

COOPERATIVE EXTENSION MARICOPA COUNTY

JOURNAL



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INSIDE THIS ISSUE:

- 6** The Fire-Resistant Landscape

- 8** "Hardscaping" Your Landscape

- 12** The Elegant Eggplant

- 18** Mt. Lemmon Marigold: Blanket of Sunshine

- 22** Programming Your Irrigation Controller



Master Gardener Journal

From Me to You: Earth-Friendly Desert Gardening	3
Calendar of Events	4
Things to Expect & Do	5
The Fire-Resistant Landscape	6
Hardscaping Your Landscape	8
Word Wise	9
Growing Orchids: An Exotic Obsession	10
Ask a Gardener	11
A Bountiful Garden: The Elegant Eggplant	12
Flowering Plants: The Issue of Climate	15
Creature Comforts: Building Nestboxes	16
Meet the Natives: Mt. Lemmon Marigold Blanket of Sunshine	18
My Special Eucalyptus	19
Book Review: The Olive in California, History of an Immigrant Tree	20
Neophyte Nook: Landscaping & Crime Prevention	21
Earth Friendly Gardening: Programming Your Irrigation Controller	22
Computer Corner	23

Maricopa County Master Gardeners: Cultivating Plants, People & Communities since 1980

Master Garden volunteers are trained by University of Arizona faculty and staff during a 17-week course. They provide educational leadership to the community with research-based horticulture knowledge. Volunteers promote efficient use of water, fertilizers, and pesticides, and preservation of our desert environment.

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Northwest Valley Satellite location: Property Owners & Residents Association (PORA) Office
13815 Camino del Sol Blvd., Sun City West, AZ 85375. Phone 623-546-1672. Hours: 9 a.m.-1 p.m. Monday-Friday.

East Valley Satellite location: East Mesa Multigenerational Center
7550 E. Adobe Rd., Mesa, AZ 85207. Phone 480-985-0338. Hours: 9 a.m.-noon, Mondays and Thursdays.

Northeast Valley Satellite location: Via Linda Senior Center
10440 E. Via Linda, Scottsdale, AZ 85258. Phone 480-312-5810. Hours: 9 a.m.-4 p.m., Tuesdays and Thursdays.

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Cover Photos: (clockwise from top left)
Eucalyptus, Jeanette Irwin; Orchid, W. Stimmell;
ZZ Plant, Candice Sherrill; Eggplant, Candice Sherrill



Lucy Bradley, Extension Agent, Urban Horticulture

Photography: Donna Atwood

Earth-Friendly Desert Gardening: Coming to a Bookstore Near You!

by Lucy K. Bradley
Extension Agent, Urban Horticulture

She's done it again! That amazing Cathy Cromell, along with partners Jo Miller and myself, illustrator Janice Austin, and an outstanding team of reviewers has produced an exciting new book for Master Gardener Press. With tremendous financial and moral support from the Arizona Community Tree Council, **Earth-Friendly Desert Gardening** will arrive in bookstores any day.

Water shortages, air pollution, overflowing landfills, and energy blackouts make news daily. However, it is possible to have an "Earth-Friendly" backyard that saves on water and energy consumption; reduces allergens and green waste; and at the same time attracts native wildlife and provides your family with a bountiful harvest. All that's needed is a commitment to the environment and some basic information. **Earth-Friendly Desert Gardening** provides strategies in six areas to help you manage your yard harmoniously with nature:

ENERGY CONSERVATION

As energy prices escalate, we become more concerned about how to conserve. Two-thirds of household energy use is for heating and cooling. We can reduce this by up to 60 percent by selecting the right plants and placing them appropriately in the landscape. Even better, these same principles of energy efficiency can extend the period we are able to enjoy our outdoor living areas.

WATER CONSERVATION

Landscapes guzzle 1/3 to 1/2 of all household water. We can reduce water consumption by up to 50 percent by

careful planning, plant selection, and plant maintenance.

GREEN WASTE PRODUCTION

Each person in Arizona generates an average of 5.9 pounds of solid waste daily, sending over 2000 pounds per year to the landfills. More than 30% of this material is organic matter that we could reuse as compost and mulch in our gardens and landscapes. This would reduce the amount of green waste by 600 pounds per person per year.

WATER QUALITY PRESERVATION

In communities, urban water run-off accounts for the majority of pollution that does not come from a specific industrial source. Overused and/or misapplied pesticides and fertilizers in home landscapes are a primary cause. Selection of well-adapted plants, effective pest management, and appropriate care of plants can reduce dependence on fertilizers and pesticides.

WILDLIFE HABITAT

Wild habitat areas around cities and smaller communities are being converted into housing and commercial properties, displacing native plants, animals, and insects. Choosing native plants can create a haven for butterflies, birds, lizards, and other animals.

EDIBLE LANDSCAPING

Many children, when asked where carrots come from, will reply "the grocery store." They have no idea the vegetable was once the root of a plant. Many varieties of produce available in local markets are grown thousands of miles away. To ensure that they are in pristine shape for the consumer, they're bred with the priority of increased shelf life rather than improved flavor or

increased nutritional value. By choosing to grow some of our own food we can help children and neighbors develop a connection to food as a plant, rather than a store package. We can reduce the amount of resources spent on packaging, storing, and shipping produce by harvesting our own salad for dinner. Making the commitment to eat produce grown on our property will profoundly impact our decisions on how we steward the land.

In addition to the global benefits outlined above, there are personal benefits to earth-friendly gardening:

- **Save Money**—Earth-friendly desert gardening can generate financial savings on electric bills and water bills. You will also spend less on fertilizers, pesticides, and yard maintenance.
- **Save Time**—Reduce the amount of time spent pruning, mowing, fertilizing, and managing pest problems.
- **Grow in Harmony**—Make decisions that are healthy for you, your family and pets, your plants, birds and other wildlife that visit your yard, as well as your community.
- **Grow Your Own Food**—Enjoy fresh homegrown produce.

Shipping dates aren't finalized yet, but **Earth-Friendly Desert Gardening** will be available at major bookstores or from Cooperative Extension, 4341 E. Broadway Road, Phoenix, AZ 85040. The cover price will be \$14.95 (\$15.78 including tax for Arizona residents) if purchased at Extension offices. You'll need to add \$2.75 for shipping if you want it mailed to you (checks should be made out to the University of Arizona). ■

Calendar of Events

FEBRUARY 2003

2/5 — **Horticultural Seminar.** 8:00am to 2:30pm. Maricopa County Extension Office, 4341 E. Broadway Rd., Phoenix. Admission: \$45.00. Contact: Marylou Coffman at cggleg@aol.com or 480-926-3064.

2/14 thru 2/16 — 8:00am - 5:00 pm daily. **Language of Flowers February Flower Show and Chocolate Tasting.** Boyce Thompson Arboretum, 37615 Hwy 60, Superior. Living display of plants and their blossoms designed to interpret the Language of Flowers. Also, sample decadent Bernard Callebeaut gourmet chocolates from Belgium. Chocolate samplers available. Tasting tickets for chocolate are \$1 each or 6 for \$5. Flowers and chocolates at the Arboretum — now that's amore!

2/20 thru 2/21 — **Tenth Annual High Desert Gardening & Landscaping Conference.** Cochise County Master Gardeners Association. Topics: Gardening in the Desert, Turf Grass, Principles of Landscape Design, Utilization of Grey Water, Propagation of Native Plants, and Ergonomics for the Gardener. Price: \$70 for both days, \$45 for one day and includes breakfast and lunch. Closing reception on Friday, door prizes, exhibits, and vendors. Registration required. Address: Windemere Hotel 7 Conference Center, Sierra Vista. Contact: Joyce Williams at jwilliam@ag.arizona.edu, phone 520-458-8278.

MARCH 2003

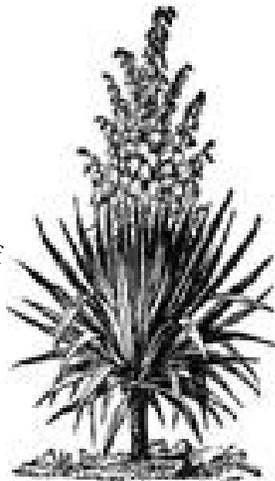
3/1 — **World Desert Fair.** 11:00am - 3:00 pm. Boyce Thompson Arboretum, 37615 Hwy 60, Superior. Foods, crafts, and entertainment from deserts around the globe. From the prickly pear pads

of the Sonoran Desert to the pomegranates of Central Asia, the Arboretum features plants from deserts all over the world.

3/8 — **Wildflowers Arizona.** 9:00 am.

Wildflower Symposium co-sponsored by Arizona Federation of Garden Clubs, Columbine Garden Club and the Desert Botanical Garden. How to collect and grow wildflowers from seed, and a tour of the Desert Botanical Garden's new wildflower trail. Admission: \$25.00 includes Breakfast, Lunch & Entrance to Gardens. Reservations required. Contact: Elin Doehne at Arizona Federation of Garden Clubs at doehnee@aol.com. Location: Dorrance Hall, Desert Botanical Garden, 1201 N. Galvin Parkway, Phoenix, Arizona.

