



Pinal County Cooperative Extension Garden & Landscape Newsletter March 2008



PRUNING WINTER DAMAGE

You have been asking me for weeks for permission to start your spring garden cleanup and I have been telling you to wait. Well, I think it is time to wait some more.

I know that is not the answer that you have been wanting, but some things just take time. Yeah, I know that landscapers have been cleaning up dead and damaged branches and stems on freeze-damaged trees and shrubs for some time now, and the cleanup does indeed make the landscape look a little more polished. The downside of early clean up, though, is that you do not really know what is dead and what is alive.

By pruning and cleaning up damaged plants too early, we run the risk of leaving wood that is really dead and removing wood that is really alive. If we leave dead wood, we have to go back in and do the job again. If we prune off wood that is alive, the plant has to regrow and replace the stems and branches.

Some trees and shrubs lend themselves to quick recovery from frost damage. Mexican bird-of-paradise, bougainvillea and lantana are good examples of plants that can be pruned heavily during the winter months with full expectation that they will quickly regrow and regain their form. So if you just have to prune, start with those first; but, I would wait.

Trees and larger shrubs are another matter. Because of a slower growth habit, winter-damaged citrus and palms should not be pruned heavily at random. For these, and other woody plants, it is best to wait until we know exactly what is dead and exactly what is alive. Then, when we prune, we can be sure that we are removing only dead wood.

With that said, let's focus on some of the plants that have commonly suffered freeze damage this year. Shall we start with citrus?

Unlike other fruit varieties, citrus trees bear their fruit at the tips of their branches near the outside edge of the tree. Winter freeze damage normally will occur on the most exposed wood first. Thus we see most of the damage on the outer branch tips and at the top of the tree. When these fruiting sites are removed, either by freeze damage or by pruning, we reduce the fruit production capacity of the plant. That is a major reason to be very careful when removing wood.

After a cold winter such as the one that we have just endured, when we have already lost some fruit wood due to winter injury, it makes little sense to me to mechanically remove even more wood, wood that is still alive, through pruning. Since citrus tends to grow slowly, it may take some time to restore the tree to full productivity. For this reason, horticulturalists recommend that all pruning on citrus be delayed until after the new growth resumes in the spring. Then you can easily tell what is dead and what is alive. The wait should not be too much longer because most citrus trees are now starting their spring growth cycle as we speak.

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The decision to prune citrus is also further complicated by the difference in susceptibility among the various species of citrus. Limes, for example, are the most sensitive to cold weather and will be damaged severely by sub-freezing temperatures. Lemons are not far behind. Grapefruit will be damaged starting at temperatures around 28°F and oranges at about 26°F. Tangerines are least affected. That is why your lemon tree is showing signs of severe frost damage and while your adjacent orange is only moderately damaged.

If you have a citrus tree that shows only new growth from the base of the tree, below the bud union at the graft site, chances are the new growth will be of the root stock variety. If this is the case, all of the fruit on the new wood will be less desirable or even inedible. When this happens, it is time to remove the tree and replant. My guess is that there will be some grapefruit and many lemons and limes that will need to be replaced this year. Again, before you make any decisions, wait until the regrowth starts. The tree will tell you exactly what you need to do.

Another reason to not get carried away with pruning citrus is the danger of sunburn. Citrus trees have tender bark that is easily sunburned when sunlight strikes unprotected wood. Usually the heavy canopy of leaves shades and protects the trunk and major branches of the tree, but when branches are removed or foliage is shaved from the tree either by pruning or from frost damage, the bark is often exposed to the sunlight. Sunburn then occurs.

Sunburned bark can often be found on the southwest side of citrus tree trunks whose bottom skirt of branches has been removed or on major branches in the upper part of the tree where leaves have been lost. If you see major areas of bark exposed to sunlight, paint the exposed surfaces with a white, water-based, latex paint. It will reflect the sunlight and keep the wood cool and protected.

Palm trees also struggled this year. Some species are more susceptible than others, but most palm trees this year have been affected. There is a good chance that some of the more susceptible varieties, like the Mexican fan palm, *Washingtonia robusta*, may have been killed this year. However, do not get excited and start ripping out winter-damaged trees just yet. Looks can be deceiving.

