

# LETTUCE INFORM YOU

## 2022 ELBERT COUNTY FALL ISSUE MASTER GARDENER NEWSLETTER



**IF YOU ARE INTERESTED IN BECOMING A MASTER GARDENER,  
NOW IS THE TIME TO REGISTER!!**

*It is a rewarding and educational endeavor to become a Master Gardener. You will learn a tremendous amount of information about gardening, horticulture, insects, pollinators, native plants, weed identification, etc. The Elbert County team of Master Gardeners are friendly, fun, and love to help others learn about gardening and horticulture. If you are interested in registering or learning more about this exciting educational experience, please call or email our offices.*

*Elbert County is looking forward to 2023 and we are looking for new Master Gardeners. We are a group of gals and guys with varying horticultural backgrounds. Master Gardeners is a part of CSU Extension Program. If you are interested in learning and teaching, outreach and community, we urge you to apply. Our group meets once a month to discuss plans and events hosted by Master Gardeners, we answer gardening questions, tend demo gardens, teach classes, participate in the Elbert County fair, conduct meetings, and engage in community events. As Master Gardener apprentices, we attend Green School the first year followed by continuing education classes and conferences around the state. Below is a link for application information.*

*The Elbert County Master Gardeners look forward to meeting you.*

**Applications for new Master Gardener Volunteers will be accepted September 1 through October 14!  
Call the office 303-621-3162; or apply online! (<http://ColoradoMasterGardener.org>)**

**Considering the Colorado Master Gardener Volunteer program?**

**This option requires a completed application, interview, and background check in addition to training fees and a 50-hour volunteer commitment to your local county in the first year. Learn more by checking on-line.**

**FULL COURSE GREEN SCHOOL (This is the training required to become a Master Gardener Volunteer)**

**REGISTRATION IS NOW CLOSED – Check back in November for Spring 2023 Registration!**

- Access to 14 classes; 12 are self-paced online, 2 are live webinars
- Weekly Class Reviews (live webinars) with CSU subject matter experts
- To obtain certification, trainees must complete 7 online classes and watch two webinar recordings and pass the comprehensive final (open-book, research encouraged) with a 70% or better
- You'll have access to the online courses for one year
- No refunds



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To Our Clients: Please, Help Us to Help You

Submitted by Raylene Owen - Colorado Master Gardener, Elbert County

When a client brings in a plant sample to the Master Gardener Office there are steps that can be taken to ensure that the sample is in good condition for identification. Keeping samples moist and supple retains identification characteristics. The plant can be in a container with water and tented with a plastic bag. Or the stems can be wrapped in a wet paper towel and then placed in a plastic bag. If the weather is warm, care needs to be taken to prevent the plant from overheating. Master Gardeners can also work from dried and pressed samples if they are complete and not broken up. A picture of the plant where it is growing, in addition to a live sample, is always helpful.

The best samples are the most complete, 2 or 3 stems with several leaves, flowers, and seedpods, if possible. Roots are sometimes helpful, but we don't want to encourage the destruction of native plants. If you are trying to show a disease process, bring in portions of the plant that are healthy, partly diseased, and fully diseased.

Master Gardeners also need specific information that will help in the identification and diagnosis of the sample and its possible problem.

1. Name and variety of the plant, if known.
2. Is the plant native or cultivated?
3. How many months or years has this plant been established?
4. What are the watering conditions?
5. Describe the location of where the plant was growing, such as shade, sun, north or south facing slope, what side of a building, type of soil, other plants in the vicinity, etc.
6. Was this plant found in hay and if so, where was the hay cut?
7. Have any chemicals been used on the plant or in the area?



Thank you, from the Master Gardeners for helping us to help you with your gardening needs for 2022.



#### PHOTO CONTEST!!

Thank you to all of the people who submitted photographs for our photo contest. It is fantastic to get a look at Elbert County's gardens. The winner of the \$25 Gift Certificate to Tagawa Gardens in Centennial is Carol Ann Rook for her photo titled "Crabapple frame for Pikes Peak in Springtime". Congratulations! We will be holding another photo contests in September, so keep taking photos, and keep an eye on our Facebook page (Colorado Master Gardeners Elbert County for more information.