3/8 — **Desert Foothills Trees and Pruning.** 9:30 am until 12:30 pm. Kathleen Moore, Instructional Specialist, Maricopa County Extension, Botanist, Certified Arborist. Seating limited. Call Carefree Town Hall to make reservations. Most seminars will be held in the Town Council chambers in Carefree Town Center. Participants will be given maps and directions. Open to the public at no charge. Speakers will have visuals and provide handout materials. A number of books on desert plants and landscape will be available for sale. Registration required. Address: Carefree Town Center, Carefree, AZ. Contact: Pamela Slate at pameladaz@aol.com, phone 480-488-3686.



3/14 thru 3/16 — **Spring Plant Sale Desert Botanical Garden.** "One-stop-shop" with the largest variety of desert-adapted plants available in one location. Garden volunteers and horticulturists answer questions and professional landscape designers available. Used Book Sale with

proceeds benefiting the Desert Botanical Garden Library. (Book donations for the sale are accepted at Garden Admissions. Please, no magazines except Arizona Highways.) Desert Botanical Garden, 1201 N. Galvin Parkway, Phoenix, Arizona

3/14 thru 3/30 — 8:00 am - 5:00 pm daily. **Annual Spring Landscaping Festival & Plant Sale.** Boyce Thompson Arboretum, 37615 Hwy 60, Superior, AZ. Thousands of drought-tolerant plants for sale, ranging from shrubs, vines, trees, cacti and succulents. Horticulturists on hand to answer questions and lead tours of the Demonstration Garden each weekend day.

3/21-3/22 — **"Growing Awareness" Youth Gardening Conference.** Come join us as we celebrate the diversity of youth gardens in the Southwest. The conference will be held in Tucson, Arizona. Full Registration: \$115/\$130. Friday Only: \$65/\$85. Saturday Only: \$65/\$85. Full registration fee includes: educational sessions and meals planned for 3/21 and 3/22. Contact: Sandra Saad at (520) 626-4086 or ssaad@ag.arizona.edu.

3/22 — 7:00am - 3:00 pm. **Welcome Back Buzzards.** Boyce Thompson Arboretum, 37615 Hwy 60, Superior, AZ. Join us as we welcome back our

returning flock of resident turkey vultures who migrate here from parts south. We open early to catch the birds as they sun themselves on Magma Ridge and wait for the warm air currents to rise. The birds then catch the air spirals as they search for carrion. After vulture watching, go on an escorted bird walk. A vulture will be on hand, as well as animals, birds, and reptiles that have been rescued and are being rehabilitated. Cake and refreshments round out the celebration.

3/22 — Landscape Watering by the Numbers. 9:30 am until 12:30 pm.

Donna DiFrancesco, Author, City of Mesa Water Conservation Office will be presenting. Participants will meet on the stage of the Amphitheater for this outdoor seminar. Seating is limited, so call Carefree Town Hall to make a reservation. Most seminars will be held in the Town Council chambers in Carefree Town Center. Participants will be given maps and directions. Open to the public at no charge. Speakers will have visuals and provide handout materials. Books on desert plants and landscape will be available for sale. Registration required. Location: Maricopa County. Address: Carefree Town Center, Carefree, Arizona. Contact: Pamela Slate at pameladaz@aol.com, phone 480-488-3686.

3/22 thru 4/13 — Garden Art Exhibit and Auction. Local artists present sculptures made from metal, clay, stone and tile throughout the Gardens. Art is open for bid in a silent auction process. Desert Botanical Garden, 1201 N. Galvin Parkway, Phoenix, Arizona. ■

Things to Expect & Things to Do

by Terry H. Mikel, Extension Agent, Commercial Horticulture

POWDERY MILDEW often appears on new growth. Repeated sulfur powder (when temperatures are less than 90°F) or fungicide applications are often needed to protect successive leaf growth. Roses, grapes, cucurbits and euonymus are the most likely hosts.

APHIDS on trees, shrubs, vegetables or flowers may occur. Populations are often temporary. Use soapy water sprays or add detergent to other spray formulations for better coverage.

WINTER WEEDS stimulated by winter rains are still growing. Do not allow them to mature and produce seed. Mowing, cutting and raking afterwards are the only options left.

SEASONAL LEAF DROP on carob, Mesquite, African sumac, pine and other trees will occur as weather warms, as the older leaves make way for the new.

CHECK STAKED TREES - Remedy trunk injury from ties and rubbing by removing stakes or replacing rubber padding on ties.

PREPARE GARDEN SOILS for spring vegetable planting; early planting means better yields in most spring crops.

FERTILIZE fruit, nut and shade trees, shrubs, and vines. Do not fertilize over seeded rye lawns after February. Do not de-thatch common or hybrid Bermuda lawns until early May or later.

SWEET POTATOES can still be started now. Buy the color you like at the store and suspend it half deep in water with toothpicks, making sure the 'hook' end is up. Simply buy one with a hook. Change water often to keep it fresh. After shoots appear, plunge the whole thing (shoots half covered) in the water and roots will form.

THIN WILDFLOWERS NOW. They need room to grow during the upcoming vigorous growth phase. Thinning also reduces the competition and the ones left flourish even more.

PLANT CITRUS TREES. Young 2- to 5-year-old trees transplant most successfully. Larger, older trees are more costly and suffer more shock. Protect bark from sunburn and mechanical injury with a sturdy wrap of cardboard or newspaper.

INCREASE nitrogen fertilizing on onions. Remember, choose a nitrate form of nitrogen. Avoid any fertilizer containing sulfur or sulfate, to reduce the pungency of the onion.

TERMINAL DIEBACK in pines is usually a physiological response we call pine blight. It has been more noticeable this year. Check the soil near the trunk. Those with encircling roots express the worst symptoms.

MULCH GROUND SURFACES under roses and other heat sensitive plants.

APPLY IRON to bottle brush, pyracantha, silk oak and other plants with iron deficiency symptoms. Chelated iron works faster. Reducing watering frequency often helps.

THINK HOUSEPLANTS for deeply shaded, outside areas. Green spiders, philodendrons, dracaena, crinum, scheffleras and tupidanthus do wonderfully.

DO NOT DETHATCH Bermuda grass/hybrid Bermuda lawns until May. ■

The Fire-Resistant Landscape

Communities in Arizona's high country continue the long rebuilding process after last summer's heartrending wildfire losses. Sadly, too many of us believe that wildfire is a risk only to those residing in the heavily forested areas of our state. In fact, any vegetation is potentially combustible, particularly in the arid southwest.

People with homes and vacation properties in high chaparral, brush, or grasslands, or simply in suburban foothills ill-served by distant fire departments, are well advised to examine their property's susceptibility to fire, develop a protection plan, and implement improvements working outward from the major buildings. The question is not if a wildfire will ever occur, but when.

A building's ability to withstand the ravages of wildfire is determined principally by: (1) the selection of the roofing

material, and (2) the use of a defensible space plan around the structure. When considering major roof repairs or replacement, fire-resistant materials should be researched and municipal building departments should be consulted for minimum specifications. Choose the most fireproof material you can afford.

A defensible space plan outlines action steps in each of three management zones on a property. These are areas where vegetation and fuels are actively managed or eliminated to reduce the intensity and spread of fire to and between buildings, or from burning buildings to adjacent range or forest. In general, this means that landscaping around a home is lower growing, more widely-spaced, incorporates noncombustible groundcovers such as gravel and stone, and gives priority to native

plant material. Do not underestimate the importance of executing such a plan for your property: firefighters may bypass your home, choosing to protect structures where they are more confident of both their safety and their ability to manage the fire.

The first zone is the area immediately around the house and all other detached structures. Measured from overhanging eaves and/or decks, it should extend at least 15 feet; 30 feet is recommended in the chaparral. This should be the area where you address most of your efforts. Propane tanks and stacks of firewood should be relocated from here to Zone 2.

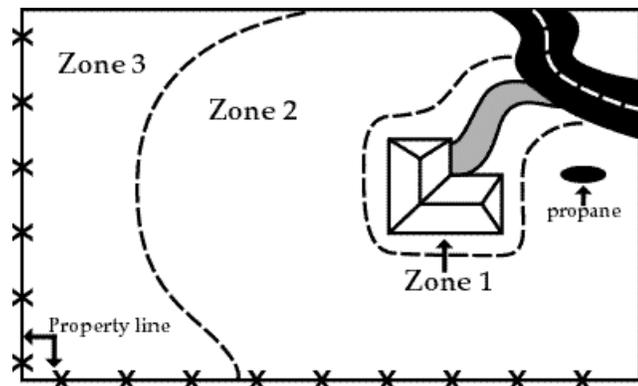
Ideally, there are no trees in Zone 1. If they cannot be removed, treat them as a part of the building and extend the perimeter of this first zone accordingly. Prune these trees to at least 10 feet



*Missoula, Montana
Summer 2000*

*Photo courtesy of
John McColgan,
Bureau of Land
Management*

Defensible Space & Firewise Annual Checklist



measured by the closest elements of each tree's canopy, not the trunks. Vegetation on steep inclines should be thinned to a greater distance. Again, prune trees to 10 feet above ground and remove potential ladder fuels.

above ground; also prune all branches that are within 10 feet of any building or chimney. Smaller shrubs and other materials that can act as a 'ladder fuel' under Zone 1 trees should be removed.

