



conifer

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CONIFER QUARTERLY

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Picea jezoensis 'Howell's Dwarf'

Inside Cover Photo.

Picea pungens 'Gebelle's Golden Spring'

Back Cover Photo

Picea omorika 'Bruns'

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A Peculiar Time for a Society

David Olszyk

I found this quarter's President's Message to be a particularly difficult one to write. Truth is, at this very moment, we, the American Conifer Society, and the entire Earth for that matter, are saddled with way more unknowns than knowns. Compounding this dilemma is, now that you're reading this, many of the unknowns may well have become knowns. For the next few moments, I ask that you bear with me for what might very well be a somewhat historic perspective.

The very nature of a society is that it's social. We're adjusting to a world where we're virtual socializing more and more. While many of our members are quite adept at social media, video conferencing, texting, and Facetiming, many others are truly isolated. If any of your friends are isolated, I hope you had the forethought to pick up the phone and chat. If not, this is the time to do it.

Our spring and summer events have been canceled or postponed until next year. As I'm writing, the National Convention and Conifer College, which were to take place this June in Clinton, IA, have been canceled and postponed until June 2021. While regrettable, the health and safety of our members are much more important than an opportunity to socialize and frolic among conifers. I'm confident that the Clinton 2021 Convention will be even better than it would have been in 2020.

Here's to hope. Hope that everybody in our mutual circles are unaffected by this pandemic; and hope that, with all the extra time staying home, everybody will have the time to get out into their gardens and tend to their plants. We all know that gardening is like a tonic; take advantage of it. I anticipate that, by fall, all of you will be proud of your results and ready to show off your efforts once the calls for self-isolation are lifted. Stay safe, stay healthy, and have fun!

An interesting and esoterically nerdy correction

As some of you may know, one of the many hats I wear is that of CONIFERQUARTERLY Technical Editor, which means that I have the dubious role of attempting to keep the botanical and vernacular plant nomenclature

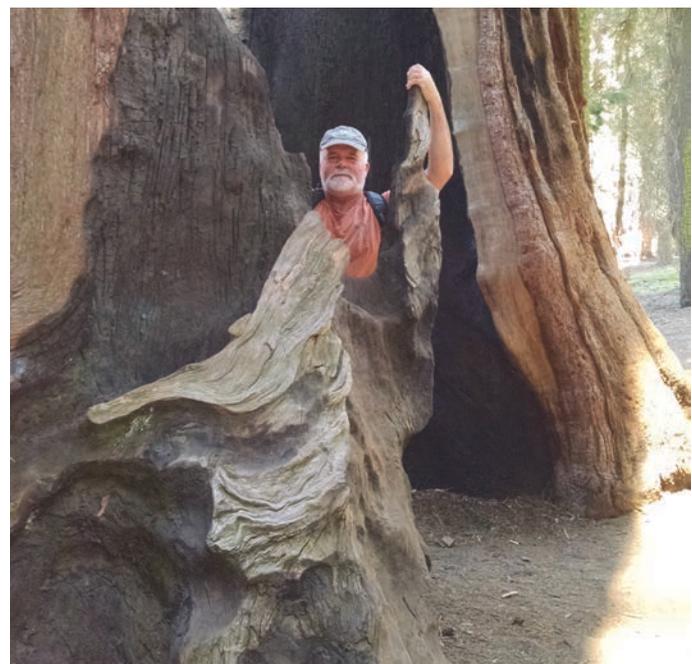
as straight and consistent as I can. I have to admit that in the Winter CQ, one got away from me.

In Dave Eckert's wonderful article about building a plant wish list, he mentioned a *Cupressus vietnamensis* 'Aurea'. At first, I didn't give it a second thought. I know Dave personally and I also know that he lives in west-central Oregon, where so many great plantspeople introduce awesome, new cultivars every year. Although I'd never heard of this conifer, I saw no reason that one of our Oregon growers wouldn't have selected an exceptionally golden Vietnam cypress and named it as such.

