

**Saturday, 10:00-11:30 am: Post-Winter Garden Tree Revival** - After the apocalyptic ravages of Sierra cement, rogue plow drivers and voracious mammals, there's much that can be done to salvage wrecked plants. We'll discuss nuts, bolts, splints, stakes and masking tape to bring your woody trees and shrubs back from crushing winter defeat. (Often lawns and groundcovers only need a little TLC to revive with vigor.)

**Snow Load:** "A foot or so of wet sticky snow on our beautiful gardens that were just reaching their peak in June." "A long Indian summer without frost and trees still flush with leaves, we received more than a foot of extremely heavy goo." "A series of storms dumped light snow day after day, to incredible depths, without allowing any chance to settle. At the end we received a rain to top it off and deep cold followed the rain (imagine wet snow freezing to everything it was touching and firmly taking hold). In that state, the snow settled and as it did, it pulled out branches and crushed trunks of even the most flexible and snow tolerant trees and shrubs." And my favorite: Rotary plows, blasting ice chunks at 80 MPH and breaking EVERY plant in their path at the snow line.

Some landscapes (natural and planted) in the Sierra are a wreck after any winter. The good news, as with all aspects of gardening is that they're plants, they grow and most eventually recover. **And: there's always next year.** That doesn't make the plants grow any faster but that understanding always makes me feel better.

**Defensive Pruning:** Prune aggressively when plants are young. By heading back your plants in spring and summer for the first two to four years, you create strong, thick trunks, short branches with robust shoulders and dense bases that are far less susceptible to the ravages of winter. Wide weak branches and long thin leaders are the first to be broken. It is far better for you to cut them than for the snow to rip them. The simple physics of shortening the "lever arms" reduces the force the snow can exert.

**Prune Now:** Prune in early spring just before buds begin to swell and again in mid-summer when new growth is at its peak. Prune top and side leaders back to the thickest part of last year's growth, just above a healthy bud. I use the analogy of preparing asparagus for the kettle. With defensive tree pruning, remove the tender part and keep the tough base. This is not "topping"; **topping is bad.**

Pruning young allows the cuts to **seal** quickly reducing the probability of decay. Aspen are especially susceptible to many diseases and some

arborists simply say, "do not prune" for this reason but if branches are pruned when they are small and vigorous, they're seldom infected.

Our short growing seasons make us reticent to remove any gains that our plants have worked so hard to achieve. Prune anyway. If you don't, the snow may, and storms show little restraint and know nothing of aesthetics.

For a time, there were tree "surgeons" who went around and pruned out decaying wood and filled holes in trees with cement. When reexamined through the lens of tree biology and plant physiology much tree surgery, from the 40's through the 60's, was bad for trees.

International Society of Arboriculture's Certified Arborists are today's tree care specialists. Modern arborists are concerned with overall tree health and may advise mulching and fertilizing as often as they will recommend severe cuts. If you have large trees with damage or with potentially hazardous branches please call a certified arborist for professional advice and assistance (ISA list at [www.isa-arbor.com](http://www.isa-arbor.com)). *"When a tree has a structural defect or condition that poses a high risk of failure, which may result in injury or property damage, a supplemental support system may reduce the risk. Not all potential hazards can be mitigated by the installation of a tree support system."*

**Safety** should be the primary concern and if there is any question as to your safety or the potential danger a tree may create, please call a certified arborist.

**For small trees:** aspen, crabapples, maples and other trees and shrubs that you can easily reach, there are some very simple methods of pruning and repair that work well. Keep in mind that any drilling creates wounds in the tree that can be potentially harmful and introduce decay.

If you don't absolutely need a broken branch, remove it. It is always better to remove a severely damaged limb than to repair it. In most cases a repaired branch should be considered a temporary repair.

