

From the Ground Up

A Gardening and Native Plants Quarterly

Colorado State University Extension-Pueblo County

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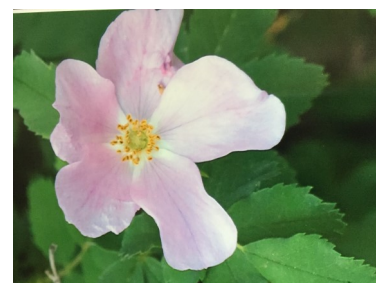


KNOW YOUR NATIVES

WOODS' ROSE, *Rosa woodsii*

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

I chose to write about the Woods' Rose because it is a native plant that you can identify most anytime in the year. Even in the dead of winter the plant's beautiful rose hips and stems are fairly distinctive. (As an attorney, I have to write the legal small print here. Woods' Rose often hybridize with other roses; so exact identification can be difficult. As for me, I don't care to get into that much detail identifying roses. I don't care whether the pretty wild rose I see out hiking is a Woods' rose, or a hybrid of a Woods' Rose. In the words of Shakespeare, "A rose by any other name would smell as sweet." So, if you are like me, a casual botanist, read on and be happy. If you are a serious botanist, don't bother reading further you will only get frustrated with me.)



Woods' Rose flower

The Woods' Rose got its common and botanical names from Joseph Woods, an Englishman who was an architect and a botanist. In 1818, he published an extensive study of the Rose family in the Transactions of the Linnean Society, a prestigious society of botanists and other scientists in England.

In Colorado, the Woods' Rose grows in the foothills to subalpine life zones, from 6,000-10,000 feet in elevation. They grow in valleys, gulches, by streams, in Ponderosa forests, and along the sides of trails. They can grow in full sun to partial shade. They are very drought tolerant. The Woods' Rose generally grows three to five feet in height.



Stem of the Woods' Rose

The Woods' Rose, or wild rose, has a pretty fragrant pink to pinkish-white flower made up of five petals. The flower is radially symmetric, in other words, you can divide the flower down an axis, and the two halves will be mirror images of each other. The flower has many yellow stamen and ranges in size from 1.5-2.5 inches in width. Generally, the flower blooms in the summer, June through August; however in Pueblo County, I have seen it bloom in late spring if the spring has been warm and wet.

The woody stems of the rose are fairly distinctive. They are covered with broad based thorns. Sometimes the thorns are intermixed with bristles. New growth stems and thorns are often reddish-purple in color. The stems change color as they mature. They eventually turn brown when they die off.

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The leaves of the Woods' Rose turn a beautiful bright red in autumn. The leaves are alternate, pinnately compound, ovate with serrated margins. I know I just lost you casual botanists, so let me explain these terms. Alternate means, that two leaves attach to the stem directly across from one another. Compound means the leaf is made up of more than two similar parts, or leaflets. In the case of the Woods' Rose there are usually 5-9 leaflets per leaf. Pinnately compound means the leaflets attach along one main axis. Think of a feather. Ovate means the leaflets are egg shaped. Margins mean the edge of the leaf, or leaflet in this case. Serrated means having sharp forward pointing teeth. So, serrated margins means the edge of the leaflets have forward facing teeth.



Boulder Raspberry

Locally, there are a couple of native plants that could be confused for a Woods' Rose, the most likely one being the Boulder Raspberry before it sets fruit. Like the Woods' Rose, it has a five petal, single, radially symmetric white flower and has stems covered in thorns. Before it sets fruit, you can distinguish the two plants by their leaves. The Boulder Raspberry has alternate, simple, palmately lobed leaves. In plain English, this means the leaves are not made up of leaflets. The leaves are divided like the fingers of a hand, off more than one axis. Think of a maple leaf. In my experience, leaves of Boulder Raspberries tend to have deeper veins with the space between being higher, making the leaves look ridged or wrinkled. Just as an aside, the Boulder Raspberry, *Rubus deliciosus*, despite its Latin name is not delicious. Believe me, unless you are actually starving, don't eat these fruit. You will burn through your water trying to get the bad taste out of your mouth. In the words of my son, "They are disgusting!"

