



# From the Ground Up

A Gardening and Native Plants Quarterly

Colorado State University Extension-Pueblo County

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## PERENNIAL PEOPLE

### KARLA DAKIN, KEYNOTE SPEAKER AT 2015 WLS

Interviewed by Edith Brideau, Colorado Master Gardener, 2007

Karla Dakin, a resident of Boulder County, holds a masters degree in landscape architecture from the University of Colorado (Denver) and has been active in the art communities of New York, San Francisco and Los Angeles. She has lectured on contemporary art and gardens in major U.S. cities, London, China and Brazil. Her designs include the roof garden for the Museum of Contemporary Art in Denver and the 10,000 square foot green roof of the Los Angeles Museum for the Holocaust. I recently visited with her to learn more.

#### *How do you approach a new project? Are there certain things you always include, and certain things you refuse to incorporate in a landscape design?*

Well, I've never specified an ash in my whole career! But that's not due to any expertise; I also never specify Russian Sage or Karl Foerster Feather Reed Grass because they're everywhere. I don't want to use things that have been over-planted. I come from a background in contemporary art. My background in the visual arts is my inspiration for landscape design. I'm not necessarily obsessed with the new and unusual, because I do like to include natives - I just want to be creative.

#### *Many of your projects are located in Denver or Boulder. Most gardeners attending the Western Landscape Symposium reside in southeast Colorado, a hot, arid, windy environment. How would you approach a project here?*

I have done projects in Brazil, California and New York City. I approach a project in the context of the entire site, not just its hardiness zone or average precipitation. Will the garden be in sun, shade, at the bottom of a hollow, a boggy area, etc? It's all about context for me, and that includes the architecture and the client. Stylistically, I'm all over the map. While that might be seen as inconsistent, I see it more as being responsive to the site and my clients' wishes. What I'm interested in is that my clients are happy and their garden survives. Doing a project in Pueblo would probably start with visiting the wonderful nurseries in Pueblo, and incorporating what's available there. I've obtained a lot of plant material from those nurseries and I'm looking forward to visiting them.



Karla Dakin will be the keynote speaker at the ninth annual Western Landscape Symposium on March 14, 2015. Tickets will go on sale January 15.



*Continued on page 2*

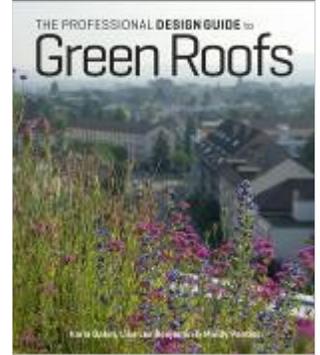
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**Your book, The Professional Design Guide to Green Roofs, addresses the factors you mentioned above when planning any garden, such as site analysis, microclimates, wildlife habitat, privacy, and community/environmental concerns. Is a green roof really a possibility for gardeners in southeast Colorado? Do you need a flat roof?**

We incorporated cactus quite successfully in the roof garden of the Denver Museum of Contemporary Art. I am dying to do a completely unirrigated green roof full of cactus. Roof gardens provide insulation in heat and cold. Some of this insulation value comes from soil and biomass. It would be interesting to learn about the insulation properties of a cactus roof. No, you don't need a flat roof. The Holocaust Museum had a pitch of sometimes 45 degrees. The green roof industry has borrowed a lot of erosion prevention technologies from the storm water and wetlands industries.



**Will you focus on natives in your keynote address?**

I'm an avid hiker, and I'm always studying what grows in the shade of a pine tree, or a sunny spot, etc. This has a profound effect on my work. But, we get tripped up by the whole 'natives-only' concept. One of the wonderful things we have learned from the Denver Botanic Gardens is the usefulness of climate-appropriate plants, not just natives. I'll focus on the plants in my garden. Of course, I use a lot of natives, but I also use plants that are adapted to our region. I'll be talking about growing up as a designer in Colorado, learning how to garden in Colorado, and how to plan for gardens in Colorado. 📖



**INTERESTING INSECTS**

**THE GALL OF IT ALL** by Linda McMulkin, CSU Extension-Pueblo County

Have you ever noticed weird, sometimes colorful, bumps, lumps, and growths on your favorite rose bush, shrub, or shade tree? Those abnormal growths on leaves, stems, and flowers are collectively called galls. Galls can be caused by wounds and a wide assortment of plant pathogens and insects.

Gall causers as a group are a great example of biodiversity, with representatives of the virus, bacteria, fungi, and animal kingdoms. CSU Extension can assist with indentifying the plant and probable cause of a gall and its effect on your plant.

The outward appearance of galls can take many forms, ranging from smooth to spiky, brown to vivid color, and small or large. Most galls cause little damage to the host, but can cause concern for homeowners who find the lumps and bumps aesthetically displeasing.

A gall begins with a wound that opens the epidermis of a susceptible plant to a gall forming pathogen or insect. The epidermis of young, tender tissue is easier to wound, so many galls start early in the growing season. Abnormal plant growth is stimulated by chemicals produced by the pest organism, which compel the host plant to form a shelter to protect the pest from the outside world. The organism feeds on carbohydrates produced by the plant. Insects that develop in galls may have matured and moved on long before the gall becomes noticeable to the home gardener.



Hackberry nipple gall (above) and Cooley spruce gall often result in calls to our office. Photos courtesy of Steven Katovich, USDA Forest Service, and Whitney Cranshaw, Colorado State University, Bugwood.org

Depending on your tolerance of the galls, your response can range from doing nothing to applying chemicals. Chemical controls must be applied when the gall forming pest is active, usually months before you notice the gall. Management of some gall producing pests is possible using cultural methods (raking and disposing of leaves) since insects and mites often overwinter in leaf litter. 📖



## The Christmas Cactus by Marcia Weaber, Colorado Master Gardener, 2005, and Native Plant Master, 2007

The Christmas cactus blooms for a long time indoors with some of the most exotic-looking flowers in the plant kingdom. This cactus is a very popular houseplant, but many people are not aware of its special needs.

Not all cacti are native to arid desert climates. The Christmas cactus' native range is the rainforest of the Organ Mountains of Brazil. As epiphytes, they live in tree branches, rooted in accumulated organic debris. Regional rainfall amounts vary from 17 inches per month in December through March to just 3 inches per month during the remainder of the year, a dry season.