Palms grow from the top of the trunk only. Each year, several new leaf fronds will be added to the crown of the tree. As they emerge, they will take their place at the very top of the tree. Then as they mature, and as the tree adds new fronds, they begin to droop down to the sides. Eventually they will be the lowest leaves in the crown just before they die. Dead leaves can be removed at any time, but if there is any portion of the leaf that is still green, still alive, leave it on the tree even if it looks bad. The green, live tissue will continue to manufacture the food that the tree so desperately needs to support the regrowth effort.

When a frost or freeze event happens, the tender tissue of the leaves is burned back, leaving dry, brown leaves. Sometimes the damage is only on the most exposed part of the leaf. The critical question that one must ask oneself before doing anything is, "Is the growth bud area at the top of the trunk still alive?" If it is still alive, the tree is still alive and just needs time to replace the damaged tissue. If the growth area is dead, then the entire tree is dead and should be removed. Again, the bottom line is this: wait until new growth begins or fails to begin before making any decisions about pruning or removing trees.

There are also many questions about bougainvillea. Pruning of bougainvillea is best done in late spring after the new growth resumes. Be careful, however. Bougainvillea will fool even the best of us. It is quite common to be pruning away 'dead' wood and discover to some dismay that the wood just removed from the vine is actually quite alive. Yes, I know that you're tired of seeing a damaged and bedraggled plant for so long, but if you can withstand that pruning urge, you will be rewarded with a larger vine.

Well, there you have it! I know you are waiting with bated breath and pruning shears in hand to start the spring cleanup of dead and nasty looking branches brought on by the freezes and frosts of January. By waiting just a little longer, you will be able to make good choices in what wood to keep and what to remove.

GROUND SQUIRRELS IN YOUR YARD

Judging from the number of telephone calls, email letters and personal questions this spring, I take it that the local, native ground squirrels are once again making nuisances of themselves in gardens and landscapes throughout Pinal County. Shall we take a look at these interesting, and sometimes frustrating animals?

The ground squirrel, more particularly the antelope ground squirrel, is an integral part of the Sonoran Desert. Native to this hot, dry environment, it thrives under the desert's influence and plays a key role in the ecosystem as a harvester, and as a ready food supply for predators. It becomes a pest of our gardens and landscapes when it moves in, takes up residence and turns our succulent plants into its own personal buffet.

Some people find them warm and cuddly-looking. They invite them into their desert landscape yards, give them kindly names and spend hours on end watching their antics just like they were watching a multi-ring circus in Las Vegas.

Others, usually those whose homes and gardens are located in close proximity to native desert areas, have experienced the devastation brought on by these determined scavengers as they have looted leaves, fruit and flowers from trees, shrubs and vegetable gardens. The names they are called in these situations are probably best left unsaid. Let us suffice to just say that these animals can be quite effective and thorough in their harvesting efforts. The question most often coming into our office and fielded by our volunteers is this, "How can I get rid of these pesky ground squirrels?"

First off, it is important that we call them by their correct name. They are not gophers. Gophers do indeed dig burrows under the ground, but they close the door to their tunnels by plugging the entrance with a dimple of soil. Ground squirrels leave their doors open.

They are not moles or voles. We do not have either one in the desert areas of Arizona. I am not sure I would recognize one if I saw one. So, throw out any recommendations for vole or mole control. They aren't going to work too well here.

No, they are not prairie dogs either. Prairie dogs are much larger in body volume than ground squirrels and live up on the Colorado Plateau, most notably in the Four Corners area and east. I saw them once in Northern Colorado. I was impressed with the size of

the animal and in the size of their "towns", but they do not live here in the Sonoran Desert.

Please do not call them chipmunks. Chipmunks are a totally different genus, meaning that they are about as closely related to ground squirrels as a coyote is to a fox: same family, different genera. Besides, chipmunks are almost always associated with the higher elevations found in our mountainous areas.

They are antelope ground squirrels, and they can be found all over the desert areas of the southern part of the state. Okay, to be perfectly honest, there are two species of antelope ground squirrel in Arizona. The white-tailed antelope ground squirrel found north of the Mogollon Plateau and the Harris antelope ground squirrel, our ground squirrel, is found south of the Mogollon area.

So, why are they called antelope ground squirrels? They get their name probably because they run holding their tails up and often arched over their backs exposing a white or buff-colored undersurface resembling the manner and color of the pronghorn antelope common to the western part of North America. Antelope ground squirrels can be distinguished from other squirrel-like rodents by their well developed white strip extending from shoulder to hip on each side.

