Bald Cypress as Bonsai (Part 6)

(Developing Cypress Bonsai from Nursery Stock: Growth for Refinement Stage)

By Randy Bennett

The last two installments of this article dealt with the 'Growth for Size' and the 'Growth for Design' stages of development. Now that we designed the structural pieces of our flat-top cypress, it is time to begin the process of refining the growth. Depending on whether or not you start with a nursery cypress that is already the size you want or spend the addition couple of years growing it to the diameter desired, it will have taken 3 to 5 years to get to this point

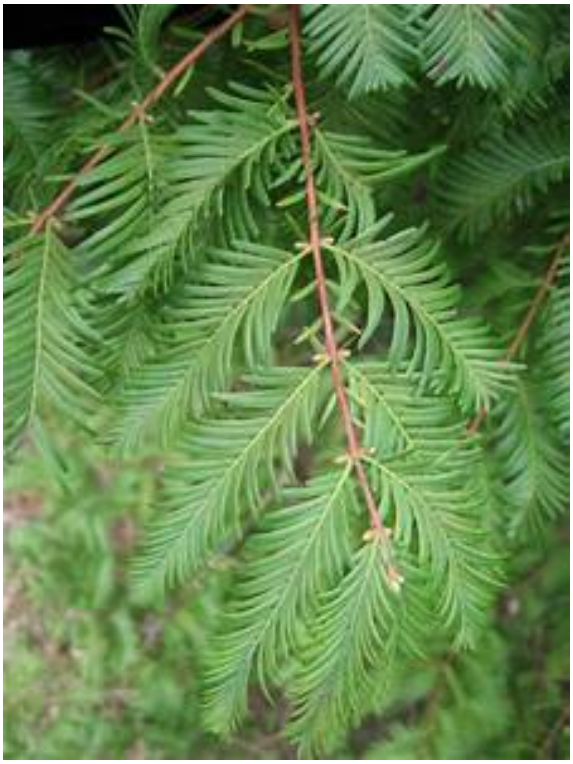
Growth for Refinement Stage

Branch Development and Selection

Once you have gown the structural pieces for your design; the primary branches and perhaps some of the secondary branches, it is time to begin a more methodical approach to shoot selection in building the crown of the tree.

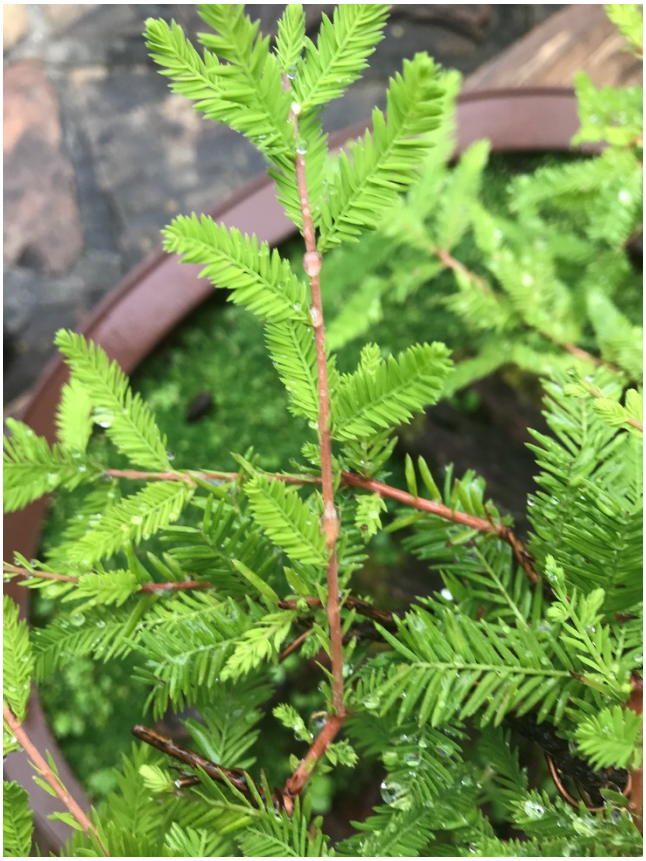
Pruning to Increase Ramification

Once you have developed and positioned the primary and secondary branch structure, during the third year of training, it is time to begin developing the tertiary branch structure and fine twigging. As new shoots sprout from the branch structure in early spring, they are a pale, reddish-pink color, with the very tip of the shoots being light green. For the purpose of this discussion, I am referring to the color of bald cypress shoots and not pond cypress, which have a slightly different color. These shoots will begin elongating and will form leaves along the shoot as it grows. They will also form tiny, modified leaflets before leaves sprout on new shoots, as well as between leaves, as you can see in the photo below. You will typically see opposing pairs of leaves along shoots that are vigorous. On shoots with less strength, the leaves will tend to form in an alternating pattern along the length of the shoot.

