

Santa Fe Extension Master Gardeners Newsletter

Origins of the Master Gardener Program

by Peggy Rudberg

As our country expanded westward in the 1800s, people became increasingly aware of the loss of soil productivity from poor stewardship and the loss of stock due to unskillful animal husbandry. The United States was an agricultural country, and its ability to support a growing population was crucial to its success. Already crop production was falling in our eastern states. The need for new agricultural science appropriate to the new soil and climate in America became clear.



This college building in Kansas was one of the first created under the 1862 Morrill Act, which was meant to ensure higher education for all classes of Americans. Photo courtesy of Architect of the Capitol.

In 1862 the U.S. Congress passed the Morrill Act, with the purpose of establishing institutions to offer education in mechanics and agriculture to farmers and ranchers. These institutions were called land-grant colleges or universities because funding for their creation came from the sale of federal lands granted to the states or territories for this purpose. They also offered equal access to a liberal or classical education for the working class. Each state or territory of the United States had at least one land-grant institution. In 1887 additional funding through the Hatch Act expanded the role of these institutions by establishing agricultural experimentation stations, where research on effective agriculture, as well as ways to improve rural life and consumer welfare, could be conducted. Science faculty of the land-grant universities generally directed these stations. In 1889 Las Cruces College, which had been recently formed, was renamed New Mexico College of Agriculture and Mechanic Arts, and it became New Mexico's land-grant college. In 1960 it changed its name to New Mexico State University (NMSU).

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With the introduction of new crops and techniques in the late-19th and early-20th centuries, the agriculture industry grew and flourished. To aid communication between land-grant institutions and the larger community, the Smith Lever Act of 1914 established the Cooperative Extension Service, a partnership between the USDA and the agricultural colleges. Extension agents led field trips and gave demonstrations of science-based improvements to farming operations. They also promoted nutritional information and public health, pest control, community gardens, and 4-H clubs.

Until the 1970s the Cooperative Extension Service served primarily rural communities and farmers, with a focus on soil and crops. But by that time, only about 25 percent of the U.S. population lived in rural areas. Two Washington State University extension agents noticed increased interest and requests from urban gardeners, and in 1973 they proposed training volunteers to advise and educate home gardeners. This was the beginning of the Master Gardener program. New Mexico began its Master Gardener program in Albuquerque in 1981; Santa Fe Master Gardeners started in 1998. Both programs, along with [12 other chapters](#) throughout the state, are overseen by NMSU's County Extension Services.

This year the COVID-19 pandemic has hindered our mission to provide lifelong learning opportunities and community support, but we have been offering some services, such as Ask a Master Gardener online, for responding to gardening questions from the public. We have also continued to maintain our demonstration gardens in a safe manner. When physical contact and group gatherings are once again possible, we will return to face-to-face activities.

References:

Association of Public & Land-Grant Universities, [History of APLU](#)

Gould, Frances, et al. Journal of Extension, [Cooperative Extension: A Century of Innovation](#)

USDA, [History](#)

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Message from the President

by Wendy Wilson

I am both celebrating and mourning my garden. The agastache, Rocky Mountain bee plant, goldenrod, and hyssop are attracting all manner of pollinators: swallowtails, bumble bees, honey bees, hawk moths, hummingbirds, and others. The finches and sparrows are loving the cosmos, echinacea, and orach seeds. It's a virtual smorgasborg of plants. I'm mourning the garden we've developed over the past four summers. We are moving in September, and I'll pass the loveliness and work on to someone else. Fortunately, we're moving just five blocks away, to a place where I'll have room for a greenhouse and a proper floral design studio.



2020 SFEMG Board President Wendy Wilson

Equally, I am both celebrating and mourning our SFEMG experiences this summer. The maintenance days at Audubon, El Zagan, the Cornell Rose Garden, and our other demo sites were staffed by dedicated volunteers who kept these gardens going. AAMG volunteers answered questions in safety when we couldn't staff tables at nurseries, the Botanical Garden, the Rose Garden, and the Railyard. We are grateful to all our project leaders for helping us navigate this uncertain and challenging time. If you were lucky enough to get to work this summer, please remember to report your hours through TIF.