You do not care what their name is. You just want to know how to get rid of them? Well, you need to know a little about their life style first.

Ground squirrels are active during the day and go underground during the night. They are easily seen when foraging, but they spend much of their time in their burrows. In winter, they stay underground and inactive. During the hot summer months in our area, they may go into a period of "estivation" or summer hibernation. When temperatures warm in the spring or moderate during the summer, they will resume their normal activities above ground. They typically will have just one litter per year and the young are born sometime around March and April.

The system of burrows can be quite extensive and have several entrances and escape holes. If a snake comes slithering down one hole, any self-respecting ground squirrel who wants to survive better have another exit hole. Antelope ground squirrels, as frequent targets of the many varieties of snakes in our area, make sure there are plenty of exits.

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These animals all have internal cheek pouches to transport food from place to place, and occasionally store food in underground caches. They are rapid runners and always retreat to their burrows when frightened. Although they are generally considered ground dwellers, they can climb cacti, small bushes and trees in search of food.

They are primarily vegetarians, feeding on green vegetation, seeds and fruit. In general, they feed on green plants during the summer and switch to grains and seeds late in the season and early in the spring when green vegetation is generally not available.

Ground squirrels are particularly adept at finding leaves of succulent fruit trees. They also love the fruit at all stages of development. They will also nibble on garden vegetables and flowers. To get to the object of interest, they will press forward undauntedly by climbing trees and fences with relative ease. Difficult as it may be, the best way to protect our plants is by denying the ground squirrels access.

Ground squirrels generally need some kind of cover to survive. By controlling weeds, stacking firewood or other stacks of wood off the ground and by removing brush piles and debris, we can make an area less attractive to the squirrels. This will make it easier to detect their burrows and improve access during the control program.

If you have put out bird feeds and the ground squirrels are frequenting the areas where the abandoned seed has fallen, it may be best to remove the feeding stations until the ground squirrels have identified another food source that is, hopefully, some place less troublesome than your yard.

Where the animals are entering a building or structure, exclude them by rodent-proofing their entrance points. Use one-quarter inch wire mesh or caulking to close openings where they gain entry. Remove objects such as logs, stones and other debris close to a structure that may provide an attractive environment.

Some protection for plants may be afforded by wire fencing, but don't forget that these persistent little pests are good climbers. If you are going to build a perimeter fence, then build it right. Fences should be at least four feet high and be capped with a sheet metal shield about twenty-four inches wide to prevent them from climbing over. Do not forget that ground squirrels can also dig down below fences that are

buried several feet below ground level. Frequent inspection will be necessary to close burrow holes that may appear on the inside of the fence.

It is possible to place an individual shield over each plant that needs protection, but most people living in ground squirrel areas have found that the easiest and safest way to prevent ground squirrel damage to their garden plants is to construct a wire cage enclosing all sides and across the top. The enclosure can be as large as you want. I have seen some big enough to double as an aviary. You are laughing! It's true, the most avid vegetable growers living close to the desert areas often resort to this system; and it works!

No effective frightening devices have been found to work well. Hawk and owl silhouettes, loud gas cannons and snake replicas just haven't panned out in the field. The same is true with chemical taste or odor repellents. However, there have been some success reported by spraying target trees, shrubs, vegetable garden plants, burrows and use areas with a household disinfectant, or cayenne pepper or tabasco® slurry sprays. When you harvest your vegetables, don't forget to wash them well!

You are wondering about trapping, gassing, shooting or otherwise eliminating these animals. Well, here is the hitch. All ground squirrels in Arizona are classified as non-game animals by the Arizona Game and Fish Department and are protected under ARS Title 17-309. However, they may be controlled by any legal means if they are causing damage as per ARS Title 17-239. That means that they can be humanely disposed of when authorized by the Game and Fish Department. If you want to trap them and relocate them, or kill them, take it up with the regulatory people first to avoid any possible legal problems. If you live in a city, or in an area where the discharge of weapons are regulated, be sure to follow those codes as well.

Some people find them warm and cuddly-looking. Some hate them with a passion. Whatever your viewpoint, one thing is certain. The antelope ground squirrel is definitely a part of the Sonoran Desert and they aren't going away. If they are a bother in your garden, there are ways to minimize their effect, but short of paving over their habitat, I suspect that we will be fighting them for our homegrown fruits and vegetables for a long time to come.

