



From the Ground Up

A Gardening and Native Plants Quarterly

Colorado State University Extension-Pueblo County

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INTERESTING INSECTS

INVASION OF THE TARANTULA HAWKS

By Ed Roland, Native Plant Master, 2009

As I slowed to crest a hill on my bike, I saw them. You couldn't help but see them . . . giant wasps flying from one side of the road to the other. (Thankfully, there were no collisions. Their excruciating sting ranks second only to the bullet ant's on the entomology pain scale.)

Huge blue-black bodies two inches long with bright orange wings, they meandered along like giant dragonflies from a Protozoic swamp scene. I had seen one of these now and then, the biggest wasp on the planet, but never in numbers. I saw they were feeding on Whorled Milkweed (*Asclepias subverticullata*) along the roadside, almost every other cluster of umbels with its own wasp weighing it down.



A tarantula hawk attacking a tarantula

Having ridden this road many years and considering myself at least marginally observant, I thought this was a recent phenomenon: something like an invasion of the Tarantula Hawks.

I was riding at approximately the same altitude as Colorado City (about 6,000 feet). So, that afternoon I thought I'd check the small patch of Whorled Milkweed that bordered Lake Beckwith, our local reservoir. I thought the "invasion" would likely be limited to the prolific milkweed along the road.



Tarantula hawk in flight

Wrong. They were everywhere! I counted 18 of the big females languidly feeding in this very small area. All the while I was targeted by smaller male wasps that served as lookouts and defenders. Ironically, the males have no ability to sting, but their aggression was still unnerving.

I knew I hadn't seen this insect before in Colorado City. And, I'd never seen a tarantula in our area either which, as I understand it, is necessary for the Hawk's reproductive cycle (more on that below). I checked with a couple of "insect cognoscente" in Colorado City and Rye and their response was no Tarantula Hawks and no tarantulas -- ever.

From that, and my own experience, I concluded that if these giants had visited us at all in the recent past, they were likely few and far between.

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I decided to contact Whitney Cranshaw, the eminent entomologist at CSU. He also had noticed large populations, but these were near La Junta at a much lower elevation. His thought was that these wasps were always in our area, but were clustering because there was less milkweed due to the drought.

That didn't mesh with my observations: I was fairly certain this was not a prevalent species in our area in previous years, and there was always plenty of Whorled Milkweed around. I had mowed a lot of it in the outlying areas of our own yard, and the patch by the lake has been there as long as I can remember. With no Tarantula Hawks in sight until this summer.

So, I'm sticking with "invasion."

It turns out there are six species of the genera *Pepsis* and *Hemipepsis* that occur in Colorado, mostly recognized by antennae variations and size. Since the largest tarantulas occur in southeast Colorado, it makes sense that the largest Tarantula Hawks would ply the skies in this general area as well.

According to the literature, the females reproduce by hunting down unsuspecting tarantulas, injecting them with a paralyzing toxin, dragging the still living spider into its own den and depositing a single egg on its body.

Photos of this process show that the much larger tarantula does not go gladly into that "not-so-good night" and there is quite a brawl . . . but, equipped with paralyzing venom and a 1/3 inch stinger to deliver it, the wasp almost always wins. Some arachnologist with time on his hands determined that just over 13 spiders on average bite the dust in this unseemly fashion per generation of female wasp. So, the 18 females I counted at Lake Beckwith would eventually dispatch something in excess of 234 tarantulas!

After the egg hatches (in 3 or 4 days), the paralyzed spider serves as fresh food for the larva (grub) as it grotesquely and judiciously eats those parts that keep the spider alive as long as possible. Ahh . . . nature!

As far as my speculation as to why we had so many Tarantula Hawks sans tarantulas this year, I point to the Hatchett Ranch habitat, the edge of which is just a couple miles away (as the wasp flies), and which has -- at least in lower elevations -- numerous tarantulas.

