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From the Ground Up

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DIGGING DEEPER

WHY DO LEAVES CHANGE COLOR IN THE FALL?

By Deric Stowell, Colorado Master Gardener, 2014

This is one of my favorite times of the year, when autumn begins and the leaves turn color, and eventually fall. It's when the other plants freeze and die off, much like my dreams. The whole leaf turning color thing in Colorado has taken on a very special cottage industry of sorts, with tours up in the mountains to see the beautiful Aspen trees. But did you ever wonder how and why a fall leaf changes color? Why the Aspens are such a bright yellow, Maples a deep red, and so-on?

Beautiful autumn leaf color

The process plants use to turn water and carbon dioxide into oxygen and sugar is called photosynthesis. That translates to "putting together with light." A chemical pigment produced by the plant's leaves called chlorophyll helps make photosynthesis happen. Chlorophyll is what gives plants their green color.

Red leaf color in autumn

As summer ends and autumn closes in, the days get shorter and shorter. This is how the trees "know" to begin getting ready for winter. During winter, there is not enough light or water for photosynthesis. The trees will rest, and live off of the food they stored during the summer. They begin to shut down their food-making factories. The green chlorophyll disappears from the leaves. As the bright green fades away, we begin to see yellow and orange colors. These colors have been in the leaves all along, we just can't see them in the summer, because they are covered up by the green chlorophyll.

The bright reds and purples and yellows we see in leaves are made mostly in the fall. The bright fall foliage colors come from anthocyanin (an-thuh-'si-uh-nuhn) and carotenoid pigments. These are potent antioxidants common in many plants; for example, beets, red apples, purple grapes (and red wine), and flowers like violets and hyacinths. In some leaves, like maple leaves, these pigments are formed in the autumn from trapped glucose. Sunlight and the cool nights of autumn cause the leaves to turn this glucose into a red or yellow color. The brown color of trees like oaks is made from wastes left in the leaves. It is the combination of all these things that make the beautiful fall foliage colors we enjoy each year. So, basically we get to witness the beautiful death of all plant life once a year, every year.

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WICKED WEEDS

POISON IVY (*Toxicodendron rydbergii)*

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

Poison Ivy leaves

Poison Ivy, just hearing the words, makes my skin itch. This is a wicked weed you don't want to mess with. The poison ivy plant produces a milky sap that contains super potent urushiol oil.

If as little as a nanogram (one billionth of a gram) of urushiol oil comes in contact with your skin, it can cause severe itchiness, rash, inflammation and blisters. In more severe cases oozing sores occur. Symptoms can take minutes to days to manifest, and then last for 12-15 days. The first time a person comes in contact with poison ivy they may not have symptoms, because their body may not recognize the oil as a foreign substance. If you do react after your first exposure, it often takes longer for symptoms to appear, up to 7 -10 days after exposure. Around 90 % of people have allergic reactions to poison ivy. For the lucky few who don't have an allergic reaction, be aware, you are not immune, just less sensitive to the oil. If you have repeated contact with poison ivy, the likelihood of you having an allergic reaction increases. There are good medicinal options to treat symptoms. Calamine lotion, Epsom salts or bicarbonate of soda may ease the itchy rash.

If you come in physical contact with poison ivy, try not to touch other people or things. In the first few moments after contact, you can transfer the oil. If possible, immediately and repeatedly wash the area of skin that came in contact with the poison ivy with plenty of soap and water. If you can do this before the urushiol oil bonds with proteins in your skin, you can reduce symptoms. Once the oil bonds with the skin's protein, it is too late. You cannot spread urushiol oil by touching the rash. At the point a rash appears, the oil has already been absorbed into the skin. Because urushiol is an oil, it can remain active for years on most surfaces, including your clothes, tools, pets' fur, and even on dead poison ivy plants. Wash everything that may have come in contact with the poison ivy, including clothes, shoes, backpacks, tools and/or pets so you do not have further contact with the oil. Interestingly enough, animals, wildlife and livestock, can browse on poison ivy and not have allergic reactions.

Western Poison Ivy

Urushiol oil can become airborne if the plant is burned or cut. If you breathe in the oil, you can irritate your airways, cause inflammation of your lungs, asthma or acute bronchitis. Damage to white blood cells, liver function abnormalities and fever have also been reported symptoms in patients who breathed in urushiol oil. Breathing in urushiol oil can be life threatening. Do not cut or burn poison ivy! If you need to remove poison ivy from your property, there are herbicides that may work. Please read and follow the directions exactly.