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#### ELBERT COUNTY MASTER GARDENERS A YEAR IN REVIEW

By Lesley Roper, Colorado Master Gardener, Elbert County

As the days get shorter and the nights get a bit cooler the Elbert County Master Gardeners take a look back at the 2022 gardening season. We are a small but mighty group that has accomplished much this year. We are grateful to be able to gather in person with each other, and the community to discuss all things gardening. The Elbert County Master Gardeners answered a lot of “what” questions from community members this year. What bug is this, what plant is this, what is wrong with my plant(s), what can I do to improve my soil. If you have any “what” questions we would be happy to talk to you. We can be reached by phone (303) 621-3162 or by email [coopext\\_elbert\\_mg@mail.colostate.edu](mailto:coopext_elbert_mg@mail.colostate.edu). You can rest assured the information you receive will be well researched, science based, and locally relevant.

The Elbert County Master Gardeners hosted several informative seminars in 2022. Whitney Cranshaw a retired CSU entomologist provide a wealth of insect information in a very entertaining presentation. Three of our Native Plant Master Gardeners gave us great information on many of our local native plants, why to include them in your gardening plans and how to obtain these plants/seeds. One of our Master Gardeners organized a field trip to a local composting operation and discussed the benefits of adding compost to our soil. One more seminar will be presented in September and will discuss watering requirements for our trees, shrubs, and plants. There will also be a presentation on winter window sill gardening. Watch for upcoming information on this seminar and upcoming 2023 seminars.

Elbert County Master Gardeners assisted and participated in the Horticulture and Floriculture venues in the Open Class at the Elbert County Annual Fair and enjoyed every minute. The Silent Auction and Kid’s Korner at Fair was well attended and helped the Master Gardeners raise a few funds to help purchase books, tools, and supplies. The weed display table was a huge hit....it would seem we all have a few weeds.

Despite the hot dry conditions this year the demonstration gardens at the agriculture building are looking pretty good. Some of these plants are Plant Select® that are plants designed to survive high plains and mountainous regions providing beauty with less work and using fewer resources. If you’re in the neighborhood stop by and take a look, you may want to include some in your gardens.

The 2023 Elbert County Master Gardener Calendar is in process and will be available later this year. This calendar will not only help you keep track of your schedule, but will be very informative and all the pictures were taken in Elbert County. Watch for upcoming information so you we can get a calendar to you.

The Master Gardeners look back with fond memories, much learned, and pride in all that we have accomplished. We look forward to growing; our gardens, our programs, our community relationships, and our outreach in 2023. We hope you join us.

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#### Supporting Late Season Pollinators

By Sherie Shaffer, Horticulture Agent, CSU Extension-Pueblo County  
(Submitted by Cathy Ramsey, Colorado Master Gardener, Elbert County)

As summer starts to come to an end, gardening starts to leave our minds as we make room for fall and winter. For those that want to support pollinators to the best of their ability, it is good to remember that there are still species around in late summer, and early fall, who need habitat and floral resources to be able to make a new generation of pollinators. Here are some tips on providing for late season pollinators in your landscape. Just like any living thing, pollinators need food, water, shelter, and space to thrive.

The large majority of native bee species in Colorado are ground nesting. This means that they dig into the soil and nest under the surface. To encourage nesting in your landscape, provide sunny, undisturbed ground in your garden that is free of mulch and plant material. You also don't want these areas covered in landscape fabric or weed barrier. These will be great areas for ground nesting bees to create their future generations. Some native bees nest in hollow stems and tunnels. You can leave your perennials untrimmed until spring and leave dead wood snags as well. Butterflies like open sunny areas, but also need protection from wind. Windbreak plantings or other ways of sheltering an open area will encourage them to stick around your yard.

Pollinators also need water. You can provide a dish filled with pebbles and water so they can land and get a drink. You should dump and replace the water every couple of days to prevent mosquitoes from breeding in it. Bees will also drink water from drip systems, sprinkler heads, fountains, and bird baths, so be sure not to use pesticides near these water sources to avoid poisoning our pollinator friends. Male butterflies tend to congregate on moist sand or mud around puddles of water. Female butterflies will be in search of the proper host plant for their caterpillars, so they can lay eggs on it.



