YAMA KI NEWSLETTER

Learning from each other. . . . . Sharing with the community"

November - Attachments 2009

PINES LECTURE

Berni Gastrich

Development of young Pines — all varieties

Water and fertilize heavily with a high nitrogen content fertilizer and allow full sun during spring and summer. Allow all the branches to develop to promote vigor in the tree. If the tree is allowed sufficient sun, the branches will remain closely spaced and will not become leggy.

As the candles develop, let them grow long. When the needle bunches become visible, cut the candles back to the very base. Continue to water well and fertilize with the nitrogen-rich fertilizer.

During this period, keep the tree in a large container to develop lots of root tips. It is only through the tips that the tree takes in the nutrients.

As the tree develops and you determine how the branches will remain, mark the sacrifice branches with twist ties. This will allow you to look at the tree while the branches remain and see the potential design of the tree once these branches are removed. It is important to retain these branches until you have achieved the level of taper you want — the tubules that feed the tree are somewhat proportionate to the number of branches and it is the tubules that determine the width of the trunk. In addition, you can increase the size of the trunk by flexing it until you can feel the fibers in the trunk tear. The tearing causes the trunk to swell, much in the way that the body swells where there is an injury. Any radical bending or flexing should be done only in summer when the tree is able to heal the tears.

During the spring and summer, it is important that the tree receive a good 8 - 10 hours of full sun.

Whorls are concentrations of buds which ring the trunk. It is important to remove all unwanted buds as these form so you do not end up with unattractive bulges where the whorls form.

During the late fall and winter, young and old trees both should be moved to an area well protected from full sun and wind. As the pot freezes, the roots are unable to provide and move nutrients to the trunk and needles. The wind and sun will dry out the needles to the point that the health of the tree is compromised.

To dig trees out of the ground, early in the spring, make cuts with a very sharp shovel on opposite sides of the tree straight down. (For example, in the spring cut the east and west sides of the tree.) In the fall, cut straight down on the opposite sides — the north and south sides. In the following spring, it is now OK to remove the tree into a training pot. Use a medium grit soil until the tree has developed the desirable extensive network of fine feeder roots. At this point, use a high percentage nitrogen chemical fertilizer to allow immediate absorption by the roots. (I recommend Miracid or Miracle Grow for Evergreens as a good chemical fertilizer.)

Never completely bare root your pines. Remove the old soil in sections over time so the tree can develop the feeder roots in sections and not starve the tree of nutrients while the roots form. To remove soil, clean in wedges from the edge of the rootball in to the base of the trunk. Rinse with water from the garden hose to get all the soil out. Coat the cleaned roots with mycorhiza to enhance nutrient absorption.

When the buds on the ends of the branches first begin to swell and the roots start showing little white nodules, it is an ideal time to repot. Once the tree is repotted, it should be kept in an area above 40°F., out of the sun and wind for the first 2 - 3 weeks to allow development of the fine feeder roots.

A good soil mix for pines is the standard 3 part soil (turface, granite and pine bark) mixed with up to 1/3 akadama. Do NOT use peat moss in the mix as it will keep the soil too moist and may encourage root rot. The akadama in the mix tends to retain the nutrients and actually acts as a time-release agent.

Black Pines (Thunbergii)

Spring:

Continue to water and fertilize heavily with a high nitrogen content fertilizer as the candles develop. When the candles have developed to the point when the needle pairs become visible, it is time to start pruning. There are two accepted methods for pruning black pines.

1. Cut the smallest and weakest candles back to the absolute base. In another week, cut the medium sized candles all the way back to the base. In one more week, cut back the longest and most vigorous candles.

2. In the second method, all candles are cut at the same time. The smallest and weakest candles are cut all the way back to the base. The medium length candles are cut to a length approximate to the width of the candle above the base. The strongest and longest candles are cut to a length of 2 or 3 times the width from the base.

When all of the candles have been cut, reduce the amount of water and the percentage of nitrogen in the fertilizer.