Other plantings in Zone 1 should be 3 to 5 feet from the house perimeter. This includes turf. Decorative gravel, stone, or brick can be used in these areas, including the ground beneath decks, which should not be used for storage. Consider native groundcovers whose succulent properties make them more firewise. Resinous plant materials should be avoided near buildings. Resist large massed plantings, including wildflowers: they can be extremely combustible. Instead, create interesting, irregular islands of plant material separated by rock walls, pathways, or inorganic mulches. If organic mulches are present, use just enough to manage weed or grass growth, because thick layers tend to smolder and are harder to snuff out. Again, avoid mulches of resinous materials such as pine needles or pine bark.

Zone 2 management focuses on lowering your landscape's potential to fuel an approaching fire. This area extends at least 75 to 125 feet from structures. Trees and large shrubs are thinned to a distance of 10 feet between crowns, as

Keep lawns trimmed to a low height and rake leaf and other litter to avoid buildup. Dispose of slash by chipping or carefully burning. The local fire or sheriff's department should have information about burning slash piles.

The last area, Zone 3, extends from the edge of your defensible space to the property line. This is treated as a transition zone to surrounding home sites or open land. Tree thinning might improve the health of your forest stand, if this is your situation. Pruning, removing dead materials, and reducing ladder fuels can improve personal safety during a period of high drought, and can help to keep trails and fire access roads clear.

More detailed information is presented in three new Firewise publications recently available from Cooperative Extension. They can be downloaded online at <http://ag.arizona.edu/pubs/quarterly.html> ■

AZ 1289

Firewise Plant Materials for 3,000 feet and Higher Elevations

AZ 1290

Creating Wildfire-Defensible Spaces for Your Home and Property

AZ 1291

Fire-Resistant Landscaping

- Trees and shrubs are properly thinned and pruned within the defensible space. Slash from the thinning is disposed of.
- Roof and gutters are clear of leaves, needles, and other debris.
- Branches overhanging the roof and chimney are removed.
- Chimney screens are in place and in good condition.
- Grass and weeds are mowed to a low height.
- An outdoor water supply is available, complete with a hose and nozzle that can reach all parts of the house.
- Fire extinguishers are checked and in working condition.
- The driveway is wide enough. The clearance of trees and branches is adequate for fire and emergency equipment. (Check with your local fire department).
- Road signs and your name and house number are posted and easily visible.
- There is an easily accessible tool storage area with rakes, hoes, axes and shovels for use in case of fire.
- You have practiced family fire drills and your fire evacuation plan.
- Your escape routes, meeting points and other details are known and understood by all family members.
- Attic, roof, eaves and foundation vents are screened and in good condition. Stilt foundations and decks are enclosed, screened or walled up.
- Trash and debris accumulations are removed from the defensible space. ■

“Hardscaping” Your Landscape

What a beautiful time of the year here in the Valley of the Sun! While we may need to slip on a jacket or sweater to guard against the nighttime chill, daytime temperatures are decidedly pleasant... a perfect time to tackle a “hardscape” project for your landscape.

What exactly is meant by the term hardscape? Hardscape is any non-living element we place in our yards, such as patios, fences and sidewalks. While many of us think of plants as the major players in our landscape, hardscape features can also have a considerable impact. These components can be used to enhance our outdoor spaces by offering opportunities for entertainment and recreation, providing a focal point in the landscape, solving privacy and security issues, and generally making our yards more livable and easier to maintain. As a bonus, the value of your property may even increase.

Although a major undertaking such as a swimming pool is best left to professionals, there are countless projects the average homeowner can tackle with some research, proper planning, and a little imagination.

Think about the ways in which you presently use your front, back, and side yards.

Are there ways to better separate the public, private, and utilitarian areas of your property? Could you make better use of the space you have? As you study your landscape, remember that any hardscape you add to your property should not only be functional, but attractive. Try to blend in the new with the old. Examine your landscape and reflect on the following possibilities:

Walkways should be adequate and inviting. Study the traffic patterns throughout your yard. Perhaps an attractive winding path would encourage visitors to explore that stunning garden you’ve created. Would an additional sidewalk facilitate taking out the trash, servicing your pool equipment, or getting the kids safely to their play area? Is the passageway leading to your front door welcoming? Creating a new walkway or making an existing one more appealing can be done in numerous ways. Pavers, bricks, flagstone, or tile can be set in a mortar base and arranged in a variety of striking patterns. Some materials can even be laid



in a base of sand making the job easier. An exposed aggregate concrete sidewalk is a more interesting option than plain concrete. Even a simple gravel pathway can be attractive.

Fences or walls provide privacy and security. Socializing with your neighbors is a great way to establish a sense of community in your neighborhood; however, there are times when we need to establish boundaries and protect our privacy. If young children have access to your yard and pool, a fence in conjunction with a locked gate can prevent a tragic drowning. Intruders can be discouraged in the same way. Concrete block by itself or coated with stucco will withstand the test of time in our dry desert climate. A low wall of brick, glass block, or interlocking masonry blocks (no mortar required!) is an option if you wish to separate one area of your garden from another. A coat of paint can add pizzazz with a minimum of effort. If you happen to be artistically talented, a mural or abstract design can give a unique look to your outdoor space.

Features such as patios, built-in barbecues and fireplaces make entertaining a pleasure. Many of us are fortunate enough to have a covered patio attached to our home, but another option is to install a patio in the backyard or a side yard if you have the space. The same materials used for walkways can be utilized to construct a wonderful spot for dining furniture, a bench, or a glider. Check out plans to build a barbecue grill. Cooking outdoors keeps the heat out of the house during our hot summers but a bar-



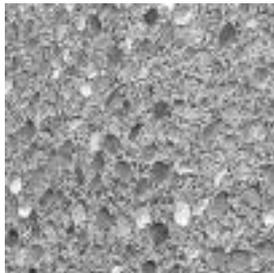
The same materials used for walkways can be utilized to construct a wonderful spot for dining furniture, a bench, or a glider.

Photography: Candice Sherrill

beque is a pleasure to use any time of the year. Finally, imagine the cozy ambiance that an outdoor fireplace would provide on a chilly evening. Prefabricated fireplace kits are available, and so are instructions to build a masonry one.

A pool is not your only option if you want to include a water feature in your landscape. Having a pool in the backyard can certainly offer relief from our hot summer temperatures, but there are those who would rather not deal with the initial expense in addition to the time and money involved in maintaining a pool. There are a number of alternatives if you desire the pleasant gurgle and the cooling effects of water in your landscape. Think about including a fountain, waterfall, or a pond in your design. Do-it-yourself kits make one of these projects easier than you might think.

Arbors, ramadas, gazebos, and trellises offer shade and opportunities for enthusiastic gardeners to add more plants to the landscape. Shade is at a premium here in the desert. It can make outdoor living during the summer bearable. These structures help to cool areas of our landscape and provide protection from the sun. They are practical as well as attractive. Vining plants are ideal to train up and around these projects.



Raised beds and containers work well if your space is limited or if you need easy access to your plantings.

Many gardeners find growing vegetables, herbs, and annuals irresistible, but finding room in a small yard can be a problem. Maintaining these garden areas can also be demanding. Raised beds constructed from wood, concrete, or interlocking blocks can solve these problems, and help you avoid back and other troubles associated with bending and stooping. A group of pots arranged in the landscape or on the patio is another interesting idea. There are endless sizes and styles of containers that will satisfy anyone's taste.

These projects are just a few of the countless ways to integrate hardscape into your landscape. Hopefully, these will start your creative juices flowing. Browse through home and garden magazines, or check out your local library for more ideas. One of the

best sources of books and project plans can be found at your neighborhood home improvement center.

Try to keep your plans simple. There is nothing more frustrating than starting something you cannot finish. As always, if you have any questions concerning Homeowner Association rules or local building codes, contact the proper agencies before beginning construction. ■

Word Wise

Definitions for terms used in this issue...

composite (Mt. Lemmon p. 18)—a flower head with outer ray flowers forming “petals” surrounding inner disc flowers.

cowbird (Nestboxes p.16)—small North American blackbird that lays its eggs in the nest of other birds.

flavinoid (Eggplant p. 12)—an aromatic compound containing pigment.

fledge (Nestboxes p. 16)—to acquire the feathers necessary for flight or independent activity. To rear until ready for flight. To cover with or as if with feathers or down.

inorganic (Fire-Resistant p. 6)—containing no carbon; generally used to indicate materials such as fertilizers that are of mineral origin.

ladder fuel (Fire-Resistant p. 6)—arrangement of plant growth from short to tall, so as to facilitate the spread of fire.

organic (Earth-Friendly p. 3)—a material (i.e. a pesticide) whose molecules contain carbon and hydrogen atoms. Also may refer to plants or animals which are grown without the use of synthetic fertilizers or pesticides.

resinous (Fire-Resistant p. 6)—containing or characterized by resins: sticky organic substances—usually transparent or translucent and flammable—formed in plant secretions and insoluble in water.

side dress (Eggplant p. 13)—place nutrients on or in the soil near the roots of a crop, not directly on it.

slash (Fire-Resistant p. 7)—debris, as from logging; an open tract in a forest strewn with such debris.

verticillium wilt (Eggplant p.14)—a wilt disease of plants caused by a soil-borne fungus (*Verticillium*). ■

Growing Orchids: An Exotic Obsession

Orchids are stunning, to say the least. There are approximately 30,000 species of orchids, each offering something unique to the eye. They belong to the largest family in the plant kingdom, Orchidaceae.