The best thing to do with poison ivy is to avoid it! Thus, it is very important to be able to identify the plant. I will describe Western Poison Ivy because that is the plant that grows in Colorado. Please note that there is Eastern Poison Ivy that can look different than its Western counterpart. In addition, in other parts of the U.S. you need to watch for poison oak and poison sumac which are equally wicked and can be confused with poison ivy.

As a perennial, poison ivy (*Toxicodendron rydbergii*) grows and dies back down every year. In our region, it usually grows to less than two to three feet in height (sub-shrub). In other regions it, and Eastern Poison Ivy, can grow as a shrub up to nine feet in height. The stems of Western Poison Ivy are either not branched (simple) or sparsely branched. Poison ivy has compound leaves made up of three-pointed leaflets. The center (terminal) leaflet has a longer leaf stalk (petiole) than the two side leaflets. The side leaflets are

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Wicked Weeds Continued from page 2

Poison Ivy fruit and flowers

The edge of the leaves (margin) can be smooth or toothed. The size of the leaves varies greatly from less than 1/3" to over 2" in length. The leaves can be reddish in the spring when they first appear. In the summer, the leaves are green and sometimes glossy. In autumn, the leaves turn color, often a beautiful bright red, but they can also turn yellow or orange. The greenish colored flowers bloom from March to June. The flowers can branch (panicles) or be along a center stalk (racemes). The flowers have five sepals, united to the bottom of five petals. Poison ivy produces seeds ((drupes) – single seed covered in hard coating, think cherry pit). Initially, the drupes are green and look like mini pumpkins (globose), but they change color in autumn to white or yellowish white. People who did not know what poison ivy was, have harvested the pretty red leaves and cream berries to use in autumnal decorations. Ouch! My advice, admire this wicked weed from a distance and get fake foliage from a store. Educate yourself to identify poison ivy, so you can show this wicked weed the respect it deserves and stay away from it.

Garden Tip: Fall and Winter Watering

Now that cold temperatures are looming, many of us are ready to relax and forget about our outdoor plants. Your trees, shrubs, lawns, and perennials will thank you next spring if you practice good fall and winter watering techniques. Be sure to water during fall and winter when we haven't had any precipitation for 2-3 weeks. Water on a day that is above 40° F, and do it in the early afternoon so the water has time to soak in before freezing nighttime temperatures. This will lead to much healthier, happier plants next season.

African Rue By John Powell, Native Plant Master, 2008

African Rue

Like a true alien aggressor, African rue has the ability to survive harsh conditions. During hot dry summer months, the plant dies back above ground and re-sprouts after summer rains. The plant resumes normal growth until a killing frost in the fall. African rue's white petaled flowers can produce seed capsules twice each year. Deep cultivation only divides the roots with each piece being capable of producing a new plant. African Rue also spreads by suckers sent up from an extensive root system.

This poisonous, basketball sized plant contains at least four alkaloids that are toxic to cattle, sheep and horses. The entire plant contains the alkaloids with the highest concentrations in the seeds. African rue also releases chemicals that interfere with seed germination reducing competition by native plants. African rue apparently tastes terrible and smells worse, so animals rarely eat it. They appear to consume it if they are starving or suffering from several mineral deficiencies.

African rue grows in dry places, such as roadsides and abandoned fields and in desert and semi-arid regions. This species may grow best on sites receiving some run-off. It likes soils ranging from salty-clay to clay-loam to sandy, indicating that soil moisture is not a limiting factor for growth. Extended flooding does inhibit this species' growth. African rue was first identified in New Mexico in the 1920's and has spread to Texas, Arizona, California, Oregon, Washington and Montana. In June 2004, it was identified in an area where the soil had been disturbed by construction.

In Colorado, this plant is found east of Interstate 25 in the most southern part of the state. There is no biological control for this and burning is not an acceptable control. The best method of control is use of an herbicide, but please keep our pollinating insects in mind.

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Available in paper and electronic formats.

On the lighter side...

