Iowa Bonsai Association Newsletter

www.iabonsai.org

https://sites.google.com/site/cedarrapidsbonsai/

March 2021 Volume 76, Issue 2

Bonsai Soil Components for Sale

Pumice $20 for five gallons
$15 if you bring your own Bucket.
Akadama $32 per bag, $30 for members
BioGold fertilizer from Japan
$92.50 per 5kg bag

Contact Scott Allen or Tim Peterson

Inside This Issue

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From the Editor

A new year of bonsai has begun! If you have cherries in winter storage, you may have started repotting in February. See Timely Tips for information on knowing when to repot and what to keep in mind this month and John Denny's informative article on Root Hairs, a great re-run from a past issue. We have an article for you on collecting trees here in Iowa. No need to travel far! There are great trees to collect and work on all around you! We also have an extremely interesting article on Juniper Tip Blight (Phomopsis) by Noah Butler.

We hope you enjoy the second issue of the IBA/EIBA Newsletter of 2021. If you are interested in writing and/or researching a subject for publication in this Newsletter, please don't be shy! We'd love to hear from you. If your worried that your writing skills aren't up to the challenge, your editor is here to help! We can get it done! Deadline for contributions to the Newsletter is the 15th of the month prior to the month of publication.

Remember that prior Newsletters are available on the Iowa Bonsai Association website **www.iabonsai.org** There's a lot of good information there. This is excellent reading if you are still not able to get outside for a bit.

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From the IBA and EIBA Presidents

IBA

Scott Allen, IBA President

Bonsai Friends: It's my great pleasure to announce that we can resume IBA club meetings at the Greater Des Moines Botanical Garden starting in May. Meeting times have not changed (9am – 1pm). The meetings will be held in different locations, however, to allow more space for social distancing and masks will be required. We will be meeting outside whenever possible but will have an indoor space as backup for inclement weather. See below for meeting locations for any given date.

- May 15 – Veranda (covered patio area off of DuPont room) with Kemin Plant Sciences Lab as a weather backup
- June 19 – Veranda (covered patio area off of DuPont room) with Kemin Plant Sciences Lab as a weather backup
- July 17 – Kemin Plant Sciences Lab – we may be able to have you set up on the Veranda, however, won't know until closer to the day
- August 21 – Kemin Plant Sciences Lab - we may be able to have you set up on the Veranda, however, won't know until closer to the day
- September 18 - Kemin Plant Sciences Lab - we may be able to have you set up on the Veranda, however, won't know until closer to the day
- October 16 – Veranda (covered patio area off of DuPont room) with Kemin Plant Sciences Lab as a weather backup
- November 20 – Kemin Plant Sciences Lab

The IBA BOD will be working on putting together short programs for these meeting and will announce those as soon as we have them outlined. One of the programs we usually do in Feb or Mar is mixing soil but since we won't be meeting, we've mixed some soil and have it for sale for those who need it. This is Boone Mix 1-1-1 Akadama – Pumice – Lava. Contact Scott Allen or Tim Peterson to arrange soil purchase.
We're also working to schedule a couple workshops for later in the year and will post those on our website and Facebook when those have been confirmed.

I know the last year has been difficult for us all and, given the challenges, we (The IBA) haven't been able to meet or support members as well as we would have liked. I'm hoping 2021 will be better for us all and that things will continue to improve. We are here to help with your bonsai, so please reach-out to us if you need help repotting or have questions regarding your bonsai.
Hope to see you all at club meetings later this year.

Sincerely,

Scott Allen
President – Iowa Bonsai Association

EIBA

Susan Daufeldt, EIBA President

It was great to see many of you at Al's greenhouse on February 20, 2021, for our soil and dues event. We are still wearing masks and trickling in and out so as not to congregate in too large a gathering, but it was just great to catch up with you and talk about trees!