**Physiology of Repair:** Between the bark and the wood (both mostly dead tissue) of woody dicots lies the cambium layer that is alive and growing. The cambium is a meristem that creates xylem cells to the inside that carry water and nutrients into the plant and make up the wood. The cambium layer also produces phloem cells to the outside that carry the products of photosynthesis around the plant. These eventually die and make up the cork or bark. **If a broken branch or trunk is not attached by a significant section of cambium and living vascular tissues, there is little chance that the branch will survive.** If there is one third of the circumference in attached tissues, then there is at least a chance of survival. Imagine the cambium layer as a sheet of tiny tubes around the outside of the dead wood. When it is ripped, there is a bottleneck created where all the flow is forced through the remaining viable tissue. The greater the demand on the flow, the less the demand will be satisfied. Any pruning of demanding excess branches or growth that can be done before attempting repairs will be helpful. While it is important to have some foliage producing energy to help speed repairs, if the branch cannot supply water and minerals to the leaves in the first place, the branch will die.

When a branch rips from a tree but appears alive and is still attached by a good-sized piece of trunk, Use a wood screw and a cordless drill. Push the branch back into place and put one to three long decking screws up/across/through the branch and into the trunk. If the branch is small, pre-drill the holes through the branch.

If the tree or branch is larger, use bolts and washers. For branches pulled down and out from the trunk, drill in a straight line through the limb and the trunk and connect them with long bolts with washers at both ends. An alternative method is to put eye-bolts into each and connect the two with a threaded tension turnbuckle or cable. On straight branches or trunks without the advantage of something to attach them to, I have used a splint. A sturdy piece of pre-drilled hardwood seems to provide enough support (see picture). The vascular tissue of a tree is essentially a sheet, wrapped around a wooden core. Poking a few holes in it with a drill does little harm. In time the tree will seal around the metal with many layers of wood.

Pruning sealer is a tar-like material used, in the past, to cover all pruning cuts. Today we use it to keep thin strips of damaged and surviving tissues from drying out and to prevent beetle entry into pruned or damaged conifers. It is widely accepted that pruning sealer actually slow the growth of cambium over an injury and so is not used for most general pruning.

To straighten out many softwood trees, tie a rope to an upper portion of the trunk. Slowly (over a week or so) pull the tree to upright and then past in a sort-of over-correction. This seems to help align the layers of wood in the trunk. After a few weeks of over-correction, un-tie the rope. The tree usually returns to some approximation of upright. For conifers with a bent or broken leader (last year's narrow upright growth): Tape a bamboo or redwood stake to the main trunk in two or three locations and leave a foot or so sticking above the tree. Tie either the bent or broken leader to the stake or tie the largest branch from below the broken leader into an upright position against the stake. Use either flexible poly tree tape or paper masking tape to hold the repairs in place. The tree tape needs to be removed after a year but the masking tape usually decays and falls away on it's own.

If a tree has up rooted, it should be righted, fed with seaweed and guyed in place. If the plant is recently transplanted, the guy will probably only need to remain for a season. If it is an older tree that has tipped over, you consider removing it or, if guying, the support may be permanent. If a tree, like aspen tips, it is usually because of too much top growth. Pruning out excess weight is usually prudent.

It should be obvious that you will need to stake and wrap your repaired trees and shrubs thoroughly and carefully before next winter and hope that we don't get so many growing season snows. It is also very important to keep your trees healthy and to encourage as much growth as possible. Slow release organic fertilizers beneath a thick layer or organic mulch will provide long lasting nutrition that will encourage quick but not excessive new growth. For transplants and repairs and for producing stronger plants in general. Seaweed extract is an excellent liquid feed for soil or foliage. The natural plant hormones in seaweed help plants produce new roots, new growth and stronger cell walls among other benefits.

Don't forget to water your garden. If your damaged trees are large natives, we have seen amazing advantages from adding a little organic fertilizer (Biosol and/or Dr. Earth Life) and supplementing the natural summer moisture with a few extra "simulated afternoon thundershowers".

**Coppicing and erosion control.** – *Coppicing causes root death. Old roots compost in the soil and increase soil biomass while many new roots are produced to support the growing shoots. For stream bank restoration the root mass is somewhat denser, finer and better able to deter erosion of the soil while less top is less likely to be ripped out in floods.*