Several varieties of this cactus (*Schlumbergera bridgesii*) are available and known as Christmas, Thanksgiving and Easter cacti. Christmas cacti have flattened leaves with rounded teeth on the margins as opposed to the Thanksgiving cactus that has pointed teeth. Easter cacti have pointed teeth with fibrous hairs in the leaf joints.

Under normal conditions the holiday cacti will bloom close to the holiday suggested in its name.

Florists will often force plants into bloom at other times. To make things really confusing, most of the Christmas cactus sold are actually Thanksgiving cactus and will bloom in subsequent years at Thanksgiving time. So, don't be surprised if the plant you bought last year at Christmas time is blooming at a different time next year.

Many of us have become discouraged with this cactus because it rarely blooms after the first year. Getting them into flower requires a little understanding of what makes them tick. Temperature and day length provide crucial bloom triggers for the Christmas cactus. The term for this response is "thermo-photoperiodic." Flower buds will form if one of the following conditions is met:

- a cool night temperature between 50 to 55 degrees
- 13 hours of uninterrupted darkness (if the temperature is between 55 and 70 degrees)
- 15 hours of darkness (if the temperature is above 70 degrees)

Uninterrupted darkness means NO light during the dark period, including lamp light within the home. When do you want blooms — for Christmas or Thanksgiving? Count backward eight weeks to determine the autumn date to begin to prepare the plant for reblooming. For eight weeks, cover the cactus with a black cloth or plastic bag, or place it in a closet, for 13 to 15 hours daily (give the plant light for the remainder of the day).

During this period, do not fertilize or overwater. When buds appear, increase the number of times that you water, but not the volume of water used. Too much water may cause buds to fall, as will moving the pot around.

Christmas cactus will remain in flower for four to six weeks, with each flower lasting six to nine days. After the plant has flowered, prune back each stem by pinching off enough sections to achieve a uniform habit. Resume normal watering and fertilization when new growth appears.

Christmas cactus prefers humid conditions, and homes are often dry. One way to raise the humidity — just for your cactus — is to place the pot with its drip pan on top of a slightly larger tray filled with pebbles. Pour water over the pebbles, but do not allow the water to rise above the top layer of pebbles. The water will evaporate, increasing the humidity around the cactus.

Christmas cacti require direct sunlight, but take precautions against the burning midday summer sun. If you choose to leave your plant indoors during the warm months, move it a few feet away from the window to avoid burning the stems. If the plant is moved outdoors, it still needs protection when the sun is at its zenith.

With a little planning and care the spectacular show of Christmas cactus flowers will be well worth the effort! 🌵



A blooming Thanksgiving cactus. Photos courtesy of J. Brown.





## FABULOUS FAMILIES

# PINACEAE FAMILY IMPORTANT TO ECONOMY AND LANDSCAPES

by Marilyn Chambers, Colorado Master Gardener, 2000, Native Plant Master, 2007

Whether you unpack it from its box, travel to the woods and chop it down, buy it from a lot, or carefully tend it in its pot so it will live on, it's Christmas trees we are thinking about now. The real trees we choose, as opposed to artificial, may be Scots Pine (*Pinus sylvestris*), Fraser fir (*Abies fraseri*), white fir (*Abies concolor*) or Douglas Fir (*Pseudotsuga menziesii*), or it may be one of many other choices.

Is it better for the environment to pick a fake tree instead? The National Christmas Tree Association (NCTA) promotes the environmental benefits of using live trees, stating that each acre of living trees provides all the oxygen necessary for 18 people.

The majority of our seasonal choices are in the Pinaceae family. This ancient family consists of 220 to 250 species, making them the largest extant conifer family in diversity of species, with 11 genera, mostly trees, less frequently shrubs.

They are found mostly in temperate climates in the northern hemisphere but their range extends to the West Indies, Central America, Japan, China, Indonesia, the Himalayas and North Africa. Often they form the dominant component of boreal, montane, and coastal forests. They are evergreen with the exception of larch (*Larix*) and golden larch (*Pseudolarix*). Those species found in our part of the world are fir (*Abies*), hemlock (*Tsuga*), larch (*Larix*), pine (*Pinus*), and spruce (*Picea*).

Cedars (*Cedrus*) are in the Pinaceae family but they are not native to this country. The term cedar is loosely applied to any evergreen conifers with fragrant wood, including our native junipers, which are actually in another family.

Pinaceae are monoecious and resinous with needle-like leaves which are shed singly except for whole fascicles in pines. Mostly they are wind pollinated although some large seeds are spread by birds. The cones are imbricate, or overlapping. Female cones are woody and often large; they have 2 types of scales – bract scales and seed scales. Each seed scale carries 2 ovules that develop into seed after pollination. The cones of some members of this family remain closed for several, or even many, years until a stimulus such as fire causes them to release their seed. The male cones are small, often clustered along the stem and produce large amounts of pollen. Branches are sub opposite or whorled. Bark is smooth to scaly or furrowed.

All members of the family are commercially important for softwood timber, pulpwood, tar, pitch, turpentine, and plywood. Spruce has been used for sounding boards in pianos and guitars and for components of light aircraft. Black spruce is used in the distillation of perfumes and is the main ingredient in spruce beer. Hemlock produces tannins for leather and the needles are used for tea (no, this is not poison hemlock, which is *Conium*). The Iroquois sealed the seams of their canoes with a mixture of pine resin and beeswax. Some larches are used for bonsai.

All Pinaceae are used in landscaping and provide food for Lepidoptera as well as providing shelter for wildlife. All pine seeds are edible and can be harvested from a number of species, but some are too small to be worth the effort. These seeds are known as pine nuts, an essential ingredient in pesto. 📷



Photo courtesy of CSFS

## **Seedling Tree Program Applications Now Available**

CSU Extension – Pueblo County has applications available for the 2015 Seedling Tree Program offered in cooperation with the Colorado State Forest Service (CSFS) Nursery. Bare root trees are available in multiples of 25 per species. Potted trees are available in multiples of 30 per species. More information can be obtained on the web at <http://www.coopext.colostate.edu/Pueblo/nat/seedling.shtml> or by contacting CSU Extension – Pueblo County at 583-6566. Conditions apply: Nursery stock must not be used in ornamental or landscaping plantings. No plant purchased from the CSFS may be resold.



