

## **Frost Damage Recovery Plan** **John Eisenhower, Integrity Tree Service**

Similar to the freeze we had in 2007, frost damage in the Phoenix area in 2010 was deep and widespread. Pruning out the dead leaves and branches at the right time and in the right way is critical to plant health in the coming year. Here is a tree and shrub recovery plan to get your frost-damaged plants back on track.

### **Q: When should I start trimming back frost damage and how much foliage should I remove?**

**A:** It depends on your type of trees or shrubs and the extent of frost damage. There are three pruning options for frost-damaged foliage:

Option #1: Remove all dead foliage as soon as weather permits.

Application: This is a good option when frost damage is severe and there is too much dead foliage to leave on the plant. It's also appropriate when local regulations or aesthetics require early clean-up of dead foliage. Prune after February 15 in Phoenix or whenever the average last day of frost is for your area. Watch the weather report for a late cold snap. If the forecast is too cold, wait until temperatures rise. If possible, finish pruning by the end of March so juvenile growth can get established before hot temperatures arrive.

Method: When you prune, do a scratch test to determine the extent of the frost damage. Then cut branches back to good wood.

Benefits: After pruning, new growth emerges unrestricted by dead foliage. Follow-up maintenance is minimal.

Downside: This option requires extra care to examine each branch to determine depth of frost damage before pruning. Other concerns are potential sun or frost exposure to the bare plant interior after removal of frost damaged foliage.

Option #2: Remove dead foliage *after* the new foliage fully emerges.

Application: This option works well on smaller trees and shrubs with open growth form.

Method: Wait until new growth emerges. Then cut back dead branches just outside the new foliage. Prune as needed through spring and early summer.

Benefits: When the new foliage emerges, pruning the dead branches is more precise. Another benefit is the dead leaves that persist on the tree for several weeks or months provide sun protection to the surface of the trunk and larger interior branches while the new growth is getting established. The dead foliage also provides some insulation in the event of a late frost.

Downside: It can be difficult to extricate the dead branches without damaging the new foliage. This is especially true of citrus trees which have tender and weakly attached juvenile branches and extremely hard and inflexible dead branches. Another downside is living with the unsightly dead foliage for several months waiting for new foliage to get established.

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Option #3: Don't remove any frost damaged foliage.

Application: This treatment is appropriate when frost damage is not too severe, especially on larger trees. Dead leaves eventually fall off and new growth emerges and grows past the dead branch ends, hiding them inside the new crown of foliage.

Benefits: There is less work and expense. Sometimes it isn't worth the trouble to prune 6 to 12 inches of exterior frost damage from large trees because in a few months new growth will emerge and camouflage the small amount of dieback. As with Option #2, another benefit is the dead leaves that persist on the tree for several weeks provide sun protection to the surface of the trunk and larger interior branches while new growth is getting established. The dead foliage also provides some insulation in the event of a late frost.

Downside: As with Option #2, you have to live with the unsightly dead foliage while waiting for the new foliage to grow past and cover the dead areas in the crown. Another concern is leaving the dead foliage permanently buried inside the crown may create future maintenance and plant health problems.

Which pruning option to choose also depends on species. If you have questions about how to prune a specific tree or shrub, contact a local arborist or agricultural extension office. There are also helpful online resources available. Regardless of which option you choose, when removing dead foliage, be sure to cut back to appropriate lateral branches or to points of attachment. Avoid heading cuts that result in a flush of disorganized growth that is difficult to manage in the future.

### **Q: Which trees are the most cold tolerant?**

**A:** Cold hardiness is the inherent ability of a plant to tolerate freezing temperatures. This genetic adaptation varies between tree species. For millennia, our native plants have displayed their ability to survive the climate extremes of the low desert. This track record helps prove that the best frost protection is good tree selection! When choosing a tree that will handle our cold weather, consider some consistent cold-hardy winners such as *Parkinsonia varieties (Palo Verde)*, *Prosopis varieties (Mesquite)*, *Olneya tesota (Ironwood)*, *Acacia craspedocarpa (Leather Leaf Acacia)*, *Pithecellobium Mexicana (Mexican Ebony)*, *Acacia constricta (Whitethorn Acacia)*, *Chilopsis linearis (Desert Willow)* and *Vauquelinia californica (Arizona Rosewood)*.

There are other plants not native to the Sonoran Desert that are well adapted to our climate conditions. Some of these trees need extra care but may be worth the effort to enjoy the broader plant palette they provide. Among these trees with decent frost hardiness are *Acacia aneura (Mulga)*, *Acacia berlandieri (Guajillo)*, *Acacia stenophylla (Shoestring Acacia)*, *Pithecellobium flexicaule (Texas Ebony)*, *Sophora secundiflora (Texas Mountain Laurel)*, *Vitex agnes-castus (Monk's Pepper Tree)*, *Fraxinus varieties (Ash)* and *Ulmus parvifolia (Chinese Elm)*.

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Trees that don't fare well during a freeze include *Ficus varieties*, *Citrus varieties*, *Bauhinia variegata (Orchid)*, *Jacaranda mimosifolia (Jacaranda)* and *Nerium oleander (Oleander)*. These and other plants should only be planted with the understanding that they require special care to survive the frigid temperatures common every few years in the Sonoran Desert. They can often survive and even thrive if planted in protected, warmer areas. These microclimates can be created in the landscape by planting trees out of the wind, close to buildings or nestled among other plants.

#### **Q: How can I prepare my trees for next Winter?**

The most important thing you can do to prepare your trees for winter is to reduce irrigation and fertilization starting in early fall. This can be difficult if your trees are close to other plants such as winter lawns with high water and fertilizer requirements. If trees are *not* allowed to harden off prior to the onset of cold weather, actively growing branches and leaves are vulnerable to frost damage. Cutting back on water and fertilizer helps slow metabolism and prepares trees for colder temperatures. It seems counter-intuitive but neglect is sometimes the best way to get trees ready for winter.