Unfortunately, many of our members could not volunteer due to restricted work slots, health concerns, and family obligations. It is difficult knowing that members wanted to help and couldn't. The interns had five in-person classes and then were relegated to online classes. They will not be graduating in January and have been offered the chance to take the certification again this spring at no extra charge. To date, the governor and NMSU have not changed the gathering restrictions. As an integral part of NMSU, we will continue to abide by their decisions. The SFEMG board is not implementing additional requirements. When we are allowed, we will all gather and celebrate our gardens and being together again.

Nominations are still open for board elections. I urge you to consider running for one of our open offices. We need your help and would be delighted to discuss the job descriptions and time requirements of the positions. Please visit the [Members Only](#) page on our website for more information.

Sadly, our good friend Bob Zimmerman's husband, Jerry Silverstein, passed away. We send Bob our most sincere condolences.

In Memoriam: Barbara Funk

by Karen Armijo

An esteemed member of Santa Fe Extension Master Gardeners, Barbara Funk passed away peacefully on July 11, 2020. She was 67 years young. Barb was passionate about horses as well as about gardening. A [pillar in the equine community](#), she mentored and led breeding and training programs for world-class horses. Before moving to New Mexico, she lived in the states of Washington and then California, where she served the San Luis Obispo community as a search-and-rescue volunteer. She met her husband, Russell, in that capacity, and the couple moved to Santa Fe in 2015.



Barb Funk (seated) and Janet Hirons at a SNaPP event in 2018. Photo by Bonnie Martin.

When Barb did the Santa Fe Master Gardener training, in 2015, “she became a force for the good almost immediately,” reports fellow 2015 MG Jamie Painter. “Barb exemplified the highest qualities of an MG—selflessness, availability, smarts, versatility, congeniality, and more,” shared Painter, “and she brought all that to bear for the organization every year.”

Barb helped to establish the Ask A Master Gardener (AAMG) site at the Eldorado Farmers Market. She was also a key member of the Santa Fe Native Plant Project (SNaPP) and helped compile a list of native plants for Santa Fe. Barb’s expertise as a tax practitioner supported her passions, and she shared those skills to improve our Garden Fair plant sale process. Helena van Heiningen recalls, “I first remember Barb from the plant sale, where she volunteered to be a cashier. Right away she had ideas about ways to improve the process. In years to come, she revamped the system and added technology.”

Many of us worked alongside and learned from Barb over the years. Her gregarious presence and humor will be missed. If you wish to send a card to Russell, Barb’s address is listed in our membership roster. Donations in Barb’s honor can be made to the [U.S. Dressage Federation](#) and SFEMG; both are 501(c)(3)s, so your donations would be tax-deductible.



Cowpen Daisy (*Verbesina encelioides*)

by Anne Farber

Also known as golden crownbeard and butter daisy, cowpen daisy is an easy-to-grow wildflower that provides beautiful yellow flowers in the late summer and fall. Its unusual common name has been said to come from two sources: it thrives in disturbed soils such as cow pens, and when dried the leaves can have a somewhat unpleasant odor. Important for a wide variety of pollinators,



cowpen daisies are native across most of the United States. They can become invasive in wet and rich soil conditions. Native Americans used the petals to dye cotton; medicinally, the plant was used to reduce fevers, to sooth itches from spider bites, and to treat snake bites.

Landscape use: Cowpen daisies are found along roadsides and in disturbed soils. They are well suited for informal gardens, where they spread by self-seeding. As shown in the above photo, they also can be used in more formal situations. Especially with plentiful monsoon rains, the plants can cover large swaths of land with intense yellow flowers. Frenchy's Field Park, in Santa Fe, often has an impressive display in early fall. The daisies, a nectar source, attract butterflies. They are also a major late-season source of pollen for native bees and honey bees.