Here's the problem. *Cupressus vietnamensis* was only discovered in 2001, 42 years after the International Code of Botanical Nomenclature was amended to prohibit the use of cultivar names derived from Latin. Given that fact, it's not possible for 'Aurea' to be a legitimate cultivar name for this species. More research is in order, and I offer my apologies for the scores of you who were on the hunt for an awesome new cultivar that may not actually exist.

For now, and to come, be well!

David Olszyk, ACS President



Remembering the bright days from our 2019 National Convention, Silverton, OR.

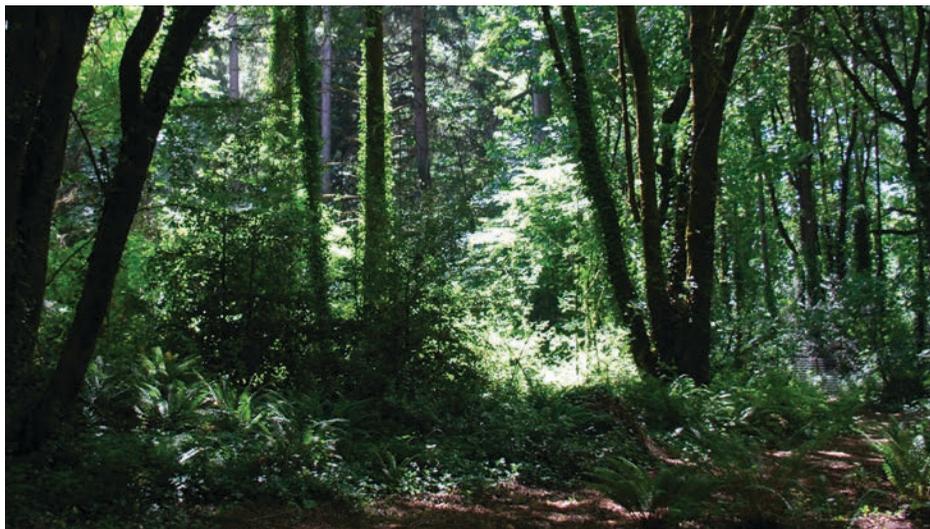
Photos by Ron Elardo



Along one of the paths at Iseli Nursery, Boring, OR.



Serenity at the Oregon Garden, Silverton, OR.



A place of hope at Sebright Gardens, Salem, OR.

2020 Winter CQ errata

Cover Plant

Thank you to the ACS members who wrote in about the plant ID of the cover photo on the Winter CQ. The responses varied between *Pinus strobus* 'Louie' and *Pinus strobus* 'Winter Gold'. After consulting with nursery managers, trained horticulturists, and the ACS's Conifer Database, the plant is *Pinus strobus*, an indeterminate cultivar of eastern white pine. This identification is based solely upon the fascicles of the plant.

Also please note on p. 7 that the correct cultivar name is 'Radicans', *Cryptomeria japonica* 'Radicans'. The common name for the plant is Radicans Japanese cedar.

On p. 18, the correct spelling of the title of the article by Jack Ayers is: *Cryptomeria japonica*.

Announcement from Robin Tower, ACS Treasurer

The Finance Committee is seeking someone with accountancy background to help with internal audit procedures.

Please contact Robin Tower, Treasurer, (goldnpaws@gmail.com) if you would like to help. You will be appreciated.

Fairy Gardens, with Conifers!

Text Elden Wheaton, Photography Ron Elardo



Fairy garden in a wagon.

With little fanfare, a new form of gardening has been rapidly gaining ground. Extensive displays of miniature figurines, furniture, and tiny plants, all sold at nurseries, are the telltale elements found in what are known as fairy gardens. They are popping up mostly as indoor gardens and containers, set outside during warm weather in garden beds, or simply maintained in homes and on porches. They meet the need for wanting a garden without having the space or time for a large one. Then there's the whole cuteness of creating and playing in your own tiny, secret garden, decorated with things like furnishings and accoutrements of dollhouses.