Fall:

In early September, when the new needles have changed to a darker, more vibrant green, it's time to begin feeding a balanced fertilizer for about a week, then gradually increase the percentage of nitrogen over the next 2 - 3 weeks. By the beginning of October, stop the fertilizer to prevent the tree from developing candles from the buds which should begin to form. These buds will become candles in the spring, but if they're allowed to advance too far into the fall, they risk of freezing over the winter.

Once the tree is dormant (when the deciduous trees have lost their leaves), it's time to needle pluck. Where the clusters are really vigorous, pluck out all but 4 or 5 pair of the second and third year (longest) needles. For medium vigor clusters, leave 6 or 7 pair. For the weakest clusters, pull only the longest pairs of needles. This is the method used to reduce the needle size.

Winter is the best time to prune pines. When they are dormant, the sap won't run so the cuts don't bleed. However, if you cut very thick branches, be sure to use plenty of cut paste to prevent drying of the tree. Again, it is very important to protect the tree from sun and wind. These two enemies kill more trees than the cold.

Black Pine Diseases and Pests

Needlecast — the needles have a variegated color — they turn yellow about half- way up. The infection occurs approximately 1 to 1% years before the symptoms become visible. Treat with a fungicide containing chlorothanolyl in the spring and every 2 — 3 weeks in the spring and summer.

Mealy bugs — Spray with an insecticide or oil to the point of saturating the tree.

Red spider mites — they give the tree an overall "I don't feel so good" appearance. Treat by frequently blasting the tree with full pressure washing by the garden hose. Kelthane is the only mitocide that really kills spider mites.

Advantages of Black Pines

They are fast growing and easy to care for. They are fairly drought resistant. They have great bark texture and needle color.

When shopping for black pines, look for trunk thickness, taper, curvature of the trunk and branches, and needle color.

Five Needle Pines (Parviflora)

The young trees are treated exactly the same as the black pines.

Spring:

Once you begin to train the tree, cut back the water supplied and use much less to very little nitrogen in the fertilizer.

As soon as the needle cluster buds become visible, break the candles off with your fingers. This will usually occur around late April, early May.

Keep the tree in full sun, but control the amount of water. If you use an automatic watering system but have other trees that require more water, you can control the amount of water applied by placing an aluminum pie plate around the base with small wedges cut out. This will allow some water in, but not too much.

When the needles approach the size of last year's growth, begin to increase the nitrogen content in the fertilizer. Cut back on all the fertilizer in late summer.

Fall and Winter:

Black pines will tolerate zero degrees in winter only if they are in a spot with no wind and low sun. When the temperature is over 25°F. there is still sap flowing, so the tree will require a little more water than other pines.

Five needle pines suffer the same diseases and pests as the black pines.

Advantages of Five Needle Pines:

Their needles are naturally shorter, so it's not necessary to pluck them for reduction.

Disadvantages of Five Needle Pines:

They are much slower growing than other pines.

When shopping for a five needle pine, it is important to look at the union where the five needle pine was grafted onto the root stock. There will probably be a very obvious difference in the size of the trunk and in the bark texture. There may also be differences in the needle size and color. It is important to note all these. Check the branches to see if there are options for hiding or disguising the graft union.

Scotts Pine (pinus Sylvestris)

Responds very well to the five needle techniques.

Pitch Pine (pinus Rigida)

Buds back extremely well and responds well to black pine techniques. The only disadvantage to this species is that the needles are yellow.

Mugho (pinus Mugho Montana)

Is extremely cold hardy, and is water and drought resistant. It is very difficult to find a single trunk specimen.

Limber Pine (pinus Flexilis)

Bends like rubber, is a slow grower, and is NOT happy in pots.

Red Pine (pinus Densiflora)

Does not taper well so is best in a literati style. It is very sensitive to air pollutants.

Berni Gastrich displayed these two Pines at Yama Ki's Bonsai Exhibit at the New York Botanical Garden this October.