The fruit of the Woods' Rose is commonly called a hip. The technical term for the fruit is a pome. Woods' Rose hips are round. They turn a glossy red in the fall and persist throughout the winter. You can use the hips to identify the Woods' rose, even when the flower is long past.



Woods' Rose hips

Rose hips have many medicinal uses. Native Americans used medicine derived from the rose to treat diarrhea, indigestion, colds, wounds, and as an eye wash for snow blindness. Rose hips are packed with vitamin C. Early western pioneers planted roses near their homes to help prevent scurvy, a disease caused by a vitamin C deficiency. Whenever I am out hiking in Colorado, if I see a rose growing in a clearing, I look for the foundations or ruins of a pioneer or mining cabin. Today, scurvy is rare, because we have easy access to vitamin C; however, in the past, scurvy was a deadly disease. Sailors suffered and died from scurvy. Prior to 1753, the threat of scurvy limited how long, and how far people could travel at sea. In 1753, a British Naval doctor, James Lind, showed that scurvy could be prevented and treated by adding citrus fruits into the sailor's diet. During World War II, citrus fruits were hard to come by. People collected rose hips and made syrup from them to ensure people had adequate vitamin C. My parents grew up in Ireland during the War. As children they had severe food rations, and no access to citrus fruits. My Dad told me the first time in his life that he ever saw an orange was when a German U-Boat was destroyed off the coast of Ireland and a crate of oranges floated ashore. The whole village came down to the shore and divided the oranges up. My Dad said those few orange sections he got were the sweetest thing he had ever eaten.

In addition to being a great source of vitamin C, roses have many other medicinal and culinary uses. If properly prepared, most parts of roses are edible, including the petals, stems, roots, and of course the hips. Rose hips can be made into teas, syrups, jams and jellies. Parts of the hips can be eaten raw. If you are interested in the edibility or medicinal uses of the Woods' Rose, I recommend you check out [Edible and Medicinal Plants of the Rockies](#) by Linda Kershaw. Never eat a plant unless you are certain what plant it is and how to safely prepare the plant, and its parts, to make it safe.

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Woods' rose can be used in your garden in the right place and under the right conditions. I say this with much hesitation. Woods' rose can become a nuisance in some conditions. It can grow rapidly, tall and leggy, if it gets too much water. It forms thickets by sending up new stems. This can be desirable in some cases, such as for erosion control on banks, or in large informal wildlife gardens. Woods' Rose is a good shrub to provide food and habitat and for many types of wildlife, including birds, deer and small mammals. Thickets of Woods' Rose can also be a nightmare if they form where you don't want them. Think long and hard before you plant Woods' Rose in your garden. If you do plant Woods' Rose, you can cut them back to shape, shorten or thin the plant. You should also remove old, dead, brown stems.

Whether or not you choose to plant them in your garden, you should appreciate the Woods' Rose for its beauty, fragrance and healing properties. It is a pretty amazing plant. So get out and hike the foothills in Pueblo County and see if you can find the Woods' Rose (or one of its hybrids – sorry it is the attorney in me). All you casual botanist go enjoy our amazing native plants! 🌿

Audubon Rockies Wildscape Ambassador 201 Workshop

By Marge Vorndam, Colorado Master Gardener, 1997, and Native Plant Master, 2007
With excerpts from Wildscape Ambassador Handbook, Audubon Rockies

In early November, several Pueblo County Colorado Master Gardeners and Native Plant Masters attended a follow-up class to the Wildscape Ambassador 101 class held last Spring. This second class went into more detail addressing how native pollinator populations, including butterflies, bees and birds are declining in Colorado and elsewhere in the U.S., largely due to habitat loss. The presentation explored ways that home owners and gardeners can help to reverse this trend by utilizing beautiful, water-saving, native plants that provide essential forage and shelter for wildlife.

Associations between plants and pollinators were explored in detail. As one example, our presenter, Jaime Weiss, told us that native oaks (c.f. Gambel Oaks from the Summer 2017 issue of From the Ground Up) support more than 530 species of butterflies and moths alone. Non-native Ginkgo trees support only five species. Caterpillars are the go-to food source for migrant and resident birds alike. In the 16 days between hatching and fledging, a clutch of Carolina Chickadee chicks can down more than 9,000 of them. Replacing non-native plants with native plants is a huge encouragement to other native species, as well. It all ties together, as some native plants, such as Yucca, rely on specific insects, in this case the *Pronuba* moth, to survive locally.