ESTIMATING SOIL TEXTURE

Because so many plant ailments can be traced to problems below the surface of the soil, it is important for those growing plants in desert soils to understand and be able to describe the type of soil found in their garden. One critical characteristic of soil is its texture.

The texture of the soil describes the relative distribution of different-sized particles found throughout the soil profile. In plain English, here is the scoop.

All soil is formed from the breakdown of large rocks and gravel. Too large to support the growth and development of plants, rocks over 2 mm in size are not considered soil. In the lingo of the soil scientist, they are considered parent material, or the material from which soil particles are formed. Soil particles, or particles that are small enough to support plant growth, are less than 2 mm in diameter.

Soil is composed of sand, silt and clay. Each of these three categories has their own diameter with sand being the largest, clay the smallest and silt in between. If a soil has a majority of particles that fall within the dimensions for sand, it has a sandy texture and we call it a sandy soil. If it has a majority of clay particles, it is a clay soil, and if it has a majority of silt-sized particles, it is a silty soil. A fairly uniform mixture of two or more of the three categories makes it a loam soil.

Nematodes are small round worms and many of them feed on plants. Because of their size, they can survive only in sandy soils where the spaces between the soil particles are large enough for them to move about. Plants affected by nematodes are often stunted and unthrifty even when watered and fertilized adequately.

Salt accumulates at the outside edge of the wetted areas after irrigations. If water does not percolate down far enough into the soil to pass by the bottom edge of the root system of plants, salts can build up into toxic concentrations and end up damaging tender plant tissues. Because of the low storage capacity of sand, most irrigations will move water deep into sandy soils and carry salts well below the root system. With the greater storage capacity of clay soils, more water will be required to leach harmful salts out of the root zone. However, adding too much water to sandy soils will leach beneficial fertilizers and water out of the root zone and waste large quantities of these valuable resources.

Obviously, it is important for good soil and plant management to know and understand the impact of

texture on garden and landscape plants. Here is how to determine the texture of your own personal soil.

Place about a teaspoon of soil to be tested into the palm of your hand. Moisten the soil with just enough water to form a ball that will cling together when it is worked or moved about with the fingers. The soil will be at the correct consistency when the ball does not leave soil on the palm of your hands when it is rolled around. Envision a lump of children's modeling clay rolled between the hands and you will know how the lump of soil should look and feel.

Next, press the moistened soil ball between the thumb and forefinger in an attempt to form a ribbon with the soil. As the thumb and the forefingers are pressed together the soil will squeeze out into a ribbon. The motion should be repeated several times to test soil cohesiveness, or the ability of the ribbon to hold together. Attempt to form a continuous ribbon of some length.

Ribbons can be classed into three broad categories. A good ribbon does not break and has very little cracking along its sides. A medium ribbon has sides that will crack deeply with the ribbon eventually breaking and falling off. A poor ribbon is where no ribbon forms at all or the ribbon breaks with the first applied pressure and does not hold together.

The next step is to test the feel of the soil; that is, whether it feels smooth like flour or gritty like sand paper. With this information, it is time to make a decision on soil texture.

First let's name the soil. If it forms a good ribbon, it is clay. If it forms a medium ribbon, it is clay loam, and if it forms a poor ribbon or no ribbon at all it is simply called loam. Once the soil has been named, it can be further classified by describing its characteristics. A soil that feels gritty is described as sandy and a soil that feels smooth is called silty.

For example, a common garden soil in Pinal County will often form a medium ribbon and feel both gritty and smooth. When this occurs, it is called a clay loam or a silty clay loam. Another common soil forms a poor ribbon and feels gritty so it is called a sandy loam. Some areas of the county have almost pure sand and other areas will have almost pure clay.

Soil texture can be a major reason for plant success or failure in our desert soils. Only by understanding the nature of soil and how to effectively manage the conditions found in the soil can gardeners begin to make good decisions on caring for garden and landscape plants.

HIGHLIGHT SUMMER GARDENS WITH COLORFUL ANNUAL FLOWERS

Warm summer weather is just around the corner, but there is no reason, just because high temperatures are coming, to give up the colorful beds of annual flowers that you enjoy so much. Let's talk about growing summer annual flowers.

