

Santa Fe Extension Master Gardeners Newsletter

A Poet and His Rock Garden

by Kathy Haq

[Robin Magowan](#) takes his rock gardening seriously—so seriously that his decision to build on a hillside southeast of Santa Fe was driven by the site’s promise as a show-case alpine garden. That was seven years ago.

Today the 83-year-old award-winning poet-author-academician-world traveler has an enviable rock garden and considers himself more gardener than writer, though he is still being published. The considerable scope of his passion and the fruits of his husbandry are evident as one walks around the home he shares with his wife, photographer Juliet Mattila.

Surrounded by expansive views of Santa Fe and the Galisteo Basin, the house sits atop a rocky ledge at an elevation of 7,600 feet, almost the same height as nearby Sun Mountain. The porch overlooks a 25-foot wall of rocks that were gathered on-site and cut to form the framework for the west-facing gardens adjacent to the circular drive. There are rocks, imported stone planters, and mostly tiny plants in every nook and cranny. Since moving to the spot in 2012, Magowan has very nearly single-handedly introduced more than a thousand plants to the property. Some are indigenous to New Mexico while others were ordered through catalogs specializing in rare plants from locations as far away as Turkey.

Magowan’s free-standing studio is sandwiched between the house and a deck that hugs a towering boulder outcrop. Claw marks in the wall near his desk indicate where a bear that broke in several years ago panicked trying to get out. Between the house and studio are flats of newly purchased plants whose survival skills soon will be tested by elevation, extreme temperatures, and scarcity of



Robin Magowan. Photo by Juliet Mattila.

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water. What water they will get will come in the form of snow and rain, supplemented by runoff collected in two 2,000-gallon cisterns. Magowan estimates that only about a third of the plants on the property are actively irrigated. The rocks provide heat in winter and help cool the plants in summer.

As Magowan describes the gardens and its inhabitants, his joy is infectious. “[The plants] are kind of marvelous, and they have their own way of thinking,” he says.

He offers these tips for the would-be rock gardener:

- Seek diversity. Don’t plant the same plant twice.
- Pay particular attention to scale. He prefers small plants to large ones but allows that scale is in the eye of the beholder. His preference is for plants that look desirable even when not in bloom. Maintaining scale allows them to be seen, he says.
- Plant in the right place. That said, Magowan takes a trial-and-error approach and acknowledges that mistakes are inevitable. “All those mistakes and plantless

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Editor: Sarah Baldwin
Art Director: Jannine Cabossel





labels light up the garden as I inch through a veritable cemetery of former presences,” he notes in his essay [Self-portrait in a Rock Garden](#), which appeared in a 2010 issue of the *Southwest Review*. (His passion for alpine rock gardening began with the garden he created at his former residence in Salisbury, Connecticut.)

In that same essay, he writes more about his approach: “A rock garden cannot offer mountainous abundance, but sheer variety can go a long way toward conjuring a similar

plenitude. But that requires scale, and with it a structure so the tiny effects popping up don’t seem all itsy-bitsy. The structure of rocks, shrubs, and plants should convey the feel of a mountain slope, with the maintained scale allowing each plant to be seen for the note it is. As always in a creation of excess, the line between order on one side and chaos or madness on the other is one the merest weed can mar. That turns me into a species of hawk as I veer about, trowel in hand, looking for an offender on which to pounce.”

The ever-changing nature of the gardens is among Magowan’s greatest joys. The writer in him likens these pleasures to those of poetry: “With a garden, the visitor can keep coming back to see its seasonal diversity. Poetry attempts something similar in the way it withholds its secrets, its inner resonance. Like a garden, it must offer enough enticement to invite the reader bee to return.”

All photos by Kathy Haq except as noted.



From the Board

by Gail Dodge, member-at-large, and
Barbara Ellis, co-director of the intern program

Is there any better place to be than Northern New Mexico in the fall? The mornings are crisp and cool. The breeze has softened, the light is mellower, and the sky's a little bluer. Gardeners are harvesting this year's bounty, planting cover crops for winter, and planning for the spring. It's also the time of year when the Master Gardener interns are completing their volunteer hours.