Western Bluebird



Asclepias tuberosa

Other reasons to grow natives include less need for mowing lawn, which saves fossil fuel use, thus helping to prevent global warming. Saving water in our dry climate, flood control, use of fewer chemicals, less landscape maintenance, and the beauty of having a landscape that flows into the natural one already surrounding our homes are just a few of the many other benefits.

Wildscape Ambassador 201 attendees were then introduced to Wildscape Design Objectives – How to create a naturescape that also addresses human needs. We investigated what options there are for growing groupings of short plants, medium shrubs and taller screening trees in a local landscape in a way that can provide erosion control, walkway definition, shade cover, and so on, using plants that are native to our regional areas. We separated into groups, and developed a native landscape around a local home that addressed the Design Objectives of one of our group members. It was a great demonstration of how a non-native residential landscape can be developed, over time, to accommodate native plants, and promote Colorado species that rely on them.

If your group is interested in having a trained Wildscape Ambassador present what we have learned during attendance at the 101 and 201 workshops, please contact Sherie Caffey at the Pueblo County Extension Office to request a presentation. 🌿



Plants of the Shale Barrens

By Linda McMulkin, Native Plant Master, 2007



Shale barrens

The word *barrens* evokes a visual of a desolate, empty landscape that is very uninviting. But to native plant lovers, the area known as the Arkansas River shale barrens is a landscape both inviting and full of interest, especially for those with a passion for rare plant species.

Much of eastern Colorado was once an inland sea, and sediment deposits eventually formed the shale, limestone, and chalk bedrock of this area. The Arkansas River has cut a deep canyon through the bedrock, with steep slopes and rock outcrops primarily along the north side of the river in Pueblo and Fremont Counties. The slopes have a thin layer of fine-textured, calcium carbonate containing soil with a covering of small, platy rock fragments. Due to the harsh conditions, shale barrens typically have only 10-20% vegetative cover. However, the seemingly inhospitable slopes are home to a plant population that

includes some species found only in this geological setting. While much of the Arkansas River shale barrens are on private property, you can view these rare species at Lake Pueblo State Park and the Pueblo Nature and Raptor Center.

The relatively flat areas above the river are home to junipers, yucca, walking-stick cactus, and grasses, interspersed with deciduous shrubs such as James' seaheath, four-wing saltbush, three-leaf sumac, and winterfat. Nearer the river, cottonwood and willows are found, along with invasive Russian olive and tamarisk. But the slopes are where the really unique stuff lives.

To those of you interested in discovering this uniqueness on your own, a word of caution: the loose soil/gravel combination on the slopes can shift, making footing difficult. More importantly, the plants found on the slopes are small and easily disturbed by human traffic. Rare plants are protected by state and federal statutes, so take pictures only and take care to not destroy or damage the plants or collect seeds or plant parts. Please help conserve rare plants and fragile soils by staying on trails and walking gently in the shale barrens.

Rare plants are ranked G1 to G5 based on the number and size of populations worldwide, potential threats and sensitivity of the species to the threats, area occupied, and other factors. Worldwide plant populations are monitored by professional and volunteer naturalists and Colorado's rare plant information is available through the Colorado Natural Heritage Program (<http://www.cnhp.colostate.edu/>).

Three G2 species, *Mentzelia chrysantha* (golden blazing star), *Oenopsis puebloensis* (Pueblo goldenweed) and *Oxybaphus rotundifolius* (round-leaf four o'clock) are found only in the shale barrens of Pueblo and Fremont Counties. The remaining shale barren rare plants, G3 *Asclepias uncialis* ssp. *uncialis* (dwarf milkweed), *Bolophytia tetraeuris* (Arkansas River feverfew), *Oenothera harringtonii* (Arkansas valley evening primrose), and *Physaria calcicola* (Rocky Mountain bladderpod) are more widely spread, with populations throughout the lower Arkansas and its tributaries.