It's Fall Y'all! By Deric Stowell, Colorado Master Gardener, 2014

The month of October is associated with the end of the harvest, or autumn. Halloween falls on October 31st, and, with it, all kinds of symbols and smells of the end of year harvest. For instance, spiders such as the garden orb weavers, make their presence known with their distinctive webs. These spiders only live during one season and die during the winter, leaving behind their egg sac for next season.


A beautiful Fall spider web

Finally, one of the most popular features of fall arrives. Pumpkin Spice is one of those things you can certainly count on at this time of year, just like the first frost. Few people know where it comes from, or how it's made. Pumpkin Spice is mass-produced by pumpkin elves, for all the world to enjoy. A coffee house hired these elves and kept them in the far north regions of the world; and once a year, the great pumpkin comes out and the elves attack him, and the blood of the great pumpkin is then collected and turned into Pumpkin Spice.

Hey y'all...it could happen!

Garden Tip: Planting Bulbs in Fall

It is not too late to plant your favorite Spring blooming bulbs outdoors. Optimal planting time goes until late October. Try and pick species with a variety of bloom times to have color all season. Generally, bulbs are planted at a depth four times their length with the tips facing up. Mulching will give them extra protection from frosty winter temperatures.

Forcing Bulbs to Bloom By Mary Ellen Donley, Colorado Master Gardener, 2006

It has been an especially beautiful autumn this year in Colorado and it is hard to believe that winter is right around the corner. By the time the holidays have ended, the winter months begin to loom over us. The anticipation of spring becomes more than we can stand. One way to bring spring into your home just a little early is to force flowering bulbs to bloom. It takes some preparation and monitoring, but if done properly, you can enjoy a succession of blooming spring flowers in the midst of cold blustery days. It can give a gardener that little boost they need to survive winter!

Wouldn't you love to have spring bulbs during the off season?

Making a plant flower at a predetermined time, or under artificial conditions is called forcing. Plan on planting your bulbs in the fall months between September and November, depending on when you want to have them bloom. The best bulbs to use for forcing are hardy varieties such as crocuses, tulips, daffodils, and hyacinths. Purchasing bulbs that are of top quality and good size will give you the best results. Check with your local nursery operator in regards to the best varieties to use for forcing. Do not mix varieties of bulbs in the same pot since they will need differing chilling times.

Begin by choosing clean, short pots such as a squat-shaped azalea pot. Place about 2-3 inches of good quality potting soil in the bottom of the container, then gently place bulbs on the potting soil being careful not to force them into the soil. If planting tulips, place the flat side of the bulb to the outside of the pot, this way the largest leaf will emerge first and provide a more desirable look when it blooms. Plant the bulbs close together, usually about 6 tulips, 3 hyacinths, 6 daffodils or 15 crocuses will fit into a 6-inch pot. Cover the bulb lightly with more potting soil making sure to leave the tips exposed. Allow ¼ inch of space at the top of the pot and water the bulbs thoroughly. There is no need to fertilize because the bulbs have enough stored food to flower.

Your bulbs are now ready to begin the chilling process. The time needed to chill bulbs depends on what type you have chosen, the size of bulbs, the number of bulbs you have planted, and the start date. Your local nursery supplier can provide you with specific information regarding the length of time your chosen bulbs will need to be chilled. Bulbs must be kept at a temperature of 35-38 degrees Fahrenheit for 12-16 weeks. During this chilling period it is important to keep the soil moist. Don't allow them to become too moist or dry out. Cold treatment can be provided by a cold frame, unheated attic or cellar, or a refrigerator vegetable section.

Tulips peeking their heads out

Keep track of when you begin the chilling process by marking it on your calendar. Once the chilling time is up, remove your pot or pots from the chilling area. If you have planted several pots, they can be brought in at weekly intervals to provide continuous flowering. Place the pots in a cool location with indirect sunlight and temperatures of 60-65 degrees Fahrenheit until the shoots and leaves begin to expand (approximately a week). Pots can then be moved to a warmer location with more light. The warmer temperature will promote rapid growth and bloom. Rotate pots daily to give the leaves equal amounts of light. Buds should appear in 3-4 weeks. Be sure to continue to keep the soil moist.

It may seem like a bit of effort to force bulbs, but just like any gardening we do, it is well worth it when you see the results. This task may be especially rewarding when you see flowers blooming indoors and look outdoors to see snow flurries. Happy forcing!