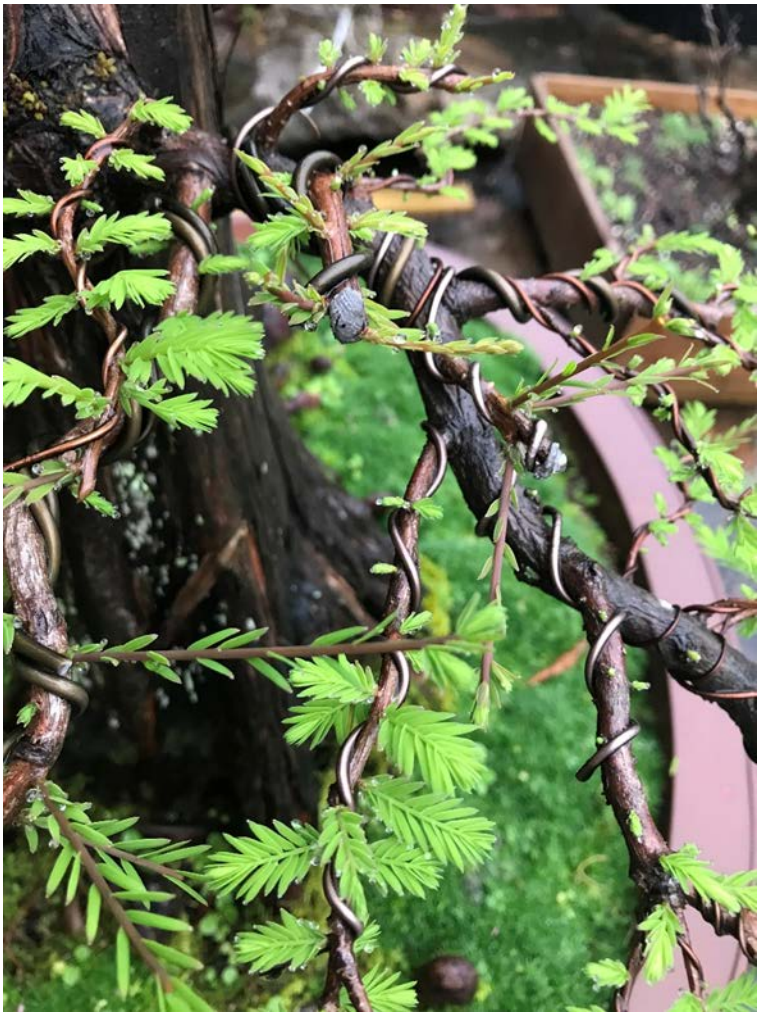


Vigorous shoot – note the opposing pairs of leaves

Also note tiny the modified ‘leaflets’ between pairs of leaves



Weak shoot – note the alternating leaf pattern along the shoot

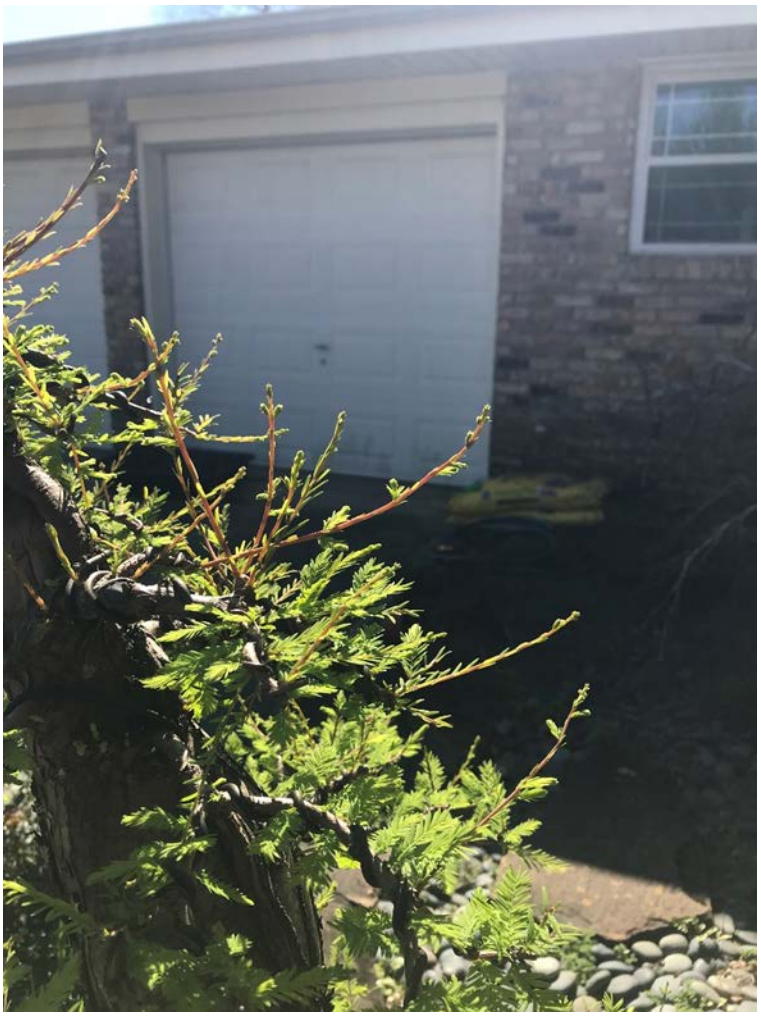


Some branches left long to increase in size – note all the dormant buds sprouting