This is an exciting spring. After a year of relative inactivity in the bonsai world, we're all itching to get things up and going. I know that plans for exhibitions, workshops and outdoor

activities are being formulated by the clubs. Please be sure to pay your dues so that the clubs can continue to thrive and provide the opportunities that are so advantageous to all of us. We don't make art in a vacuum. And Bonsai, particularly, because there is so much science involved, in not easily learned without the help of good teachers. There is a lot of good information on the internet these days, but a lot of bad information, too. Your clubs can help to sort out the good from the bad. They provide opportunities for instruction and a venue for the interchange of information and ideas. They also provide opportunities to share the results of your labor through exhibition and other club events. Your clubs give critical support to those who are just getting started in the art. Please support your clubs in any way that you can.

You can send dues or donations to our club Treasurer: Jim Rajtora, 3512 Sue Lane NW, Cedar Rapids, IA 52405. Checks should be made out to "EIBA."

March 11, 2021, 6:30 PM
EIBA Board Meeting via Zoom. The link will be sent out the Monday or Tuesday prior to the meeting. Please contact me by phone prior to the meeting if you think you have not received the link.

March 18, 2021, 6:30 PM
Club Meeting Via Zoom: Jennifer Price, apprentice to Walter Pall, presents "Bonsai: Where We Are And The Future…"

The Presentation: This is an interactive discussion, showing highlights from private gardens throughout the European Union and the United States. Jennifer will speak on what is currently happening in Europe, where American bonsai stands and the direction we are headed, particularly in regards to the increasing use of native materials in Bonsai. This presentation will also feature some discussion on Bonsai containers, accent plants and styling and Walter Pall's garden. The presentation runs a little over an hour in length, but Jennifer breaks every 15 minutes or so for discussion.

Cost & Fees: The cost to the club is $200.00. Because we do not want cost to prevent you from participating, some of the members have offered to cover that cost. Accordingly, there is **NO charge to club members for participation**, but if you want to contribute, you can make a donation to "EIBA," "Jennifer Price" in the memo, and send it to Jim at the address above. **IBA members are invited to participate** in this meeting, if they would like to do so.

Logistics: EIBA Vice President and Board Member John Clemens will be assisting with the technical aspects of this meeting (clemensj2@yahoo.com). A Zoom link for this meeting will be sent to you via email Monday or Tuesday prior to the meeting. The (meeting) link will be available to you to join at 6 pm (30 minutes prior to the start time). Please log in early to allow time for troubleshooting any issues (**https://support.zoom.us/hc/en-us/articles/206175806#h_8f38d3af-506f-4c33-8269-4b649d5c1aee**) Please take a few minutes to review Joining & Configuring Audio & Video. (**https://support.zoom.us/hc/en-us/articles/201362283-How-Do-I-Join-or-Test-My-Computer-Audio-**) This will provide an overview of setting up your audio and video. Equipment recommended to virtually attend this meeting is a PC, tablet, or phone with internet connection, mic and camera. We strongly recommend headphones/earbuds.

I am looking forward to this with great delight and hope that all of you will be able to join! Please contact John Clemens or me with questions. Have a great March!!

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Name that Tree

I have two photos for you this month. These trees are growing side by side along a stream bed on an Iowa farm. Can you tell from the bark what they are? (Answer page 12)

Timely Tips

Susan Daufeldt

If you have trees in indoor winter storage, you should be watching for the buds on deciduous trees to start turning green. In my rooms, this begins every year with the Cherries. When the buds are green, it is time to repot. I have repotted four Cherries this week and a Euonymus alatus (Burning Bush), which is also beginning to push. Next will come the crab apples and then the trident maples. I am extremely grateful that they don't break all at once! Trees in outdoor storage remain, thankfully, buried under their protective blanket of snow and it will be many weeks yet before I need to start watching them. One thing, however: We've had a lot of snow. If you have bonsai wintering outside and protected by rabbit fencing, you may want to keep a watch and take additional protective measures. There is not a lot of food available and the rabbits are chewing the bark off of whatever they can get at. The snow is hard on top and deep enough that the little beggars can walk right over the rabbit fencing (or through it) and help themselves to a very expensive meal!