KNOW YOUR NATIVES

ROCKY MOUNTAIN MAPLE

by Marge Vorndam, Colorado Master Gardener, 1997, and Native Plant Master, 2007

Many of us transported ourselves to Colorado from the Northeastern U.S. where Sugar Maples, *Acer saccharum*, (*acer*, Greek, meaning "sharp" and *saccharum*, meaning "sugar") were prevalent. Acer refers to the lobed and pointed leaf form. Sugar Maples are known for their production of Maple Syrup. Those maple trees, often found in our urban settings, do not thrive in the West here where we live without supplemental water; however, a close species, Rocky Mountain Maple (aka Douglas Maple, Red Maple, Dwarf Maple), *Acer glabrum*, (*glabrum*, from Greek, smooth) are native and can handle the drier conditions of the Western states. Rocky Mountain Maple cannot rival the sugar production of its Eastern cousin, although it has been "tapped" for sugar syrup by Native Americans and adventurous U.S. residents. Traditionally, reported medicinal uses for maples have been to treat diarrhea and swelling. As with other *Acer* cousins, the tree trunk is popular for use by woodworkers.

Interesting looking galls on a maple leaf

In our area, Rocky Mountain Maples grow as tall shrubs of 10 to 25 feet with 5 to 8 feet spread in mountainous drainages on Rocky Mountain slopes where water is slightly more plentiful. It's fall foliage of yellow, orange to red leaves make a colorful seasonal display. During the summer, leaves may house a red blotch that is caused by the eriophyid gall mite, but not to worry, this mite does not cause damage to the tree (See photo. I'm all for preserving various forms of non-impacting life, since we don't necessarily know their value to humans as yet – or we could just appreciate them for their intrinsic value as living beings.). To view these maples, take a trip to Lake San Isabel Recreation Area of San Isabel National Park in the summertime.

The Native Plant Master® Manual for Pueblo County lists Rocky Mountain Maple as having opposite toothed palmately lobed and pinnately compound leaves. It produces fragrant flowers, followed by two-winged fruits (samaras). Twigs are slender and reddish, which adds to its visual appeal as a landscape plant. These maples can be a wonderful addition to landscaping in areas with alkaline soil, where water addition is moderate but not soaking, and partial shade is available in Zones 3-7. It has high wildlife value as cover and nesting sites for birds, and browse value for ungulates such as deer and elk (okay—protect it until it reaches ~7 feet tall if you live in areas where deer and elk also reside). Rocky Mountain Maples are native to much of our Western mountainous region, in the U.S. extending from Canada to Mexico, and throughout moderately moist mountainous regions of Colorado/Montana/Wyoming/New Mexico and westward.

Rocky Mountain Maple

If you are looking for an interesting shrub that is not entirely xeric in the plains of Pueblo and has domicile shade, this could be an attractive addition to your landscape.

All Pueblo GROWS Seed Lending Library

The All Pueblo Grows Seed Lending Library is having the last community seed swap of the year on Saturday, October 29 on the second floor of the Rawlings-Hoag Library in the Idea Factory. If you have seeds to donate please drop by anytime from 9:30 a.m. to 11:30 a.m..

FABULOUS FAMILIES

THE *ANACARDIACEAE* OR SUMAC/CASHEW FAMILY

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

The *Anacardiaceae* family, commonly known as the sumac or cashew family, has 860 species of diverse plants. The cashew branch of the family consists of tropical crops including cashews (*Anacardium occidentale*), pistachios (*Pistacia vera*) and mangos (*Mangifera indica*). *Ginkgo biloba,* another member of the *Anacardiaceae* family, is used as a dietary supplement to enhance cognitive function. The sumac branch of the family includes plants that grow in Colorado. These include the Smoke Tree (*Cotinus coggygria*), and native sumacs - Smooth Sumac (*Rhus glabra*), Staghorn Sumac (*Rhus typhina*), and Three Leaf Sumac (*Rhus aromatic*, subsp. *trilobata*). Like all families, there is a black sheep of the *Anacardiaceae* family, namely Poison Ivy (*Toxicodendron rydbergii*). See the Wicked Weeds section for more information about Poison Ivy. Interestingly, sap from cashew and mango trees and several other members of the sumac family, can cause allergic skin reactions upon contact.