I think Whitney was right about the dearth of milkweed in their usual "hunting ground," and that combined with the unusual (I hope) and consistent heat this summer, expanded the area where the Tarantula Hawks feed. They are described by entomologists as essentially an arid land or even a desert species, and the ambient temperature and lack of humidity told them it was o.k. to venture forth into our area.

Tarantulas or no tarantulas. 🐜



KNOW YOUR NATIVES

MENTZELIA CHRYSANTHA, GOLDEN BLAZING STAR

By John Powell, Native Plant Master, 2008

Let's talk plant identification, Native Plant Master Program and a rare plant, Golden blazing star, *Mentzelia chrysantha*.

My story begins in the early winter of 2005, someone brought a dried plant sample into our forestry and noxious weed office and asked, "What is this?" The plant sample was a dried stem with a few dried, empty fruit capsules and no other hint of what the plant might be. The person who brought the plant to us had little information as to where it was found.

Its tubular shaped capsule and open end reminded me of a "king's crown," like the seed pod of a Yucca plant except not that large. After many weeks of intermittent rummaging through our limited library someone excitedly discovered it was Ten-petal stickleaf aka Tenpetal blazingstar - *Mentzelia decapetala*.



Mentzelia decapetala

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This is usually a biennial plant with branched stems, deeply serrate lance shaped leaves and white lance shaped petals. It blooms in late afternoon or night attracting night feeders such as Hawkmoths. It is a very nice plant; well dispersed over sparsely vegetated, often gravelly soil of steep slopes, roadsides, in the plains and valleys of the Western Great Plains.

Later, while attending the Saturday training sessions for the Native Plant Master Program at Lake Pueblo, we identified Golden blazing star. It resembled the other plant I was familiar with except for the golden yellow color of the flower petals. That day we learned Pueblo and Fremont counties are home to this rare plant species of *Mentzelia*. “The total number of individuals estimated in element occurrence records for *Mentzelia chrysantha* is 5,400 (Colorado Natural Heritage Program 2006).”

So, if identifying plants, hanging out with people who like plants, and possibly discovering rare plants is of interest to you, you might enjoy taking classes from the Native Plant Master Program. We are currently conducting a survey to determine the interest levels in native plants, the link can be found in an ad in this newsletter, or you can contact the CSU Extension-Pueblo County office at 719-583-6566 and ask for additional information. 

Take this short survey to tell us about your interest in Native Plant classes! We will use the results to schedule our 2019 classes.

<https://www.surveymonkey.com/r/JJZDR7F>



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WICKED WEEDS

PUNCTUREVINE, *TRIBULUS TERRESTRIS L.*

By Mary Knorr, Colorado Master Gardener 2005, Native Plant Master, 2007

Puncturevine (*Tribulus terrestris L.*) is an annual noxious weed in the Zygophyllaceae (creosote bush) family. Some other common names are Bullhead, Caltrop, Goat head, Mexican Sandbur, and Texas Sandbur.

The seed will propagate in the first spring moisture and any subsequent wet period. The mat spreading vines can grow between 1 ½ to 5 feet long. The yellow five-petal flower will emerge between July and October in Colorado. *Tribulus* is List C species invasive weed in our state. When a noxious plant is listed; state, county and local municipalities have agreed to work together, educate the public and try to prevent distribution. *Tribulus* is originally from Southern and Eastern Europe, Southern Asia, Australia and Africa. It came to North America in the 1800’s within infected Sheep wool and has been spreading ever since.





Puncturevine in bloom

The spiny fruits are aligned so that at least one spine is pointing upwards, when lying on the soil surface. The seed-head employs an excellent dispersal strategy; hitch-hiking on animals. Goat heads are attracted to disturbed soil, sandy areas and likes drought conditions. Also, it is mainly located in the Western United States and some-what in the Midwest. Puncturevine can cause nitrate poisoning in sheep and goats. Also, it can disable a grazer's hooves and bore into their skin. The average kid usually learns of Puncturevine hazards early; blown bicycle tires and stepping on the thorns while barefoot! Ouch!