Clouded Sulphur



Perhaps the most important thing you can do to support late season pollinators in your garden is to have floral resources for them. Early season plants are very important, most all of us have plenty of flowers in the middle of the season, but it is also important to make sure you have a few species that bloom later in the season as well. Below is a list of late season bloomers that you can incorporate into your landscape:

- Rocky Mountain bee plant – *Cleome serrulata*
- Common sunflower – *Helianthus annuus*
- Goldenrod – *Solidago* spp.
- Rabbitbrush – *Chrysothamnus nauseosus*
- Blue Giant Hyssop – *Agastache foeniculum*
- Plains Coreopsis – *Coreopsis tinctoria*
- Hairy False Goldenaster – *Heterotheca villosa*
- Spotted Gayfeather- *Liatris punctata*
- Tansy Aster- *Machaeranthera canescens*
- Chokecherry – *Prunus virginiana*
- Boulder raspberry – *Rubus deliciosus*



Common Sunflower  
Bugwood.org



Goldenrod  
Bugwood.org



Plains Coreopsis  
Bugwood.org

It is best to plant these species together in clumps, that way bees and butterflies don't have to waste as much energy flying across your yard to get to them. Also, don't forget that pesticides can be deadly to pollinators, so use other IPM methods to control any pest issues in your garden.

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**FALL AND WINTER WATERING - Newly Planted vs. Established Plants**

By J.E. Klett, CSU

Submitted by Raylene Owen, Colorado Master Gardener, Elbert County

Newly planted trees are most susceptible to winter drought injury. Trees generally take one year to establish for each inch of trunk diameter. For example, a two inch diameter (caliper) tree takes a minimum of two years to establish under normal conditions.

Trees obtain water best when it is allowed to soak into the soil slowly to a depth of 12 inches. Methods of watering trees include: sprinklers, deep-root fork or needle, soaker hose or soft spray wand. Apply water to many locations under the dripline and beyond if possible. If using a deep-root fork or needle, insert no deeper than 8 inches into the soil. As a general survival rule, apply 10 gallons of water for each diameter inch of the tree. For example, a two-inch diameter tree needs 20 gallons per watering. Use a ruler to measure your tree's diameter at 6" above ground level.

Newly planted shrubs require more water than established shrubs that have been planted for at least one year. The following recommendations assume shrubs are mulched to retain moisture. In dry winters, all shrubs benefit from winter watering from October through March. Apply 5 gallons two times per month for a newly planted shrub. Small established shrubs (less than 3 feet tall) should receive 5 gallons monthly. Large established shrubs (more than 6 feet) require 18 gallons on a monthly basis. Decrease amounts to account for precipitation. Water within the dripline of the shrub and around the base.

Herbaceous perennial establishment periods vary. Bare root plants require longer to establish than container plants. Perennials transplanted late in the fall will not establish as quickly as those planted in spring. Winter watering is advisable with late planted perennials, bare root plants, and perennials located in windy or southwest exposures.

Plants receiving reflected heat from buildings, walls and fences are more subject to damage. The low angle of winter sun makes this more likely on south or west exposures. Windy sites result in faster drying of sod and plants and require additional water. Lawns in warm exposures are prone to late winter mite damage. Water is the best treatment to prevent turf injury (see fact sheet 5.505, Clover and Other Mites of Turfgrass.) Monitor weather conditions and water during extended dry periods without snow cover – one to two times per month.



For more information, see the following Planttalk Colorado™ script 1751, Fall and Winter Watering: during drought.

\*(J.E. Klett, Colorado State University Extension horticulture specialist and professor, horticulture and landscape architecture; and R. Cox, Extension horticulture agent, Arapahoe County. 1/04. Revised 3/13.

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#### Weed Watch

By Lesley Roper Colorado Master Gardener, Elbert County



**Tribulus terrestris – Puncturevine, Mexican sandbur, Texas sandbur**

**Growth Form** - summer annual, prostrate, mat forming with an extensive root system. Leaves - opposite, hairy, divided into 4 to 8 pairs of leaflets ¼ to ½ inch long and oval. Leaves contain a compound called saponins which can be toxic to livestock (especially sheep) when eaten in quantity.