**Garden Tip:** For the Birds

Want to be a friend to songbirds? Leave your flowerbeds, shrubs, and trees untrimmed for the winter to provide shelter for your feathered friends. While your garden can provide many food sources for overwintering birds, you may find it necessary to supplement their food after heavy snowfall. A birdbath or plastic tray on the ground, filled frequently with fresh water, will attract many types of birds to your landscape. Check with your local Audubon Society for tips on how to attract migrating birds to your landscape this spring.

## Broadleaf Evergreen Shrubs Add Winter Garden Appeal

by Warren Nolan, Colorado Master Gardener, 2008

Evergreen shrubs have leaves throughout the year. But, all evergreens also lose some leaves throughout the year. Evergreens are generally classified as either narrow-needled or broadleaf. Narrow needled evergreens include native species like piñon pines and rocky mountain junipers. Broadleaf native evergreens include manzanita, some oaks, and mahonia. However, the most utilized in local yards and landscapes are the non-native broadleaf evergreens: barberry, boxwood, euonymus, cotoneaster, Oregon grape holly, holly, viburnum, pyracantha, and brooms.

There are many good reasons to grow broadleaf evergreens. They block wind and noise, provide insulation from heat and cold, create year-round privacy, and provide year-round shelter for many animals. They also provide winter interest. Winter on the plains can be dreary--browns and grays, broken up by the occasional white snow. Anything green, like a broadleaf evergreen, attracts the eye and lifts the heart.

However, the non-native broadleaf evergreens tend to come from locales like China and Korea that are damper and more even tempered, weather wise, than southern Colorado. This has important implications for their care. Our ill-tempered winters, characterized by dry, windy cold, bright glaring sunlight and lack of consistent snow cover can scorch, freeze-dry, desiccate, and even kill broadleaf evergreens.

From November to March, precipitation and humidity are usually low; during this period, moisture, be it drizzle, sleet, snow or grapple, will often evaporate or sublimate quickly. These conditions can damage plants roots, and make the shrub more vulnerable to the vicissitudes--insects, disease, and extreme heat--of summer.

The niche microclimates that dot a yard or landscape can either exacerbate or ameliorate these hostile conditions. Plants on south or west facing sides of a yard, exposed to more sun and extreme temperatures, will dry out more quickly. The north side of a house tends to be a more moderate microclimate since it remains in shade during much of the winter and is cooler, damper, and shadier during the summer. These more moderate conditions are conducive to growing healthy, vigorous broadleaf evergreens.

Winter watering of broadleaf evergreens is an absolute must. They tend to have shallow root systems so water them every three to four weeks, at midday, when the temperature is above 40 degrees, and record when you water on a calendar. Remember that mulch will conserve soil temperature and help moderate extreme temperature fluctuations.

Please refer to the following Colorado State University Extension facts sheets for additional information: Evergreen Shrubs: <http://www.ext.colostate.edu/pubs/garden/07414.html>

Fall and Winter Watering: <http://www.ext.colostate.edu/pubs/garden/07211.html>. 



Above: *Arctostaphylos x coloradensis*. Photo courtesy of David Winger at Plant Select.  
Right: Mid-December photo of *Cercocarpus ledifolius* at SE Colorado Water Conservancy District Demo Garden. Photo courtesy of E. Catt.



**World Cultures Through Food** is a new class series presented by CSU Extension-Pueblo County. Participants cook and share a meal while learning the food culture of different countries from around the world. Chinese foods will be featured on Friday, January 16, 2015 from 5:30-8:00 p.m.

**Class fee \$20.00 (meal included).**

Registration and payment is required by Jan. 9. Please contact CSU Extension at 583-6566 for more information.



Visit the CSU Extension/Pueblo County Colorado Master Gardener booth for plant information "From Our Gardens to Yours".

### Recycle Christmas Trees

Pueblo city and county residents may drop-off their cut Christmas trees at no cost. Saturday, January 3—January 17 (*closed on Sundays*). 9 a.m.—3 p.m.

Vision Recycled Aggregate & Landscaping, 195 Vision Lane, Pueblo, CO 81001.

Please remove all decorations, tree stands, wires or nails from the trees.



The Ninth Annual **Western Landscape Symposium** will be held Saturday, March 14, 2015. The Symposium will be held at Pueblo Community College in the Fortino Ballroom and is an all day event beginning at 9:00 a.m. Keynote Karla Dakin will speak on "Design with Plants in Mind".

Other session topics are Cacti for Southern Colorado, Apples, Stone Fruits, Emerging Bug Problems, and crevice gardens. View full brochure online at [www.westernlandscape.org](http://www.westernlandscape.org) and download the registration form.

Advance tickets are \$18.00 each or 2 for \$30.00 purchased at CSU Extension-Pueblo County, 701 Court Street beginning January 15, 2015. Tickets will not be available at the door. For more information, call 719-583-6566.

## Community Forest Steward Training



Do you...

- enjoy walking under the canopy of trees in your neighborhood or local park?
- believe urban trees enhance the value of property within a city's limits.
- think it is important to keep a community's trees healthy and beautiful?

**Would you like to learn more about trees and tree care?**

**Sign up today!**

Training includes five weeks of classroom instruction and one hands-on workshop day, totaling 36 hours. This class will be offered two evenings a week for five weeks at the CSU Extension/Pueblo County office. Then a one day, hands-on training workshop (TBA) in tree identification, pruning, planting, community forestry, and insect and disease diagnostics.

Instructors from:  
Colorado State Forestry Service,  
CSU Extension, and licensed arborists.

You will learn about:

- Concepts of Community Forestry
- Tree Physiology
- Insects and Diseases
- Biotic and Abiotic Disorders
- Fruit Tree Varieties and Care
- Drip Irrigation for Trees
- Conservation Plantings
- Landscape Concepts and Design
- How to be Firewise



Classes begin on Monday, February 2, 2015 and will be held every Monday & Tuesday evening from 6 – 9 p.m. through March 3, at CSU Extension/Pueblo County



For complete brochure, contact CSU Extension- Pueblo County 701 Court Street, Suite C Pueblo, CO 81003 719-583-6566 or visit <http://pueblo.colostate.edu> and click on the Horticulture tab.

Colorado Native Plant Society Workshops at CSU Extension/Pueblo County, 701 Court St., 2nd Floor, Pueblo **Grass Identification Workshop** Saturday, March 21, 2015, 9 a.m.—3 p.m.