At our local nursery in Adrian, MI, the phenomenon has added new kinds of plants, too, many of which are conifers. I have been creating small garden bowls with little conifer forests in them for quite some time. Lately, little conifers have started catching on at our fairy garden classes. Enthusiasts have added conifers among their *tchotchkes*, /choch-kees/ (Yiddish for

a small object, a trinket). The result is a personal expression of one's imagination, like a bridge to a castle nestled in the woods, or a witch's hut secluded in the shadow of trees, waiting for Hänsel and Gretel.

The tchotchkes represent anything you can think of; the sky's the limit. Figurines include gnomes, fairies, animals, and seasonal characters like Santa Claus. A Halloween scene might include scary ghouls and goblins. You can find them all, either online or at your local nursery. Check out the internet, too. You'll be surprised what you'll find when you Google "fairy gardens". DIY fairy garden ideas will pop up. Stores selling tchotchkes are relatively easy to find. North of Adrian, in Brighton, MI, there is a Fairy Garden Super Store. Suppliers will ship supplies free with certain orders. Also, magazines run how-to articles on fairy gardens. It's dizzying.

Fairy gardens are very easy to create and manage. So, let's start with some basic elements:



Editor's Halloween fairy garden with *Platycladus orientalis* 'Franky Boy' (Franky Boy Chinese arborvitae) and *Chamaecyparis pisifera* 'Blue Moon' (Blue Moon sawara false-cypress).

- You will need a container, something colorful with an interesting shape, but not too deep, to house the garden.
- The soil medium needs to be the kind that holds moisture and allows for good drainage.
- For the planting medium, mix peat, sand, fine basic compost, topsoil in equal amounts. Add a handful of horticultural-grade charcoal pieces for improved drainage and moisture retention.
- Save leftover medium mixture in an airtight container for future gardens.

Now for the conifers.

Any small conifers will work. These will be "baby" conifers that, when planted in the garden, can reach mature heights of 35 feet or taller. One of your jobs with these conifers will be to keep them small. Over time, you will find that the little trees will look mature even though they are kept tiny. Trunks and branches will thicken and give your plants a look of being old. You may even find your trees resembling bonsai. There



Chamaecyparis obtusa 'Fernspray Gold' (Fernspray Gold Hinoki cypress) in a small fairy garden.

is ample online information on pruning and keeping miniature trees little, including the tools to do it. I prefer using spruces like *Picea mariana* 'Blue Planet' (Blue Planet black spruce), *Picea glauca* var. *albertiana* 'Elf' (Elf dwarf Alberta spruce), 'Pixie' (Pixie dwarf Alberta spruce), and 'Pixie Dust' (Pixie Dust dwarf Alberta spruce), but any conifer genera will do. Just start with small specimens, no more than six inches tall. Next, the plants have to be prepped for planting in a semi-shallow container no more than 12 inches deep.

It's best to clean the rootballs of their original planting soil. Snip the root tips just a little bit, so that they will be stimulated to grow and grip the new planting medium. That way the roots will begin to spread out and multiply. Gently dig a small place for each plant. Once installed, gently press down the soil around the conifer. Next, use a small cooking baster or eyedropper to water the plants. Like all containerized plants, your new garden should never be allowed to dry out, at least not during the growing seasons (spring, summer,

and fall). Use a water probe to know when to water. During the growing seasons, the fairy garden will need fertilizer. Osmocote 15-9-7 is the best formula. I mix a teaspoon full of fertilizer with water in a bowl for easy application. Just remember that less is better. Too many plant parents think they need to overfeed their babies. Also, pay attention to sun requirements that will depend on the numbers and kinds of plants you install. Most conifers like full sun. However, remember that plants in small containers need to be protected from the sun's hot, direct rays. Some fairy garden practitioners place their miniature gardens here and there under trees and other plantings in the garden to create surprises.