The balance of photos of members' bonsai will appear in the December issue.

Japanese black pine

Dwarf mountain pine

OBSERVATIONS ON PINES

Prepared for Yama Ki Bonsai Society by Colin Lewis October 2009

When I started growing bonsai there were only two specialist nurseries in the country and none close to where I lived. Besides, I was intrigued by the prospect of making rather than owning bonsai so everything I grew I grew from seed cutting or pitifully young yamadori. I learned about Pines by growing Scots (not Scotch) Pine (Pinus sylvestris) and a couple of European black or Austrian Pine, (Pinus nigra).

These days, most people's first experience is with a tree bought from a bonsai outlet or one acquired at a bonsai gathering of some kid. therefore, one of the most common questions I am asked by those dealing with a new species of Pine is: "Is it like a black Pine or a white Pine?" The answer almost invariably is: "Neither". I have been asked if species X is like white Pine or a regular Pine. "What's a regular Pine?" I ask, and the answer is usually black Pine. This has also happened in reverse! In fact, neither could be referred to as normal or regular Pines.

All Pines differ from each other to a greater or lesser extent, but most can be gathered for practical bonsai culture purposes into one large central group. Japanese black Pine (Pinus thunbergii) and Japanese white Pine (Pinus parviflora, syn: P. pentaphylla) are not in this broad central grouping, out are quite some way off at opposite extremes of the Pine spectrum.

P. thunbergii behaves like all Pines but is so very much more vigorous, thirsty and hungry, that it responds much, much faster and therefor requires much more work. P. parvifolia, along with almost all other five-needle Pines such as American white Pine (P. strobus) Limber Pine (P. flexilis) Bristlecone Pine (P. longaeva) also performs the same way as all other Pines but at a far slower rate which requires much more patience and a
more long term strategic approach.

Learning the intricacies of Japanese black Pine and Japanese white Pine is of very little use to anyone who wants to grow western Pines, but learning about any western two- needled Pine such as Scots, Lodgepole, Jack, Mugho, etc, gives a solid grounding in "regular" or "normal" Pine culture against which all others can be compared.

"Regular Pines"

Pines respond by producing adventitious buds (back budding) to any sort of assault on the actively growing parts - functioning needles, developing or mature candles, terminal buds. The more drastic the assault, the more dramatic the result. For instance, nipping off the tips of growing candles will stimulate buds at the point of the break, and one or two at the base of the candle. Removing more of the candle will produce more buds at the base and perhaps one or two on last year's growth. Total removal produces many more buds, some on last year's growth and some on growth that is much older. Pruning out whole clusters of shoots and candles stimulates even more prolific adventitious bud production. Buds on Pines in this group usually develop during the fall and winter following the pinching or pruning, and open as small rosettes the following spring. The year after they will extend and can be trained or used to replace outer elongated growth.

Variations

There are obviously variations. Ponderosa Pine, for example, responds weakly and needs more drastic pinching or pruning to get a decent crop of adventitious buds, as does mugho Pine. European or Austrian black Pine are even slower.

Pitch Pine (P. rigida) has three needles per cluster. It grows and responds in a similar way to others above but has two differences. First, it is less reliable in that it will not always produce buds at the broken end of pinched candles. Why this should be I have no idea, but it is worth bearing in mind. Second, it is one of the very few species of Pine that produces adventitious buds from old branches and even the trunk, particularly from burls around old pruning wounds and at the base of the trunk in the cotyledal zone. In fact, so many buds can be produced that they become a nuisance! When removing these colonies of unwanted adventitious buds, it is not

sufficient to cut them off at the base. This only stimulates even more buds from the same point, since the actual base of the shoot is buried deep within the bark. It is important to excavate all the shoots, digging out all remnants from the bark.

Virginia Pine (P. virginiana), unlike all the others in this category, is not pre-programmed for just one flush of growth a year. It continues to grow constantly throughout the season rather like a deciduous tree. Growth that occurs after the first spring flush occasionally has flatter needles but generally they are more or less normal. The buds are tiny and the shoots correspondingly slender and difficult to train until they are a year old.