There are biological, chemical, cultural and mechanical management strategies for Sandburs. The main approach for the home gardener is to pull the vines and rake-up the Goat heads. See the Colorado Puncturevine Fact Sheet at <https://www.colorado.gov/pacific/agconservation/puncturevine>. The Colorado Department of Agriculture Noxious Weed Program, Forest Service, Fort Collins, Boulder and Larimer counties are working together to install "Play, Clean, Go" Boot Inspection Stations at a number of Open Spaces. They are encouraging outdoor enthusiasts to inspect their clothing, shoes, pets and horses. The main effort is to educate the public on invasive weeds and discourage their spread. In Salt Lake City they host an annual "Pancake & Puncture Vine Pull" event, with prizes going to the person who pulled the most vines. Boise has the "The Goat head Avengers" bicyclists. The super-heroes treat themselves to a micro-brew afterwards! 🍷



Check out all of the CSU Extension-Pueblo County Facebook pages!

- CSU Extension Pueblo County
- CSU Extension Pueblo County Ag and Range
- CSU Extension Pueblo County Horticulture Program
- Pueblo County Extension-FCS
- Pueblo County 4-H
- STEAM 4-H Youth Development

A Celebration of Survival

By Ed Roland, Native Plant Master, 2009

About seven years ago I "rescued" a basketball-size fishhook cactus from an ATV trail near Phoenix. It was just a matter of time before it was run over like all the others in the area.

I didn't have digging tools along to replant it in Arizona, so it wound up in a large pot in our Colorado sunroom until a few months ago. In the intervening seven years, it had grown to about 75 lbs. and a 30 inch height, but despite wheeling it out into direct sun on the patio during the warmer months, it had never bloomed.

When I learned that a friend of mine was building a new home in Mesa, AZ, I offered him the cactus for his front yard. After wrapping it several times in cardboard (to protect myself and the needles) and lifting it -- with much effort -- into his closed moving trailer, off it went.

This photo shows the result. After about six months in the Arizona sun, it seems to be celebrating its "homecoming" with a profuse burst of translucent orange flowers.

I've seen cacti blooming in Arizona, but never like this one. 🍷



The cactus in bloom.



Winter Pruning of Mature Trees

By Catherine Burst, Apprentice Colorado Master Gardener, 2018

The day after our first snowfall this year, the old ash tree next to my house decided to shed all of its leaves. By late afternoon, the tree was almost bare, and the yard was blanketed in yellows and browns. Looking up at its strong branches, I thought of all the years it has stood guard over the houses and people below, sheltering nesting birds in the spring and providing shade on long summer days.

Many of the older parts of Pueblo are graced with tree-lined streets, a legacy of the City Beautiful movement in the early 1900's. But like the tree next to my house, these trees are nearing the end of their lifespan. They are old friends, so we want to do what we can to keep them healthy. This is when good pruning practices can either extend the life of a tree, or hasten its death.

Before starting the chainsaw or calling a tree trimmer, read *Pruning Mature Shade Trees*, the CSU Extension Publication Garden Notes #615, which can be found here: <http://www.cmg.colostate.edu/Gardennotes/615.pdf>, and consider the following information.

As you know, the start of any good pruning job is to remove dead, damaged or diseased parts of the tree. This reduces the possibility of a falling branch, lessens wind load on the tree and allows more light to reach the leaves on the inside of the canopy.

Once that is done, it can seem like a good idea to just keep cutting. And there are numerous trees in town where this has been done - trees that have been topped to half of their former height, or with entire sections of the canopy cut away from the trunk.

But this should never be done to trees. Unlike shrubs, trees do not regrow branches along the length of a limb. Instead, they will send out weak water sprouts in a desperate attempt to replace the stored energy in the lost foliage. The stress caused by the loss of living tissue and the lack of adequate foliage during the growing season may be so extreme that the tree dies even sooner than it would have otherwise.