When trees begin to push in the spring and before bud-break, you can also do some light pruning if you didn't get to it in November. You may want to have some rooting hormone on hand so that you can take some cuttings. I usually use Dip n Grow, a liquid root stimulator that I get from Earl May. But Earl May has been out for ages, one of the odd effects of COVID-19. But I have just ordered some online and have been using a powdered rooting hormone these last few days.

As trees come out of dormancy and begin to grow, their water uptake increases. Be sure to pay attention to the changes and increase your watering accordingly. Remember, once trees leaf out, they need as much light as possible, otherwise they will develop long internodes and large leaves. In addition, trees that have leafed should not be exposed to freezing temperatures and if you have repotted, they need to be kept out of the wind and should not be let to freeze even if they have not yet broken.

Pines and junipers can benefit from getting outside in the sun as soon as temperatures are above freezing, but should come back in if night time temperatures drop below freezing.

Root Hair's and What They do

John Denny

We have all heard of "root hairs", but what the heck are they and how do they influence and affect our bonsai trees? First, root hairs do their work out sight, which is why we know little about them.

An attribute of a good healthy bonsai is a dense mass of fine roots. On those roots is a mass of root hairs, which are specialized cells that expand the surface area of the roots by a factor of 100 or more. This extra mass of root hairs helps the roots absorb far more moisture and nutrients. Each rootlet has a "root cap" on the tip and behind this root cap are the many, many root hairs.

Root hairs live only a few weeks, but roots are constantly reproducing more of them. Many of these root hairs are destroyed in the repotting process. Combing out roots, pulling out soil particles, pruning root tips, jamming chopsticks into the root mass all damage or destroy root hairs. But once roots begin growth again, new root hairs are developed and life goes on for the tree. Thinking of the period after repotting, we are advised not to fertilize or to place trees in sun and wind. This is because there are not yet enough root hairs developed to handle rapid transpiration from sun and wind, nor to handle fertilization. Another aspect of repotting that can impact root hairs is the failure to firmly wire your tree into the pot. If your tree can wiggle due to wind, that can tear up vulnerable root hairs.

There is a lot of discussion about bonsai soils and recipes. But, really, what is important about that soil, is the root's ability to grow and thrive in that soil. That soil gives moisture, air, and nutrients for the roots. Soil serves the roots, not the other way around.

Root hairs do have limitations, however. They only grow along the root for a short distance behind the root cap, not all along the entire length of the root. They also do not have a long life span, needing continual replacement.

If root hairs do such a fine job of helping roots absorb moisture, why does a plant, especially pines, need mycorrhizae? Mycorrhizae is a fungus that also helps roots absorb moisture. It is the white stuff covering the bottom and sides of the root ball of pine trees, when you pull the roots out of the pot during repotting. Over 90% of plants can utilize mycorrhizae. Mycorrhizae can grow all along a root, not just near the root tip, thus expanding far beyond the range of root hairs. Mycorrhizae grow continuously throughout the root system and is always functioning. This symbiotic relationship is why we don't bare root pines during repotting. We leave roughly half of the root system intact so that we maintain the all-important mycorrhizae. Conifers, like pines and spruce, produce root hairs after germination, but once the roots develop the symbiotic relationship with the fungal mass of mycorrhizae, the tree's roots actually stop producing root hairs!

We don't often see the root hairs or mycorrhizae of our trees, but they are both critical to the health of our trees and it pays to understand what they do and what we should do to help them function at their best!

Collecting Trees in Iowa

Susan Daufeldt

Slippery Elm (Ulmus rubra) in the Spring of 2020, originally collected in 2016.]