We essentially have two growing seasons for annual flowers in our low desert areas. Annual plants, of course, are those that germinate from seed, grow, flower, produce seeds and die in one year. Some do well in the warm weather and others do better in cooler temperatures, so, we plant cool weather flowers in the fall and early spring, and warm weather flowers in the late spring and early summer.

For the lower elevations of Pinal County, the following flowers can pretty much be planted from now through late May. Some can be planted through the summer and into the fall. If you would like a more complete list of annual flowers fit for the desert, our Cooperative Extension office has a pamphlet called, "Annual Flower Guide", which will give you more details about what flowers do best in our hot environment. Consider the following varieties for the coming months: Summer Balsam, Calliopsis, Celosia or cockscomb, Cosmos, Four O' Clock, Globe Amaranth, African Marigolds, Periwinkle, Portulaca, Salvia, Sanvitalia, Sunflower, Tithonia, Verbena and Zinnia.

Microclimates also play a key role in plant success. South-facing walls and under east or west roof overhangs are generally the warmest winter locations. In summer, a garden planted in front of a west wall will be subjected to intense heat and high light intensities. Against an east wall, however, a summer garden will be protected from afternoon heat and light reflection. North walls are the coolest and shadiest year-round,

Annual flowers grow best in a well-drained soil rich in plant nutrients. If the soil is mostly rocks or contains significant amounts of caliche, remove it to a depth of one and one-half to two feet and replace it with good soil.

Do not forget to add organic matter regularly to the garden bed as tender annual flowers need the extra nutrients and looseness of the soil that yearly applications provide. Spread a two to four

inch layer of wood residue, peat moss or well rotted manure plus one pound of ammonium phosphate (16-20-0) per one hundred square feet and lightly dig or till the material into the soil.

Water the garden area two or three days in advance of planting so the soil will be moist but not wet. Working a soil that is too wet will tend to seal the pores of the soil and make it difficult for tender roots to get water and air later on. If the weather is hot, set transplants out late in the day so that they will be less subject to moisture stress. Water transplants several hours before planting to prevent sudden wilting once they are removed from their containers.

If the plants are in a grow-pack or nursery flat, gently separate the root clump of each plant with your fingers. This causes less transplant shock and injury than using a knife or trowel to separate plant root clumps.

Transplants can dry quickly after planting so do not set them into the soil, especially dry soil, more than four or five minutes before you can get water to them. Annuals need daily watering until established, especially if the weather is hot or windy. As the plants begin to grow, water less often but apply more water each time to promote deeper rooting.

When seeding annual plants, be sure and follow the planting depth recommendations printed on the seed pack. Planted too shallow, seeds tend to dry out quickly between irrigations; too deep, and the seedlings will not be able to lift their heads out of the ground. In either case, the stand of plants will be reduced and weak. It also helps to place seeds on the sides of beds instead of on flat surfaces so that salt accumulations will not damage tender seedlings.

Established annuals should be watered at three to six day intervals depending on soil characteristics and weather conditions. More frequent watering is necessary on sandy soils. Dry weather conditions, for which June is notorious, will also call for an increased irrigation frequency. Watch the plants carefully and do not let them begin to wilt between irrigations.

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A monthly application of nitrogen fertilizer, such as ammonium sulfate (21-0-0) or ammonium phosphate (16-2-0) will help maintain the vigor of the plants and promote bloom. Make sure that the latter is gently worked into the soil so that the phosphate part of the fertilizer, which does not move with water, is incorporated into the root zone.

Finally, an organic mulch placed on the surface of the soil during the growing season helps conserve soil moisture, prevent soil crusting and control weeds. In small beds and borders and in containers, remove faded flowers to encourage continued flowering.

I like annual flowers in a garden bed because the color provides an excellent backdrop for outdoor living activities and tends to draw hummingbirds and butterflies to the area. Many varieties have long stems which make them excellent for cutting. If you are into flower arranging, you can make your own bouquets and arrangements and enjoy the color indoors. Best of all, I like annual flowers because the many different varieties make it possible to enjoy a multitude of different color combinations almost year round.

For more information on annual flowers including correct planting dates, ask for a copy of the Cooperative Extension leaflet, "Annual Flower Guide". If you have questions, you can reach one of the Master Gardener Volunteers at the Cooperative Extension office, 820 E. Cottonwood Lane, Building C, in Casa Grande. The telephone is (520) 836-5221.

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