A more effective way to encourage healthy growth in mature trees is to reduce the density of the tree crown by thinning. This involves removing the smaller live branches near the ends of large limbs. Because an older tree has less ability to regenerate leaves, no more than 10% - 15% of the canopy should be removed in any year. Done properly, this maintains the natural shape of the tree, and provides an even distribution of foliage at the crown. When spring arrives, the tree will be able to reestablish a canopy of leaves that can produce the sugars needed to keep the tree healthy.

If a large branch needs to be removed for safety reasons, only cut it back as far as needed. Try to leave a few branches that are at least one-third as large as the branch being cut. These lateral branches will become the terminal branch where new growth occurs and the tree can reestablish the canopy it needs to make and store food.

If a major structural limb must be removed for safety reasons, it should be cut back to the branch collar. This is the thickened bark where the limb attaches to the tree trunk. The branch collar should remain intact so that the tree can compartmentalize the wound. However, wounds in older trees heal very slowly and make the tree vulnerable to insects and disease, so removing a large limb should be a last resort.

If you are considering drastic pruning on a tree, it may be better to cut it down entirely. If its natural shape will be destroyed, if the shade or screening it provides will be lost, or if most of the tree is dead, it may be time to say goodbye. 🌳



The line shows where to make the cut without harming living tissue.



All Pueblo GROWS Seed Lending Library

The All Pueblo Grows Seed Lending Library will be meeting the last Saturday of every month in 2019 to talk about a gardening topic and package seed for the library! Here are the topics:

- January**- Starting seeds indoors
- February**- Seed library/gardening Q&A
- March**- Sowing seeds outdoors and container gardening
- April**- Transplanting/preparing your soil
- May**- Garden troubleshooting Q&A
- June**- Early seed saving
- July**- Pests
- August**- Fall gardening/cover crops
- September**- Late seed saving
- October**- Seed library Q&A



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Garden Tip: Fall and Winter Watering



All perennials including trees and turf need to be watered during the fall and winter. When we haven't had precipitation in 2-3 weeks, and there are going to be a few days in the fifties, drag a hose out and give your plants a drink! They will be healthier next spring.



DIGGING DEEPER

BUILDING SOIL, BY ELIZABETH MURPHY

Reviewed by: Maureen Van Ness, Colorado Master Gardener, 2015

“As above, so below.”

One of the guiding principles in *Building Soil*, is to add a skill to our gardener repertoire, and become a soil grower. Why is it important to pay more attention to below ground gardening? To alter our perspective from above ground gardening to below ground gardening? As this principle states, what is going on below the surface will be reflected in what is happening above ground. An abundant and rich garden comes from abundant, living soil.

What is a soil grower? A soil gardener? One who is aware of their soil and working toward improving those conditions. As we garden for soil health, our plants will reflect that health. A garden that “feeds and is fed by a living and diverse jungle of life below ground,” will be resilient to drought and strong to withstand pest attacks, disease, and provide abundant plant growth.

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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.