When discovered in the early 19th century, orchids were an immediate hit. Practically overnight there was such a demand for orchids, that collectors and nursery professionals hired plant explorers to search for orchids worldwide. People became obsessed with acquiring orchids for their collections, leading to the coining of the word orchidelirium, a frenzied desire to collect rare orchids at any cost.

Plant explorers had a dangerous task ahead of them, enduring dangerous

voyages, cannibalistic natives, thieves, and a variety of diseases. They were often heavily armed—not only for protection against wild animals, but also other orchid explorers.

Plants, once found, were packed in crates and shipped to England, France, or the United States. Not many survived their voyage, however this did not stop the exploration for orchids. For over 100 years collectors spent great sums of money searching for new varieties, hoping to be able to name their discoveries after their friends and family. Many writers of the era portrayed orchids as being sinister—with a thirst for human blood. Because of their mystique, the public was fascinated with orchids and readily attended orchid shows. This fascination continues even today.

Orchids are one of the most advanced and specialized flowers in the plant kingdom. One of their unique properties is orchid mimicry. Certain orchid flowers imitate the appearance or odor of female insects, such as wasps or flies, in order to achieve pollination. This is called pseudocopulation. Yet another type of mimicry is pseudoantagonism. With this type of mimicry, the flower resembles an insect such as a bee. When the flower moves in the breeze it antagonizes male bees, causing them to attack and ultimately to become covered with pollen.

Because of their exotic nature many believe that orchids are difficult to maintain. According to the American Orchid Society, the Phalenopsis or Moth Orchid is the orchid of choice in America. Individual blooms can last for up to 3 months with the correct conditions.

When choosing an orchid, foliage should be clean with no blemishes or visible pests, and should be medium green or grassy green in color. Roots should be firmly planted in the growing medium. Flowers should be situated well above the foliage, attached to a spike, and there should still be unopened buds.

When choosing an area to plant your orchid, select a bright location with an eastern or shaded southern exposure. Orchids do best with steady temperatures, preferably between 55°F and 85°F. Higher temperatures can retard growth, and fluctuations in temperature can cause buds not to open.

In general, the watering frequency for an orchid growing in a 6-inch container



Photography: W. Stimmel



should be once a week. Do not allow the plant to stand in water; let water drain freely through the container. A convenient way of telling whether or not to water is to insert a lead pencil into the growing medium. If the plant has sufficient water, the pencil will darken. Plants in a fir bark medium will need a fertilizer high in nitrogen. Plants in all other medium will need a balanced fertilizer. Fertilize weekly with a solution ? to ? the recommended dilution rate. Repot when visible signs of root growth are apparent and roots have outgrown the container, but only after the plant is finished blooming.

If you keep these few simple suggestions in mind, you'll find that orchids are just as easy to grow as any other houseplant. ■

References:

Bond, Rick. 1988.

All About Growing Orchids. Ortho Books.

Downs Wholesale, Phoenix, AZ

The American Orchid Society:
www.orchidweb.org

ORCHIDS IN THE DESERT

If you'd like more information about growing orchids in the desert, go to Orchid Society of Arizona at:
www.welcome.to/orchidsocietyaz

Ask a Gardener

by Judy Curtis, Master Gardener

QUESTION:

I recently bought a ZZ plant. How do I take care of it? It was quite expensive, and I don't want to kill it.

ANSWER:

Zamioculcas zamiifolia, or the ZZ plant, is one of the hottest new items in the houseplant world, although it has been around so long that it is one of our living fossils. It is in the Aroid family, along with philodendrons and anthuriums, and hails from the dry grasslands and rocky soils of Tanzania and Zanzibar (some more "Z" words). A fern with an attitude is a good description of its appearance. The tuberous root, thick stem, and fleshy, deeply-lobed leaves all store water, making it a three-way succulent and therefore extremely drought tolerant. One grower says he has one in his office that he has watered only six times in sixteen months, and it is doing beautifully. The rave reviews this plant has been getting seem almost too good to be true.

Here is what they are saying:

- It flourishes in low or high light locations.
- It grows slowly to 4 feet and puts out suckers from the base to fill in the pot.
- Propagation is easily done from leaf cuttings.
- Pests are not a problem.
- It thrives on neglect.

What more could we ask? It seems the only wrong thing you can do is to over water it.

They are on the pricey side because they are new and grow so slowly. The Desert Botanical Garden plant shop has some about 2 feet high in the \$50 range. I expect we will be seeing a lot more of them.

They can be confused with another living fossil in the cycad family, *Zamia furfuracea*, known as the cardboard palm. It comes from coastal areas in Mexico and is also reputed to be a tough indoor plant. Check your labels to make sure you are purchasing the one you want. ■



Photography: Candice Sherrill

The Elegant Eggplant

BOTANICAL NAME

Solanum melongena, *Solanum integrifolium*, *Solanum gilo*

COMMON NAMES

Eggplant, eggfruit, aubergine, brinjal, tomato-fruited eggplant, gilos, guinea squash, mad apple, nasubi

ORIGIN, HISTORY & FOLKLORE

Eggplant is a member of the Solanaceae or nightshade family, which includes tomatoes, potatoes, and peppers. Its origin is considered to be India where it continues to grow wild. This spiny, bitter, orange, pea-sized fruit has been cultivated throughout India and China for more than 1500 years.

As trade routes opened, eggplant was introduced to Europe by the Arabs and transported to Africa by the Persians. The Spaniards carried it with them to the New World and, by the early 1800s, both white and purple varieties could be found in American gardens.

According to the American Horticultural Society Encyclopedia of Gardening — Vegetables. "A 5th Century Chinese book contains one of the oldest references to eggplant. A black dye was made from the plant, and ladies of fashion used it to stain their teeth — which, when polished, gleamed like metal."

In China, as part of her "bride price," a woman must have at least 12 eggplant recipes prior to her wedding day. In Turkey, "imam bayeldi," a tasty treat of stuffed eggplant simmered in olive oil is said to have made a religious leader swoon in ecstasy. When first introduced in Italy, people believed that anyone who ate the "mad apple" was sure to go insane.

DESCRIPTION

Eggplant is a frost tender, heat loving, branching bushy plant with thick, woody stems. The green to grayish green leaves are large, lobed, and alternate with the underside typically cov-

ered with spiny fuzz. Mature plants range from 1 to 8 feet in height. Although eggplant is a perennial, it is more commonly grown as an annual.

Eggplant flowers are star-shaped in various shades of purple and usually form on opposite leaves as either solitary blooms or grouped in clusters of two or more. They are perfect and primarily self-pollinating. However, some cross-pollination can occur with the help of bees, ants and other insects. Flowering is thought to be day neutral and, therefore, not dependent on a specific number of daylight hours.

Solanum melongena is the more commonly recognized eggplant. There are many sizes and shapes of fruit, with skin colors ranging from blackish purple to florescent purplish green to gold or white. In addition, some varieties produce lovely bicolor or striped skin. The fruit has a dense, uniform and firm, white, sweet flesh.

The standard eggplant is an oval or pear-shaped, glossy, purplish fruit 6 to 9 inches long. Japanese and oriental varieties tend to be elongated and slender with a thinner, more delicate skin. "Ornamental" varieties are edible and tend to produce small, white-skinned, oval-shaped fruit.





The purplish black color found in eggplant skin is the result of a water-soluble flavonoid pigment, anthocyanin, which is also responsible for the red, purple and blue coloring in flowers, fruits and vegetables.

Fruit of the *Solanum integrifolium* and *S.gilo* lack a solid interior and resemble their tomato relatives. The “tomato-fruited eggplant” plant ranges in height to about 4 feet and typically bears fruit that is 2 inches in diameter or less. Common skin colors range in hues of green, red or orange, as well as bicolor or striped.

HOW TO GROW

Eggplant is easy to grow in the low desert southwest. It does well in a variety of soil textures, but prefers rich, well-drained soil with a pH of 5.5 to 6.5. It thrives in full sun and requires at least five months of warm weather for fruit production.

The optimum daytime growing temperature ranges between 70°F and 85°F. When temperatures rise above 95°F, eggplant ceases to set fruit and may drop flowers or abort immature fruit. Fruit set is also reduced when temperatures fall below 60°F.

Because eggplant requires a long growing season, gardeners typically set out transplants in March once danger of frost has passed and daytime temperatures are consistently above 70°F.

A gentle reminder here – temperatures below 50°F can damage these tropical natives so, if an unexpected cold spell hits, cover the plants to provide protection.