As I write this, we are in blizzard conditions. The snow is blowing horizontally across the fields beyond my office window. The bonsai in outdoor winter storage are safely buried beneath the snow. But spring is staring me in the face. The collecting season in Iowa is about to begin. In five or six weeks the ground will have thawed and early breaking species like elm and honey suckle will begin to show a hint of green. And if I don't want to miss the optimal time for transferring these trees from the woods and fields into my bonsai yard, I have a lot to do to get ready. There is a season, and a time within the season, for everything. When the weather breaks and the ground thaws, the race will begin.

Actually, getting ready started last summer and fall, when I determined where and what I wanted to collect in the spring of 2021, ordered in supplies for making the soil into which I collect, prepared an initial batch of collection soil and made plans for building the wooden boxes where collected trees will spend their first two or three years in my bonsai yard. These activities kept me very busy right up until it became necessary to get trees into winter storage. And there are still a lot of wooden boxes that need to be made before the weather breaks.

This is Iowa. The deciduous options for use in bonsai are many and varied. Among my personal favorites are Slippery Elm, a/k/a Red Elm, (Ulmus rubra); Grey Dogwood (Cornus racemose); Hackberry (Celtis occidentalis); and Box Elder (Acer negundo). There are American Hornbeams (Carpinus caroliniana), Black Cherry (Prunus serotina), Chokecherry (Prunus virginiana), Honey Locust (Gleditsia triacanthos), many species of Hawthorns and Plums, and the list goes on. In addition, there are non-native weed trees, such as the Autumn Olive (Elaeagnus umbellate), small leaved and fast growing, and Bush Honeysuckle (Diervilla lonicera) that offer scope for creative expression in the art of Bonsai. One of the very precious advantages to working with these trees is that they like Iowa. Our rather extreme climate doesn't bother them.

Iowa has four native species of conifer, but only one of them is pervasive throughout the State - the Eastern Red Cedar (Juniperus virginiana). Of the other three, the Common Juniper (Juniperus communis), which is "found largely in the northeastern section" (Bode p.10) of the State, may be an option for collecting if you can find it. The Eastern White Pine (Pinus strobus), while native in Iowa, is naturally found "in restricted localities but not in any quantity, in the northeastern part and as far west as Hardin County." (Bode p. 9). We have some Balsam Fir (Abies balsamea), but they are very rare ("Found naturally in one place in Allamakee County" Bode p. 3) (See also, Iowa's Trees, Iowa Association of Naturalists (Iowa's Plants Booklet Series); and Trees & Shrubs Native in Iowa (nativetreess.pdf), Iowa Department of Natural Resources). So, if you want to collect native conifers, the Eastern Red Cedar is your best bet.

In general, our native Yamadori don't come out of pockets of rock like the conifers that can be collected in the mountains of the western states. In Iowa, different environmental factors influence their development. They may be growing in dense clay soil or soil that is almost completely made up of sand. They may be pruned by browsing deer, rabbits or cattle or cut off year after year by hay making equipment. Some of the best Eastern Red Cedars I have collected came out of a hay field. They were beautifully suited for Mame and Shohin-sized trees, with lovely movement and direction already established, having been mowed off three times a year for the first few years of their lives. Iowa Yamadori can be found in stands of timber, farm fields

and fence lines or along streams or river beds or in swampy areas, in both private and public lands. When collecting from private land, it is important to have permission from the landowner. When collecting from public lands it is important to have permission from the controlling administrative entity.

One incentive to collect Iowa Yamadori is the opportunity to preserve these treasures. The natural beauty and aesthetic value of trees that have been naturally dwarfed by environmental conditions is generally not recognized by land owners and conservationists. By collecting these trees, we preserve an important aspect of Iowa's natural landscape. Last spring, Haravey Ireland, his crew, John Daufeldt and I had the privilege of collecting Honey Locust from Iowa County Conservation ground, with permission. It was exciting and very satisfying to have the opportunity to preserve these Yamadori, aged, dwarfed and lichen covered, that would otherwise have been destroyed by the County as it pursued the establishment of what is currently considered "natural prairie."