**Flower** – yellow 5 petals 1/3 to ½ inch wide borne on leaf axils March through October.

**Seed** - produces many burs with sharp spines spread by animals and vehicles. Seed can remain dormant in the soil for 4 to 5 years.

**Habitat** – widely scattered over the U.S. in pastures, waste areas, crop fields, roadsides, often in areas with high soil compaction



<http://ipm.ucanr.edu> Weeds of the West (Western Society of Weed Science 1999) p. 600

#### Little Known Pumpkin Facts (Farmer's Almanac)

1. The 'Pumpkin Capital of the World' is Morton, Illinois. Home of Libby's pumpkin industry.
2. Pumpkin is also a squash; a member of Curcubita family.
3. The yellow-orange flowers that bloom on the pumpkin vine are edible.
4. Pumpkin seeds taste great roasted and contain medicinal properties.
5. Native Americans grew and ate pumpkins and their seeds long before the Pilgrims reached this continent.
6. Pilgrims learned how to grow and prepare pumpkins from the Native Americans.
7. The earliest pumpkin pie made in America was quite different than the pumpkin pie we enjoy today. Pilgrims and early settlers made pumpkin pie by hollowing out a pumpkin, filling the shell with milk, honey and spices and baking it.



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Dealing with Drought By: Lesley Roper Colorado Master Gardener, Elbert County

#### Flower Management During Drought

1. Create a good healthy soil by amending with 3 inches of compost, well-aged manures and/or organic matter. 2. Work these materials into the soil to a depth of 12 inches. This will help conserve and utilize water.
3. Select annuals, perennials and native plants that match your site conditions and are xeric or low water-use flowers.
4. Mulch plants with 1-2 inches of organic mulch (wood chips, dried grass clippings) between plants to reduce evaporation and control water stealing weeds.
5. Use fertilizers in moderation or utilize a slow-release fertilizer in the spring. Fertilizers cause lush growth that requires more water.
6. Overhead spray irrigation is the least efficient method. Soaker hoses or drip tapes are more efficient and deliver water to the ground close the roots. Apply water in the evening or early morning to minimize evaporation.
7. Annuals may require additional water to get established in the spring, but once established annuals and perennials can be watered twice a week if mulched and irrigated deeply at the root zone.



#### Woody Plant Management During Drought<sup>1</sup>

1. Select trees and shrubs that are tolerant of less water, and plant trees and shrubs with the same water needs together.
2. Use sprinklers that apply large droplets at a low angle or tree bubblers can be used at several locations beyond the drip line (outer most circumference of the trees canopy). Drip irrigation does not offer enough water to sustain a large tree.
3. Water deeply and infrequently, this will increase the plant's drought tolerance. Apply and let water infiltrate but not to runoff. Apply water to the root zone and remember roots of trees can extend 3 to 5 times the height of the tree.
4. Newly planted trees and shrubs will require more water, check the root balls to ensure adequate moisture.
5. Water trees and shrubs well in the fall to ensure they go into winter in good condition.
  - Water monthly during the winter when snow is not present.
  - Apply a 3-4-inch-thick layer of organic mulch (wood chips or bark) extending a minimum of 2 feet outward of the trunk, keeping the mulch a few inches away from the trunk.
  - Do not fertilize with nitrogen after mid-July.
  - Wrap the trunks of newly planted trees during the first two years November through April



Flower Management during Drought and with Limited Water Availability in Colorado - Extension ([colostate.edu](http://colostate.edu))  
Woody Plant Management During Drought and with Limited Water Availability in Colorado - Extension ([colostate.edu](http://colostate.edu))  
Fall and Winter Watering - 7.211 - Extension ([colostate.edu](http://colostate.edu))



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#### FUN FACTS ABOUT GRASSHOPPERS