Why do these unique plants grow here? A 2003 paper by scientists at Colorado College points to the harsh conditions in the shale barrens as the major factor rather than the minerals available in degraded shale/limestone soil. The authors suggest that the restricted range of the plant species is due to their ability to thrive in hot, thin, dry soil. In flatter, less harsh parts of the shale barrens, more common herbaceous plants are able to outcompete the rare species.

The rare plants of the Arkansas River shale barrens bloom early in the growing season, so plan your spring hikes accordingly. Beginning in April, you may find me searching for my favorite plants along the trail from the parking lot from the nature center to the raptor center or on the bike trail on the north side of Lake Pueblo. I'll be sure to bring my camera. 📷

GLOBAL RANK (G): based on range-wide status of a species

G1 Critically imperiled globally because of extreme rarity (5 or fewer occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extinction. (Critically endangered throughout its range).

G2 Imperiled globally because of rarity (6 to 20 occurrences) or because of other factors demonstrably making it very vulnerable to extinction throughout its range. (Endangered throughout its range).

G3 Vulnerable throughout its range or found locally in a restricted range (21 to 100 occurrences). (Threatened throughout its range).

G4 Apparently secure globally, though it might be quite rare in parts of its range, especially at the periphery.

G5 Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

Source: Colorado Natural Heritage Program



Oenopsis puebloensis

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.



Join the Pueblo County Colorado Master Gardeners!

March 1, 2018 is the deadline for new members to register for 4H!



<http://pueblo.extension.colostate.edu/programs/4-h/4-h-resources/joining-and-enrolling/>

We are now taking applications for the 2018 class! If you love gardening and educating people, this program is for you...

- Classes start January 18, 2018
- Thursdays from 9:00 a.m. to 4:30 p.m.
- Applications due by December 29, 2017

For more information and application materials, visit:

<http://pueblo.extension.colostate.edu/programs/gardening-horticulture/master-gardener/>



WICKED WEEDS

DODDER

By Mary Knorr, Colorado Master Gardener 2009, Colorado Native Plant Master 2009

Dodder is a dicot and in the Family Cuscutaceae, Genus *Cuscuta*. It's now accepted as part of the Morning Glory Family.

Cuscuta is also known as Strangle tare, Scald-weed, Beggar-weed, Lady's laces, Fire-weed, Wizard's net, Devil's guts, Devil's hair, Devil's ringlet, Gold-thread, Hail-weed, Hair-weed, Hell-bine, Love vine, Pull-down, Strangle-weed, Angel hair and Witch's hair. In Colorado, it's considered an annual and seeds germinate in the spring when the soil temperatures reach around 60 degrees F.

Dodder is an obligate parasite, which means in-order for the vine to survive, it must find a host and attach itself to the host's vascular system. In a Pennsylvania State University study, they found that *Cuscuta* can sniff-out a preferred host's chemical signature (i.e. a tomato plant). If it doesn't attach within 5 to 10 days, it will die.

The vine's color can be pale green, yellow, to bright orange. After Dodder attaches to the host, the segment in the soil will wither away. The parasitic vine will continue to feed-off the host plant, resulting in damage. *Cuscuta* is hard to identify because it doesn't have any leaves, but it looks like you have sprayed 'Silly String' on your plants!

Dodder has a world-wide distribution of over 150 species. The United States and many other countries have laws that require imported seeds be free of Dodder. *Cuscuta spp.* (except for natives) is on the Federal Noxious Weed List. The Alfalfa dodder (*Cuscuta approximate*) was introduced to Colorado and is considered noxious, but it isn't on our state Noxious Weed/Watch Lists. Dodder seeds are usually spread by contaminated seeds, water, soil, clothing, gardening/farm equipment and agricultural products.

The University of California Agriculture & Natural Resources Pest Notes #7496, Table 1 lists common vegetables and ornamentals that are susceptible to Dodder. Some examples are; tomatoes, peppers, melons, chrysanthemums, English Ivy and petunias. Also, many broadleaf weeds can be a target; nightshade, pig-weed, lambs-quarters, field-bindweed and Russian thistle.