The photo above was waken February 15, 2019. Pruning shoots from the previous year took place in late January, before buds began to swell. All of the branches were wired at that time. This photo depicts several things: First, you will note that some of the branches have been left long. This is to encourage more growth to achieve thickening of those particular branches. The purpose is to gain proper proportion. Secondary branches closest to the trunk should be the thickest and decrease in girth as you move farther out on the primary branch. The same holds for tertiary branches in relation to secondary branches. Second, you will note the number of adventitious buds that are popping from last years' growth and on the two year old growth. And, although a little out of focus, you can see dormant buds are even popping on the trunk of the tree.

The photo below shows the same tree a few weeks later, as the first flush of growth has begun to elongate. Do not pinch or prune growth like you see in the photo. Let it grow. Let it elongate.

Let multiple sets of leaves form and turn a darker green. This is one indication that the new leaves are actively conducting photosynthesis and have, therefore, hardened-off.

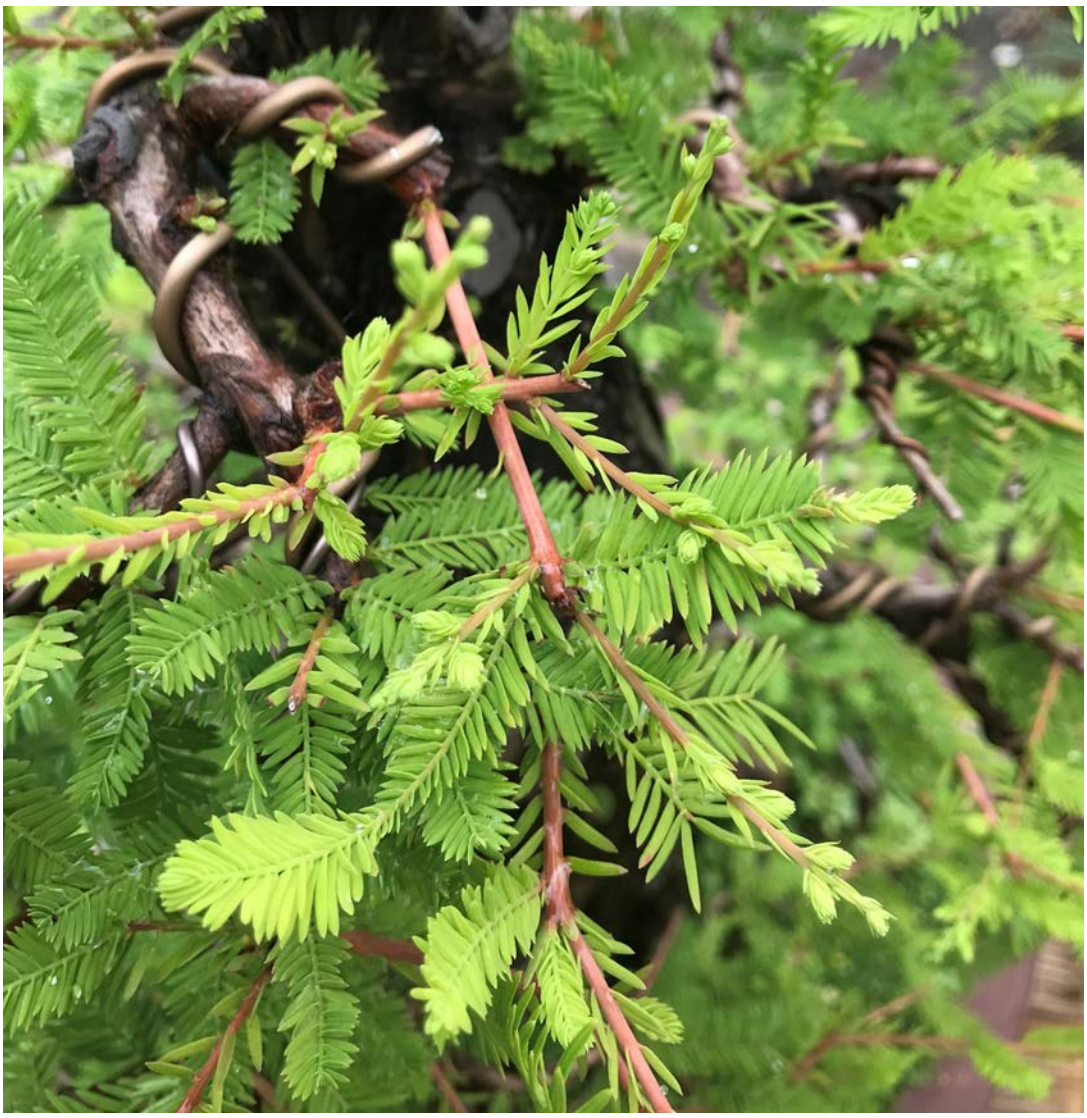


Elongating immature growth – do not pinch during this phase of growth

Once this has occurred, the new shoots will begin forming the vascular structures that will, not only carry water and nutrients to the leaves, but also and most importantly, to carry sugars and starches from the leaves back downward toward the roots. Prior to hardening-off, shoots and leaves are only drawing water and nutrients from the tree. It is only after the new leaves have hardened-off that the new shoots begin developing the vascular structures that carry starches, created by photosynthesis, back to the tree. Pruning them too soon retards and in some cases, stops the return vascular structures from forming. This results in twig die-back over the winter.