One way to get transplants is to purchase them from local, reliable plant

nurseries. Look for healthy, sturdy, bushy plants with no flowers or fruit. Eggplant does not like to have its roots disturbed, so check to make sure the plant is not root bound.

The second way to get transplants is to grow your own from seed. There is an exciting assortment of eggplant varieties, and choosing to grow your own expands your gardening and culinary horizons.

Start seed indoors in January, 4 to 8 weeks prior to planting. Sow seeds 1/4 to 1/2 inch deep in flats or seed pots filled with rich soil mixture. Seeds usually germinate in 7 to 14 days, depending on environmental conditions and the age of the seed.

Germination temperatures range from 70°F to 90°F, so it is important to keep the soil warm. You may need to provide bottom heat and/or cover the flats or pots to maintain soil temperatures.

Adequate moisture is essential to germination. Try misting, rather than watering, to maintain soil moisture and keep seeds from washing away or becoming too deeply buried. Once seedlings emerge, continue to keep the soil warm and moist, but not soggy.

To encourage compact, bushy growth, provide seedlings with 12 to 14 hours of bright light, whether natural or artificial. In addition, you may need to apply fertilizer if it is not included in your potting mix.

Transplant seedlings into prepared garden beds, spacing plants 18 to 24 inches from each other, in rows 30 to 36 inches apart. Eggplant is a heavy feeder. Side dress when plants reach

about half their mature size, and again when the first fruit is harvested. Although most plants are self-supporting, plants heavy with fruit benefit from some support.

Eggplants prefer consistent soil moisture, but once established can tolerate dry spells. Although the majority of water- and nutrient-absorbing roots are found in the top 18 inches of soil, roots can reach a depth of 4 feet. To avoid flower and fruit drop, water deeply and regularly, especially during long, dry periods.

To conserve soil moisture, try planting in waffle beds or applying a 2- to 3-inch layer of mulch around the base of each plant. To minimize sun scald during the hot, intense days of summer, provide a bit of midday sun protection. Depending on your garden’s location and layout, shade can be provided by tall, nearby plants or by shade cloth.

Eggplant can be grown successfully in containers. Choose smaller plant varieties and large containers with good drainage. Be prepared to water more often, since the soil tends to dry out more quickly.

VARIETIES & SEED SOURCES

Choose varieties that reflect your gardening and eating preferences. My personal favorite, the oriental variety “Ichiban,” produces abundant, tender, sweet, purple-skinned fruit that I harvest when 4 to 6 inches long. It is easy to grow and works well with my favorite recipes. This year I also plan to add a “tomato-fruited” variety.

— continued page 14

—continued from page 13

Most local plant nurseries or mail order seed houses offer a selection of eggplant. My favorite mail order seed houses are Seeds of Change, Seed Savers Exchange, Bountiful Gardens, and Botanical Interests because they provide a wonderful variety, as well as organic options. Limited selections by Seeds of Change and Botanical Interests can be found locally at Whole Foods.

PESTS & DISEASES

Eggplant is susceptible to verticillium wilt and the best defense is to rotate plantings and choose resistant varieties. Pests include flea beetles, aphids, lace bugs, whiteflies, and red spider mites.

The University of California Davis, Vegetable Research and Information Center provides a guide for diagnosing eggplant problems that can be accessed online at <http://vric.ucdavis.edu/veginfo/commodity/garden/crops/eggplant.pdf>.

WHEN TO HARVEST & HOW TO STORE

Eggplant fruit is edible once it reaches one-third its mature size and, as with many edible plants, regular harvest helps maintain consistent fruit production. Since the stems are thick, tough, and spiny, fruit should be cut off using pruning shears or a sharp knife.

I prefer small, tender fruit and usually harvest my eggplant before it reaches two-thirds its mature size. The key things to look for are a bright, shiny, smooth skin and fruit that firm to the touch. Eggplants with dull skin and soft, wrinkled fruit are over-ripe and, although edible, may be bitter and full of hard brownish black seeds. Over-ripe fruit can be used to save seed.

Eggplant does not store well, even under the best of circumstances, so plan to use it soon after harvesting. It can be stored overnight at room temperature. If longer storage is necessary, don't refrigerate this tropical native because it suffers when kept too cold. Ideal storage temperature is about 50°F.

Another way to help extend the storage life of eggplant is to avoid storing it with ethylene-producing fruits such as apples, bananas, melons or tomatoes.

SEED SAVING

Eggplant seeds maintain 50% germination for 7 years. The process for harvesting and saving seed is detailed in Susan Ashworth's book *Seed to Seed*.

USES

Eggplant is versatile and can be roasted, grilled, baked, stewed, stuffed, dried, braised, mashed, pickled, pureed, or breaded and fried. It is an essential ingredient in Italian ratatouille and Middle Eastern babaganoush.

Eggplant is one of the "sponges" of the edible kingdom and "salting" or "soaking" prior to cooking help reduce its natural absorption tendencies and removes any lingering bitterness.

NUTRITIONAL VALUE

By itself, eggplant has nominal nutritional value. However, it is eggplant's natural ability to absorb that makes it a nutritional asset to the foods it is prepared with. A serving of 1/2 cup, cubed, boiled eggplant provides 13 calories, 0.1g fat, no cholesterol, 2mg sodium, 0.4g protein, 3.2g carbohydrate and 119g potassium.

HEALTH BENEFITS & CONCERNS

When harvesting eggplant, some may experience sneezing or develop skin irritations as a result of contact with the leaf fuzz and spiny calyx (fruit cap).

References:

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"Growing Eggplants Successfully,"

Tauton's Kitchen Gardener June/July 2000

Ashworth, Suzanne. *Seed to Seed*.

ISBN 0-9613977-7-2

Madison, Deborah. *Vegetarian Cooking for Everyone*. ISBN 0-7679-0014-6

University of California Publication 7235,

"Eggplant Production in California."

<http://anrcatalog.ucdavis.edu/pdf/7235.pdf>

Eggplant Parmesan

- 1-1/2 pounds freshly picked oriental eggplant
- Freshly milled pepper
- Olive oil
- 2 cups fresh tomato sauce (see recipe below)
- 1/4 cup fresh basil leaves, thinly sliced
- 4 ounces mozzarella, shredded
- 1/2 cup freshly grated Parmesan

Lightly oil a 2-quart baking or gratin dish. Slice eggplant into strips 1/3 inch thick. Brush both sides with olive oil. Place under broiler about 5 to 6 inches from the heat and brown both sides. Don't worry if the eggplant looks dried out.

Warm the tomato sauce with the basil. Spread about half the sauce over the bottom of the dish. Then overlap and layer about half the slices of eggplant. Sprinkle with half the mozzarella and Parmesan. Layer the remaining slices of eggplant and cover with the remaining sauce and cheese.

Bake in the middle of the oven at 375°F until hot throughout, about 30 minutes.

FRESH TOMATO SAUCE

- 2 - 3 lbs. fresh, ripe tomatoes
 - 3 tsps. dried herbs (basil, marjoram, oregano, tarragon, thyme)
 - 2 tbs. extra virgin olive oil
- Put the tomatoes in a heavy pan with the herbs. Cook over medium to medium-high heat for about 10 minutes. Watch the pan to make sure the tomatoes don't scorch before they give up their juices. Carefully ladle tomatoes and their liquid into a blender. Once cool, puree and pass through a strainer back into a pan.

Recipes based on a recipe by Deborah Madison in *Vegetarian Cooking for Everyone*. ■

The Issue of Climate

by Lisa Dubas, Master Gardener Intern

According to the Arizona Department of Commerce, the population in Maricopa County increased by 66% from 1990 to 2001, with many new residents bringing with them their favorite flowering plants. The expectation is that the plants will continue to provide color throughout our hot, dry summer months, but unfortunately the owner often discovers that our weather and soil conditions don't provide the same comfortable conditions that the plants were used to "back home." There are, however, many plants that do flourish here in the desert, and provide us with beautiful warm-weather flowers.

The majority of the plants that bloom in the summer here are annuals, but there are also a few perennials with warm-weather flowers. Annuals complete their life cycle in one growing season and must be replanted each year. Perennials live more than two years, and once established bloom each year.

Since one of our goals as master gardeners is to reduce water use, the following list of summer-blooming plants is restricted to low-water-use plants. I've listed plants by light needs. If you plan to purchase these plants from your local nursery, please bring the common name and botanical name with you (Common Name: Botanical Name) to ensure selection of the correct variety.

ANNUALS - BRIGHT FULL SUN

Cosmos: *Cosmos bipinnatus*

Attracts butterflies. Flower colors can be purple, red, pink, or white. Can be planted from March through June. Will flower from July through November.

Desert Marigold: *Baileya multiradiata*

Attracts seed-eating birds. Flower colors are yellow. Can be planted from October through November and mid-February through mid-April. Will flower from mid-April through September.

Gaillardia (Blanket Flower):

Gaillardia pulchella

Attracts seed-eating birds. Flower colors can be red, orange, or yellow. Can be planted from mid-September through early November and January through April. This plant flowers from March through early November.

Globe Amaranth: *Gomphrena globosa*

Flower colors can be purple, red, pink, or white. Can be planted from early March through early July. Flowers from early April through October.