Planting and care: Plant cowpen daisies by seeding outdoors. Seeds and plants are available commercially. Cowpen daisies not only survive in our hot, dry climate, they bloom prolifically and are attractive throughout the summer. Moreover, they are highly resistant to deer.

Propagation: Cowpen daisies easily reproduce by self-seeding. You can collect seeds after the seed heads dry and sow them in the fall.

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Cowpen Daisy —cont. from page 5

Plant type: annual wildflower

Bloom time: July–September

Size: 1–3 feet tall x 1–4 feet wide

Sun: full

Soil: tolerates a wide range of soils, including clay and limestone

Water: very low

References:

Finley, Willa, and Lashara J.Nieland. *Land of Enchantment Wildflowers* (Texas Tech, 2013)

Lady Bird Johnson Wildflower Center, [Verbesina encelioides](#)

Texas Butterfly Ranch, [Cowpen Daisy: how to grow Verbesina encelioides from seed](#)

Photo by Joy Mandelbaum

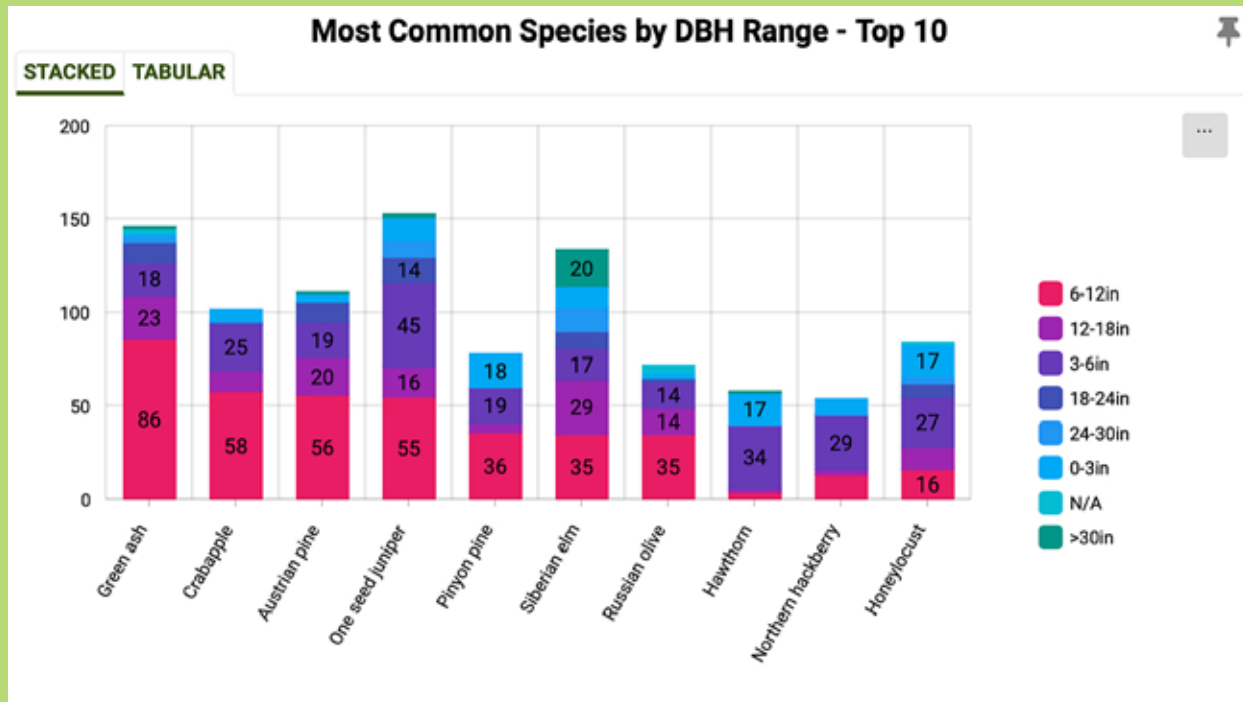
Powdery Mildew on Cucurbits (Squash)

by Jannine Cabossel

This is the time of year powdery mildew appears on squashes—both winter and summer varieties. Powdery mildew is a fungal disease that affects many plants, from roses to squashes. Infected plants display white, powdery spots on their leaves and stems. The symptoms usually show up in late August through September. Improper garden management, including planting winter squash too close to other plants, can cause it to go rampant.