Lesley Roper Colorado Master Gardener, Elbert County



- Grasshoppers are locusts – members of the same order; Orthoptera.
- There are more than 550 species in North America.
- Grasshoppers go through three stages of development: egg, nymph, and adult.
- Grasshoppers have “ears” on either side of their abdomens – allowing them to hear other grasshoppers.
- Grasshoppers rub their hind legs against their forewing to make sounds, called stridulating.
- Grasshoppers migrate during the winter months.
- Grasshoppers have 5 eyes.
- If you could jump like a grasshopper, we would be able to jump the length of a football field (would make a touchdown easier).
- Grasshoppers can also fly.
- Grasshoppers are an important source of protein – people in some areas of Africa, Asia and Americas include them in their diets.
- Grasshoppers existed long before dinosaurs – fossil records indicate they lived more than 300 million years ago.
- Grasshoppers spit brown liquid to defend themselves and repel predators.

Although very fascinating insects, the fact is it is not much fun when grasshoppers destroy your garden.

#### COMMON SUNFLOWER, Helianthus annuus

Submitted by Cathy Ramsey - CMG, Elbert County

The common sunflower is native to Elbert County. This time of year you see it extensively on roadsides and in pastures. It is an annual but reseeds itself annually. The leaves feel like sandpaper, and it is a good nectar provider for pollinators in late summer and fall. The happy little flower provides seeds for wildlife and makes a sunny border plant in the garden. The natives used it to make a yellow dye. It blooms June - September



I AM ALWAYS DOING WHAT I CANNOT DO  
YET, IN ORDER TO LEARN HOW TO DO IT.

Vincent van Gogh



Helianthus annuus

The flower follows the sun



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**QUICK FACTS ON LEAFY SPURGE** by Raylene Owen Colorado Master Gardener, Elbert County  
from Weeds of the West and CSU Service in Action Leaflet no. 3.017.

Leafy spurge (*Euphorbia esula* L.) is a creeping perennial that reproduces from seed and vegetative root buds. It is native to Eurasia and was brought into the U.S. in alfalfa seed about 1827. It now infests over 2.5 million acres. Common places to see it in Elbert County are along roadsides, pastures, and water ways.

It can grow up to 3 feet tall, has alternate, narrow leaves, 1 to 4 inches long. In the summer it is topped with umbrella shaped clusters of yellow flowers, surrounded by yellow-green, heart shaped bracts. Roots are brown and produce pink buds that produce new shoots. Seeds can be expelled up to 15 feet when the capsules dry and produce an average of 140 seeds per flowering shoot. Seeds are viable up to 8 years in soil and readily float in waterways.

All parts of the plant contain an irritating milky, alkaloid latex that is damaging to eyes and sensitive skin, so avoid direct contact with the plant. Few organisms will eat it. Sheep and goats will graze on it and are being used to contain it. This has been done at Babi Yar Park on the SW corner of Havana and Parker Road.

Leafy spurge is difficult to control, because the extensive root system can penetrate down to 30 feet and has vast nutrient stores that allow recovery following control attempts. It is recommended that a 4 to 5 year plan be implemented and the area monitored for recurrence of infestations after that.

**TRADITIONAL CONTROL** - Combined control methods achieve best results. Improve the conditions for competing species, such as grasses. Fertilize, mow, and irrigate. Mowing at 14 to 21 day intervals may cause higher susceptibility to fall applied herbicides. Mowing also stresses the weed and releases grasses from competition with it. Regardless of the top growth control method, if you plan to use herbicides, allow leafy spurge to regrow in mid August so a good stand is present to intercept fall applied herbicides. Timing of herbicide application is important for optimum control, and is most effective when applied in the spring when true flowers emerge (not just bracts). Most importantly when using any herbicide, **READ THE LABEL!!** Remember these are the same chemicals used in Vietnam as defoliants.

**“A NEW AND BETTER SPURGE TRAP”** - Two species of flea beetles (*Apthona nigriscutis* and *A. flava*) are now being used for control. Their larvae feed on leafy spurge root hairs and within roots and adults feed on the foliage. These beetles are quite small and non threatening to humans. These beetles have proven to provide better long term control than herbicides. The beetles offer an environmentally safer form of weed control and are self sustaining. They are also safe to release around desirable plants and crops because they eat only leafy spurge. For information on these insects, contact Weed Control Specialist Russell Johnson, Arapahoe County, at 720-874-6713 or by e-mail at [rjohnson@co.arapahoe.co.us](mailto:rjohnson@co.arapahoe.co.us). If you choose to use the beetles, do not mow or spray from Spring to mid August. This gives the flea beetles a chance to mature and do their job of eating the spurge and reproducing. If you have a large area of leafy spurge to contain, you can mow or spray the spurge around the perimeter, to prevent its spread to other areas. The flea beetles may then be released in the center.