When leaves harden-off and are actively producing starches for the tree, the young shoots will begin to change color from a pale pinkish color to a darker reddish color.

The photograph below was taken on April 15, 2019. The branches that are wired are secondary and tertiary branches that grew in 2018. Back-budding is so incredibly profuse on bald cypress that I do not recommend wiring after buds have begun to swell. You are apt to get buds just where you need them and wiring branches after buds begin to swell ensures that you will accidentally remove a great number. It is better to wire before movement begins. In this way, you can pick the ones needed and remove the unwanted ones after they have leafed out. You will also be able to adjust some of the pruning back you completed in January, once you see where shoots are going to pop.



You always prune with the plan that two shoots will emerge from one, but that is not always the case. You will notice that only one elongating shoot emerged from the wired branch near the top left corner of the photo above. That shoot was allowed to grow to a length of about 8 inches and had multiple sets of leaves that had fully opened up. Near the end of March, the shoot was

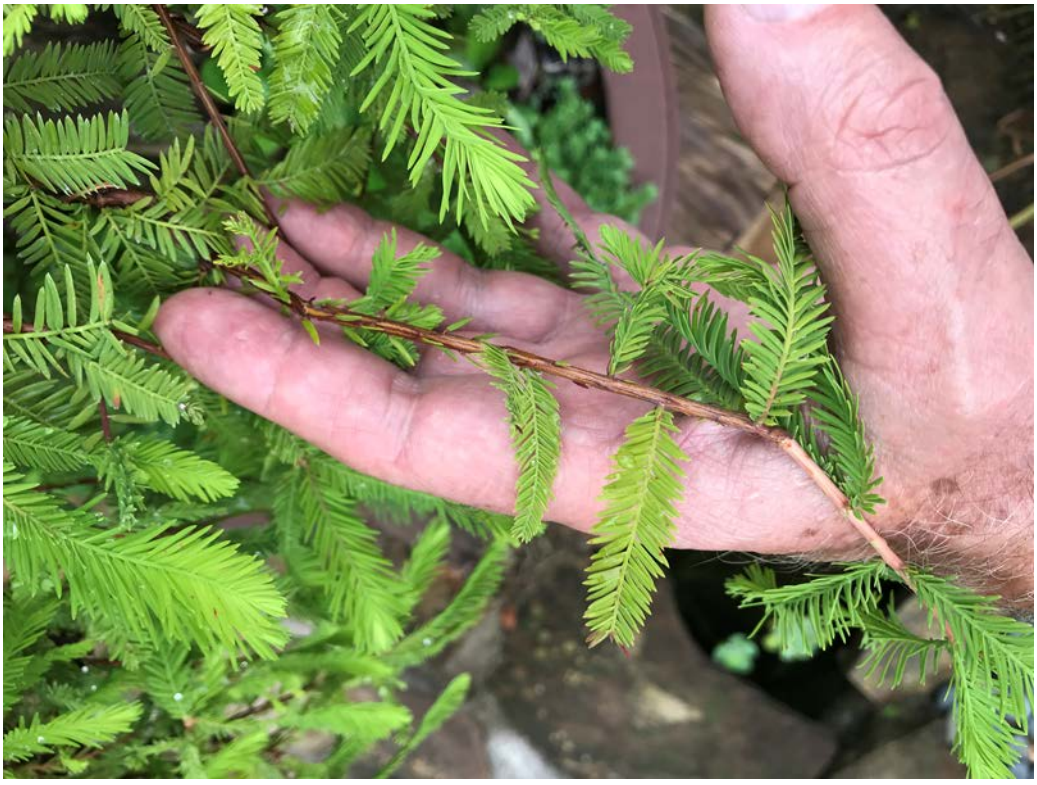
cut back to the first pair of alternating leaves. And as you can see, two shoots from the second flush of growth have emerged from the base of those two leaves. The vigorous shoot from the first flush of growth however, is too long and it was hoped that buds would pop further back from the first cut, so that the shoot could be further reduced in length, but such was not the case. We will see what growth occurs in the remainder of the growing season. However, if no more back-budding occurs, early next February, the shoot will be cut back to about ½ inch in length, sacrificing the second flush of growth to get better ramification and shorter intermodal spacing between sets of branches.