John Daufeldt in the back of Harvey Ireland's truck with Honey Locusts collected in the Spring of 2020.]

As I prepare for the month ahead, I think of Slippery Elms originally collected into my grow bed that must be dug this spring and others to be collected from a farm South of Iowa City. There is a hackberry that I missed last year located in a stand of timber on a friend's property nine miles south of my home. Elms break early, along with Honeysuckle, and will be the first on my list. As I make plans, I realize that I may have to forgo the Honey Locusts that I would like to collect from County Conservation Ground simply for lack of time. Grey Dogwood will break after the Elms and Honeysuckle, but before Hackberry, Mulberry and Honey Locust. I make plans to collect accordingly.

In every case, I will try collect when the buds have swollen and are beginning to show green, but before the buds break. Once conditions are right for collecting, I will dig trees until the window closes. An early hot spell will mean a shortened collecting season, as bud break will occur sooner under those conditions.

As I consider the season, I run through a checklist of the tools and equipment that I will need to have on hand: Shovel; trowels; metal chopsticks (or a long philips screwdriver) (invaluable for removing heavy clay soil from roots without damage); small tree saw with an excellent blade; saws-all, with long blades, (for cutting tap roots); extra blades; plastic (for short duration to keep roots from drying out prior to transplanting); burlap or old sheets and straw (to keep roots from drying out in cases where it will take longer to accomplish transplanting or boxing up); twine and scissors (for holding plastic or burlap in place); moving blankets and bungie cords (sometimes needed for securing trees in transit without damaging them).

When I go to collect a tree, I prune only what is absolutely necessary, leaving as much foliage as possible. I find that the tree will lose on its own what it cannot support and will recover from the transplanting much faster if it is not drastically pruned. If drastic pruning is necessary, don't collect the tree unless failing to do so would mean the loss of the tree altogether (for example: The area where the tree is located is slated to be disturbed for other purposes, such as construction or agricultural use). If possible, do your pruning one year, or over a couple of years, and then collect the tree.

When I begin to dig a tree, I start by scraping away a circle of soil around the tree that is far enough from the trunk that I know I will NOT find roots. I then work inwards towards the tree until I begin to find roots. It is important to avoid as much damage to the lateral roots as possible. Once I've located them, I work downward and under the tree all the way around, preserving as much of the root ball as possible within the circle. When I find the taproot, I cut it. It is often not possible to get the tree out of the ground without bare-rooting it. When that happens, I cut the taproot as close to the base of the tree as possible

without damaging or removing other roots. If there are not enough lateral roots to support the tree, I will need to leave a considerable amount of the taproot. That can be reduced in subsequent repottings as the tree develops lateral roots. It is critically important to keep the roots moist from the time the tree is removed from the ground until it is properly transplanted. If the tree has been bare-rooted, I need to pack the roots in wet straw or sphagnum and wrap it in burlap or sheeting. On many occasions, nearby streams or ponds can be helpful sources of moisture in the field. If I know I have that option, I don't have to carry water to the collecting site.

Some collected trees may be planted in grow beds and worked on in the ground for a few years before they make a transition into wooden boxes. In these cases, I will fence the trees with rabbit fencing and put window screen over them. This will provide shade and windbreak for the newly collected trees in the grow-bed while they become established.

Collected Red Oak in wet straw and plastic immediately after collection.

Collected Red Oak in a wooden box in early summer of its first year in the bonsai yard.

Most collected trees go into wooden boxes or large tree pots when they arrive at the yard. I make wooden boxes out of untreated pallet wood. Pallets are generally made of native oak, which is extremely hard and durable. Growing up on the farm, we used it to build fences and barns. The pallets can generally be had for free, but there is some work involved in removing the nails. Pallets with wide boards work best and the thicker the better. Native oak tends to splinter, so it is best to predrill holes before screwing the box together. I use hardware cloth for the bottom of the box to ensure good drainage. Hardware cloth is available from most lumber stores. Do not use window screen. The holes are too small and will clog too easily, resulting in poor drainage. It is important to have feet on the box so that it sits up far enough from the ground to ensure good drainage and, even more importantly, to avoid having the tree root through the bottom of the box into the ground.