There are processing tomatoes that have a higher resistance to Dodder; Heinz 8892, 9492, 9553 and 9992. Some other non-host plants are cool season vegetables; lettuce, broccoli and cauliflower. Also, many monocots are resistant; corn, grasses, lilies and irises. And the dicot soybeans.

In the home garden and landscape, it's usually easier to spot *Cuscuta* early. Act quickly when you find it, because each Dodder plant is capable of producing several thousand seeds. Due to their hard seed coat, they can be viable for 20 years or more. *Cuscuta* flowers (white-to-cream colored) from late spring through fall.




Dodder on a host plant



Depending on your *Cuscuta* infestation size, it is recommended that you use multiple methods. The best defense is to immediately remove the host plant(s), pulling all Dodder segments/weeds and dispose in the trash. A new *Cuscuta* weed can re-start in your garden with a missed segment. Also, the home gardener doesn't want to spread any dormant seeds by tilling, weed-whacking and mowing.

For extensive infestations, some of the methods recommended are: a pre-emergent herbicide, pulling, remove host plant(s) and replace with Dodder resistant plant(s) for several years, burning, and a post-emergent herbicide.

New Mexico State has a good fact sheet on "Dodder (*Cuscuta* spp.) Biology and Management" at http://aces.nmsu.edu/pubs/_a/A615/welcome.html. 



Dodder strangling a host plant



DIGGING DEEPER

GARDENING ON A SHOESTRING, BY ROB PROCTOR

By Maureen Van Ness, Colorado Master Gardener, 2015

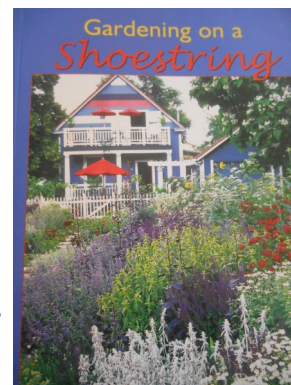
My first job out of high school was at the customer service counter in a bank. A much older gal, who worked at the desk opposite mine, found a way to complain to some customer, every single day, "I live on a shoestring." That was a new expression to me. She explained it as having to be protective with every single penny, and not allow herself any luxury. I thought she expressed a very negative attitude, resentful, with a limited, narrow perspective. I was young – what did I know?

When I first saw this book, *Gardening on a Shoestring*, by Rob Proctor, I thought of her. His perspective, however, is far from narrow, limited, or negative. A quick browse through the photos in this book will show you it is about abundance, exuberance, and rich, bountiful plants even when you may be tight on cash, living on a shoestring.

Yes, plants can be expensive. When he bought a house in Denver, a fixer-upper, he found that even his love for plants and growing things took second place to plumbing that functioned and myriad repairs. He found a way to make a garden after the house drained his budget. He dug up the scraggly lawn himself, then put some money into a few larger shrubs like butterfly bush, blue mist spirea, lilac, sand cherry, and added a few perennials in small three-inch containers (the least expensive size). Those long-term plants gave him a design foundation, and he added plants as he could find them on sale, plant a packet of seeds, or take cuttings from friends or neighbors.

In this book, he has lists of plants that re-seed easily and bountifully, lists of plants that do well from cuttings (and how), lists of plants that divide well (plant one, multiply it as it grows), and lists of seasonal tasks and what plants flourish in each season.

My favorite list is from the chapter, "Artistry with the Ordinary." Plants that are considered ordinary, routine, or common, have a tendency to be snubbed. We go for the new, the bold, the dramatic, the unique. All good, but not practical on a tight budget. He lists 'Rob's 35 Amazing Ordinary Plants.' If you are planting to fill in a new area, or restructure a garden, those old, easily available, inexpensive reliables can be just what you need to keep it affordable. He says, "I occasionally hear people in nurseries dismiss a plant, uttering, 'That old thing,' as if they'd stepped in dog doo. I'd hate for them to come to my garden. It's full of old things (and dogs). I love them all. The trick is to make art out of the ordinary. To me, gardening is an art."