If you look closely at the photo, the shoot in question has no leaves before the second growth shoots and almost no modified leaf structures along the length of the shoot. However, you can see that there are two to three modified leaf structures (and therefore, adventitious buds) at the very base of the first flush of growth. It is to that point that the shoot will be cut back, if no other shoots form.

You can clearly see that the very tips of the second flush of growth are a pale green which quickly turn to a pale pinkish color. At this point, even though new leaflets have formed, the adventitious buds have not. Pruning back young shoots too soon does not allow the adventitious buds to form and also results in shoot dieback over the winter. Remember… you must allow enough time for the vascular structures to develop within the shoots.

Most of what you read recommends allowing 6 to 8 pairs of leaves to develop on deciduous material before pruning back to the first set of leaves. However, the number of leaves is not the best guide for when to prune. Simply because 6 to 8 pairs of leaves have developed does not guarantee that the vascular structures have developed in those shoots. Time is the better guarantor.

In bald cypress, you can best gauge whether or not a shoot has developed its vascular structures by the color of the stem. When the color of the shoots from the first flush of growth has darkened from a pale pinkish color to more of a rust color, it is safe to prune back the shoot. One word of caution; the sun can affect the color of young shoots on bald cypress, so look at the color both on top of and beneath the shoots to gain a clear indication.

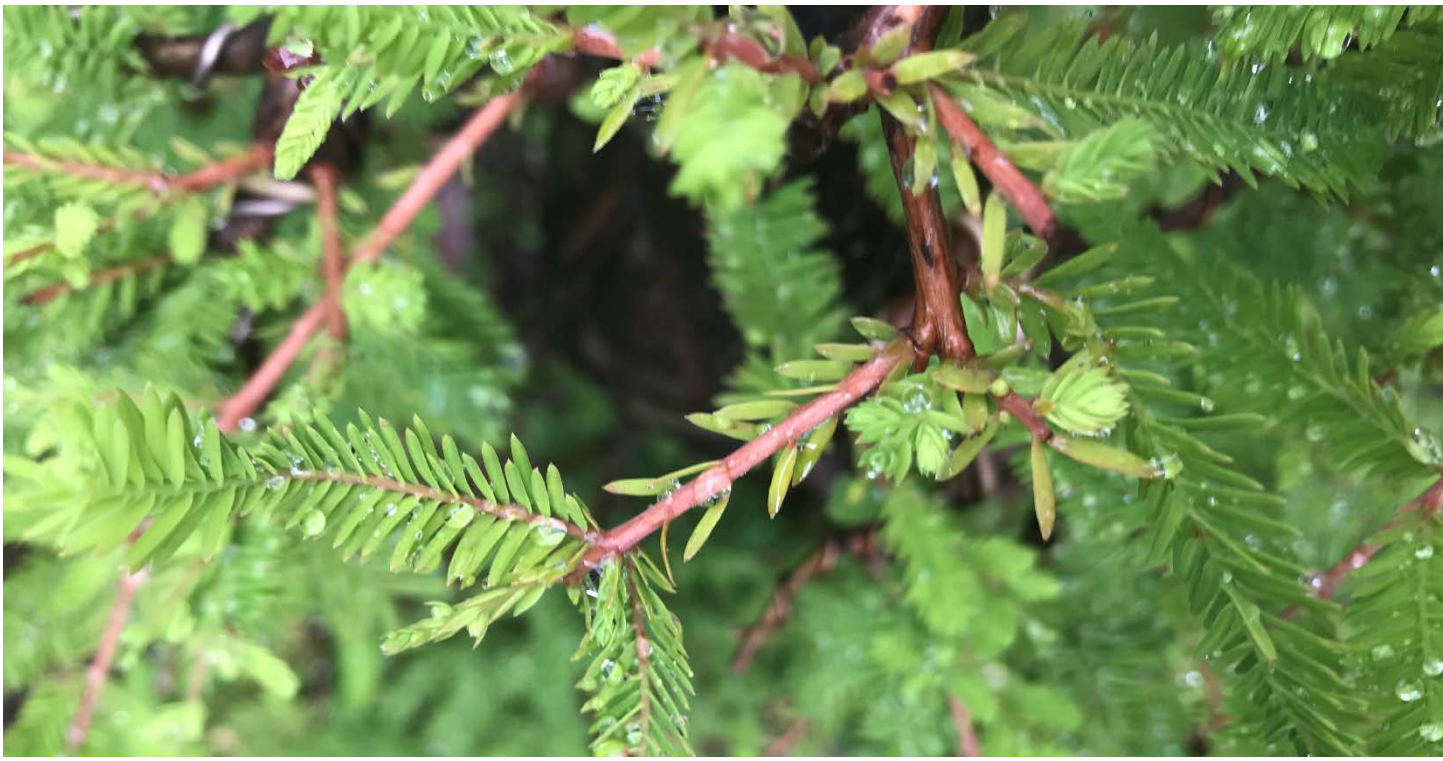


The photo above clearly shows how the shoot color changes when complete vascular structures have developed.