Smoke Tree

There is quite a bit of diversity among the 860 plant species in the sumac/ cashew family, so it is hard to describe the family as a whole. That said, in general, plants in the sumac family have alternate pinnately compound leaves. The leaves are made up of smaller leaflets that attach to a central leaf stem (petiole) in matched sets across from one another. Think of a fern frond. The flowers have five petals and are radially symmetrical; the flower, if split in half, would have two halves that are mirror images of each other. Now that the generalizations are out of the way, let's look at some members of the family that can grow in Colorado.

The Smoke Tree (*Cotinus coggygria*) is a beautiful non-native member of the *Anacardiaceae* family that we can grow in Colorado. It is a tall shrub to small tree that has beautiful deep purple or bronze leaves, depending on the cultivar. The delicate soft pink flowers of the smoke bush are even more stunning. The Smoke Tree grows well in our poor soils and it does not need a lot of water. You can easily find Smoke Trees for sale in and around Pueblo.

Three Leaf Sumac

Our native sumacs are also great xeric shrubs for your landscapes. The Three Leaf Sumac gets 3 to 6 feet in height and diameter. The shrub can provide beautiful fall color. Its lobed leaves turn red, orange or yellow in autumn. It has small non-showy female flowers in spring. Small bud-like male flowers called 'catkins' develop in the summer. The small, hairy, red, berry-like fruits (drupes) persist through the winter. They can be crushed and made into a lemonade like drink. This is why this shrub has the common name Lemonade Sumac. Other common names for this plant include skunkbush, because if you crush the leaves, it emits a mild skunk-like odor, and squawbush, because Native Americans made baskets from the plant.

The Three Leaf Sumac is easy to grow from seed. Directly sow the seeds in the fall. The Three Leaf Sumac is a xeric shrub, needing little water after it has been established. If it gets over-watered, it will grow vigorously. The Three Leaf Sumac has many landscape uses, including dry shrub borders, barrier shrub, wildlife habitat gardens, and erosion control especially on steep banks. It is a great shrub for wildlife habitat. It provides cover for birds and other small animals. Deer will browse on it but they prefer other plants. Before you plant Three Leaf Sumac, make sure you have it in the right site. This plant can sucker forming thickets, and can be very difficult to remove. If you have it in the wrong place, luckily, it can survive being cut way back. If you are concerned with the size and spread of the Three Leaf Sumac, there is a dwarf cultivar called 'Grolow' that can be found at local nurseries.

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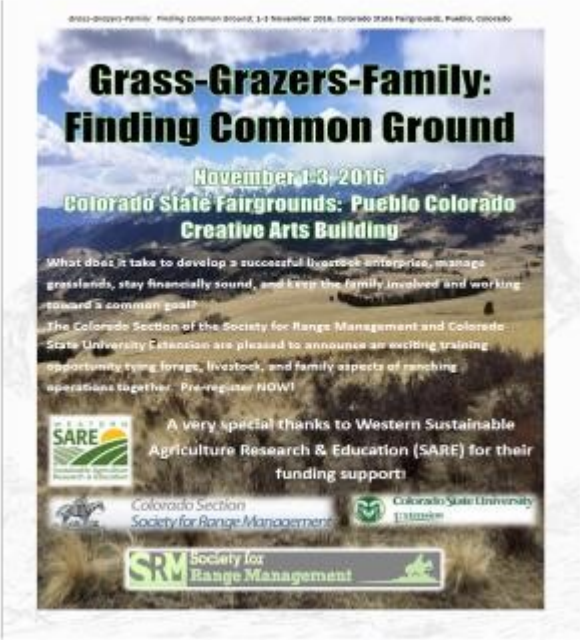
Staghorn Sumac

The Staghorn Sumac (*Rhus typhina*) has many of the same characteristics, habits and uses as the Three Leaf Sumac; however, everything about the Staghorn Sumac is bigger. It is taller, 8-10' in height, and wider, 8-15' in width. Its form is much more open. The leaves are significantly bigger at 10 to 18" in length. The leaves are made up of 11 to 31 long and narrow, widely spaced leaflets along a center leaf stalk (petiole). The stems are hairy. Be aware, the Staghorn Sumac is not recommended as a foundation planting, and overwatering it can cause chlorosis and excessive suckering.

Smooth Sumac

The Smooth Sumac (*Rhus glabra*) is very similar to the Staghorn Sumac, except it has smooth rather than hairy stems. It also may sucker more than the Staghorn Sumac. The leaves are made up of 15 to 23 lanceolate to ovate (long and slender or oval shaped) leaflets. The edge of the leaflets (margin) are broadly toothed, much more so than the Staghorn Sumac.

