddingii*)

Photo: C. Daily

## Locoweeds, Verbenas, & Primrose

Spring has officially sprung (I am writing this on the Vernal Equinox – hooray, more daylight!). With abundant sun and a mild, moist winter, spring wildflowers are bursting with yellows, purples, orange, white and pink blossoms. Because we are getting calls to the office on flower identification, I thought to use this month's article as a short identification guide for a few of the eye-catching Cochise County native flowers in bloom.

Locoweed/Milk Vetch: In Arizona, there are over 70 plants in the genus, *Astragalus*, belonging to the Legume family, *Fabaceae*. Two common species in Cochise County are the Woolly Locoweed, *Astragalus mollissimus*, and Sheep Milkvetch, *Astragalus nothoxys*. The purple flowers have the distinguished pea-like flower characteristics with the big upper petals called “banners”, the smaller side petals called “wings” and the innermost set of petals called the “keel”. The leaves are pinnate with multiple leaflets along the leaf stem. People with *Astragalus* and the closely related genus, *Oxytropis* plants on their properties are concerned if the plants are poisonous to livestock, and yes, some contain toxic alkaloids. As George Ruyle, Ph.D., points out in his article, *Locoweeds, Backyards and Beyond*, Spring, 2008, ([cals.arizona.edu/backyards](http://cals.arizona.edu/backyards)), because of the great many species of *Astragalus* in Arizona, distinguishing individual species can be difficult. If you have grazing animals on property containing plants that look similar to those pictured here, please read Dr. Ruyle's article for more detailed information. If you are not concerned about livestock eating these plants, enjoy them as wonderful no-care flowering landscape plants.

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Other purple flowering plants in full bloom include the “verbenas” with their full bouquet of light purple, flowers. Two common “verbenas” in Cochise County are the prostrate Dakota Mock Vervain (*Glandularia bipinnatifida*) with finely divided green leaves, and Goodding’s verbenas or Southwestern Mock Vervain (*Glandularia gooddingii*) with lighter, broader and less deeply divided leaves. The genus of these two plants used to be *Verbena* yet still remain in the *Vervain* plant family *Verbenaceae*. To be accurate, perhaps we need to start referring to these two plants as “mock vervain” and not “verbena” as we are used to doing. Other well-known plants in the *Vervain* family include *Lantana*, which can be easily confused with the mock vervain, and the *Vitex* shrub.



**Dakota Mock Vervain**  
(*Glandularia bipinnatifida*)  
Photos: Mimi Kamp

I received an email today asking for ID on another low-growing flower popping up, the beautiful white-flowered Tufted Evening Primrose, *Oenothera cespitosa* (was *caespitosa*). This name change makes sense. I always had a hard time pronouncing the “ae”. Made me slip into a New Hampshire accent – ay-yup!). Although the plant is a perennial, the 2-inch flowers are short-lived, so make sure to enjoy them when you can.

*Cado Daily, M.A.*  
Water Resources Coordinator



**Tufted Evening Primrose,**  
*Oenothera cespitosa*  
Photo: C. Daily



**Astragalus meadow**  
Photo: G. Mundt

(Conference Highlights continued from page 2)

at the same time. We had talks on everything from how to keep trees healthy in a drought, research on soil and water contamination, how to install your own walkways and walls, to how to grow vegetables conventionally and with hydro- and aquaponics. Those interested in insects could choose from talks on how to attract pollinators, to how to identify insects, and the current research on monarch butterflies and growing milkweed to feed them. Jan Groth gave wonderfully practical advice on how to grow flowers in containers and in “moonlight” gardens. Other speakers gave tips on how to use common landscaping plants, herbs, and cuttings from flower gardens to make nice arrangements for inside the house. Local experts told us how to use native plants and cactus in our landscapes.

And who doesn’t like winning door prizes? We had four long tables laden with door prizes supplied by about two dozen mostly commercial donors along with the gardening club and our own CCMGA. Angel Rutherford and other donors also gave monetary donations that allowed us to create several \$25.00 vouchers for conference attendees to use in purchasing items from our many vendors. Angel also donated several landscape prints for speaker gifts and allowed us to use the image on our conference T-shirt. Jan Groth put together center pieces of colorful watering cans filled with cuttings from native shrubs. Most of the folks attending the conference left with something really nice in addition to their conference bags.

All the many details necessary to put on a great conference were corralled by a dedicated team of volunteers who started planning the conference last fall. When you see them, please help us thank: Susan Basset, Donna and Cliff Blackburn, Heather Borman, Steve Bortman, Amy Carter, Susan Cheves, Steve Fletcher, Evelyn Green, Michelle Goodman, Chrissa Link, Jennifer Morgan, Debbie Switzer, Jody Sharp-Webb, Roxy Sheveland, Kevin Taylor, Charlene Thomas, and Geri Wallace. DeForest Lewis also got drafted at the last minute to lend a hand. A special big thanks to Susan Pater and Jan Groth for their leadership and unstinting support.

*Olivia Sinks and Terrie Gent*  
Conference Co-coordinators