Lisianthus: *Eustoma grandiflorum*

Flower colors can be blue, purple, red, pink, yellow, or white. Can be planted from early March through June. Flowers from early May through November.

Purslane: *Portulaca x hybrida*

This plant is edible. Flower colors can be red, pink, orange, yellow, or white. Can be planted from early February through August. Will flower from mid-February through October.

ANNUALS - PARTIAL SUN

Four O'clock: *Mirabilis jalapa*

POISONOUS. Flowers are fragrant, and colors can be purple, red, pink, yellow, or white. Can be planted from early March through June. This plant flowers from early July through November.



Photography: Candice Sherrill

PERENNIALS - BRIGHT FULL SUN

Gaillardia (Blanket Flower):

Gaillardia grandiflora

Attracts seed-eating birds. Flower colors can be red, orange, or yellow. Can be planted from early January through April and mid-September through early November. Will flower from early March through early November.

Sage: *Salvia spp.*

Attracts hummingbirds and butterflies. Plant is fragrant. Flower colors can be purple, red, or white. Can be planted from early February through March. Flowers from early May through October.

Yarrow: *Achillea spp.*

Attracts butterflies. Flower colors can be red, pink, yellow, or white. Can be planted from early February through March and early October through November. Will flower from early May through August.

PERENNIALS - BRIGHT FULL SUN TO PARTIAL SHADE

Wild Hyssop: *Agastache spp.*

Attracts hummingbirds and is fragrant. Flower colors can be blue, purple, or pink. Can be planted from early February through March. Flowers from early June through October. Water needs are low to moderate. ■

Building Nestboxes: Design & Location are Key

There are about 650 different bird species in North America, with only about 86 nesting in cavities. Woodpeckers are primary creators of nest cavities. Other cavity makers include lightning, insects, fungal infections, and plant diseases. Unfortunately, in the home landscape we humans tend to tidy up these things, thus, eliminating potential nest sites. It is helpful to birds if we replace them.

Cavity nesters have less of a chance of their young or themselves being preyed upon. The cavity also provides protection from the elements and parasitism by cowbirds. Fledging success is 60 to 80 percent higher for cavity nesters than for open nesters.



There are only certain species that will ever use a nestbox, so don't think that just any bird will move in. It will have to attract species that have evolved to investigate dark holes, something open-nester species will never do. Introduced birds, such as house sparrows and starlings, are very aggressive in defending a nestbox and throwing out birds that you might want to attract. It's best to develop the attitude that attracting any birds to your nestbox is wonderful.

The key to success is the box design and location. It is important to think like a bird. Birds like a protected area with trees and bushes around. Sturdy construction of the nestbox is essential. Use untreated wood that is at least 3/4-inch thick; to more closely resemble a tree cavity. Natural cavities are rough on the inside—something birds like. If the house you make or purchase is smooth on the inside, file, rasp and gouge it so that the birds can have footholds to hang on to. Cutting a series of horizontal grooves below the entrance makes it easier for the babies to have something to climb up on when it is time to fledge.

Never use treated wood, as the chemi-



cals can leach out and harm the babies. Also, do not paint or in any way treat the inside of the house, as the babies may ingest the stuff and die. Don't use a house that has been glued or stapled. Never use insect repellent on the nestbox, as the fumes can kill the adults and the babies. Do have a roof that overhangs the sides by about 5 inches to provide shade and shelter from rain. Do not have an outside perch, as it just gives larger predators who can't fit through the entrance hole a comfortable place to stand while trying to get the babies. Natural nest cavities do not have perches for this reason. House sparrows prefer nestboxes with perches. Entrances should be at least 3 inches above the house floor to make it harder for predators to reach in and have a meal.

The size of the entrance will narrow down the kinds of birds that will use the house. For instance, wrens like holes that are smaller than 1 1/8 inches. About 12 species of cavity-nesting birds will use a house with 1 1/2-inch openings. Woodpeckers and flickers like entry holes 2 1/2 inches in size.

Site your nestbox so that it faces away from prevailing winds, and so that

predators can't get at it. Tree mounting is not a good idea, as provides easy access for a variety of predators. Hang or install the nestbox on a pole. This may mean that you will have to devise some kind of baffle to keep out squirrels, house cats, snakes, and others. Install a 30-inch long metal sleeve on the pole about 6 feet above the ground so the predator can't jump over it. You can also use an inverted metal cone directly under the nestbox to discourage raiders. If ants are a problem, apply grease mixed with a little turpentine (to keep the grease from drying out) on the pole at least 6 inches above the ground so nothing will rub it off.

Be certain that your house has several small holes drilled in the bottom for drainage. Also, place a few small holes high up on the sides for ventilation. Keep these holes small to keep out predators.

You may be tempted to clean out the house after the babies have fledged, but it may not be a good idea. Research is showing that birds prefer to use an existing nest, even if it isn't theirs. Birds have a higher success rate in rearing babies who are larger in size when using existing nests as a starter. Larger size equals greater survival success.

If you do prefer to clean your nestbox, make sure that your design includes a side panel that can be opened for you to do this. Remember not to use chemicals on the box. For your own safety wear rubber gloves and something to protect your face as the fine dust may cause an allergic reaction. Hantavirus may be present in nests of raptors (from the decomposing carcasses).

You might enjoy the fun of keeping records of your bird family. You can assist researchers by sharing your data. Contact the Cornell Laboratory of Ornithology, at the address below, and request North American nest-record cards.

Make your nestboxes even more attractive to birds by planting plants that provide safe perching places and food supplies nearby. Keep clean and fresh water available along with birdseed. Birds do just fine without our providing food and water, but it does help make their lives just a little easier, especially during the demanding nesting season.

There is a nationwide movement to place nestboxes on the back of highway signs to open up more territory for cavity nesters. Contact Hawk Mountain Sanctuary (address below) to see how you can be involved. ■

Cornell Nest Box Network
Cornell Laboratory of
Ornithology/CNBN
P. O. Box 11
Ithaca, NY 14851-0011
607-254-2473
www.isit.com/bird/index.htm
E-mail: cornellbirds@cornell.edu

Hawk Mountain Sanctuary
R. R. 2, P. O. Box 191
Kempton, PA 19525-9449
610-756-6961



Species-Specific Housing Requirements

HOUSE WREN

- 4-inch square floor
- 1-inch entrance hole
- 6 inches between entrance & floor
- Mount 5-10 feet above the ground

SWALLOW

- 5-inch square floor
- 1 1/2-inch entrance hole
- 6-7 inches between entrance & floor
- Mount 4-10 feet above the ground

NORTHERN FLICKER

- 7 1/2-inch square floor
- 2 1/4-inch entrance hole
- 16-18 inches between entrance & floor
- Mount 6-20 feet above the ground

Mt. Lemmon Marigold: Blanket of Sunshine

by Copper Bittner, Master Gardener

BOTANICAL NAME:

Tagetes lemmonii

COMMON NAMES:

Mt. Lemmon marigold, Copper Canyon daisy, mountain marigold, Mexican bush marigold

Tagetes lemmonii is a member of the family Asteraceae, along with the common bedding plant, marigold. It is a Sonoran desert native, and as such it is found from the canyons of central and southern Arizona and extends into northern Mexico.

Mt. Lemmon marigold is an upright, evergreen, perennial shrub that reaches about 3 feet in height with a spread of up to 6 feet. It is hardy to 20°F, and grows fairly quickly. Once established it needs only a deep weekly irrigation during the summer months, and unlike other marigolds it doesn't seem to attract spider mites.

T. lemmonii has 1-inch composite daisy-like flowers. They develop mostly in the spring and late fall, and if the plant does not sustain frost damage, flowering may continue into the winter. At the height of the bloom period, the foliage all but disappears beneath a solid blanket of golden yellow blossoms.

Leaves are compound, as well as opposite and 2 to 3 inches long. They are strongly aromatic, so if you dislike the smell of marigolds consider planting *T. lemmonii* in an out-of-the-way spot where passersby won't brush against it.

This plant grows happily in the far reaches of my backyard. Although not as drought-tolerant as many natives, I

consider it easy enough on water to deserve serious consideration by Xeriscape fans. Make note of the fact that over-watering can lead to leggy plants with fewer blooms. At higher altitudes it likes full sun, but here in the desert I find that it prefers some afternoon shade. Just be careful not to give it too much shade, since this may cause the plant to get leggy and lose its compact rounded shape.

Maintenance is relatively simple: cut foliage back by approximately half during the early summer months to allow the plant to develop sturdy growth to support flowers. If you prefer a more natural look, older untrimmed specimens have an attractive sprawling habit with branches drooping horizontally.

Tolerant of heat, drought, and lean soil, marigolds reward the most casual of gardeners—perhaps this is the reason for their continuing popularity. They make effective foundation plants, and provide color when planted in large containers. Seeds can be planted outdoors when the soil has warmed, or started indoors and transplanted in spring. Space the seedlings 6 to 12 inches apart. Besides being quite striking, massed plantings attract many butterflies.

The genus *Tagetes* derives its name from the Etruscan deity Tages, a grandson of Jupiter whose specialty was soothsaying.