**Landscaping with Natives Workshop** Saturday, March 28, 2015, 9 a.m.—3 p.m. For information and registration visit: <http://www.conps.org/>

Pueblo West Gardeners' **Xeriscape Gardening Workshop** Saturday, March 28, 2015, 9 a.m.—Noon Pueblo West Library, FREE Contact Pat at [Stuckey@comcast.net](mailto:Stuckey@comcast.net)

Extension programs are available to all without discrimination. If you have a disability for which you seek an accommodation, please notify CSU Extension at 719-583-6566 at least five (5) business days in advance of the event. Colorado State University Extension, U.S. Department of Agriculture and Colorado counties cooperating.



## Master Gardener Program Leads to Successful Community Gardening

by Deric Stowell, Community Gardener and Colorado Master Gardener, 2014

In 2013, with help from community and church members of the Milagro Christian Church, the Miracle Community Garden was developed into a beautiful and productive 6,664 square foot community resource, which included 13, 4 x 12 foot plots. In 2014 the garden was expanded by the addition of 20, 4 x 4 foot plots, which bring the current garden area to 8,792.00 sq. ft.

One of our objectives of this expansion was to produce crops to donate to the Care and Share Food Bank, a local food bank that supports more than 340 partner agencies such as pantries, soup kitchens and shelters. Our donation for the 2014 growing season was over 400 pounds of fresh produce to needy families in the Pueblo area. For the 2015 growing season we expect to double that amount, with the use of bio-intensive planting.

One of the things that we learned early on was that in order to be “legit” we also had to be legitimate gardeners. I had heard about the Master Gardener program from the Pueblo CSU-Extension office. I quickly realized what a powerful opportunity this would be so that we could maximize the ability of the garden we were creating to properly grow.

One of the main things we learned in the How Plants Grow and Vegetable Gardening classes was that a tomato is not just a tomato and a tree is not just a tree. It’s very important to know the difference between plant varieties so that we are better able to plan out our gardens properly. Some plants grow well along with – or next to – other plants. Others don’t do so well, so these we avoided and had good, healthy crops.

During the Soil, Amendments, and Fertilizers portion of the course, we learned about what makes a good soil (not dirt!) for growing prize carrots. Good pore spaces, the right amount of compost, and even the type of compost that goes into the soil, creates a complete growing environment. We learned that properly fertilizing the soil would keep that ideal balance so that we could successfully grow healthy crops the entire season. We also learned how to replenish the soil after the season in order to ready the beds for another crop the following year.

The Entomology class was useful in dealing with the aphids and flea beetles we encountered during our growing season. In 2013, I set out my broccoli early, and, of course, the flea beetles devoured them with a vengeance. I thought I could hear a tiny burp as the last plant wilted, but it could also have just been me, groaning in disappointment. After learning about flea beetles, their life cycles and what they eat, we kept our broccoli plants in the greenhouse this spring until they were large enough to overcome the ravages of the beetles. We also learned how to plant certain flowers and plants that can trap pests, including radishes for the flea beetles. Our efforts paid off when we successfully grew over 150 broccolis in 2014.

It’s been a real joy to pass on the knowledge that I learned in the Colorado Master Gardener course to my fellow community gardeners. Their crops exceeded expectations in 2014. We even have some gardeners that are experimenting with planting crops that none of us have ever grown before. Since we now have some knowledge of what to expect and how to deal with any problems as they arise, we are all more confident gardeners. And, that is the real true value of the Colorado Master Gardener program. 🍷

**Colorado State University Extension**  
Pueblo County

**10 week course**  
Thursdays  
9 a.m.-4 p.m.  
January 29—  
April 2, 2015

**CSU Extension/  
Pueblo County**  
701 Court St.,  
Ste. C,  
Pueblo, CO

**Take Your Gardening Skills to the Next Level**  
**Earn Your Certificate as a Colorado Master Gardener**

With a combination of classes (taught by Colorado State University professors and other horticulture experts) and fun, “hands-on” activities, you’ll learn how to:

- develop water wise techniques for lawns, vegetables, rock gardens...all your plants
- manage weeds, insects and plant diseases
- evaluate and improve soil condition
- many more advanced gardening skills too numerous to list

**For more information and applications visit our website:**  
<http://pueblo.colostate.edu/hor/hort.shtml>  
**Or Contact the CSU Extension-Pueblo County office at 719-583-6566.**





**MAHONIA REPENS**

by Orla O'Callaghan, Colorado Master Gardener, 2005, Native Plant Master, 2009

Creeping grape holly, *Mahonia repens*, is an excellent Colorado native evergreen sub-shrub that grows on dry slopes, foothills and upper montane, from 5,000 to 10,000 feet in elevation. They often grow in scrub oak thickets and conifer forests. Their range consists of the Rocky Mountain states and most of western North America.

Despite the common name, creeping grape holly is not a holly. It is a member of the Barberry family, Berberidaceae. Our local shrub, *Mahonia repens*, is often confused with its taller cousin, *Berberis aquifolium* (Oregon grape). While the two species can hybridize, creeping grape holly rarely gets taller than one foot in height.

The most important use of *Mahonia repens* is in your gardens. Creeping grape holly can be used in native, xeric, wildlife, rock or shade gardens. Birds use the plant for both food and shelter. Creeping grape holly's spines make for poor forage, thus, it is considered a deer and elk resistant plant. It can be planted under Gambel oaks, pines and junipers. Once established, they can be used for erosion control, although they are slow to establish. The plant can tolerate cold, heat and drought and is a very low maintenance plant. Its hardiness zones are 2-8. It prefers a rich loamy soil, but it is adaptable. It prefers part to full shade. Creeping holly can be grown from seeds, sown in the fall.

The species name *repens* means creeping, and refers to the way the plant, once established, spreads through underground stems, roots and stolons, forming large patches up to 4' in width. This habit can cause creeping grape holly to become invasive, especially if it is overwatered. Established creeping grape holly is very difficult to dig up and transplant, so plant it in the right place the first time. Winter watering is advised during dry or windy winters to prevent leaf burn which can be unattractive.