With the exception of Poison Ivy, I think that the Colorado members of the sumac family are pretty wonderful and beautiful xeric plants. If you are thinking of planting a new shrub in your garden, maybe you will consider planting a sumac. When you are done, sit down and snack on some pistachios, cashews or dried mangos and give thanks for the diverse *Anacardiaceae* family.



Build Your Soil with Cover Crops By Maureen Van Ness, Colorado Master Gardener, 2015

Cover crops, planted in fallow ground, are all about the soil. Rather than leaving soil uncovered, unplanted, and unused, thickly plant a crop like buckwheat, rye, red clover, or vetch. The purpose is not to be a productive crop, but to be tilled, dug in, or mowed and the roots allowed to stay, in order to enrich, nourish, and protect the soil through the chill of winter.

Why? Many of us, come fall, are just done; glad to put away the tools and the efforts to keep up a garden. The respite of winter is a welcome break from weeding, planting, thinning, and dead-heading. Did I mention weeding?

The purposes of planting a cover crop are many. I'll cover the purposes before the how-to, so the motivation is clear.

Cover crops provide a source of nitrogen, fixed into the soil by their roots, a form of green manure. With green manure, you gain the advantage of adding nitrogen without adding the salts in animal manures.

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Common Buckwheat

Nitrogen provides a rich, quality nutrient for the plants you will grow come spring, and avoids using chemical fertilizers. The roots of cover crops will alleviate soil compaction (some aerating the soil several feet deep and loosening layers of hardpan), conserve run-off water, avoid erosion (by water and by wind), and suppress weed growth (Yay!). Cover crops function as a growing, living mulch, creating a natural, protective cover for the soil. Organic matter is added to the soil as you mow and leave the roots to decompose underground, which aids development of microbial activity, building disease resistance and health for future plants.

Sound like good reasons to plant a cover crop? Worth one last effort to tuck the garden in for winter and build sustainability toward spring? When I think of cover crops, I tend to think in terms of rows and rows of field crops. Interestingly, though, I found references on cover crops for the home garden. Small scale. Practical, even in a cold frame or raised bed.

One idea I saw, a home gardener planted a cover crop in her cold frame in the summer months, in the quiet time between harvested early spring vegetables and fall plantings. She planted buckwheat and turned it under a few weeks before the fall plantings. Another idea, is to plant a cover crop in the fall in the empty space around plants still growing, like chard, beets, carrots, kale, lettuce, spinach – those plants that will continue to produce through the first cold weeks, or even months. As the cover crop grows around these plants, it will provide a mulch blanket to prolong their season of productivity. I like to grow fall vegetables in my raised bed, and after studying this, I planted some buckwheat around them. A similar idea is to plant a cover crop a few weeks before a plant is harvested – by harvest time, it can be plowed under along with the finished vegetable plant.

What are good cover crops for our area? "Botanical Interests," from Broomfield, Colorado, sells Common Buckwheat, Crimson Clover, Fava Beans, and a Soil Builder Peas/Oats mix. Other seed companies sell other varieties, of course, but I chose a local seed company, focused on home gardeners, for an example. My seed packet for Common Buckwheat, *Fagopyrum esculentum*, says it is ready to be tilled under within thirty to forty days. It is an annual, frost sensitive, but my raised bed is covered, protected from the early frosts, and even frosted plants can be left and tilled in come spring. It could also be planted early spring, before spring vegetables go in. Fast growing, cover crops offer opportunities for quick enrichment. And we all like fast results, right?

Broadcast the seeds, rake them in, ¼ to ¾ inches deep. Mulch lightly to aid germination. Keep the soil damp until established. Watch them grow for four to six weeks. After you till in or cut the cover crop, wait a few weeks to allow the plants to break down and the soil to absorb nutrients. But, don't wait too long, or the decomposing plants will absorb oxygen needed by new plants. If the cover crop is still small, till in the whole plants. If they are large, cut off the stems and leave them on the soil to dry as mulch, then turn them in if you want.


