



# NORTH VALLEY TREE SERVICE

---

Certified Arborists and Tree Workers

3882 Esplanade Chico, CA 95973 • Phone: 530-893-9649 • e-Mail: NVTree@NVTree.com

## Life Stages of a Tree

The life stages that a tree goes through in its life cycle are closely related to the health of a tree. The arborist adjusts pruning operations to fit the life stage of the tree being pruned.

Older trees require more consideration before pruning. When you prune a tree, take into account both the tree health and the stage in life.

Older trees, or trees with health problems, cannot withstand pruning as easily as younger vigorously growing trees. When a pruning cut is made the tree has to both defend the newly exposed tissue from invading diseases and insects and somehow replace the lost living tissue that was pruned off.

All trees have a finite life span, just as human beings do. Someday they will die. But one key difference is that death in trees is not programmed. This helps explain why one tree lives for 20 years while another tree of the same species lives for only 50 years. The life span of a tree is determined by a number of factors, including its pattern of tree growth, maintenance history, and environment.

Because of these factors, age alone is not good determination of a tree's potential life span. Instead, arborists categorize trees by "life stages". After determining a tree's life stage, and overall health, the arborist then decides how to prune.

**First Stage** – Establishment. This includes seedlings and transplants. The key factor is that the tree concentrates growth on both root system development and top growth. Often the tree is competing with other plants for space and resources. In this stage, pruning is limited to crown cleaning. Little or no leaf tissue should be removed since the tree is relying on food produced in those leaves to fuel growth.

**Juvenile Stage** – In this stage trees are established in their environment and grow at their most rapid pace. They have ample energy to run an active defensive system against

invading diseases and insects, so they can withstand pruning well. They are also able to simply outgrow many of the invaders. This is the time that structural pruning to develop good branch structure should be done. This type of pruning will help eliminate major branch defects in the future.

**Mature Stage** - Growth continues at a slower, steady pace. The tree may self-prune some of its branches that are no longer productive. The tree has a good balance of energy reserves allowing it to fight diseases effectively. However, the option to outgrow diseases is diminished. Thinning can be done at this time to improve tree health and structure. The extent of thinning is adjusted to suit the individual tree's health condition.

**Post Mature** - is characterized by both a very slow growth rate and by an intolerance of disturbances. Energy reserves in the post-mature tree become limited. The tree itself is healthy, however any disturbance resulting in the removal and/or death of living tissue will have adverse effects. The post-mature tree has limited energy reserves to fight invading disease and insects, especially at the pruning wound. Because of these factors, post-mature tree pruning is usually limited to crown cleaning. Removal of live tissue is avoided. With proper maintenance, a post-mature tree can remain healthy for a long period of time. Over-pruning or other physical injuries of a post-mature tree can upset its energy reserves, leaving it susceptible to invading organisms. This could send the tree into the next life stage, senescence, prematurely.

**Senescence** - The senescent tree has lost the ability to effectively defend itself from invading organisms. Senescence often begins as a result of trauma such as lightning strike, over-pruning, construction injuries, etc. The invading organisms overcome the tree's defenses and cause tissue death and/or internal decays. Major limbs succumb to the diseases, eventually breaking off the tree. The trunk usually becomes hollow. Pruning consists of structural pruning to reduce hazards, to remove hazards and/or dead limbs and crown restoration to manage and train watersprouts that grow to replace dead or dying limbs. Senescent trees may have some useful life left in them, but there are no measures that can be taken to restore the health of the tree. The tree should be removed once the potential hazards and costs of maintaining the tree outweigh the benefits.