*Mahonia repens* is easily identifiable by its holly-like leaves. The leaves are alternate and pinnately



Photos courtesy of Al Schneider (left) and Margaret Williams (below), hosted by the USDA-NRCS PLANTS Database, <http://plants.usda.gov/java/>



compound. They consist of three to seven leaflets that are up to three inches in length. They are broad bluish green on top and glaucous (whitish) below. They have weak spines on leaf tip and margins (edges). It is an evergreen; however, the leaves do turn red in the fall, turning a lovely bronze color when exposed to light. Excessive sun and wind exposure during winter can burn the edges of the leaves. Because of the beautiful red foliage *Mahonia repens* is an excellent plant for fallscaping. If planted in the right place, creeping grape holly can provide four season interest.

In March to May, fragrant, long blooming, bright yellow flowers bloom. The flowers form in dense elongated, many-branched terminal clusters. They consist of six petals and six petal-like sepals. After flowering, clusters of blue grape-like berries mature in early summer and will remain into winter. The berries can be glaucous, namely, having a whitish powdery covering, that disappears with warmer temperatures.

*Mahonia repens* is an important food source for wildlife such as birds, small mammals, and black bears. The berries are also edible by humans, but are very sour. The berries can be used to make jams, jellies and wine. When sweetener is added to the juice of ripe berries, it tastes like grape juice. Sugar added to smashed berries paired with milk makes an interesting dessert.

Other uses of creeping grape holly include decorations. The pretty red foliage can be used in Christmas wreaths, swags, or in container greenery displays. Native American Indians also used the plants yellow stem wood and root bark to create yellow dyes for clothing and baskets.

Now that you know more about this beautiful hardy native shrub, maybe you will think of planting it in your own gardens. 🌱





## WICKED WEEDS

### AN ANNOYING WEED OR BEAUTIFUL HOLIDAY DECORATION?

by Linda McMulkin, CSU Extension-Pueblo County Horticulture

Normally, the Wicked Weeds column is research-based and rather serious, focusing on annoying and potentially damaging plants. But the *From the Ground Up* planning team was in a festive mood when we decided the topics for the winter issue. And tumbleweeds, while annoying and potentially damaging, have been featured in numerous news stories and Pinterest posts as holiday decorations. So, I dare you, try to find a way to embrace tumbleweeds. You can tell a story, take a photo, or use the plants in a creative way. Send me your ideas, plus photos if you can, and I'll post them on our Facebook page.

Maybe you can come up with another way to use tumbleweeds this winter. How about weaving lights in a nice, round tumbleweed and hanging it over your dining room table as a chandelier? Or wire several small tumbleweeds together to make a wreath. Or pile various sizes together to make a snowman and dress it in the customary manner. Or leave your artificial tree in the box, locate the tallest tumbleweed in your neighborhood, and hang the decorations on its lovely branches (you can even flock it so it looks snow-covered). Or...

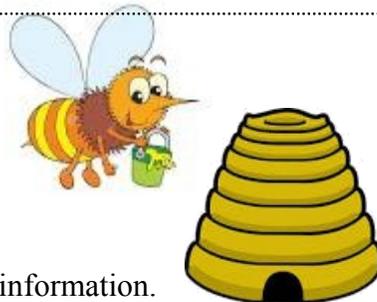
You can send your stories and photos to me at [linda.mcmulkin@colostate.edu](mailto:linda.mcmulkin@colostate.edu). Happy Holidays! 📧

CSU Extension/ Pueblo County Class:

*A to Z of Bees*,  
Wednesdays,  
February 11 & 25  
6-9 p.m.

Cost and registration details TBA.

Call CSU Extension at 719-583-6566 for more information.



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Extension

### **Manure vs. Various Fertilizers** by Pat Myers, Colorado Master Gardener, 2001

Manure can be a good garden amendment if used properly. It can add nutrients such as nitrates, phosphorus, and potassium to soil and improve texture for plants to grow. It will also help with water retention. Manure can be added to a compost bin or heap to help heat the compost.

However, one must be careful when using manure. It is always recommended that manure be aged for at least a year before using on any vegetation. If applied incorrectly, it can burn plants severely. Human pathogens such as E. coli can contaminate produce through improperly composted manure. If obtaining manure from an outside source such as a farmer or feedlot, always check to see what type of feed the animals have been eating. This will save a lot of headaches down the garden path! Animals eat weeds, and guess what is in the manure--lots of weed seed which will grow very well in your garden and flower beds.

A great way to use manure is to make a tea. Use a burlap bag (or anything similar), put a couple scoops of manure in, and soak it in a bucket of water for a couple days; use diluted tea around selected plants.

Using commercial compost and commercial manures have worked very well in my gardens. I mix about 1/3 manure to 2/3 compost and use it as a dressing around my plants. I also use this method on my raised garden beds in the spring.

A surprising method of fertilizing for me this year was blood meal. After reading that blood meal deters deer, I started using it on plants that deer eat for dessert. I noticed that my sedums were doing fantastic along with my tomatoes, kale, cucumbers, etc.

There are many commercial fertilizers on the market today, and all of them work well if used properly. Always read your various nutrients' strengths and use accordingly. 📧



## Smart Plant Purchases by Elizabeth Catt, Garden Coordinator, SE Colorado Water Conservancy District

It is always disappointing to have garden failures. Gardening can be a money sink hole if you haven't done your homework. Many gardeners rely solely on the information (or lack thereof) supplied by plant labels. This can be especially problematic if you buy plants at the big box stores, because they carry plants purchased for huge geographical areas. The big box stores in southern Colorado are part of a huge southwest territory that includes much warmer, frost free areas, like the Texas gulf coast and southern desert regions of Arizona. There are appropriate plant choices available in these stores, but you need to know what you are buying. If it looks wonderful but unfamiliar, it probably won't grow here.