Collecting larger trees can mean allot of soil in the box. When I first began serious collecting, I asked Gary Wood what I ought to use for soil. On Gary's recommendation, I developed a collection soil formula: Twenty-five percent (25%) cheap potting soil (Not miracle grow or anything that has been fortified in any way); Twenty-five percent (25%) partially decomposed untreated bark mulch; and Fifty percent (50%) Horticultural Grade Perlite. Of the three ingredients, the most important is the Horticultural Grade Perlite. This is poor-man's pumice and provides the drainage necessary for good root growth and tree health. It is Critically important to use HORITICULTURAL grade perlite. This is not generally available from garden centers. The perlite sold by garden centers is mostly dust and fine particles and will not accomplish the purpose. The only source I have been able to find is Growers Supply out of Dyersville, IA (growerssupply.com or (563) 875-2288).

It is important to secure the tree in the box in such a way that it does not move. I always tie in with wire, but sometimes I find it necessary to secure the upper portion of the tree to steel posts driven into the ground next to the box. It is critical that the wind does not move the top of the tree so as to disturb developing roots. Newly collected trees are placed in a shaded area out of the wind. If I'm short on windbreak, I make it out of lattice and steel posts. These trees will remain in the box for at least two years and will not be worked on in their first year in the yard. They will remain in place through their first winter, healed in with straw and fenced with rabbit fencing in the location where they have spent the growing season. In their second year, they will be moved into full sun and I will do regular seasonal work on them. After two or three years, it is important to get the trees out of the box and do the necessary root work. At that point, the tree may go back in the box, into a smaller box or into a grow pot.

Slippery Elm, collected in 2018, in a wooden box.

It is -5 degrees outside and we are under feet of snow. The rabbits are hopping right over my rabbit fencing. Fortunately, my vulnerable and precious bonsai are buried deeply by that lovely white stuff. But in indoor winter storage, the cherries are showing green buds. The repotting season has begun. The collecting season will begin sometime in March – only weeks away. I hope you are excited and ready to take advantage of the many opportunities right here in Iowa.

Sources:

A Handbook of the Native Trees of Iowa
I.T. Bode, Extension Forester, Iowa State College and G.B. MacDonald, Professor of Forestry, Iowa State College 1957
Iowa State College of Agriculture and Mechanic Arts
Extension Service

Agriculture and Home Economics
R.K. Bliss, Director
Ames, Iowa

Iowa's Trees
Iowa Association of Naturalists
(Iowa's Plants Booklet Series)

Trees & Shrubs Native in Iowa (nativetreess.pdf)
Iowa Department of Natural Resources

Noah's Arc of Learning

Noah Butler

Article 2: Phomopsis (Juniper tip blight) Identification and Treatment

Author's note: the information presented in this article comes primarily from an online workshop conducted by Ryan Neil at Bonsai Mirai.

Those with junipers, whether eastern (Itoigawa or Kishu Shimpaku) or western (Utah or Rocky Mountain) may have observed browning tips or dead and dying branches on your trees. When junipers exhibit changes like this, it will universally set us into panic-mode. A common cause of these changes is the fungal pathogen, Phomopsis juniperovora. The disease is referred to as "juniper tip blight." Here I share my current understanding of what Phomopsis is, how to accurately identify this fungal infection, and what to do about it.

Fungi have complicated life cycles that consists of a dormant spore phase and an active growth phase. Fungal spores on your juniper germinate (hatch) when temperatures remain close to or above 50 F and humidity remains high. The fungi grow and change their appearance and hyphae (long filamentous branches) are produced. These hyphal extensions will burrow into delicate new growth on plants, sucking up nutrients as they continue to divide and increase their abundance.