Cover crop sprouting

By adding cover crops to our garden routines, we build soil health, enrich soil tilth, nourish, add organic matter, discourage weeds and protect our soil. As we learn and see in our own gardens, healthy plants are the best defense against (bad) insects and disease. And, of course, healthy plants come from healthy soil. Let's plant a cover crop to build the health of our soil and our plants.

Garden Tip: Get a Jump on Spring with Fall Garden Chores

Doing a few garden chores this fall will help you to get off to a good start next spring. Many harmful insects and diseases overwinter in garden debris. Do some fall cleanup to reduce the chances of sick plants next year. Remember never to compost infected plant material. You can also turn over your soil in the fall to reduce populations of insects like white grubs, cutworms, and grasshopper eggs. Fall is also a good time to inspect your woody perennials. Prune out dead or infected parts and remove them from the area.

The Colorado Master Gardener Program

By Sherie Caffey, CSU Extension-Pueblo County, Horticulture Coordinator

The Master Gardener Program is a volunteer based Extension outreach program that trains volunteers in research based horticulture practices. These trained volunteers then deliver their knowledge to the community through classes, community outreach, and individual contacts. The national Master Gardener Program was started by Washington State University Extension in 1972. At this time, WSU had two new horticulture agents that were being bombarded with questions from the community. They thought that if they could train volunteers to help them deliver horticulture education, their reach could be greatly expanded. Although the idea of training volunteers to educate clients was initially denied, the program eventually was accepted and became a great success. Colorado State University Extension's Colorado Master Gardener Program began in 1975 in Denver and El Paso Counties. Jefferson County followed, adopting the program in 1976. From there, many Colorado Counties enacted a Colorado Master Gardener program. The program is still going strong today with 34 counties in Colorado participating, including Pueblo County.

In 2015 there were 1,372 volunteers across Colorado and they donated 54,213 hours of volunteer service to their communities. Through these volunteer hours Colorado Master Gardeners have helped 75,000 citizens expand their horticultural knowledge using research-based information. Pueblo County currently has 37 active Master Gardeners who, in 2015, donated 3,289 volunteer hours to our community. Volunteers in Pueblo also stay up to date on the latest horticulture research by completing continuing education hours. In 2015, our volunteers completed 664 hours of continuing education courses, making them very valuable resources.

A group of Pueblo County Colorado Master Gardeners at the 2016 Chile and Frijole Festival

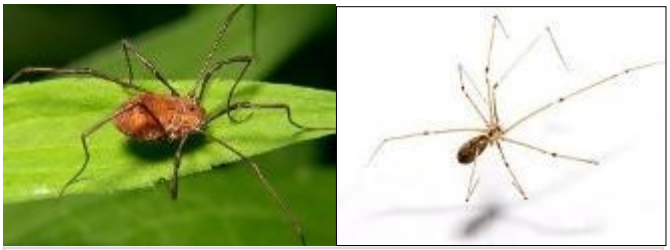
Colorado Master Gardeners participate in many activities around their communities. The activities that volunteers around the state spent the most time on last year were community greening, booths and clinics at shows, fairs, and festivals, and phone calls, emails, office, and field visits. The Colorado Master Gardeners in Pueblo provide education at many events around the county too. Some of these events include: public yard and garden classes, the Pueblo Home and Garden Show, the Western Landscape Symposium, local Farmers' Markets, Science Day at a local elementary school, the Children's Water Festival, Pueblo County Fair, and the Pueblo Chile and Frijole Festival. The volunteers also publish a quarterly newsletter called *From The Ground Up*, they run a seed lending library called the All Pueblo Grows seed lending library, they take an annual bus trip to see gardens around the state, and they host an annual plant sale that brings many local vendors together and raises money for the program.

Wouldn't you like to be a part of such a great program? If so, then there is good news, CSU Extension in Pueblo County is now taking applications for the 2017 training class! You can get an application by calling 719-583-6566 and asking for Carolyn, or email valdez@pueblocounty.us. Training spots are limited so get your application filled out soon! I hope to see you in 2017!

INTERESTING INSECTS

WHO *IS* YOUR DADDY?