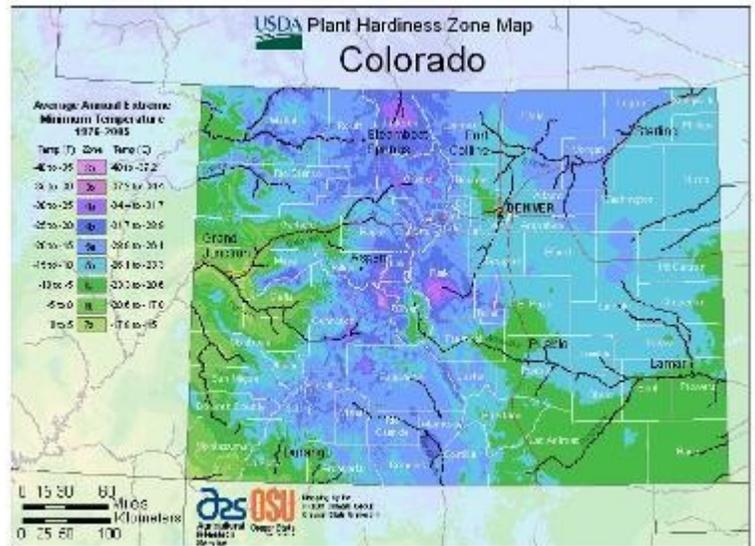
Buying locally will really improve your odds. Local nursery and garden centers can typically at least answer your questions and those that grow locally are even a better choice. Local growers, for example Perennial Favorites Nursery in Rye, are familiar with the soil, climate and elevation requirements within our growing area and can more accurately answer your specific questions. I want to also point out they are more precise with the labeling on their plants. The plant labels on plants from national chain stores tend to be very generic in scope because they need to cover such a large retail area.

Let's just focus on climate zones. As gardeners, we are pretty familiar with what our zone is, but, and here it comes, look at the USDA Zone map and notice how huge an area of the U.S. is Zone 5. Now, I always tell newcomers it is pretty safe to buy Zone 5 plants, because of our winter low temps. Zone 5 plants can certainly tolerate our winter lows, but many plants sold as Zone 5 in catalogs and in the box stores really need different soil pH, water requirements, and often just plain old humidity. Actually, many Zone 6 plants have proven winter hardiness here, if planted in a good micro-climate location, and will thrive for years. A perfect example would be one of the hardy Rosemary varieties. The good news is this: we can grow many plants here that would not flourish in other parts of the country.

It really helps to have a "sense of place". It is smart to understand where you live. Many have heard me quote my father: "Who is smarter, the Eskimos, or the scientist who goes to study the Eskimos?" I think I use this quote so much, because I made many gardening mistakes when I first moved here. Even people who move here from other parts of Colorado need to do some research about southeastern Colorado growing conditions because we are different than much of the rest of the state. We are hotter, drier, often windier, more alkaline etc., and if you don't understand that, then you will waste a lot of money until you do.

I have found the internet to be a very valuable tool to find out more about plants I am interested in, but I always consider the source. I feel information from New Mexico, Colorado and Utah Extensions the most applicable. I will branch out with the Wyoming, Montana and Oklahoma Extension sites next if I can read between the lines, so to speak. Like Colorado, other western states have many different growing conditions, so I try to keep that mind. Northern New Mexico is very similar to us but southern New Mexico is not. Plants that occur in our mountain regions are going to need more water and perhaps more amended soils too.

I am amazed at the amount of information I can find by typing in a plant's name on the internet! I think talking to local gardeners, nursery people and growers is a great way to garner better knowledge of your plant purchases. Using all these resources will save money, time, and back breaking work over the long haul towards a happy, joyous gardening experience. 🌱



Map courtesy of: <http://planthardiness.ars.usda.gov/PHZMWeb/>



If you need any special accommodation(s) to participate in any Colorado State University Extension event, please contact CSU Extension-Pueblo County at 719-583-6566. Your request must be submitted at least five (5) business days in advance of the event. Colorado State University, U.S. Department of Agriculture and Pueblo County cooperating. Extension programs are available to all without discrimination.

## How to Avoid Frustration When Starting Plants from Seed

by Ed Roland, Native Plant Master, 2009, and Southern Chapter President, Colorado Native Plant Society

The overwhelming majority of vascular plants utilize seeds to carry their genes forward into the next growing season. Even those plants that primarily self-propagate vegetatively (via bulbs, corms, rhizomes, suckers, etc.) also have viable seeds.

Seeds are the result of sexual reproduction and are a package that includes an embryo, along with food for the embryo in the form of polysaccharides, or "starch," all within a protective seed coat.

The germination process is essentially the same for all seeds: Water must reach the polysaccharides to break apart the chemical bonds into monosaccharides, or sugar molecules. Simply breaking these bonds provides energy to get the plant growing, and also allows the embryo to utilize the sugars for food. Once it grows leaves to catch the sun's rays, the embryo begins to produce its own food through photosynthesis and tapers off the food cache that "mom" sent along.

So, seeds offer the plant propagator an opportunity to intervene in the plant's natural reproductive cycle and grow that plant when and where he or she likes.

However, this can come with problems. Some plants -- such as those in the Asteraceae (aster/sunflower) family -- help ensure their reproductive success by producing lots of seeds so that even a small fraction falling on fertile ground, along with the right conditions, will germinate and perpetuate the species. So, propagating plants from these seeds is generally a "slam dunk" and almost always successful for the propagator.

But, other plant families have evolved to include inhibitors in their seeds to "stack the odds" in their favor. For example, Fabaceae (pea family) seeds generally have an extremely durable seed coat that must be eroded before water can reach their polysaccharides. Many desert plants are in the Fabaceae with seeds that are tossed and turned on sharp rocks, which erodes the seed coat, only during the rainy season when conditions are right for a successful start.

Other plants produce their seeds in late summer or in the fall and have mechanisms to prevent germination until the following spring. So, if the seeds drop to the ground in late summer -- as they often do -- and the weather is warm and wet, they must somehow resist germination or they will die at the first cold snap.

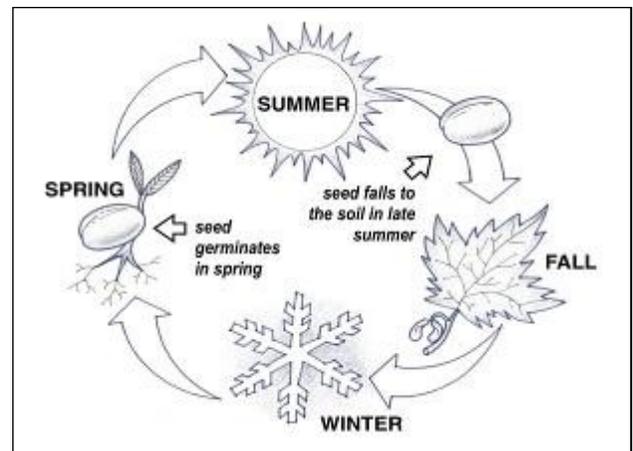
Propagators who fail to take these "embryo survival" strategies into account will germinate few, if any, of these species. So, what to do? As with many propagation issues, knowledge is both the problem and the solution:

1. Research your plant. You need to know what the species (binomial) name is, and what plant family it belongs to. Then you can go to a resource like [tomclothier.hort.net](http://tomclothier.hort.net), or any of several other references, and learn what your seeds require for germination.