July 10, 2019 – In the photo above you can clearly see the color changes that take place over time. This is a shoot that was being allowed to grow long in order to thicken a tertiary branch. The dark brown portion of the shoot at my fingertip is the first flush of growth from this spring. The middle section of the shoot is from the second flush of growth after pruning back the first flush of growth. The middle section was cut back toward the end of May. Notice that pruning back the second flush of growth has prompted the development of new shoots on the first flush of growth. The pale pinkish colored shoot near my wrist is the third flush of growth this season.

The color of new shoots on pond cypress is a little different. But you can still plainly see the darkening color changes taking place as the formation of the vascular structures becomes fully developed.

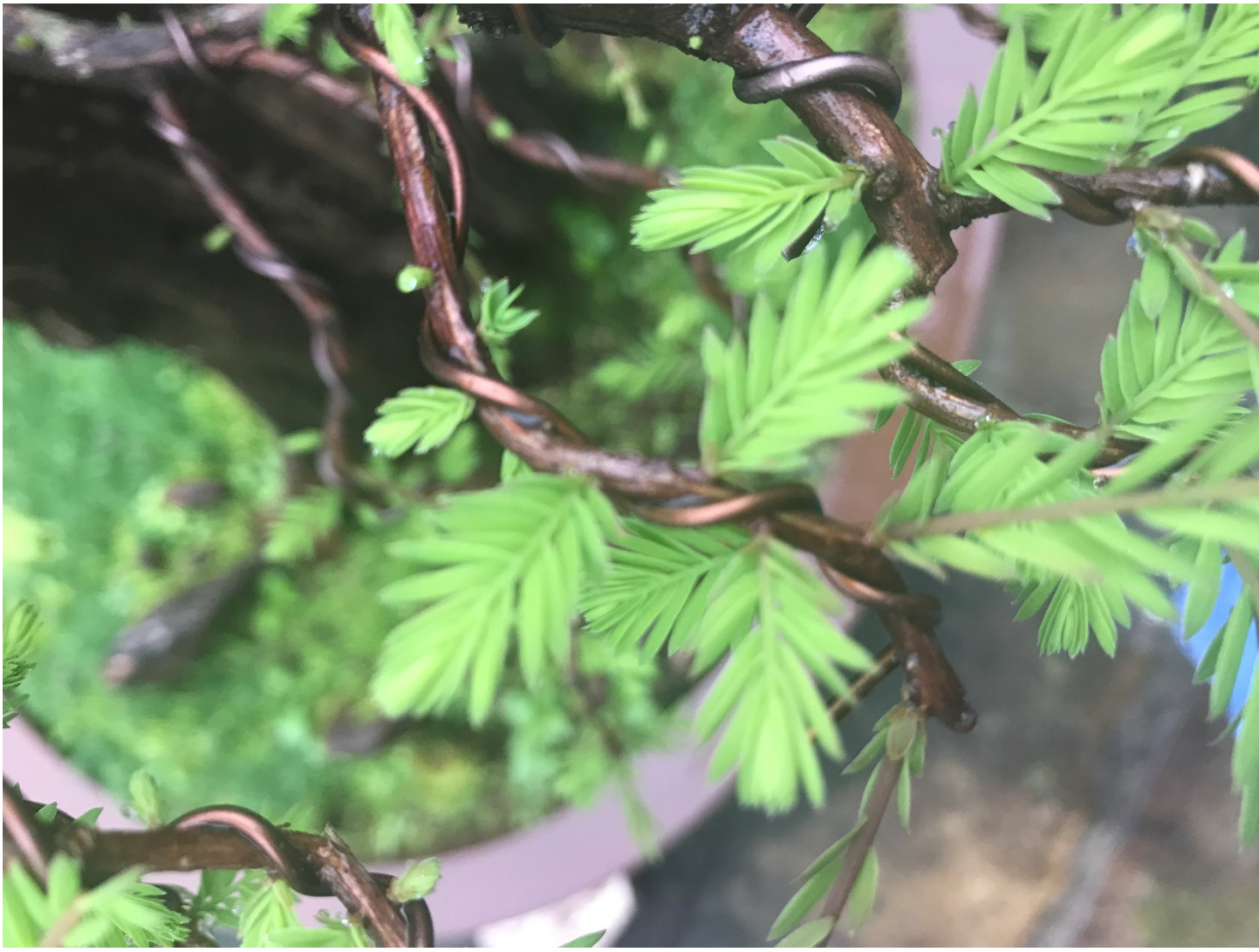
If you look closely at the photo below, you will see the modified leaf structures which form along the base of the shoots before the actual leaves begin to emerge. These “modified leaves” also form adventitious buds at their base. If you look closely at the second, shorter shoot on the right, you can clearly see new buds beginning to swell at the base of a pair of modified leaves after the first set of new-growth-shoots was cut back.



