

# The Art of Bonsai

By Eugene Howell

Last month we began the discussion of plant dormancy. We covered the definition and the fact that not all species go dormant, and not even each plant within a particular species, goes dormant at the same time. We also learned of the interest scientists have in the subject. We finished the first part by asking the question, "So what causes dormancy and when can it typically be expected to occur?" We will answer that question in this final part.

The first part of the question is easier to answer than is the latter part. Typically, dormancy is caused by one or more of the following four events; shorter days, cooler temperatures, hotter temperatures and drought. Two of these sound like an oxymoron, but they are not. Not all plants respond to the same events in initiating dormancy. Some plants need shorter daylight hours and/or lower temperatures while others need hotter/drier conditions. In both cases the plant is protecting itself from adverse weather conditions that might otherwise injure it. In the first case the plant is protecting itself from the cold temperatures that frequent winter, and in the second case the plant is protecting itself from the desiccating conditions that occur in late summer and early fall in various parts of the world.

Most deciduous trees that go dormant during winter clearly signal the fact that they are doing this. This "show" will be the change of leaf color (giving brilliant red, orange, and yellow colors in some trees) and eventually the shedding of most, if not all, leaves. Have you ever wondered why these two things take place? The reason is that there is a layer of cells at the base of each petiole (leaf stem) called the "abscission layer", which gradually becomes "corky" as fall comes. As this occurs, the cells in this layer swell and harden, thus gradually cutting off the tubes that pass through it and carry water to the leaves and waste products and complex sugars away from the leaves. When this occurs, the chlorophyll (green) in the leaves disintegrates and the other colors, which have been there all along but were completely masked by the green chlorophyll, begin to show through, thus causing the leaves to change color. When the abscission layer has fully hardened, the cells at the top of the layer begin to disintegrate and the entire leaf and petiole are blown off by the wind.

Here in Florida there are a number of native trees and shrubs that go partially dormant during the July-August period to protect themselves from stress during the hottest part of summer. The subject of summer dormancy has had much less study than winter dormancy and it is difficult to find an authoritative university study report on it, so I will not cover the subject here.

For plants that go dormant during the winter, the dormant period in this part of Florida may be anytime between early December and mid February. Although the plant may be dormant before any real chilly weather arrives in this part of Florida (due primarily to shortened days), the plant will certainly be dormant after the first lengthy spell of temperatures in the 30's. So, following a couple of nights in the 30's, temperate plants can safely be root pruned. A species of tree that usually goes dormant, and shows it, before really cool weather arrives is Bald Cypress.

One caution about dormancy in Florida: the period of dormancy (depending on the type of tree) may be very short (perhaps only 10 to 14 days) so once you decide that a plant has first gone into dormancy, don't delay doing the needed work. If you wait too long and buds begin to break you have passed the optimum period and the risk of stressing or harming the plant increases with each day of further delay. If the buds are showing but are still pretty small, it is still OK, but once they begin to swell you have missed the boat.

One might ask if dormancy can be avoided by keeping the bonsai in an artificial environment, thereby speeding up the rate of development of the bonsai. The answer is yes, but you pay the price in the end if the bonsai is a temperate one. By placing the bonsai in an environment with artificial light and warm temperatures year round, the plant will remain active during the entire year. The problem is that temperate plants are genetically programmed for a rest period (just as you and I need rest every night). They need this rest every winter in order to survive. So, if you keep one in an artificial environment that prevents it from going dormant, flower and fruit production will immediately be harmed and, although the plant may continue to grow for another year or two, it will begin to decline and eventually will die.

In conclusion, the guidelines, as discussed above, are fine but they cannot replace personal knowledge of the plant on which you are going to work. You need to get to know your plants very well so you will not miss the best time to root prune each one.