2. These instructions will tell you if your seeds need "scarification," i.e., removing some of the seed coat by sanding it off, or if it's a larger seed, removing a small section (without doing too much damage to the endosperm where the polysaccharides are) with a needle, Exacto Knife, etc., so that water can gain easy access.

Note: You can test whether you've done this correctly by putting a few seeds in a container of water. Seeds will swell up in 30 minutes or so if water is reaching the endosperm (polysaccharides). If they haven't, you need to do more scarification.

3. In many instances, the instructions will say that you need to "cold stratify" your seeds to overcome the built-in seasonal inhibitor. Most penstemon species, for example, require cold stratification for 6 to 12 weeks to get a good rate of germination.



### COLD STRATIFICATION:

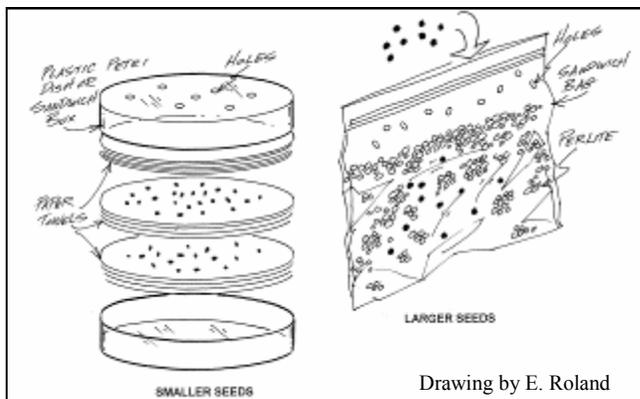
Many species have chemical and/or genetic inhibitors that are survival mechanisms. In cold stratification, inhibitors insure most seeds will germinate only after an extended period of cold temperatures and moisture.

Drawing by E. Roland

Continued on page 12



Cold stratification is most easily accomplished by using a small plastic container with a few vent holes (to allow the seeds access to oxygen). Seeds are typically placed between damp paper towels in the plastic container, and then into your refrigerator -- NOT the freezer. It's important to check the container from week-to-week to make



certain the paper towels remain damp. You can use water in a spray bottle when needed.

An alternative for larger seeds is a material like vermiculite, but like the paper towels it must retain some minimal moisture for your seeds to properly stratify.

Some species will germinate in the refrigerator by producing an initial root, or radical. I add an inexpensive coffee filter layer to prevent these from growing into the paper towel. Most seeds, however, will only germinate after you place the seeds in warm soil . . . either outside in the spring, or preferably in an indoor starting box in a sunny, warm location.

The instructions should also tell you the ideal temperature of the soil for germination. You generally won't need a soil thermometer if you're inside by a window or other warm spot. However, some seeds, like several penstemons, prefer a cooler soil for best germination.

You'll also learn whether the seeds germinate best in light (some, like Gazanias, germinate best in total darkness!), and other pertinent information.

One final note about using seeds from fleshy fruits like melons and tomatoes. These seeds are coated with a plant hormone that prevents germination inside a ripening fruit. To easily remove it, seeds should be washed off in a strainer or soaked in water and then dried.

By duplicating the natural life cycle of the plants you want to grow with techniques like scarification and cold stratification, you can avoid the frustration of seeds that refuse to germinate. Instead, your seeds will produce vigorous seedlings that have every chance of success. 📌

**Garden Tip:** Tool care



Prepare your tools for spring before you store them for the winter. Clean and dry all parts and sharpen those that need it. Organize your tools so they will be easy to find next spring.

How to read germination tips in  
Alplains Seed Catalog  
(<http://www.alplains.com/>)

**Penstemon speciosus**  
(30x24,Z4,P,RL,3:12w) ... 100 seeds / \$4.00  
**76719.21** (W) Lander Co., NV, 8600ft,  
2622m. Dwarf plants compared to the valley  
forms with several second inflorescences of  
large bright blue flowers shading to lilac-  
violet on the lips and sides.

**Penstemon speciosus ssp. kennedyi**  
(10x12,Z4,P,RL,4:12w) .... 70 seeds / \$4.00  
**76720.25** (W) Washoe Co., NV, 8900ft,  
2713m. A striking dwarf form with blue-  
gray rosettes and multiple clusters of large,  
white-throated, deep blue flowers. In fine  
granitic scree, facing south.

**Penstemon spectabilis**  
(120x60,Z6,P,L,3:12w).....100 seeds / \$3.50  
**76730.20** (W) San Diego Co., CA, 5100ft,  
1555m. Bicolor flowers of blue/pale  
lavender with white throat. Toothed leaves  
fused around the stems.

TYPICAL GERMINATION  
INSTRUCTIONS:

Codes vary by resource but provide the same information. The information in parentheses following the species name is:

- 10x12** = size of mature plant in cm's
- Z4** = zone 4
- P** = perennial
- R** = the seed should be "rubbed" between hands to remove a seed coat or "fuzz" (which prevents the seed from absorbing water)
- L** = this species requires light to germinate
- 4:12w** = seeds must be cold stratified for the number of weeks indicated (12 weeks), after which they will germinate over several weeks when placed in warm soil.

This resource also provides a description of the plant, and even better, the geographic location and growing conditions where this species was found.



**Garden Tip:** Ready, get set, irrigate!

You've probably heard enough about winter watering to convince you that it's really important. Because your irrigation system is turned off now, you'll need to drag the hoses out. To maximize the few warm, sunny hours you'll have on a nice day, store your hoses inside your garage or in a place where they get full morning sun. You won't have to wait for them to soften up to start watering. When you're through, unplug the hoses from faucets, drain them and let them relax (don't coil tightly). Do this once a month - your landscape will reward you by still being alive in the spring.