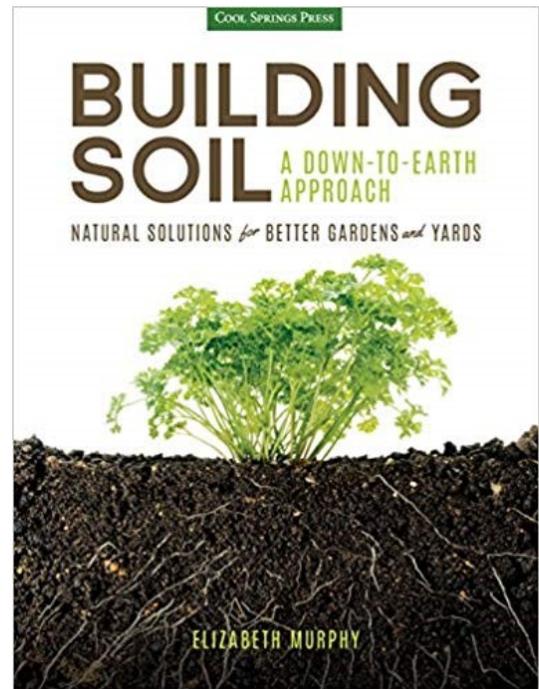
One teaspoon of living soil contains millions of bacteria, fungi, nematodes, protists, and insects. This soil ecosystem needs the four things required by any living creature: food, water, air and shelter. As we provide these four things, our soil becomes a sustainable system that nurtures our plants, and in small part, our whole earth. How to provide these? By adding organic matter, we add spaces for air and water to flow, we add shelter for the microscopic critters, and we give them something to eat. Their excretions, in turn, contain rich nutrients, a composite of chemicals and energy our plant roots seek out for growth and strength.

Organic matter is simply what was once alive (not just the kale-in-your-teeth ‘organic’ diet choices). Branches and twigs pruned from the garden, mowed grass, raked leaves, straw and pine needles all contribute the four essential needs for our soil building. By adding them as mulch or by digging them in, we add to soil tilth, and create the fluffy, friable, dark brown earth that make the critters and our plants happy. As we learn to grow our soil, we will learn to recognize good, quality soil: easily dug, deep brown color, a sweet smell rather than sour, moist, absorbs and retains water well to avoid drought, contains plant residues in various stages of decomposition, and crumbly rather than chunky.

How to achieve this gorgeous soil? Especially this time of year, when gardeners, in general, are slowing down their garden activities, there are winter soil growing tasks to do. Don’t worry – they aren’t too labor intensive. The best we can do for our gardens is to add organic materials, which, in turn, will attract the beneficial microorganisms that bring life to our soil. In preparation for winter, the tasks are: procure, store, and prepare organic materials. Save the leaves, the branch twigs and trimmings, source low-salt manure piles and cut down or dig in any cover crops planted late last summer. Organic materials can be stored in black plastic bags to aid decomposition, or piled until needed for mulch, or added to our on-going compost pile. Or, of course, added directly as mulch to our gardens to decompose over the winter months.

The ability to be resilient is essential to a productive life (for us as humans, too). Weather, insect invasions, and disease threaten our plants every year. If the soil where they are planted is rich, full of nutrients, and drought tolerant, they will be less vulnerable and have a stronger chance of survival. Here in the Front Range of Colorado, our soil is typically very low in organic matter. By adding more each season, we replenish what the microorganisms eat and provide what our soil needs to work as the lungs, filter and food source it is designed to be. And, as we consistently add more organic matter to our soil, we nurture the essential, living part of our soil, recognize and appreciate soil that will provide abundance and beauty for us and our planet. By each doing our own small part, gardening below ground, we work to improve our soil will benefit those who will follow after us.

Building Soil helped me understand much more about soil, how it works, and how critical it is to grow my soil, for my little piece of earth, and for the earth as a whole ecosystem. 🌱



Garden Tip: Be lazy about fall cleanup



Leaving your perennials untrimmed is not only easy for you, but it also provides winter cover for beneficial insects. Plant material that decomposes into your soil can also help build organic matter. Trim plants back in the spring instead!

Any vegetable plants that had signs of insects or disease, however, should be removed and discarded so you don’t have the problem again next year.



Save the Date!



WESTERN LANDSCAPE symposium

The 2019 Western Landscape Symposium is scheduled for Saturday, March 30 at Pueblo Community College. Tickets go on sale in February, check our website at westernlandscape.org or Facebook @WesternLandscapeSymposium for details!



Check our website for upcoming horticulture classes and events in 2019!
Have a great holiday season and new year!



<http://pueblo.extension.colostate.edu/>