Controlling the disease depends on when you catch it. If you let it go too far, it will kill the plant, in which case you should pull the plant and destroy it or bag it as refuse. Do not put it in your compost pile. If it has just started, indicated by white spots on the leaves, you can spray it with a fungicide like Green Cure, my preferred treatment. This product is quite effective in halting the progress of powdery mildew, but you may have to spray two or three times, depending on how advanced the disease is. Always spray both the tops and the undersides of the leaves. You should jump on it as soon as you see it and not wait until it gets out of hand.



Tree Inventory Project Reaches Milestone

by Athena Beshur

The Tree Inventory Project provides a valuable connection to the city park system by identifying, measuring, assessing the condition of, and indicating the location of trees in our public spaces; this data is available to anyone who wants to see it. The 2019 season was pivotal for the project, as we brought data from all the previous years into a geo-referenced system that now includes Franklin Miles Park, Amelia White Park, Frenchy’s Field, Harvey Cornell Rose Park, Santa Fe City Hall, the Santa Fe Plaza, Cathedral Park, Tommy Macaione Park, Ragle Park, Las Acequias Park, Ashbaugh Park, Frank Ortiz Dog Park, Torreon Park, and Bicentennial/Alto Park. It was a real feat getting all the data combined into the new software, called TreePlotter, and a true labor of love for the many volunteers who helped with the conversion.

This new software makes collection much faster and more fun for volunteers. It also makes the data instantly available to the parks division to utilize for maintenance of park trees. The Arbor Day Foundation recognizes Santa Fe as a Tree City because of our commitment to tree care and to growing our urban canopy, and the Tree Inventory Project contributes substantially to these efforts. To date the 1,836 trees inventoried span 148.58 acres of park space, which is about 16 percent of the park system. Trees provide immense ecosystem services. The trees inventoried remove carbon monoxide, nitrogen dioxide, and sulfur dioxide equivalent to that emitted by 420 cars.

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Tree Inventory Project Reaches Milestone—cont. from page 7

To see the tree data, go to [TreePlotter New Mexico](#); in the column at right, scroll down to Santa Fe and click on it to see our data. Other cities are listed, and you can peruse theirs as well. Once you are in the Santa Fe section, the map will populate with dots for each tree. The legend at right allows filters to be placed for your particular interest, including species (default), condition, and DBH, or Diameter at Breast Height, a term used by loggers for measuring trees slated for timber. (DBH is measured at 4.5 feet above grade. Of course, breast height varies by person—my DBH reaches the middle of my neck.) If you click on “Hub” at the top left of the page, another dropdown menu gives you more options for exploration. You may be interested to view the graphs that the Stats tab offers, such as Most Common Species by DBH Range. Feel free to play around with these tabs—you will not be able to change any of the underlying data.

Diversity of both species and age is key to a healthy urban forest. It protects against severe pest infestations and keeps an urban forest thriving in the midst of one. It also protects our overall canopy from the effects of climate change. Over subsequent years, we will begin to see trends of species that will be more resilient to the changing climate. We hope that simple passive water harvesting techniques will be able to support tree growth even with increasing temperatures and evaporation. A standard goal is for a healthy urban canopy to have no more than 30 percent of any one family, 20 percent of any genus, and 10 percent of any species. Equally important is making sure trees are a range of ages, which requires continually planting new ones so that as older ones begin to fail, others are there to succeed them. Maintenance and care of existing trees is essential to garner the ecosystem services offered by older trees, with deeper root systems, wider canopies, and larger trunks.

To view an ArcGIS Story Map I created about the Tree Inventory Project and how it feeds into the overall value of Santa Fe’s urban forest, inclusive of habitat, click [here](#).