Book Cover

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In his yard, slender resources mean plants are moved. A lot. As flowers bloom, heights change, or seasons take their toll, new plants are taken from other areas or shared from a friend's yard or re-seeded to fill in empty spaces and create the palette and design he sees in his mind. I've heard it said, "Gardening is the slowest of the performing arts." So true. A process of years. The skill is to see ahead, understand what a plant will do, how it will interact with the plants around it, and gently give it what it needs to flourish.

We talk a lot about xeriscape. Many people pronounce it zero-scape and imagine rocks, with maybe a cactus or two. Not in this book. Rob Proctor's perspective is not denial of xeriscape, but to use creative collaboration. He grows drought tolerant natives and adaptable perennials. He says, "Good design is good design. It transcends regions, seasons, and even drought...in the long run, a water-smart garden makes good sense. It can be as beautiful and sophisticated as any water-guzzling landscape and is more in tune with our natural surroundings...there need be no shortage of colorful flowers, both annual and perennial, from spring till frost." He goes on to list more than forty appropriate plants and grasses, described by pleasing color combinations and seasonal interest.

Winter is a good time to read garden catalogs and books of garden inspiration. I recommend you add *Gardening on a Shoestring* to your list this winter. The gorgeous photos offer enough inspiration to fill your garden dreams. His practical advice with humor and how-to ideas are good for beginners and skilled gardeners – anyone can learn something new, right? This is a good book for a mid-winter pick-me-up, to imagine the garden you would love to have.

He wraps up with this thought: "Gardening on a shoestring is about more than saving money. It's about the creative use of resources...Seeds and plants respond to light, warmth and water, not dollar bills." He tells of a million-dollar garden he toured that looked, well, dull. This process of becoming a garden artist and using our limited resources creatively are what give personality and life to our landscapes. Rob Proctor says, "Gardening is a never-ending adventure. As your skills and knowledge expand, you'll surely discover any number of ways to make more beauty on a budget...Would we all like a million-dollar garden? Absolutely. We'll get there – on a shoestring." 🌱



The author's yard.

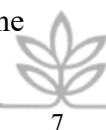
Garden Tip: Fall Chores

At the recent Wildscape Ambassador Workshop, the speaker said, in regard to fall chores, "Don't." Why not? Plants left with their seedheads and stems and branches provide winter food and shelter for birds and wildlife. Not all of us can endure what may appear to be messy landscaping. May I suggest a middle of the road approach, if the idea of leaving all the clean-up until spring leaves you frustrated? Clean up the areas that bother you most, and leave at least some of the plants to their seasonal process. Or, take what appears to be the lazy route for now, and save all the clean-up for spring.

Suggested tasks: Rake leaves, add them to a compost or mulch pile to decompose. Or, mow them into the lawn with your last mowing. Cleaning up leaves will hinder undesirable insect pests and eggs from overwintering.

- **Weeding.** Always. Still. Now. Any weeds pulled now will help slow down spring's explosive growth.
- **Deep water and feed trees and shrubs.** If you haven't done this already, choose a warm day, with several warm days predicted to allow the water to soak in slowly.
- **Prune** dead, diseased, or broken branches from trees and shrubs. When we do have snow, knock the snow off branches to help prevent breakage.
- **Mulch** gives plants a layer of insulation against the cold. Pull it back away from stems or trunks to help prevent little critters from chewing on the bark from their snug tunnels. Straw, leaves, bark, or a good layer of pea gravel are good choices. If you have a problem with mulch blowing away, bird netting, staked in, will hold it in place.

Providing habitat for wildlife builds a better world for all of us. Decide how much you can do to help the critters through the winter, while creating the garden you love. 🌱





INTERESTING INSECTS

COOLEY SPRUCE GALL ADELGIDS

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

To tell you the truth, the Cooley Spruce Gall Adelgid is not a very interesting insect; it is a tiny, aphid-like insect measuring less than 2 millimeters. Most people will never see this insect in any of its various forms. So why am I writing about this insect for the Interesting Insect section? I am writing about the Cooley Spruce Gall Adelgid because the galls that these insects cause are amazing! They are amazing because of their stealth and complexity. I want to introduce you to the Cooley Spruce Gall Adelgid so you can identify its cool gall or should I say Cooley gall.