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#### THE GREAT GARLIC CAPER

By Raylene Owen, Colorado Master Gardener, Elbert County



References: Tagawa Gardens Information Sheet

Betty Jo Cahill, Cooperative Extension Director Denver County Fact Sheet

Garlic comes from Central Asia and was cultivated in Mediterranean countries over 5000 years ago. Greeks and Romans delighted in its flavor and powers of strength. It was reported that gladiators consumed it before battle, while Egyptian slaves ate it to give them strength to build pyramids.

Biologist, Louis Pasteur was surprised to learn that the killed troublesome microorganisms in his petri dishes. In the 1950's, Dr. Albert Schweitzer used garlic to treat typhus, dysentery and cholera while working as a missionary in Africa. Before the availability of antibiotics, garlic was used in World Wars I and II as a disinfectant on wounds. The Soviet army used it so much garlic that it became known as "Russian Penicillin." Nutritionally, garlic is a great source of Vitamins A and C, potassium, phosphorous, selenium, and a number of amino acids. Research continues on garlic's ability to maintain healthy cholesterol levels.

Garlic is a great choice for an Elbert County garden. Autumn is the time to plant, allowing 4 to 6 weeks of growing before a hard freeze. This will give the garlic a head start on producing roots which will mean larger summer bulbs. If planted in the spring, bulb size will be smaller.

The soil should be well amended and free draining. Work in a 5-10-10 fertilizer prior to planting. Garlic prefers full sun, but will tolerate light shade. Break apart the cluster and choose the largest, healthiest cloves. Plant right away so that they don't dry out. You do not need to remove the skins around the cloves. Plant the clove with the root end down and the pointed end up, three inches below the soil surface and four inches apart. Mulch the cloves to prevent heaving during the winter months with an 8 inch layer of bark mulch, straw, or shredded leaves. Avoid cottonwood and aspen leaves. Studies at Southern Illinois University Horticulture Research Center showed that covering garlic beds with a 1.25 millimeter black plastic increased winter survival by 10%, increased bulb weight by 50%, and bulb diameter by 23%.

Good soil moisture is important. Dry soil when leaves are growing will reduce your yield. Some top growth may be experienced when first planted, which is fine, new leaves will appear in the spring. Leaves can be used in cooking. In the spring, top dress regularly with a high nitrogen fertilizer. Garlic competes poorly with weeds. Garlic is ready for harvesting mid-summer. Wait for the foliage to die off and turn brown. Be careful not to cut into the bulb when lifting the bulbs for harvest. Use a pitchfork and gently bring up the entire bulb.



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#### THE GREAT GARLIC CAPER con't

Dry garlic for 3 to 4 weeks, in a dry, warm, dark, airy place, then cut the stalks about an inch above the bulb and store in netted onion or mesh produce bags at 50 degrees. Save a few of your largest bulbs for next year's planting.

Garlic is one of 700 species of *Allium* or onion. There are three kinds of garlic:

- Softneck (*Allium sativum* var *sativum*)
- Hardneck (*Allium sativum* var *ophioscorodon*)
- Elephant (*Allium ampeloprasum*).



The two types of garlic that you are most likely to plant in your garden are hardneck and softneck.

Hardnecks require a cold winter to do their best. They produce a flower stalk that looks like wild garlic. This flower stalk will produce aerial bulbils which will take energy away from the plant needed to grow the underground bulbs. Cut off the flower stalk to increase bulb size. Hardnecks have less papery skins, which makes them easy to peel, but shortens their shelf life, which is 4 to 5 months. Shelf life will be lengthened by storing in a cool (50 degrees), dry, well-ventilated place. They are known for superior flavor, with some of the favorites being Rocambole, Porcelain, Chesnok Red, German White, Polish Hardneck, Persian Star and Purple Stripes.