Analysis generated from this milestone of having all our data in one place can be found [here](#). From there you can request a free copy of the 2019 Tree Inventory list, including stormwater data, the i-Tree Analysis Report, and several other urban forestry articles. Enjoy!

References:

- Bethke, Tricia. [Community Tree Risk Assessment: What’s Missing in Your Management Plan?](#)
(Morton Arboretum slide presentation)
- I-Tree, [2019 I-Tree Analysis Report: Santa Fe Public Spaces Tree Inventory](#)
- Santa Fe Parks Division, [Parks Division Inventory with Features](#)

Backyard Bugs

Handsome Yucca Beetle (*Enoclerus spinolae*)

by Pam Wolfe

Whether or not “the creator had an inordinate fondness for beetles,”* it is hardly surprising that we haven’t studied all 400,000 species in the order Coleoptera to determine exactly how each makes a living. In *Garden Insects of North America* (Princeton, 2018), Whitney Cranshaw describes the family Cleridae under the heading of *natural enemies*: “most species are important predators of bark beetles and wood boring beetles,” she writes. In North America the genus *Enoclerus* ([Gahan](#)) consists of 30 or so brightly colored beetles in the subfamily Clerinae. Their habitat, as described on [bugguide.net](#), is “under bark, in galls, around woody plants, rarely on foliage”; both larvae and adults are predacious.

In a recent [publication](#), Jaques Rifkin sheds light on the prey of four species of *Enoclerus*. The handsome yucca beetle (*Enoclerus spinolae*) and three other species are caught in the act, on film, feeding on chemically protected Coccinellidae (ladybeetles). Rifkin explains that while some aposematically colored (patterns and colors that warn predators of defenses such as toxicity, foul taste, and so on) beetles are unprotected mimics of their noxious models, further research is needed to determine whether a handsome yucca beetle can sequester the alkaloids of ladybeetle prey and become distasteful, reinforcing the mimicry.

*Attributed to J.B.S. Haldane and quoted by Jean-Marc Drouin in *A Philosophy of the Insect* (Columbia, 2019)



Handsome yucca beetle (9 mm) foraging on *Yucca glauca*, Santa Fe. Photo by Pam Wolfe.

What's That Weed?

Goathead (*Tribulus terrestris*)

by Sally Roberts

Also known as puncture vine, *Tribulus terrestris* is a pretty plant, with its sprawling, prostrate habit, delicate leaves, and small, five-petaled yellow flowers. It thrives in arid conditions, especially in disturbed areas, and is easily spread by people and animals. The masses of fruits these plants produce turn into separate, hard, thorny seeds that do resemble goat heads. (Caltrop, the family name, refers to a spiked metal ball used in warfare.) These thorns will puncture bike tires, tennis-shoe soles, dogs' paws, and many other things. They adhere to the fur of animals and are nasty to remove. Sheep will eat them and become very ill or die.



Goathead plant in bloom. Photo by Sally Roberts.

Like so many invasive plants that we call weeds, this one having originated in southern Europe, goathead is attractive and it is tempting not to remove it—or at least not all of it—where it is growing on open green space or even in a flower bed. *Tribulus terrestris* is related to a plant native to New Mexico, *Larrea tridentate*, the creosote bush of the southern desert area, which is not considered a weed. Some cultures value goathead for its medicinal properties. But it is a mistake to let it grow, as it seeds prolifically and the seeds can persist in the soil for seven years or longer.

Controlling *Tribulus* is best done mechanically in the home landscape, by hoeing or hand-pulling plants in spring or early summer, before they bloom and go to seed. Though they have a long taproot, cutting them off at the crown will keep them from continuing to grow. If seeds from previous years are present, one way to collect them is by using a square of carpet pressed on the ground, to which they will adhere. All plants and seeds should be bagged and placed in the trash, never composted.

Since the seeds tend to remain so long in the soil, removing goathead is usually not a one-time effort but must be repeated for a few years until no more plants show up. For larger infested areas,

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Goathead—cont. from page 10

chemical controls such as oryzalin, benefin, or trifluralin may be used as a preemergent treatment. Some people recommend using a torch, where legal, as a drastic measure for eradication in big areas.