This year's interns have been planting and pruning, composting and mulching, watering and weeding, and harvesting. They've controlled erosion, managed pests, collected seeds, and inventoried trees. They've learned about native plants, roses, cacti, vegetables, herbs, and pollinators. They worked at the annual plant sale and at the Extension Office Hotline, and they've staffed AAMG tables. They've also learned the importance of hats, gloves, sunscreen, water, and salad tongs for the cactus garden!

The interns attended 15 weeks of classes covering botany, soils, climate, integrated pest management, weeds, fruits and vegetables, trees and shrubs, composting, and xeric gardening. Along with benefitting the community and SFEMG projects, their work and acquired knowledge has positioned more than 40 of them for full membership as Extension Master Gardeners. Graduation for the 2019 interns will be held in January 2020.

The 2019 Interns are well-prepared to join current Master Gardeners to carry on the SFEMG mission: to preserve and beautify the environment while improving the quality of life in the community by providing current, research-based horticultural information through education and outreach.

Historically, most interns state that they learned about the SFEMG intern program from a Master Gardener. New members will help the continuation of the many and varied SFEMG projects. Spread the word and let folks know that registration for the upcoming 2020 intern program will begin on November 1, 2019. Registration opens at 8 a.m. and must be completed online at sfemg.org.

Increased Carbon Dioxide Reduces Crop Nutrient Levels

by Peggy Rudberg

Soil science has traditionally focused on improving crop production, with an emphasis on quantity versus quality. But by the middle of the 20th century, some researchers and farmers began to suspect that soil and crop quality was declining.

In 2004 a team of researchers led by Donald R. Davis investigated changes in 13 nutrients found in 39 vegetable and four fruit crops using existing USDA statistics from 1950 and 1999. As a group, data showed overall decreases in protein, riboflavin, ascorbic acid, and the dietary minerals calcium, phosphorus, and iron. In a 2009 meta-analysis Dr. Davis suggested that modern cultivars with genetic variations developed to increase growth rate and size showed declining nutrient uptake and production, called the “dilution effect,” compared to traditional crops.

Elsewhere, mathematician Irakli Loladze encountered a study of algae and zooplankton, whose main source of food is algae. Increased light boosted algae growth, but the resulting algae no longer supplied enough nutrients for the zooplankton to flourish. Loladze wondered what else this relationship might affect. Plants require light to grow, but they also need carbon dioxide. Could there be a relationship between rising atmospheric CO₂ and nutrient decline? In 2014, after years of analyzing data from 7,761 observations worldwide of 130 plant varieties, including wild species, he published his research, concluding that as CO₂ levels rise, plants create more carbohydrates, mainly sugar and starches, displacing nutrients. In 2016 a U.S. government report affirmed that rising CO₂ levels lowers the nutritional value of food.

Because these studies were often performed in artificial environments such as greenhouses, with samples too small to establish significance, plant physiologists were skeptical. So the Harvard School of Public Health addressed these weaknesses. Their study encompassed seven locations on three continents with 41 cultivars of six different crops over 10 years. Natural field conditions were created at Free-Air CO₂ Enrichment (FACE) centers. At each location a ring of jets releasing CO₂ was placed in an open crop field. In the ring were two sensors: one that kept CO₂ levels at a constant 550 parts per million, the level expected by 2050 if current carbon emission rates continue, and the other that detected wind to control the direction of CO₂ released. All other factors, like soil and weather, remained the same for both samples. Crops exposed to higher levels of CO₂ showed significant nutrient loss.

For example, comparisons of mean values of identical cultivars of barley grown in one year showed a 15 percent loss of protein, a 10 percent loss of iron, and a 13.6 loss of zinc in the elevated CO₂ samples. A potato crop lost 9.7 percent of its protein, 4.1 percent of its iron, and 10 percent of its zinc, while rice lost 8 percent of its protein, 4.9 percent of its iron, and 3.1 percent of its zinc. These crops are staples that billions of people depend upon for these nutrients.