Identification

When you first see browning tips or dead shoots on your juniper, it is important to first distinguish whether your juniper is either suffering from Phomopsis or whether the dying growth is a result of either natural aging or mechanical damage (from either wiring, bumping during transport, or a bird landing in the tree).

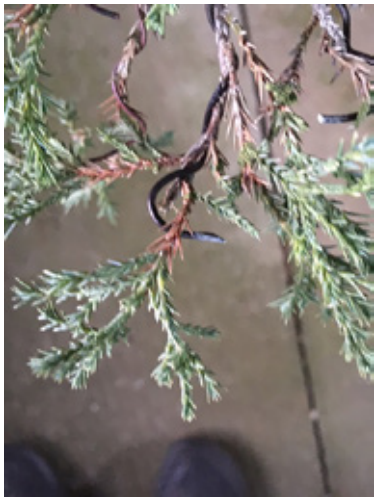

Fig. 1. Natural browning and death of old interior needles on Rocky Mountain Juniper. Author's tree

The first key is to understand that Phomopsis only affects the young growing tips of junipers. Phomopsis death always starts at the tip and works towards the interior. Phomopsis will not manifest as browning needles or scale growth at the base of shoots. If you have brown interior needles or yellowing growth in the interior, whether the shoots were wired or not, this is likely just old growth that naturally dies away over the course of 2-3 growing seasons (Fig. 1).

Fig. 2. Young juniper tips killed by Phomopsis. Note that the dead/ shoots are intermingled with new green shoots. New crotch growth is also apparent. This is a clear sign of infection, not mechanical damage.
Photo Credit: The Missouri Botanical Garden

However, if you see dead or browning tips and shoots intermingled with healthy shoots (Fig. 2), it's likely Phomopsis. Another cue for identifying Phomopsis is the appearance of healthy green growth at either the base of dead or dying shoots or in the crotch at the base of a dying shoot (Fig. 2).

Fig. 3. Young juniper tips killed by Phomopsis. An apparently healthy shoot at the end of the branch. If this were mechanical damage, the entire shoot would be dead.
Photo Credit: Bonsai Mirai

Also, if you see living tissue out at the end of a branch with several dead shoots further back on a that same branch (Fig. 3), it is likely that your tree has Phomopsis. The last key will be visual identification of very small black spores on the dead tip

(Fig. 4). You'll need a powerful magnifying glass or a jeweler's loupe to see them, but seeing them will fully establish that Phomopsis is at work.

Because tip death might be evident on both wired and unwired branches, it is also important to be able to tell the difference between Phomopsis and simple wiring damage. There is no reason to needlessly apply chemicals (detailed below) if the tree just needs a more gentle touch when applying wire.

Fig. 4. Phomopsis spores on dead juniper tip.
Photo Credit:
The University of Maryland Extension

Although mechanical damage can occur on unwired shoots because of birds and bumps during transport, mechanical damage will most often be evident on shoots that have been wired. Different from Phomopsis, mechanical damage generally causes the whole branch, shoot or twig to die, with no new growth anywhere along the branch (Fig. 5). Even if the shoot was not wired, you may also see that the dead or dying shoot emerges from a secondary branch that has wire applied (Fig. 5). The lack of new growth anywhere along the shoot or twig suggests that the death is a consequence of either breaking the inner xylem tissue (which transports water from roots to shoots/leaves) or shearing the cambium (stem cell) layer away from the outer phloem tissue (which transports sugar/nutrients from leaves/shoots to the rest of the tree) within the branch or shoot.

Fig. 5. Juniper branch killed by mechanical damage. Note the entire shoot is dead, with no green growth apparent along either the shoot or at the crotch where the shoot emerges. This is a clear sign of mechanical damage, not Phomopsis.
Photo Credit: Bonsai Mirai

It is also useful to understand how long it will take for the shoot or branch or shoot to die after a mechanical injury. If the xylem (water transport tissue) has been broken, a juniper branch or shoot will generally die within ~ 2 weeks. By contrast, if the xylem remains intact but the cambium (stem cell layer) has been damaged or sheared away from the outer phloem (sugar transport tissue), a juniper shoot might linger and retain its green color for 3-4 months. So, keep these time intervals in mind when you first identify branch die back. For example, if you wired in September 2020 and you start to see tip and shoot die back in the April 2021, then the time interval (~6 months) is beyond what would be expected for mechanical damage and it's likely spring Phomopsis at work.