Needle reduction

Within this central group of Pines, needle reduction is achieved partially by developing density, but also by manipulating the watering and feeding regime.

Watering: during early candle growth water daily as normal. Once the needles begin to peel away from the candle, reduce watering to a bare minimum - just enough to keep the soil slightly moist. Try to avoid the flood and drought cycle, but water a little at a time every couple of days. This will retard both the candle extension and the needle length. Whenever the needles have set and hardened off, usually not until August, resume normal watering.

Feeding: In spring, when candles are extending, feed only potassium and phosphorus - no nitrogen at all. Continue with this regime until the needles have fully set and hardened off, then feed fairly generously with a higher nitrogen fertilizer.

The result of the late season increase in watering and fertilizer is that all the resulting growth energy will go into adventitious bud production, since it is too late in the season for new terminal growth.

P. thunbergii

Japanese black Pine is more vigorous than any in the central group and, given sufficient water and fertilizer, and total candle removal, will reward you with a fresh crop of buds that will open the same year with much smaller and more compact needles than the first crop. There is no need to manipulate the feeding or watering, nor to wait for high density to develop in order to encourage short compact needles, but it does require more work on an annual basis - pinching, pruning and wiring new growth.

Five-needle Pines

All five needle Pines are frustratingly slow and dislike having all candles totally removed. This practice can often lead to loss of sections of branches and, occasionally loss of entire branches or even the whole tree. Adventitious buds are stimulated by pruning outer growth back to viable inner shoots. This can involve cutting out two or three year-old growth, sometimes older. The ensuing buds form during the following year and may open one year later or even two. Once open they can take two or more seasons before they are strong enough to be pruned back to.

Needle removal

Removing last year's needles achieves several things: It eliminates any diseased foliage, it allows light and air into the interior which helps back-budding, and it allows for easy access with wire. In general, on all Pines, remove rather more needles from the upper parts of the tree than on the weaker lower areas. This helps balance the vigor in what would normally be an apically dominant tree.

The big question always is whether to pull or to cut. The important thing to know is that the adventitious buds generally form between needles, or in the point that would have been between needles if you hadn't removed them. Therefor it's essential to preserve the integrity of the tissue at thee base of the needles. If you can pull one needle without the other/s coming with it, then pull them - one at a time. Sometimes it’s possible to pull them in twos, but if the fascicle (the papery sheath at the base) also comes away, then stop and pull singly. If the needles are difficult to pull away, or if they always come off with the fascicle attached, then cut them. Cut the needles immediately at the end of the fascicle. Before long, the remnants will whither and fall, but the tissue

at the base will remain sound.

General note on soils and repotting

Although some Pines survive in bogs (rigida, sylvestris) they do not do well and become stunted and malformed. Hence bogs can be good sites for yamadori. But we want our trees to thrive, not merely survive, and we want to be able to control the stunting and malformation ourselves! All Pines should be planted in a very free-draining mix with little or no organic matter. If you can be vigilant with the watering, you could even use pure sand. This enables you to control the moisture available to the roots for needle reduction and encourages the roots to grow fast and dense on search of that moisture. Vigor in roots equals vigor in upper growth.

Pines do not require repotting as often as other species, which is something too many people forget. Repotting too often slows development by stressing the tree. It’s far better to wait until the tree is so desperate for repotting that it becomes a benefit, and that can be anything from four to ten years. Really, no Pine should be repotted more often than every four years and most could quite happily remain without root pruning for ten or more. Of course, there are occasions when you need to (or want to) repot after only a couple of years - change of planting angle or front, move to a better pot, etc. But if you do this once, don't do it again! The longer you leave between repotting sessions, the shorter the needles and denser the growth. The bark will mature quicker, the nebari will swell and the tree will appear older more quickly than if you mess with the roots too often.