Softneck varieties have partially lost the ability to produce a flower stalk. This allows the plant to put more energy into producing a bulb, resulting in bigger bulbs. The two common types of softnecked garlic are artichoke and silverskin. Both strains are commonly sold in grocery stores and can be planted with success. Artichokes are named for their similarity to artichokes: several overlapping layers (3 to 5) containing up to 20 cloves. Their color is white to off white and their thick wrappers explain why they are so hard to peel. The shelf life of the artichoke garlic is long, generally up to eight months. Silverskins are high yielding and grow well in a variety of climates. They are the most popular among garlic braiders. Recommended strains for Colorado include Inchelium, Polish White, Chet's Italian Red, California Early, and Kettle River Giant.

Elephant garlic is the largest garlic and is closely related to the leek family. It is the mildest in flavor; many claiming it tastes more like an onion than garlic. Elephant garlic is twice the size of other strains, its cloves growing as large as a full bulb on standard garlic. It has a long shelf life, when stored properly, and is very easy to peel. Enjoy it raw or sautéed with butter, olive oil and salt and pepper for a wonderful treat.

Bon Appetit !



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*Latrodectus hesperus*, the western black widow spider



Female



Male

Female with egg sac

### BLACK WIDOW SPIDER

BY CATHY RAMSEY, COLORADO MASTER GARDENER, ELBERT COUNTY (RESOURCE: [NATURALIST.ORG](http://NATURALIST.ORG))

We've seen a lot of these guys this year and I have reports from friends/news that they have seen many as well.

*Latrodectus hesperus*, the western black widow spider or western widow, is a venomous spider species found in western regions of North America. The female's body is 1/2 in in length and is black, often with an hourglass-shaped red mark on the lower abdomen. This "hourglass" mark can be yellow, and on rare occasions, white. The male of the species is around half this length and generally a tan color with lighter striping on the abdomen. The species, as with others of the genus, build irregular or "messy" webs: unlike the spiral webs or the tunnel-shaped webs of other spiders, the strands of a *Latrodectus* web have no apparent organization.

Female black widows have potent venom containing a neurotoxin active against a range of mammals. In humans, symptoms of this venom include pain, nausea, goosebumps, and localized sweating. In historical literature, fatalities were reported at anywhere between 0.5% and 12%, but studies within the past several decades have been unable to confirm any fatalities from this or any of the other U.S. species of *Latrodectus* (e.g. zero fatalities among 23,409 documented *Latrodectus* bites from 2000 through 2008).

The female's consumption of the male after courtship, a cannibalistic and suicidal behavior observed in *Latrodectus hasseltii* (Australia's redback), is rare in this species. Male western widows may breed several times during their relatively short lifespans. Males are known to show preference for mating with well-fed females over starved ones, taking cues from the females' webs.

Mating - The female is stimulated upon contact of a male's web, and vice versa. Male and female *L. hesperus* produce sexually-specific scents that are combined with their silk; each sex responds by initiating mating when it comes in contact with a web of the opposite sex. On initiating courting, the male *L. hesperus* will utilize his tarsi to tap the lines of the female's web. The male will continue this tapping gesture with his pedipalps as he



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actively begins to explore the web. This exploration is intermixed with resting bouts. The male's body spasms, producing a high frequency vibration throughout his abdomen. In many instances, the female will not accept the males sexual display and will scare the male away. In some instances, the females will violently jerk their abdomen, similar to courting male displays, which ultimately leads to a positive reaction from the males and a more successful insemination. Once the male has successfully made contact with the females' body, he swoons her by gently stroking various parts of her body. The male then creates what is known as the "bridal veil", which is simply silk thrown onto the female. The time spent on courting varies tremendously and can be as short as ten minutes or as long as two hours. Many male mates are found dead in the female's web after copulation. Females will often consume these dead males for nutrients to improve her own reproductive success.