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



Left: Harvestmen Spider Right: Cellar Spider

When I agreed to write an Interesting Insects article about daddy longlegs, I was excited. Ever since I was a little girl and read the delightful book Daddy Long Legs by Jean Webster, I have held these delicate creatures in warm regard. I thought writing the article would be easy; after all these creepy crawlies that take up residence in our homes are well known. No problem right? Guess again. Once I started researching daddy longlegs, I discovered that there are three different kinds of critters that have the common name daddy longlegs. This is why scientific names are so important. Every living plant and animal yet discovered by man has a unique scientific name (genus and species together) so scientists can communicate information and be sure everyone is talking about the exact same thing. Okay, now that I am off my soapbox, I will continue to tell you about the three distinct types of animals called daddy longlegs.

The first of the three kinds of daddy longlegs are the crane flies, in the *Tipulidae* family. These are the winged insects commonly known as mosquito hawks because they look like giant mosquitos. Despite this name, crane flies cannot sting humans nor do they feed on mosquitos. The adult crane fly lives for such a short period of time, it often does not eat at all. If the adult does eat, it feeds on decaying plant matter. Because crane flies are easily distinguishable from the other two types of critters called daddy longlegs this is all I will say about crane flies.

The other two animals, harvestmen and cellar spiders, commonly known as daddy longlegs, are not as easily distinguished from one another. Most people don't even notice that there is a difference between these members of the *Arachnida* class. To most people they both look like spiders with long thin legs. The best way to tell whether the daddy longlegs in your home is a harvestmen or a cellar spider is to look at its body. If it does not have a constricted waist, it is a harvestmen. See photo on the left. Harvestmen have only one body part, the cephalothorax. In comparison, spiders, including cellar spiders, have two body parts, the cephalothorax and the abdomen. See photo on the right. The other, and perhaps easier way, to distinguish harvestmen from cellar spiders is to look for cobwebs. Look up at the corners of ceilings in your house, if you see a daddy-longlegs hanging upside-down on webbing, it is a Cellar Spider. Now you can answer the question, 'who's your daddy?'

Despite looking like delicate spiders, harvestmen are non-spider arachnids in the *Opiliones* family. Fossils of harvestmen have been found dating to 410 million years ago. Despite being around for millions of years, relatively little research has been done on harvestmen. The exact number of species of harvestmen, found worldwide, is uncertain. There are at least 6,500 different species in the family and could be almost double that. At least 200 species of harvestmen are found in North America. Unlike spiders, harvestmen do not have silk glands, and cannot make webs. Harvestmen have one pair of eyes in the middle of their cephalothorax. In comparison, spiders have three to four sets of eyes, often found on the sides of their cephalothorax. Despite the urban legend contrary, harvestmen do not have venom. The lack of venom should not embolden you to handle them. If disturbed, they can squirt a smelly fluid from scent glands called ozopores. Another defense mechanism harvestmen use when threatened is called autotomy, self-amputation. If threatened or grasped by a predator, it may detach part of its leg. For some time, the leg will continue to move, distracting the predator, giving the daddy-longlegs a chance to escape. Cellar spiders also use this form of defense. Harvestmen's lifespan is usually one year. The eggs of the harvestmen hatch in the spring. After several months of development, the adults start appearing in late summer and early autumn. This is why they have the common name harvestmen. They are mostly nocturnal and omnivorous. They will eat small insects, plants, fungi and fecal matter. The male harvestmen cleans and guards the egg sac from other harvestmen who may practice cannibalism. The male may defend a territory, yet harvestmen will tolerate each other, and may live in large groups.

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The daddy longlegs spider or cellar spider, is and arachnid in the *Pholcidae* family. There are around 1,461 species of cellar spiders found on every continent other than frigid Antarctica. Cellar spiders got their common name because they like to live in dark and damp places. That said, cellar spiders will live in dry warm places as well. As spiders, they create webs in which they hang upside down waiting to snare an insect. Unlike many other spiders, cellar spider's webs are small, irregular and not sticky. Cellar spiders will sometimes vibrate in their webs either to trap nearby insects or to confuse predators. This behavior has led these spiders to be called vibrating spiders. When a cellar spider traps an insect, they wrap it in silk and bite it, killing it with their venom. Contrary to the myth, daddy longlegs spiders do not possess the most potent venom and their venom is harmless to humans.

Now that you know a little more about all three types of daddy longlegs you will hopefully take a moment to appreciate them before you decide to grab your vacuum.

Sources: Guide to Colorado Insects, by Whitney Cranshaw and Boris Konratieff, pp. 54,56 and 199; Garden Insects of North America, by Whitney Cranshaw, 562; and www.livescience.com.

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