Treatment, Prevention and Recovery

Diagnosis in hand, the next question is obvious: How do I treat, prevent and help my tree recover from Phomopsis? First, and above all, do not cut off affected branches. You should cut away the dead shoots and tips, but the branches must remain in place so that the tree can recover and regain strength. You should also maintain your fertilization program, as the tree needs energy to recover.

With the dead tips and shoots removed, you should treat the tree with a fungicide to limit active fungal growth. Look for products with noted activity against Phomopsis. Two ideal candidates are the Bonide ® copper-based fungicide 811 Copper 4E and the Bonide ® dithiocarbamate fungicide Mancozeb. Apply and repeat applications as the suggested by the manufacturer. If you have multiple junipers in your collection, it is also important that you do not handle the foliage of multiple trees when they're wet, as this can transport spores (that stick to your hands) from one tree to another. The spores are not affected by these fungicides.

One last note: the susceptibility of your junipers to Phomopsis is often linked to either an imbalance of water and oxygen in the soil or root aphids. Without enough oxygen the roots will be unhealthy, which weakens the tree and enables Phomopsis and other pathogens to establish footholds.

If the top of the soil looks slimy, wet and hard-packed, and water runs off (rather than into) the pot when you water, very gently scrape away the top ½ to 1 inch of the soil and replace with sifted and pre-wetted soil mixture. As you scrape, check for aphids among the fine roots in the upper levels of the soil. Root aphids will appear as masses of small white, red or black insects that may or may not be crawling about. Aphids can be treated with insecticides.

I hope this information on Phomopsis and mechanical damage proves useful for those of you cultivating junipers. If you have questions, comments or clarifications, please let me know. I would also be happy to hear your suggestions about topics for future articles. Send your questions and suggestions to **noahsullivanbutler@gmail.com**.

Name that Tree

Answer: A. Red Oak. I am currently working with Red Oak. This tree seems to bark up quickly, tolerate transplanting and root work well. And it back-buds! Because of the size of the leaves, this is likely to work better as a bigger tree/. But note: The leaves come out very tiny and perfect in the spring. It is late breaking. So, even if the leaves don't reduce enough for your tastes, you have a great winter and spring interest. In addition, Red Oak has great fall color. There are a couple of pictures of one of my collected Red Oaks in the article on collecting trees in Iowa. If you have the opportunity to collect one of these trees, don't pass it up – Or, if it's not your thing, give me a call – I LOVE these trees!

B. White Oak. I have never had an opportunity to collect or work with White Oak, but would expect that the experience would be very similar to working with the Red Oak.

Has anyone worked with these trees? If you have, please let us know what your experience has been.

Email me at: **scdaufeldt@icloud.com**.

Bonsai Inspiration

David Richmond

Photo Credit: David Richmond

I am working this direction with my own artistic expression.
It's about inspiration for a Bonsai Forest or Penjing.

On the morning of February 18, 2021 at 7:15 AM Central Standard Time, I was headed to Pella. It was early and I was watching the dawn breaking in the east. I drove into a parking lot looking over Red Rock lake (see location indicated on the map). As I pulled in, I was listening the radio station, 96.3 Iowa Public Radio out of Pleasantville, Iowa.

Beethoven's King Stephen Overture was playing loudly. Listen on You tube if you wish.
https://www.youtube.com/watch?v=KFCL_S1vcT4

I had my camera with me so I got out to photograph this drama unfolding. The temperature was 0 degrees Fahrenheit and as dawn was breaking, I got this cool shot.