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Increased Carbon Dioxide Reduces Crop Nutrient Levels—cont. from page 5

While climate change, diminishing arable land, political unrest, and population growth also threaten global food security, one clear step forward would be to reduce global CO2 emissions.

References:

Davis, Donald R. [Declining Fruit and Vegetable Nutrient Composition: What Is the Evidence?](#) (American Society for Horticultural Science, February 2009)

Myers, Sam. [Nutrition on a rapidly changing planet](#) (Harvard University video, May 2018)

New York Times, [How More Carbon Dioxide Can Make Food Less Nutritious](#), by Brad Plumer (May 23, 2018)

Politico, [The great nutrient collapse](#), by Helena Bottemiller Evich (September 2017)



The Garden King

What Le Nôtre understood
was the serenity of order.
The calmness which comes
from perfect privet cones
arranged in a large domain:
the domination of Nature
by Geometry.
An Imperial visionary, he knew
when green wildness
surrenders to clear form
it is tamed,
and the world then by definition
becomes ruled—after a fashion.

—Karen Petersen

Karen Petersen sent in this poem, originally published in 2017, in response to Eugenia Parry's essay on French formalism in the September issue of the newsletter.

Tree Inventory Project

Check out this [short video](#) about the Tree Inventory Project, a cooperative effort of the Santa Fe Municipal Tree Board, Santa Fe Extension Master Gardeners, and the public.



Texas Red Oak (*Quercus buckleyi*)

by Laurie McGrath

Texas red oak, also known as Buckley oak, bears the name of geologist and botanist S.B. Buckley and is native to the Great Plains, primarily in an area from south-central Texas to north-central Oklahoma. Its cold and heat tolerance and its ability to adapt to a variety of soils, preferably alkaline, make it a good choice for our area. In the parlance of the SNaPP team, it's a "neighboring" native. Sometimes confused with the less drought-tolerant Shumard oak (*Quercus shumardii*), which has a far greater range, Buckley's oak is smaller and more often multi-trunked.



Red fall foliage of Texas red oak. Photo by Tracy Neal.

Panayoti Kelaidis, senior curator and director of outreach at Denver Botanic Gardens, claims Buckley oak as his favorite tree. Writing in 2011 about his 20-year-old specimen, he queried, "What other tree can you name that is as sturdy as this oak, that has such a fabulous shape, will not get too big but grows quickly and thrives without supplemental irrigation in Denver?" Perhaps in Santa Fe in these warmer times it would require regular supplemental irrigation to grow quickly, but this tree's beauty would make that worthwhile.

Planting and care: Allow room for mature width and height. Water regularly for the first three years, monthly thereafter. The tree does not require mulch. Prune to remove lower limbs if desired.

Landscape use: Texas red oak makes a good accent or shade tree. It's also valued for its red to orange fall color. The acorns provide food for wildlife. Both the leaves and the acorns can be toxic to humans.

Propagation: Cold-stratified seed, ideally sown in place and protected from rodents. Since oaks can be slow growing, consider purchasing a young sapling from a nursery. Oaks produce a taproot, so don't delay planting too long.

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Texas Red Oak (*Quercus buckleyi*)—cont. from page 7

Plant type: deciduous tree

Flower type: male catkins and inconspicuous female flowers on same tree

Bloom time: spring

Height: typically 15–30 feet but can reach 50 feet

Width: 20–30 feet

Sun: full sun to part shade

Moisture: low

Soil: lean, well-draining

USDA zones: 5b–9



Male catkins on *Quercus buckleyi*. Photo by Ray Matthews for the Lady Bird Johnson Wildflower Center.

References:

Denver Botanic Gardens, [Buckley Oak: my favorite tree in the world...](#), by Panayoti Kelaidis
Lady Bird Johnson Wildflower Center Plant Database, [Quercus buckleyi](#)
Trees of Texas, [Texas Oak](#)



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 in the bar below the photo, and pose your question. Someone will do research and get back to you.

Photo by Pam Wolfe

It was not till I experimented with seeds plucked straight from a growing plant that I had my first success—the first thrill of creation—the taste of blood. This, surely, must be akin to the pride of paternity.

