

## Winter Care Tips

By Charlie Mosse, December 2023

Fortunately for us we do not have a real winter with freezing temperatures of significant duration. Our biggest issue is with those crazy periods of excess rain and long periods of overcast, in some years. We usually have early spring weather, long summers and extended mild fall weather, the latter more like mild summer weather, and of course the very unpredictable, unseasonably warm and sometimes hot weather in the winter months. Every area of the country has its own weather issues and surprises, those are ours.

The duration of extreme weather events is important to understand. A night or two of frost, temps just above or at freezing, are generally not an issue except for truly sensitive plants. Freezing temps are more damaging when they last for more than a few hours. If you live in a coastal valley, an inland valley, foothills or the mountains you need to pay attention to the temperature forecasts. One hour at freezing or below will not be an issue for most of our plants except for tropicals such as ficus, bougainvillea, and other tropical trees now available to us, and some of the annuals and sensitive perennials we use in kusamono. A few hours at or below freezing is when damage will occur.

When freezing temps persist for too long and/or go a few degrees below 32, then foliar damage can occur, as can root damage. One will see discoloration, called bronzing, on junipers and some broadleaf evergreens. Most importantly the roots will start to freeze in the container starting at the edges and bottom of the pot, and soil surface when setting on a shelf or pedestal. Not good. Pots will measure at ambient temperature within a short time of exposure to those temps. The foliage of most bonsai species can tolerate freezing temps, but not the roots. Roots are adapted to survive temperature extremes in the ground. "Insulation" provided by soil/soil moisture in the ground prevents roots freezing from temperature extremes.

Important note: This is where the duration of freezing temps for temperate species is important. The longer the temps are at a damaging level, the more likely there will be damage to leaves and roots. It takes time for a root ball to lose heat and then freeze. As an example, if the temperature hits 31 degrees for only one hour just before sunrise, there will probably not be any or at most limited damage because most likely only the edge of the pot/soil is . If the temp hits 31 and stays for a few hours, then there will most likely be some root damage.

This principle also applies to cold sensitive species like tropicals, sub-tropicals and bougainvilleas. When temperatures during the day start lowering into the 60's they slow their growth. The dip in daytime temps also corresponds to night temps dipping into the 50's, and eventually the 40's and 30's. A few days and nights here will slow their growth, but a longer period will cause cessation of growth and in some species cause partial defoliation to complete defoliation. The plants will require less water when it is cool/cold, so be cautious about watering and of course during rainy periods, some plants may need to put under cover or the soil surface protected in some way. Note that plant foliage does deflect rain, especially broadleaf types but a lesser degree for conifers. A 1/4" of rain does not mean that 1/4" of rain went into the soil....far from it. Always check your trees after a rain event for dryness and in the case of lots of rain, excess water in the bottom of the pot. This requires tilting the pot until water stops running out. If the forecast is for a lot of rain in one day or over several days, tilt pots ahead of the rain.

Protecting plants from cold or freezing weather is easy. If you have a greenhouse, put inside what you can. I do not have a greenhouse yet, so my cold sensitive plants are placed into large, clear plastic storage boxes, holes in the bottom and a 1/2" layer of pumice in the bottom. I have waterproof rope lights with incandescent lights that generate some heat. Insulation is placed on top of the support shelving, then the rope lights (or heating pad) are laid down in rows about 3" apart underneath the storage boxes. I keep the plants in all night and even all day on cold days. Sometimes the lids need to be adjusted to allow air circulation. Be sure to protect from direct sunlight. My boxes are under an evergreen tree providing filtered shade. Sometimes only a heating pad is used. Plants are placed directly on the pad to provide bottom heat only. This works just fine.

If you cannot provide cold protection as above then there are other options. You can place plants in the garage, in the house or inside other cover. Plants can also be placed under shrubs which can be all you need to protect them from frost or freezing. If freezing temps are forecasted and there is no cover or other protection, then placing plants on the ground can work. It works even better if the plants are up against a wall of a building, the south side is best. The building and the ground will radiate some heat to the plants and air. The soil may be 50 degrees but that is better than freezing air that exists underneath your raised benches. To help out that situation, something can be leaned at an angle up against the wall like a lean-to. Plywood, plastic sheeting or frost protection cloth work well. The idea is to seal in the air and prevent the ambient air from contacting the plants. A degree or two or three makes all the difference in preventing the air around a potted plant's roots and foliage from hitting 32 degrees, the infamous temperature at which ice forms and irreversibly bursts plant cells.

Continuous cold, or even mildly freezing temps, can have an accumulative effect on plants, particularly the cold sensitive types. Our temperate types like pines, junipers, deciduous and broadleaf evergreens will simply slow down and can get bronzed foliage if the night temps stay in the low 40's and 30's. Cold sensitive types like tropicals and sub-tropicals will eventually partially or completely defoliate. We are so lucky we do not have to have greenhouses, cold frames or a building just for protection from seriously cold weather. One needs to find out what the forecast is to know what steps to take, or just be prepared and protect your susceptible plants as a precaution. More work, but less worries.