Cooley Spruce Gall Adelgids require two host plants during its year-long life cycle, a spruce and the Douglas Fir. The life cycle involves multiple generations throughout the year. Not all Adelgids have the same life cycles. In general, the life cycle starts on a spruce tree. Immature females overwinter underneath young branches. Come spring, they mature, and lay several hundred eggs near developing buds. The egg hatching coincides with bud break. The light brown nymphs feed on the base of newly growing needles. Saliva from the tiny nymphs enters the spruce, and causes changes in the plant's development. This causes the plant to create a gall.

In Colorado, galls are common on native spruce trees. Colorado Blue Spruce trees seem to be more resistant against the insect than other spruce species. Bright green galls appear in the late spring. The insects feed, grow, and change inside the galls. They also turn black in color. The galls get bigger with the insects. While the insects feed, the galls remain green. The pineapple shaped galls range in length from 2-4 inches. Despite being conspicuously present, the galls often go unnoticed. People often mistake the galls as seeds or cones. They are hiding in plain sight. Some galls can turn color to pinkish-red or a blue-purple. By mid-summer, the galls begin to dry out. The chambers of the galls open, allowing the mature winged insects to fly away. The mature insects migrate to Douglas Fir trees. During this time, the empty galls continue to dry out and turn brown. They become more noticeable. Still many think they are pine cones. Once you recognize a Cooley Spruce Gall for the first time, you will be amazed that it was caused by a tiny insect.



Cooley Spruce Gall

Thankfully, the galls created by the Cooley Spruce Gall Adelgids are generally not harmful to the tree. Treatment for Cooley Spruce Gall Adelgids is not recommended. The insects do little or no harm to the trees. You will not likely see the insect at this stage of its life. Once you see the galls, it is too late to treat. The insects are either protected inside the gall where insecticides can't reach, or they have flown the coop. If you have a spruce that does not have galls and you insist on treating it to prevent the galls for cosmetic reasons, you should spray insecticide in the spring before new growth starts, around late April. Alternatively, you can treat in the autumn, when the insects return to the tree to overwinter. Again, this treatment is usually not necessary for the tree's health. See CSU Extension Fact Sheet 5.534 for specifics on insecticide recommendations. Manual removal of galls does not prevent future insect damage.

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Galls are not reused by the insects. Some spruce seem to be more resistant to this insect. Brighter green spruce seem to become more infested than darker colored spruce trees. Galls also tend to occur on the more shaded side of the tree, usually the east and/or north sides of the tree. There are some natural predators to these adelgids, including ladybird beetles, hoverflies, lacewing larvae, spiders, and some mites. However, these predators are not effective at stopping the adelgids.



Cross section of a gall

The mature Cooley Spruce Gall Adelgids lay eggs on the Douglas Fir. Several generations of Cooley Spruce Gall Adelgids occur on the Douglas Fir. They feed on the needles, which can cause yellow spots and/or bent needles. The insects are more visible. The tree can look like it is speckled with cotton. The insect feeding on the Douglas Fir does not cause galls. In late summer, some of the Cooley Spruce Gall Adelgids develop wings and fly back to the spruce to deposit eggs which hatch and overwinter, and the life cycle begins anew. Some Cooley Spruce Gall Adelgids will change form and overwinter on the Douglas Fir.

I take back my earlier statement that the Cooley Spruce Gall Adelgids are not interesting insects. They are awesome! Its unique and complex life cycles, biological forms, and interesting galls are impressive, especially for such a minute insect. Next time you pass a spruce tree, check it out more closely to see if there are Cooley Spruce galls created by an interesting insect, the Cooley Spruce Gall Adelgids. 📷

Holiday Food Safety

By Deborah Hibbert, Colorado Master Gardener, 2017

Who doesn't like to eat? Ok, maybe a few people like my grandson Brian, but most of us enjoy eating! Holidays are the best because Grandma makes all of your favorites, and Aunt Pat brings lots of goodies too. And don't forget the potluck buffets at the office (these are my favorites). But let's think about this: Aunt Pat has a three-hour drive to get to Grandma's house and I remember the boss talking about his refrigerator not working right. So how safe is that food we are about to consume?