## **Mistletoe and Christmas** by Mary Jean Porter, Native Plant Master, 2008

Few Southern Coloradans would dream of kissing under the mistletoe that infects our mountain conifers. Rusty orange-yellow against its green (ponderosa pine) host, the bristly, leafless parasitic plant looks weirdly out of place, and the witches' brooms it yields are downright creepy as well as eventually destructive to the tree.

Yet the native species, *Arceuthobium vaginatum*, or dwarf mistletoe, is indeed related to the greenish-yellow, leafy plant that's often hung in doorways at this time of year and tied with a bright red bow. This species, *Viscus album*, long has been associated with winter solstice celebrations, and the practice of kissing under it dates to ancient Europe where it was thought to affect fertility and conception.

Mistletoe was believed to be sent from the gods because it grew on oak trees, which ancient peoples revered as sacred. Early tribes noted that the plant kept its leaves in winter while the host oak tree did not.

Back in Southern Colorado, *A. vaginatum* is a common native with simple, opposite leaves and berries. It flowers in late winter or spring and has the unusual ability of shooting its seeds outward at speeds as high as 60 miles per hour and as far as 15 meters. The seeds are sticky and adhere to the host tree by producing a "holdfast" that penetrates the bark. *A. vaginatum* is dioecious (male and female flowers borne on separate plants) and its flowers are small and inconspicuous.

There are five species of dwarf mistletoe that infect conifers in Colorado; lodgepole, limber, piñon and ponderosa pines, and Douglas fir are affected -- each by its own species of the parasite. Yet another mistletoe, *Phoradendron juniperinum*, or juniper mistletoe, infects Rocky Mountain, Utah and oneseed junipers. Dwarf mistletoes take both nutrients and water from their hosts, while juniper mistletoe usually takes only water.

Mistletoe, like poinsettia, is a holiday plant that's reputed to be poisonous. Cornell University reports that mistletoe is poisonous to livestock, while the Minnesota Department of Agriculture reports that the leaves, stems and a large quantity of the berries are poisonous, causing such delayed symptoms as vomiting, cramps and diarrhea, and even causing death. Neither website where this information was obtained specified to which mistletoe it referred.

Three native plant experts in this part of the country write that mistletoes have some medicinal uses. Michael Moore in "Medicinal Plants of the Mountain West," writes that American mistletoe (a *Phoradendron* species) can relax nervous tension, muscle irritability and minor spasms, though it should be avoided by people with hypertension. A vasoconstrictor, it may aid in lessening bleeding and promoting clotting.

William Dunmire and Gail Tierney, authors of "Wild Plants and Native Peoples of the Four Corners," write that juniper mistletoe historically was used by Navajos and the berries eaten fresh, which no longer is the custom. A boiled mixture of juniper and piñon sprigs and juniper mistletoe is used as a lotion for treating ant and other insect bites. 



Left: *Phoradendron leucarpus* is the North American mistletoe harvested for Christmas. It closely resembles *Viscus album*, which is used as a holiday decoration in Europe. Photo courtesy of <http://bioimages.vanderbilt.edu/>. Below is one of our western US native mistletoes, *Arceuthobium vaginatum*. Photo courtesy of Patrick J. Alexander, hosted by the USDA-NRCS PLANTS Database





**COTTONWOOD CREEK PARK XERISCAPE GARDEN**

by Cheryl DeLong, Colorado Master Gardener, 2008

Colorado Springs Utilities has two Xeriscape Demonstration Gardens in Colorado Springs. The larger one, located within the Colorado Springs Utilities property at 2855 Mesa Road, is open Monday through Friday from 9 a.m. to 5 p.m. This is certainly a good garden to visit, but opportunities to visit are limited due to it being located within the confines of a secured business. Cottonwood Creek Garden, located at 3920 Dublin Blvd., is smaller but has its own unique features. Both of these lovely gardens are maintained by volunteers from the Colorado Springs community.

I was curious about the smaller garden, located east of the Colorado Springs Utilities office, near schools and homes, and available to view 24/7. The Cottonwood Creek Garden is located within the parking area of the Cottonwood Recreation Center. The location provides tons of opportunities for all ages to enjoy and appreciate this garden because it is within a neighborhood. Folks walking to the recreation center, Cottonwood Park and surrounding neighborhoods, or driving to the park will find it front and center of the rec center entrance.

What I found to be unique about this garden is the emphasis on using our senses of listening, smell and observation to fully participate in the beauty of this garden. The tiered planting areas and paths throughout the garden take visitors on a journey with signage stressing how to fully appreciate the plantings with the beautiful backdrop of Pikes Peak, Cheyenne Mountain, and the southern Rocky Mountains.

You can pick up a list of plants inside the rec center from the information rack of pamphlets.

There isn't a map for identification of specific plants but the plant list does give a general location by matching plant names by the amount of water needed for the plants to thrive. Each of the five planted areas is distinguished by signs that provide information regarding the water needs of the plants and trees in each area. This information corresponds with the headings on the pamphlet. All of the plants are divided as sub-groups of trees, shrubs, perennials, grasses, and groundcovers. The scientific name, common name, and mature size are also provided on the four-page pamphlet.

As you walk around this garden you, will get a clear understanding of what you need to provide if wanting to replicate the plants in your own garden space. Beyond the plant list and the labeling within the garden you will find other signage that provides additional guidance to have a successful planting experience, such as sun exposure, space, wind issues, functional purpose, bloom periods, and water needs.

I also found the clustering of different grasses fun, not just for a visual experience but because of the sign "LISTEN CAREFULLY" encouraging me to simply stop and listen to the various sounds each grass made as the breeze whipped around the grasses and trees. Other signs encourage a visitor to stop and smell or stop and look at specific plant clusters that add to the garden experience.

Some of the trees, shrubs and plants that were new to me are: Kentucky Coffeetree, Vanderwolf Pyramid Pine, Compact Weiss Stone Pine, Blue Velvet Honeysuckle, Regal Mist Muhly Grass, Lyme Grass, Yaku Jima Maiden Grass, and Colorado Grapeholly. There are many of the more common xeriscape plants that I've seen in other gardens but what always makes a garden walk experience special is the choice of the grouping of the plants. I find the textures, colors, structures, and the plant dynamics pull my attention to really examine the plant choices and ultimately brings joy and smiles to my garden journey. 



Early November at Cottonwood Creek Garden in Colorado Springs. Photos by C. DeLong.