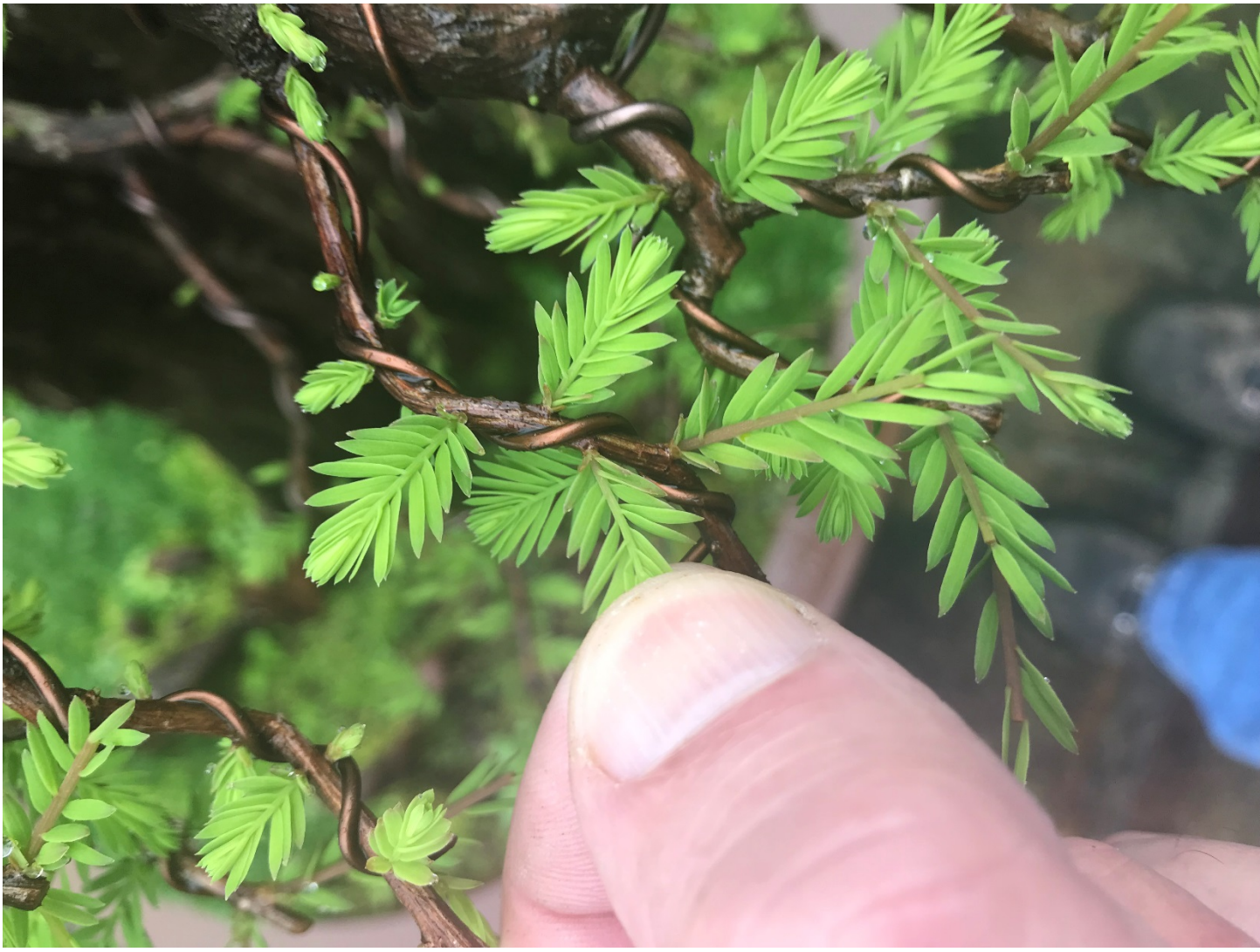
Bud Pinching and Leaf Reduction

Once you have developed structural branches with secondary and tertiary growth, it will be time to begin developing fine twigging and reducing the size of the leaves on your bald cypress. Reducing the size of leaves is done by pinching new growth. Pinching new growth on bald cypress will accomplish a couple of things: First, you will reduce leaf size. By pinching the tips of new leaves as they are beginning to elongate, you stop their growth. This task must be performed daily. Second, you will encourage back-budding. By pinching back new growth, and thereby eliminating the auxins at the growing tips, dormant buds and weaker growth are stimulated into action, to take over the growth task for that particular shoot or branch.