Some of our most favorite holiday foods are potentially the most dangerous. We used to call it food poisoning, but now, according to the United States Department of Agriculture (USDA), when certain disease-causing bacteria or pathogens contaminate food, they can cause foodborne illness.

How do you know if you have a foodborne illness; what are the symptoms? The symptoms are flu-like in nature. They include nausea, vomiting, diarrhea and fever. A foodborne illness is serious and, if not treated, can be fatal. The USDA recommends having and using a four step action plan in the event that you experience these symptoms:

1. Consult your physician or health care provider, or seek medical treatment as appropriate.
2. Preserve the food.
3. Save all the packaging materials, such as cans or cartons.
4. Call your local health department if you believe you became ill from food you ate in a restaurant or other food establishment

According to the USDA, the major pathogens that cause foodborne illness include *Salmonella*, *Listeria monocytogenes*, *Campylobacter jejuni*, and *Escherichia coli* (*E. coli*). The following are some foods and symptoms that are associated with these illnesses:



Holiday potluck

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Salmonella can come from raw or undercooked eggs, poultry and meat, unpasteurized milk or juice, cheese and seafood, or contaminated fresh fruits and vegetables. Symptoms of *Salmonella* include stomach pain, diarrhea, nausea, chills, fever, and/or headache. These symptoms appear within eight to 72 hours after eating and may last four to seven days. Symptoms of *Salmonella* include stomach pain, diarrhea, nausea, chills, fever, and/or headache. These symptoms appear within eight to 72 hours after eating and may last four to seven days.


Listeria Monocytogenes can come from contaminated hot dogs, luncheon meats, cold cuts, and other deli-style meat and poultry, soft cheeses and unpasteurized milk, and store made salads such as ham salad; chicken salad; or seafood salad. Symptoms of *Listeria Monocytogenes* include fever, chills, headache, backache, upset stomach, abdominal pain and diarrhea. This foodborne illness is extremely dangerous for individuals with weakened immune systems and pregnant women. It may take up to three weeks to become ill.

Campylobacter jejuni comes from contaminated water, unpasteurized milk, raw or undercooked meat, poultry, or shellfish. Symptoms of *Campylobacter jejuni* include fever, headache, muscle pain followed by diarrhea (sometimes bloody), abdominal pain, and nausea. Symptoms appear within two to five days after eating and may last seven to 10 days. This pathogen can cause a life-threatening infection if it spreads to the bloodstream.

E. coli comes from undercooked beef, especially hamburger, unpasteurized milk and juices, contaminated raw fruits and vegetables, and water. Symptoms of *E. coli* include diarrhea (often bloody), abdominal cramps, and vomiting. These symptoms may begin one to eight days after food is eaten and can last five to 10 days.

We have learned that foodborne pathogens can contaminate just about everything we eat - water, milk, eggs, meat and poultry. So how do we prepare and consume food safely? The USDA recommends using these *Four Steps to Food Safety*:

The first step is **Clean**. Wash hands the right way – for 20 seconds with soap and warm, running water, wash surfaces and utensils after each use, wash fruits and vegetables, and clean lids before opening canned goods. Next, **Separate**. Separate all raw meat, poultry, seafood, and eggs from other foods. Use a separate cutting board for fresh produce and a separate cutting board for raw meat, poultry, and seafood. Never place cooked food on a plate that previously held raw meat. The third step is **Cook**. Use a food thermometer. Cook food thoroughly and keep food hot after cooking (at 140 degrees Fahrenheit [F] or above). The final step is **Chill**. Refrigerate perishable foods within 2 hours (1 hour if outside temperature is above 90°). Never thaw food at room temperature, use refrigerator, cold water or microwave. Put leftovers in shallow containers for quicker cooling. Discard any food left out more than 2 hours (1 hour if outside temperature is above 90°).

When you gather for family feasts during the holidays, remember to handle and prepare food safely. Refrigerate perishable foods promptly. Be aware of the symptoms of foodborne illness and have an action plan in place. Make the four steps to food safety – **Clean, Separate, Cook, Chill** – an everyday habit. And remember, when in doubt, throw it out! 

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