Because *T. lemmonii* is found in abundance near Mt. Lemmon in the Santa Catalina Mountains east of Tucson, I assumed it had been named for that area. As it turns out, it was named after John Gill Lemmon and his wife Sara,



Photography: Candice Sherrill

who discovered it growing in southeastern Arizona in the late 1800s. This couple is said to have discovered and named approximately three percent of all the native plants found in the state. Descendants of the plant samples that they later took with them to Oakland, California eventually made their way into that state's nursery trade. Oddly enough, they even made it all the way to England.

While researching, I found several references to these marigolds being resistant to both deer and rabbits. I cannot verify this information by my own observations, but you can give it a try. I do know that marigolds provide nectar for bees, insects and butterflies. Since they are also a visual delight for the two-legged gardener... what's not to like? ■

**UNIVERSITY OF ARIZONA
COURIER SERVICE ENDING**

Due to State budget reductions, the University of Arizona Maricopa County Cooperative Extension was recently forced to do away with offering courier service to Tucson. Individuals are now responsible for delivery of samples to destinations on the campus, U of A Vet Diagnostic Laboratory, and the University Medical Center.

Plant samples can be mailed to:
Dr. Mary W Olsen
Extension Specialist Plant Pathology
The University of Arizona
Department of Plant Pathology
Forbes 204, Tucson, AZ 85721

My Special Eucalyptus

by Jeanette Irwin,
Master Gardener Intern

About ten years ago, a realtor friend invited me to come with her one morning to preview a house that was just going onto the market. As I enjoyed my realtor friend's company I said "yes," and I was anticipating a fun day with her.

The first thing I noticed about the newly listed house was the incredibly huge tree in the front woods. Two Harris Hawks flew out from the branches as we drove up, and began circling the canal that served as the north boundary to the property. The wooded area was too dense to walk through, but I remember stepping back to view the top part of this enormous tree and asking my realtor friend just what it was. She told me it was a "Eucalyptus" tree, and said it had probably been planted about 100 years ago when the house had been homesteaded. I walked around the tree, fascinated

by the gray leaves and by its bark, which seemed to be coming off in huge pieces. Later on my husband and I bought the house—and "that" tree—and over the years the eucalyptus and I developed a special affinity for one another.

Eucalyptus is a large family of trees having over 600 species growing in its native Australian habitat. It is a tree that has established itself on almost every continent of the world, but it grows best in environmental conditions that are semi-tropical to semi-arid. Man has used the tree in many ways, such as for fuel and as a windbreak to protect buildings, crops, and animals. The oil has been used for centuries for both medicinal purposes and for its fragrance. The oil is one of the most powerful antiseptic oils in its class, and was used by the early aborigines, the Europeans, and others as a skin ointment because of its antiseptic and healing properties. The oil has also been used extensively in New South Wales in the mining industry to separate the metallic sulfides from ores. The Eucalyptus tree has been cultivated in temperate regions for the prevention of malarial fevers, and its remarkably enormous root system has been the main reason for the disappearance of mosquitoes in regions in Algeria and Sicily, where the trees have been planted in groves.



The trees grow quickly, and many species reach enormous heights. The largest one known is about 480 feet. The beginning leaves on new trees are broad without stalks. They are a glossy whitish-green as well as horizontal and opposite. As the tree gets older, leaves become sword-shaped and turn bluish-green in color. They also become more alternate and vertical.

"My" Eucalyptus shades me from the sun. It is home to many species of birds and insects, and it creates its own environment. The diameter of this ancient tree is slightly over 5 feet, and it has a circumference of almost 16 feet. This tree was planted on one of Arizona's earliest canal banks, and the wooded area where it grows is a natural habitat for all sorts of creatures. It's a special tree to me; I love its great size and appreciate its ability to shade me on sunny days. ■

References:

- Grieve, Mrs. M. *Eucalyptus, A Modern Herbal*
- Santos, Robert L. 1997. *The Eucalyptus of California*. California State University, Stanislaus Librarian/Archivist Alley-Cass Publications. Denair, California.



Photography: Jeanette Irwin

The Olive in California: History of an Immigrant Tree

by Candice Sherrill, Master Gardener

Judith M. Taylor, M.D.
Ten Speed Press, 2000
316 pages, \$32.50

This unique book has much the same feel to it as *Industry on Parade*, a weekly program from the early days of television that took viewers inside America's factories and showed them how goods were manufactured. By the same token, history buffs, botany hounds, and good cooks will find a great deal to enjoy in this extremely well researched volume by Dr. Taylor, an English-born neurologist.

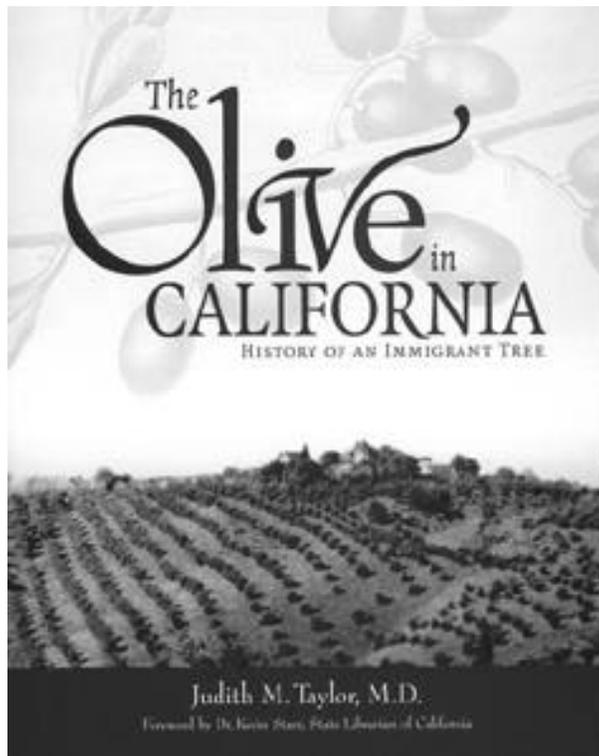
In her introduction, Dr. Taylor writes about olives: "No other food of equal or greater antiquity—with the possible exception of the grape—is surrounded by the same aura of myth and romance." She then goes on to share many fascinating examples of the olive tree's importance in ancient mythology as well as in the roots of many of the world's religions.

She documents the slow spread of olive tree cultivation from its beginnings in ancient Iran and Turkistan, across Greece and the rest of the Mediterranean, and finally into Spain. From there, she chronicles how the olive tree found its way from Spain to the Caribbean, then into Mexico, and finally to California with early Franciscan monks establishing missions in the 1500s and 1600s.

In the early days, commercial olive production was mostly geared toward the manufacture of lamp oil and machinery

lubricants. Then in the early 20th century, the California Olive Association was established, and the production of canned olives and processed olive oil came to the fore.

Covered at length is the association's role in creating a demand throughout the U.S. for California olives, and its important role—after a disastrous out-



break of botulism caused by canned olives—in discovering how commercial canners could put an end to this age-old scourge once and for all.

The Olive in California contains many historical photographs: major players involved in the growth of California's olive industry, early olive groves (including one photo by Ansel Adams),

and some good examples of the equipment used in commercial production. Readers should also appreciate the many botanical prints scattered throughout the chapters.

There are several short sidebars covering such interesting topics as whether the first trees in California were more likely to have been grown from seed or seedlings, the hobby of collecting olive oil bottles, and the differences between olive oil classifications. There is also an appendix that gives a year-by-year chronology of major events covered in the pages, and a longer one that lists the state's olive oil manufacturers from 1869 to 1996.

If this volume doesn't tell you everything you've always wanted to know about olives, it should certainly come close. As one Amazon.com reader succinctly put it: "Her writing style reflects a love of the subject." ■

Landscaping and Crime Prevention

by *Mike Mekelberg, Master Gardener*

The City of Tempe Police Department gave a presentation on "Crime Prevention Through Environmental Design" at the Southwest Horticultural Conference in September at the Phoenix Civic Plaza.

Not many of us think about crime prevention when we design a landscape—usually we're thinking about year-round color or how to attract native wildlife to our yard. But who knew that a burglar might scope out a house based on the plants in the yard?

Of course, we're primarily talking about plant size and location as they pertain to hiding places.

In the new Tempe guidelines for architects, planners, and homeowners, all plants within 6 feet of a walkway must be of a species that will not exceed a height of 2 feet at maturity. Within 6 to 12 feet of a walkway, the plants must not exceed 3 feet at maturity.

Also within this area around walkways, trees must be pruned so that all branches are at least 6 feet from the ground. The idea is to enhance visibility for walkers and homeowners, and at the same time reduce hiding places for would-be criminals.

Security walls are now required to be at least 8 feet high. Anything less was found ineffective at reducing criminal access, but very effective at hiding those with criminal intent.

Lighting levels in entryways and such are required to be at least 5 to 10 times brighter than in parks and greenbelt areas.