—Beverley Nichols (1898–1983)

Project Highlight: Santa Fe Seed Stewards

by Christine Salem, co-leader

There's a good reason seeds are an almost clichéd but apt metaphor for ideas, growth, and inspiration. And yet even gardeners can lose our connection with our seeds and how locally adapted seeds preserve healthy and equitable food systems, transmit culture, support healthy soils, and foster biological diversity.

Santa Fe Seed Stewards is a new SFEMG project. We have two major initiatives: the Seed Library at Southside, in partnership with the Santa Fe Public Library, and Seed School Weekend, to be held later this month. Plus, in November, we're producing an event for the Longer Table at the Community Gallery. We also awarded a scholarship to project co-leader Susie Sonflieth to attend Seed School teacher training this month.

In participation with other community groups, the Seed Library at Southside launched on March 23 with a film (*Seed: The Untold Story*), a seed swap, and kids activities. Santa Fe Seed Stewards is the educational arm of the seed library. We staffed information tables at the library each Saturday from April through mid-June, and we presented workshops on growing tomatoes, spring vegetable gardening, and drip irrigation. When it was time to plant fall gardens and save seeds, the info tables were in place again, and we offered timely workshops.

So far we have distributed almost a thousand packets to the community. We started with donations from seed companies—organic, open-pollinated varieties of vegetables, herbs, and flowers. The idea of the seed library is that folks check out seeds and then save a portion from the crop they grew and return them to the library. But anyone can donate seeds as long as they are no more than two years old and open-pollinated so they'll grow out true to type. If you have seeds to share, please drop them off at the Southside Library or contact me at jcsalem@comcast.net to make arrangements.

The Second Annual Seed School Weekend is set for October 25–27. This year's program will be even bigger and better. We kick off Friday night with a screening of *Seed: The Untold Story*, followed by a panel discussion. Seed School is all day Saturday, with lectures and hands-on activities covering the history, genetics, botany, and breeding of seeds, as well as techniques for seed saving. Sunday is a field trip led by the Institute of Applied Ecology to collect native seeds; then we'll move to their studio and use various equipment to clean the seeds.

If you can't commit to the entire weekend, you can register for just the film. Seed School Weekend is presented in partnership with the Santa Fe Botanical Garden. Register [here](#).

Hearty thanks to the indomitable Seed Stewards committee: Susie Sonflieth, Rosa La Cerva, Deborah Madison, Bonnie Martin, Diane Pratt, Ellen Premack, Jody Pugh, and Donna Wynant. Special thanks to Jannine Cabossel.

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 have paywalls.**

The Atlantic, [Spiders Can Fly Hundreds of Miles Using Electricity](#), by Ed Yong

Atlas Obscura, [When Royalty, Scientists, and Gardeners All Wanted Fake Fruit](#),
by Vittoria Traverso

Chips, Lori. *Hypertufa Containers: Creating and Planting an Alpine Trough Garden*
(Timber, 2018)

CNN, [Birds are dying off at an alarming rate. Here's how you can help from your own backyard](#),
by Amy Chillag

Desert Blooms (NMSU), [Starting from Seed: Growing Native Plants Does Not Have to Be a Pain in the Aster](#), by Alissa Freeman

Gardenista, [9 Radical Ways to Face Climate Change, with Brooklyn's Rebecca McMackin](#),
by Jeanne Rostaing

New Mexico in Focus (NMPBS), [Our Land: Backyard Wildlife Sanctuaries](#)

NMSU, [NMSU hires state manager for Master Gardeners program](#), by Melissa R. Rutter

New York Times, [These Caterpillars Can 'See' Colors With Their Skin](#), by Cara Giaimo

New York Times, [A Unique and Affecting Memoir Combines Grief and Mushrooms](#),
by Sarah Lyall

Paris Review, [The Intelligence of Plants](#), by Cody Delistraty

Pasatiempo, [Jamming signals: Two books on preserves](#), by Patricia West-Barker

Prairiebreak, [The right light](#), by Panayoti Kelaidis

Santa Fe Reporter, [Farming a Movement](#), by Zibby Wilder

The Garden Journal Radio Show

Every Saturday

10–10:30 a.m.

