

# Notes on Pines & Bonsai

## Generalizations about Pines

- ✓ Broadly speaking, all pines species are found along a continuum that is separated into two major poles: Alpine/Mountain and Coastal.
- ✓ Alpine/Mountain pines tend to be slow growing, cold temperature tolerant, prefer drier soil, and fall under a group heading of “white pines” (*pinus parviflora*). White pines tend to have light gray and smoother bark. In nature, they are inclined to express a more delicate nature.
- ✓ Coastal pines tend to be fast growing, sensitive to bitter cold, and tolerate damp soil. The bark of these pines dark and course, hence adeptly named black pine (*pinus thunbergiana*). Given their rugged exterior, black pines express the raw power of nature.
- ✓ All pines grow in the same pattern. New buds turn into candles, which then open up into shoots covered with needles. These shoots are arranged in whorls, i.e. one to a dozen or more shoots arising all from the same point. The tip of each shoot puts out more buds which develop into candles for the next year's whorls of growth.
- ✓ Pines are also sub-divided according to number of needles: Two vs. Five.
- ✓ The needles themselves grow in groups called fascicles. Most pines have fascicles of two needles, three needles or five needles. Those with five-needle fascicles are often referred to as five needle pines, white pines, or soft pines. Those with two or three needles per fascicle are generally referred to as hard pines or black pines.
- ✓ Two needle pines grow long needles whereas five needle pines have short needles. Two and five needle pines have different bonsai development calendars and some bonsai training technique variations. See last page for comparative annual schedule for maintaining pines.
- ✓ June is the preferred month for radial surgery. This gives the plant time to recover and harden before winter.
- ✓ In bonsai, you grow the trunk first the limbs later. This is easier done in the ground. Let the lead or top branch grow long; think of it as a sacrificial limb that gets cut back but not off. This will thicken the trunk.
- ✓ Soil change for mature trees: If you are going to *change* the soil of an established pine tree, do 50% one year and the remaining 50% two years later. In order to absorb nutrients, the roots of pines are dependent on mycorrhizal fungi. This white powdery stuff acts as a secondary root system. Without the mycorrhizae, the tree will die.
- ✓ Kemp meal encourages pine back budding

## Spring Maintenance - Decandling

Though at different times of the year, candle pinching, shoot pruning, needle plucking and bud removal are done to control the balance of growth. Left unchecked, pine growth will be directed to the plant's apex and you will likely end up with a boring needle cover telegraph pole. Ramification means creating interesting branching and this implies that growth be directed to the trunk, secondary and tertiary limbs. Decandling is a spring time activity that redirects growth energy. However, before cutting or pinching candles, identify the strong, medium, and weak growth zones.

During the Spring, the buds that you have retained will elongate into candles, their size being in relation to each candle's individual strength and vigor. To ensure that growth extension is regulated and energy is

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dispersed evenly throughout the whole tree; these candles need to be pinched back. The amount that each candle is reduced depends on its position within the structure of the tree and its future purpose. After the candles have extended into new shoots and branches, it is at their tips that new buds for next year will form.

Just as in bud selection, candles growing in more vigorous areas of the tree should be reduced by far more than candles growing in weaker, inner areas. If a new branch or sub-branch is required the candle can be left unpruned to extend; however it should be noted that more of the trees energy will be directed to it at the expense of other areas. Candles left unpruned to encourage vigor in weak areas or to develop new branches can then be cut back to a desirable length once they have fully elongated and hardened, this will soon be followed by the appearance of buds at the tip.

The timing of pinching out candles will affect where the new buds that follow will form. Pinching the candles before the new needles appear will cause new needles to form at the base of the candle. Pinching the candles after the needles begin to appear and start to elongate will cause the buds that follow to form at the end of the new shoot.

Like most trees, pines are *apical*. This rarely used word “apical” is from the Latin *apex* (plural *apices*) meaning to be at the apex or tip. In the race to collect sunlight, plants put a lot of their energy towards the top of the tree. Strong growth zones are on or near the top of the tree and weaker zones are lower. Access to sunlight is another factor that helps create strong areas or permits other zones to weaken. Identifying these zones is straight forward: Strong zones are full of lush growth and the weaker are not.

Do not pinch out all the candles at once. Start pinching out the stronger areas of the tree first and finish with the medium areas 2 weeks later. Do not decandle weak areas. As a rule of thumb, candles growing in vigorous areas of a black pine should be reduced by at least 1/2 to 2/3, candles in medium areas should be reduced by no more than a 1/3, and weak areas not at all.

White pines are less tolerate than black pines to decandling; when done too severe, the proto limb might die. They do not bud back as readily as black pine, so decandling should be reduced to 1/3 to 1/2 of the candle.

## Fall Maintenance

Fall work on Japanese black pine include:

1. Needle pulling
2. Thinning buds
3. Pruning,
4. Wiring
5. Cleaning top soil

### *Pull Needles*

Though pines are known as “evergreens”, the life expectance of a pine needle is two - three years. In the state of nature, the needle dies, turns brown and waits for the next strong breeze to blow it to the ground. Aside from aesthetics that comes with removing sickly needles, pulling will let increase airflow and

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sunlight penetration throughout the tree. By aggressively thinning the stronger areas, light will reach the interior weaker zones.

Use a pair of tweezers to pull off the needles. Start at the top of the tree and work your way down. Limit yourself to pulling last year's needles and do not remove new needles. Old needles are usually discolored and fairly easy to identify. Pinch the needles at their base and pull forward. Remove the sheaths along with the needles. If the sheath is stubborn and refuses to dislodge, that is okay because it will fall off in a couple of weeks. Avoid pulling needles off of weak branches. Don't remove any of the old needles in the weakest area. They will eventually fall off on their own.

## ***Thin Buds***

If you decandled the pine in June, you should now see new buds established on the tips of the candles. These new buds determine how the tree will grow in the coming year, and thus need to be pruned. The guiding principle here is to create a balance between the different growth zones. After all, these buds are destined to become new branches. Using tweezers, remove all but two of the buds. In general, two buds, which grow side by side, are kept. Though it is generally avoided, sometimes "up and down" buds are saved to fill up an empty area in the branch pad.

In strong vigor zones the most dominant bud is removed and two of the smallest and best oriented buds are retained. In intermediate zones, the more dominant bud is kept along with one or two other well-oriented buds. In the weakest zones, no buds other than an occasional weak bud should be removed.

Note: If you do not inspect and remove buds, you increase the chances that your pine will develop ugly "spoke" branches. That is, three or more limbs will grow out of the same location off the main branch.

## ***Prune***

The goal of pruning is to keep the pine compact and refined. With Japanese black pines, pruning also encourages back budding. Prune away all unnecessary growth in the strong zones. This controls growth and diverts energy to the medium and weak zones.

## ***Wire***

Now that the tree structure is clearly visible, it is a good time to wire the plant. Growth is virtually non-existent until Spring.

## ***Clean Top Soil***

As part of the Fall work, replace the top ½ - 1 inch of soil. In the Northwest, this frequently means removing that beautiful moss mat that grown and developed over the last six to nine months. However, moss and winter weather will lead to damp soil and subsequent root rot.

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## Pine Bonsai Maintenance Schedule

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
<b>Costal Pines                      Black, Red</b>												
Fertilize												
Repot												
Pinch												
Decandle												
Thin												
Wire												
Graft												

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
<b>Mountain Pines                      White, Mugho, Lodgepole</b>												
Fertilize												
Repot												
Pinch												
Thin												
Wire												
Graft												