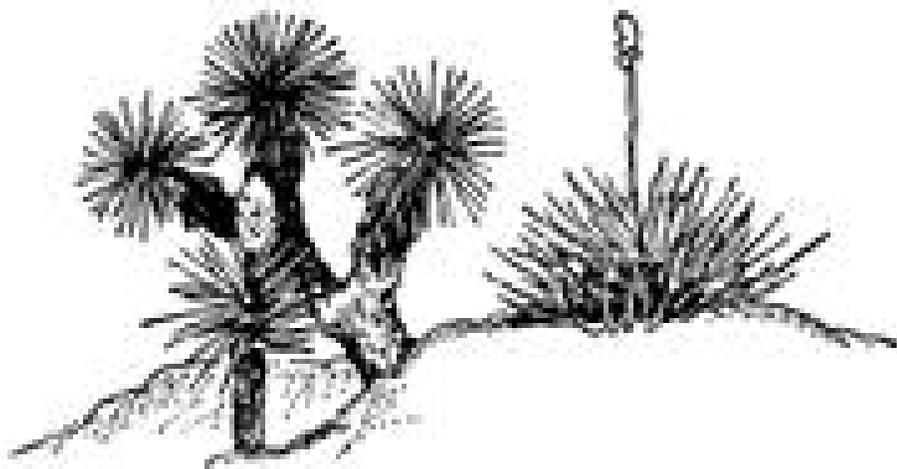
Address numbers must be 6 inches high for single-family homes, and well lit.

Crime prevention through environmental design provides an additional element to consider when planning a yardscape. In fact, it may be the most important element of all. ■

City of Tempe Landscape Security Tips

www.tempe.gov/cpu/homesec.htm

- Trim shrubbery and trees so doors and windows are visible to neighbors, and from the street. Trimmed landscaping should not provide concealment for criminals. If you have a second floor, prune trees so they can't help a thief climb in second floor windows. Place trellises where they can't be used as ladders to gain entry to the upper floors.
- Ground plants under windows should be maintained at a height that is below the windowsill.
- Place large gauge gravel on the ground near windows. The noise caused by intruders walking on it can become a psychological deterrent. DO NOT place river rocks or other items near glass windows or doors. You do not want to provide the burglar with his tools!
- Plant spiny (thorny) plants along fences and under windows. Such plants will discourage even the most nimble intruder. Protecting with spiny plants is as effective as the use of barbed wire, and a lot more attractive.
- Intruders look for no, or few obstacles blocking quick exits. Fences prevent burglars from carrying away large items if the gates are locked. Gates should be locked at all times, even when you are home! Ladders and tools should be stored in a garage or storage shed, and these areas should be locked.
- Exterior lights are important, especially near doors and in the rear of the house, where intruders do most of their work. All sides of your home should be protected by vandal resistant security lighting located high out of reach. ■



Programming Your Irrigation Controller

A good irrigation controller or timer that is properly programmed can keep your plants healthy and save a lot of water. However for efficient watering you can't just set it and forget it. You need to change the watering frequencies as plants become established, as the seasons change, or if it rains. Keep in mind that the controller controls the irrigation system, but YOU control the controller.

WHAT DO STATION, VALVE & ZONE MEAN?

Before we talk about how to enter a program, let's discuss some terminology used when discussing timers. 'Station', 'valve,' and 'zone' are terms commonly used with these systems. And while they are closely related, they do refer to different things. A 'station' is a term used by many controllers to indicate what valve it is controlling. A 'valve' is the device that accepts the signal from the timer to open and allow the water to flow. A 'zone' is the area of the yard (or groups of plants) that is watered by a valve. Let's use all three words in a sentence... "At the programmed time the controller gets a message to turn on a station and sends a signal through the wires to open the corresponding valve to let the water

flow through the pipes to irrigate the zone that it controls." So 'station' is commonly how it's referenced on the timer, the 'valve' is the physical open-shut device on the water line and the 'zone' is the area of the landscape that gets watered when it's turned on.

ENTERING A PROGRAM

To enter a program, use the basic instructions printed inside the controller door to input your information. You may need to make sure your timer is in the 'set programs' mode before you begin. To get started, there are four important pieces of information that need to be entered and maintained:

- 1. Current day and time** – Generally you need to tell the controller what day of the week it is (Mon, Tue, etc.), and set the time of day. Set the time much like you do a digital clock, making sure you get the a.m./p.m. correct. Otherwise, you may have a 5:30 a.m. start-time surprise during your 5:30 p.m. barbecue.
- 2. Watering days or frequency** – You can set your controller to water on a certain day or days of the week such as every Wednesday, or every Monday and Thursday. Or, if your controller has a 'skip day' option, you can set a certain

frequency by inputting 'days between watering' or 'skip days'. For example, if you input '10' under the skip day option, your controller would turn on 10 days after the last watering.

3. Start times – Once the controller knows what day to water, it needs to know what time to start the watering. On most controllers, one start time will run all of the stations assigned to that program in sequence. Think of it as a program start, not a station or valve start. The timers are designed that way so that you don't have to do the math to figure out when you need to start each valve on the program.

4. Length of time to water – Once the controller knows what days to run and what time to turn on, it needs to know how long to run before turning off. Run times can vary from 10 minutes for something like bubblers, to 6 hours for a drip irrigation system.

After inputting the program, double-check your entries to make sure they are correct. You can run a program test by pressing the semi-automatic button if your controller has this option. This will run the program immediately, then not water again until the programmed days and times. Some controllers may

IRRIGATION TIMER PROGRAM EXAMPLE: SUMMER WATERING SCHEDULE

VALVE/ STATION	A PROGRAM	B PROGRAM	C PROGRAM	VALVE/STATION DESCRIPTION	START TIME	WATERING DAYS
1	30 minutes	—	—	Turf Sprinklers	4 a.m.	Mon. & Thurs.
2	30 minutes	—	—	Turf Sprinklers	—	—
3	—	3 hours	—	Desert Shrubs, drip	7 a.m.	Every 14 days
4	—	25 minutes	—	Citrus trees, bubblers	—	—
5	—	—	6 hours	Desert trees, drip	11 a.m.	Every 21 days



3 hours and valve 4 for 25 minutes for a total of 3 hours and 25 minutes. Since the program starts at 7 a.m., watering will be finished by 10:25 a.m. By starting Program C at 11 a.m., we'll insure that there is no overlap.

also have a 'review' option that shows all your programmed input.

WHAT IS MULTIPLE PROGRAM CAPABILITY?

Another option you should have on your timer is multiple program capability. If you have this option, you'll see a switch that allows you to set the timer on program A, B, C, or 1, 2, 3, etc. Multiple programs on a controller allow you run different stations on different schedules. If you have a shrub zone that needs to be watered once every 14 days, a tree zone on that needs to be watered once every 21 days, and a lawn zone that needs to be watered every 3 days, you'll need a controller with at least three programs. It's the different frequency needs that determine how many programs you need. See the sample timer program on page 22.

You may have noticed the following points on the program example:

- We grouped the stations or valves that required the same watering frequencies.
- We've entered only one start time for each program, even when there are multiple valves on the program. In fact, if we entered a 2nd start time for valve 2, the timer would actually run both valves twice.
- We've entered different start times on different programs to avoid overlap. For example, Program B will run valve 3 for

HERE ARE A COUPLE OF OTHER TIPS WITH YOUR TIMER.

If it rains at least ?", you can use the 'off' or 'rain' setting to stop the watering cycle without disturbing your programs. Once the soil dries up, simply turn it back to 'on' to go back to the scheduled programs. Also, if your program has backup battery capability, replace the battery once each year to make sure you will maintain your programs during power outages.

If you are a serious hands-on gardener, you may want to use your timer manually and only use the programming features when you are away from home. That way you are only watering when you see that the soil is starting to dry out. Most controllers have a 'manual' option available where you can turn on a valve for a programmed amount of time you enter in. Leave the timer in the 'off' mode and just turn on valves manually through the timer when you see it's necessary.

If you don't have instructions for your timer, write down the make and model and call your home and garden center or irrigation supply store to see if they can assist you with getting a toll-free phone number for technical support from the manufacturer. You might also be able to find instructions or more information on the Internet. ■

Computer Corner

by Terry Tanner, Master Gardener

Scorpions are coming out of hiding periodically now, although it is not their most active time of the year. To find out more: <http://ag.arizona.edu/pubs/insects/az1223.pdf>

According to Kai Umeda at the Cooperative Extension, there are about 13 weeds to concern ourselves with if we plant broccoli, cabbage and cauliflower: <http://ag.arizona.edu/pubs/crops/az1197.pdf>

The New England Journal of Medicine has published articles to help inform on the current national debate about smallpox vaccinations: www.nejm.org

The CDER, a branch of the Food and Drug Administration, offers information about prescription and over-the-counter drugs. Click on "Drug Information" for fact sheets about various drugs and consumer guides about drug safety and side effects: www.fda.gov/cder

Maintained by the National Library of Medicine and the National Institutes of Health, the MEDLINE-plus Web site offers information on medical conditions, treatments, and drugs, as well as searchable medical dictionaries and hospital and physician directories: www.medlineplus.gov

Consumers can now compare nursing homes. Data on nursing home quality are online at: www.medicare.gov

Searching for an Holistic Veterinarian? Search on the AHVMA's Web site: ahvma.org



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