Live from the Farmers Market



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.

- Oct 05 Santa Fe Botanical Garden edition with Lindsay Taylor
- Oct 12 SFEMG edition with Christine Salem and guest Tiana Baca, garden manager at Desert Oasis Teaching Garden, in Albuquerque
- Oct 19 Santa Fe Farmers Market Institute edition with Carrie Core and farmers at the Tuesday market. It's pledge drive week—please call 505-428-1393 to pledge your support for KSFR.
- Oct 26 Home Grown New Mexico edition with 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. For updates and to listen to previous broadcasts, visit [this section](#) of our website.

Free!

2019 Compost Clinics



Learn how to compost your yard and food waste from the Santa Fe Extension Master Gardener Association!

Saturday, April 13 1PM—3PM *Hands on*

Saturday, May 4 9AM—1PM *During the 14th Annual Garden Fair*

Saturday, June 15 9AM—11AM *Part of our Let's Grow Series*

Saturday, July 20 9AM—11AM *Hands on*

Saturday, August 17 9AM—11AM *Hands on*

Saturday, September 14 9AM—11AM *Hands on*

Saturday, October 19 9AM—11AM *Hands on*

CE hours available for Extension Master Gardeners

Bring hat, gloves, sturdy shoes, water & a pitch fork if you have one!

These hands-on clinics will teach proper techniques for building a thermal pile, turning, finishing, and screening compost. In addition there is a straw bale worm bin on site for vermicomposting.

All clinics will be held at the Master Gardener Demonstration Gardens at the SF County Fairgrounds: 3229 Rodeo Road, Santa Fe

For more information, visit sfemga.org and please LIKE US on Facebook



If you are an individual with a disability who is in need of an auxiliary aid or service, please contact County Extension Office at 505-471-4711. NMSU is an affirmative action/equal opportunity employer and educator.

SANTA FE
EXTENSION
**MASTER
GARDENERS**

Calendar of Events

All events are open to the public. Visit the [events calendar](#) on our website for a complete list of garden-related activities and classes with times, locations, and registration information.

DATES	EVENTS	CREDITS
Oct 08	Botanical Book Club, 1–2:30 p.m. (SFBG)	NA
Oct 10	Lecture: A Brief History of Color and Food, 3–4:30 p.m. (SFBG)	1.5 CE
Oct 12	Arid Land Restoration, 9 am.–noon (SFCC)	3 CE
Oct 18	Hike to Santa Fe River Canyon, 10 a.m.–2 p.m. (SFBG)	NA
Oct 19	Compost Clinic, 9–11 a.m. (SFEMG)	2 CE
Oct 19 & 20	Shrubconscious: Designing Plant Sculpture, 9 a.m.–5 p.m. (SFBG)	NA
Oct 22	Garden Superstars, 7–9 p.m. (SFCC)	2 CE
Oct 24	Lecture: World of Fungi: Mutualists to Pathogens, 3–4:30 p.m. (SFBG)	1.5 CE
Oct 25–27	Seed School Weekend, one eve and two days (SFBG & SFEMG)	12 CE
Oct 26	Bird walk at Leonora Curtin Wetland Preserve, 8–10 a.m. (SFBG)	NA
Oct 29	Gardening Good Enough to Eat, 7–9 p.m. (SFCC)	2 CE

SFBG: [Santa Fe Botanical Garden](#), 715 Camino Lejo, 505-471-9103

SFCC: [Santa Fe Community College](#), 6401 Richards Ave., 505-428-1676

SFEMG: [Santa Fe Extension Master Gardeners](#), County Fairgrounds, 3229 Rodeo Rd.

Members Only: For a complete list of Master Gardener projects and to sign up, please visit Sign Up Genius, a link to which is in the [Members Only](#) section of the website. To log hours worked and to see year-to-date totals, visit Track It Forward in the same location.



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