**Hunting** - *L. hesperus* frequently hangs upside down near center of the web and waits for any insects to enter the web to attack. It bites its victim then wraps it in silk. There are multiple aspects of this spider's web that serve the purpose of capturing prey. The web incorporates hanging gum-footed threads that have liquid glue on them. When prey come into contact with these threads, they get stuck to them, causing the thread to break and the prey to be propelled up by the web to an easy point of access for the spider.

**Diet** - Like other web-building spiders, *L. hesperus* are polyphagous and feed on prey from eight different arthropod orders. In one study in British Columbia, the orders Coleoptera and Hymenoptera accounted for the majority of the spiders' prey; the majority of prey within Coleoptera were darkling beetles, weevils, and ground beetles, and the most common Hymenoptera were ants, wasps, and bumblebees.

*L. hesperus* is an "opportunistic cannibal." There are three circumstances under which *L. hesperus* may feed on conspecifics: when alternative prey options are scarce; when a spider is starving; in self-defense during antagonistic bouts. Siblings are known to consume each other.

**Silks** - The silk produced by *L. hesperus* is strongly adhesive. The silk has a fiber at the center covered by some droplets of liquid adhesive protein. When rubbing against one's fingers, it feels like the texture of rubber. The droplets are about twenty times larger than the center fiber's diameter and are visible to the naked eye. The ultimate strength and other physical properties of *L. hesperus* silk were found to be similar to the properties of silk from orb-weaving spiders. The ultimate strength for the three kinds of silk measured in the study was about 145,000 psi. *hesperus*' silk contains sexual pheromones which are perceived by the opposite sex upon contact with the web. The males are able to locate the female and begin courting behavior in response to female pheromones. The female curtails her predatory reflexes against the male in response to male pheromones.

**Web architecture** - *L. hesperus* produces cobwebs. Cobwebs differ from orb webs, and their architecture can be broken down into three sections. Two sections are utilized to capture prey, the gumfoot threads and the mesh .



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region. The third section provides the structural support for the web and is known as the scaffold threads. The gumfoot lines hang beneath the web, the liquid glue on these lines serves as a sticky substance to trap prey in. The line will break once prey catches on it, creating a tensile force within the web that pulls the line along with the prey up to the spider. *L. hesperus* seeks refuge in the location from which the web originates and emerges. Web behavior - *L. hesperus* reacts to changes in prey capture by altering its web-spinning behavior. When the spider reaches satiety, it will decrease its energy expenditure on building the features of the web specifically purposed for prey capture. This is evolutionarily advantageous for the spider because it is already satiated. Therefore, it would be a waste of energy to seek out more nutrients. Although there is a decrease in prey-capturing aspects of the web, the overall silk production remains steady or in some cases will increase. *L. hesperus* also decrease silk investment into webs when preparing for offspring by alternatively increasing silk investment into egg sac production.

Defensive behavior - The black widow spiders face some predators, like mice, which are omnivorous and larger than the black widow. Juveniles and female adult *L. hesperus* can eject a chunk of viscid silk toward potential predators. This silk is not toxic, but its mechanical irritation can thwart most predators. However, adult males are unable to produce this defensive silk, presumably because they need to conserve energy for reproduction during their relatively short life span. However, this defensive behavior is very important to females, which are under heavy predation pressure. Black widow spiders spend much time on web construction at night, which is also an active time for ground mice. If the webs are low above ground, it is easy for mice and other predators to attack from below. Since the spider will stay largely stationary at the web hub, such attacks are mostly successful if there is no defensive behavior.

Venom - *L. hesperus*' bite is similar to that of other *Latrodectus* species because of their relatedness. The venom is exuded from the spiders' fangs and injected into the enemy. The spiders' prey is paralyzed by the venom, which enables their future digestion. For humans, the venom behaves like a neurotoxin, affecting the hormone acetylcholine. The female is more of a threat than the male in this species, however her aggressive side only comes out when she is protecting her eggs. Not only are the females fangs larger than the males, but their venomous glands are also more distinct. The effects of their bite can range from a simple irritation to severe autonomic disparities. The venom is composed of proteins, peptides, and proteases. The venom causes an excess release of neurotransmitters which can cause a slew of symptoms. Some of these symptoms include muscle rigidity, perspiration, and nausea. Treatments include painkillers and antivenom if the toxicity is severe enough.