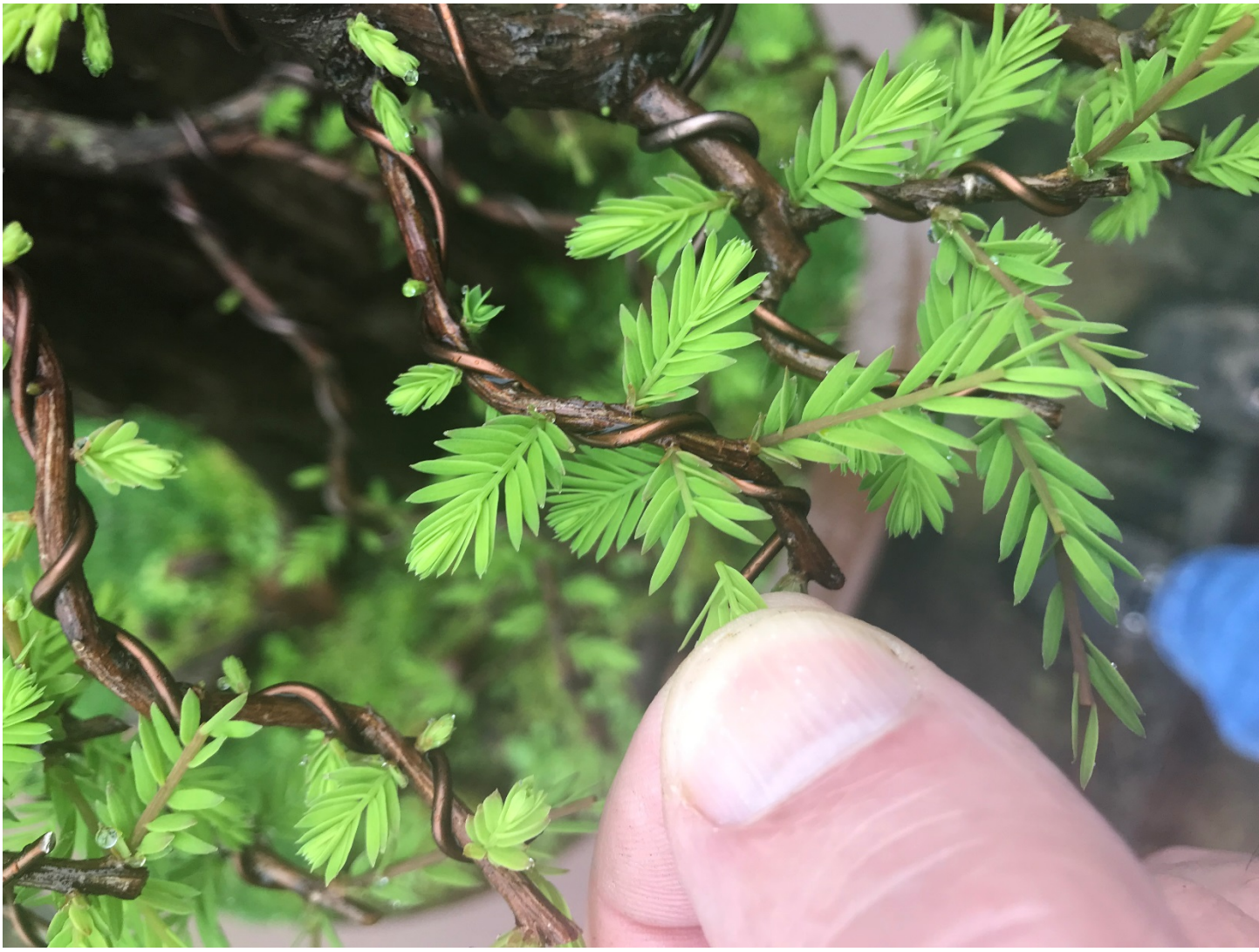
Auxins are essentially growth hormones that exist in trees. They act like suction-cups, drawing water and nutrients to the areas of concentration. They tend to be concentrated in areas that will help the tree achieve its' goal of survival; namely the apex (to help the tree grow as tall as it can grow) and the tips of branches (to help growth spread out wide to attain sunlight for photosynthesis). However, auxins exist throughout the tree – just not in as great a concentration as the apex and outermost shoots. And when you eliminate them in one area of the tree, auxins in other areas begin to pick up the slack.



The photo above shows what new leaves should look like when it is time to pinch out the tips. Note that the leaves have begun to unfold but there is still a cluster of leaflets at the tip that have not unfolded. It is this cluster that you should remove.



Simply pinch the bundle of leaflets between your thumb and forefinger and pull.



The job of pinching a large bald cypress can be daunting and one that will take a lot of time. My recommendation is simply to get a sleeping bag and camp out next to it for the weeks that new leaves sprout. But if you take the task seriously, you will quickly begin to ramify branches and get increased twigging. AND you will begin reducing leaf size throughout the tree.

Look at the photo below. The leaf on the left is from a bald cypress that is still in the "Growth for Size Stage." And if you look at that leaf tip, you can see that it is still elongating and would have grown even longer. The leaf on the right is from a bald cypress that is in the "Growth for Refinement Stage". Bud-pinching has been carried out for two growing seasons on the bonsai from which it came. And all the leaves on that bonsai are about the same size as the leaf pictured.

In the last three installments of “Bald Cypress as Bonsai” I have tried to provide a sequence for developing a flat-top cypress from raw nursery stock to a “finished” tree. In the next installment (Part 7), we will talk about collecting large, stump-cut bald cypress from the swamp.