References:

Moorman, Jane. [Goathead gold mine: Noxious weed valued by some as useful medicinal herb](#)

(NMSU)

Salman, David. [Goathead or Puncture Vine \(Tribulus terrestris\)—Time to Get Rid of Them](#)

(Waterwise Gardening blog)

UC IPM, [Puncturevine](#)

Whitson, Tom D. *Weeds of the West*, 9th ed.

(Diane, 2006)



Green fruit of goathead. Photo via Wikimedia Commons.



2020 NARGS Award Goes to Local Garden

The alpine garden of Santa Fe residents Robin Magowan and Juliet Mattila has received an award from the North American Rock Garden Society (NARGS). Magowan is chair of the New Mexico chapter of NARGS. The SFEMG Newsletter ran two articles featuring the garden last year (see the September and October 2019 issues, available on our [website](#)). Congratulations to Robin and Juliet!

Photo by Kathy Haq

New & Noteworthy

Have you recently read a plant-related article or book, visited a horticultural website or blog, listened to a podcast, or seen a nature show or documentary you think other gardeners would enjoy or find useful? Send a link to the newsletter (news.sfemg@gmail.com) and we'll include the information in the next issue. **Note that some of these sources may have paywalls.**

Atlas Obscura, [What It's Like to Care for the Mighty 'Corpse Flower'](#), by Elaine Ayers

Fine Gardening, [How to Divide Irises](#), by Diana Koehm

Garden Professors, [Some like it hot...but most do not: How high temperatures delay pollination and ripening](#), by John Porter

Garden Rant, [The Domoto Legacy: Plants and Immigration](#), by Eric Hsu

Home Grown New Mexico, [When Life Gives You Cucumbers, Make Pickles!](#), by Teri Buhl

New York Times, [A Bee, or Not a Bee?](#), by Cara Giaimo

New York Times, [The Pleasures of Moth-Watching](#), by Margaret Roach

New Yorker, [The Therapeutic Power of Gardening](#), by Rebecca Mead

Southwest Yard & Garden (NMSU), [Glow in the Dark Tortoise Beetles](#), by Marisa Thompson

Southwest Yard & Garden (NMSU), [Tomato Warning: Side Splits and Shoulder Cracks](#), by Marisa Thompson

Take care of the soil, and the plants will take care of themselves.

—**Suzuki Roshi, Zen teacher**

The Garden Journal Radio Show

Every Saturday
10–10:30 a.m.



Tune in to KSFR 101.1 FM on Saturday mornings from 10 to 10:30 to listen to a lively, entertaining, and informative gardening show.

Sept 05 Santa Fe Botanical Garden edition with host Lindsay Taylor

Sept 12 SFEMG edition with host Christine Salem and guest David Salman, of Water-wise Gardening, on fall gardening projects: planning, planting, maintenance

Sept 19 Santa Fe Farmers Market Institute edition, “Food, Farms & Friends,” with host Carrie Core live from the Farmers Market

Sept 26 Home Grown New Mexico edition with host Christine Salem and guest Jannine Cabossel, the Tomato Lady, offering tips and techniques for next month’s veggie garden; more info at [Giant Veggie Gardener](#)

Schedule subject to change. To listen to previous broadcasts, click [here](#).

Calendar of Events

Because of the COVID-19 crisis, SFEMG classes and face-to-face events through 2020 have been cancelled or postponed. Some classes may be held electronically. Please check the SFEMG [website](#) as well as the websites of other relevant organizations for updates on the status of events.



We Are Here to Help!

If you have a gardening question, Santa Fe Master Gardeners are available to help. Go to our [website](#), click on the Garden Questions? link, and pose your question. Someone will do research and get back to you.



Mission Statement:

Santa Fe Extension Master Gardeners is a non-profit volunteer organization whose mission is to learn, teach, and promote locally sustainable gardening through reliable, current research-based practices

New Mexico State University is an affirmative action/equal opportunity employer and educator