In winter, your fairy garden will require more moderate light and minimal watering. If the rootballs freeze, stop watering until spring comes, and the rootballs thaw. Garages with windows are good places to overwinter your conifer fairy garden(s). Attached, unheated garages rarely reach freezing temperatures. Three-season porches are good storage places, too.



Assorted conifers and completed fairy gardens.



I say “gardens” because, once you do one, you will want to do more. At a recent fairy garden workshop, one participant created her 24th fairy garden to join all those already housed throughout her home! She was not alone in having a collection of fairy gardens. One definitely leads to several.

Other living elements can be added to complement the conifers. Natural moss can be the lawn. Varieties of small hostas, sedum, and other ground cover perennials can also simulate a lawn. Hillside effects are fun to create, in order to enhance further a three-dimensional landscape. Small-sized gravel and wood chips can duplicate pathways, while stones can mimic rocks and outcroppings, even mountains. Once you have decided on the physical landscape, it's time to add things like wells, houses, fences, figurines, or whatever else you can find. Even ponds can be simulated with pieces of blue or green plastic.

Fairy gardens are not just for older gardeners. Parents and grandparents have shared the fun with children, who, in turn,

exhibit a genuine love for tiny gardening. Children take to it easily and reveal their own flair for the fantastical. In Adrian, containerized conifer classes have been held for children at our city library, private homes, and nursery schools. Children regularly accompany family members to fairy garden classes at our nursery. They like building and tending their own gardens.

ACS members will be gratified to know that conifers have now become part of this activity. Who knows? Maybe the youngsters creating fairy gardens today might be planting full-sized conifers in their gardens tomorrow and might even be joining the American Conifer Society. Whatever the age, fairy gardens are showing up all over. They're fun to create and they bring joy to their owners.

Elden Wheaton is nursery manager at Barrett's Nursery and Landscaping in Adrian, MI. He is a certified landscape designer, educated at Michigan State University.



Tchotchkes galore at Barrett's Nursery and Landscaping, Adrian, MI.

***Wollemia nobilis* Caught in the Brush Fires of Australia**

Text Courtesy of *The Coniferite* (Vol. 11 No. 1, March 2020), Reuters, and Dennis Groh

Photography Sam Pratt, Conifer Kingdom, Silverton, OR

While the recent 2019 brush fires in Australia were front-page news in the U.S., one aspect of great importance to coniferites was mostly ignored. The last surviving natural stand of *Wollemia nobilis* (Noble's Wollemi pine) was almost wiped out.

According to the New South Wales National Parks and Wildlife Service, the number of Wollemi pines peaked in abundance 34- to 65-million years ago, before a steady decline in their numbers occurred. Today, only about 200 specimens remain in the wild, all within the canyons of Wollemi National Park, 100 miles west of Sydney, Australia. The exact location is a carefully guarded secret, in order to protect the trees which, until 1994, were thought to be extinct. "That's the year David Noble, an officer with the NSW National Parks and Wildlife Service, rappelled into a narrow canyon and came across a grove of large trees he didn't recognize." He took samples from the trees to biologists and botanists who couldn't identify the trees either. However, all agreed that they were unique and rare. The trees that were found were eventually identified as Wollemi pines.

After the fires started burning toward Wollemi National Park, endangering the Wollemi pines, the New South Wales Rural Fire Service swung into action in an attempt to keep the trees safe.

"This is a key asset, not only for the national parks, but for our entire country," said Matt Kean, New South Wales environment minister. "These are the only living Wollemi pines found anywhere on the planet in their natural environment. These pines used to cover the whole of Australia. Now they're only found in a very small and secret location in New South Wales."

The plan that the firefighters put into place was designed to tamp down the heat of the fires and, thereby, to preserve as many trees as possible. Tankers dropped fire retardant around the pines. Specialists winched down from helicopters to set up an irrigation system to keep the trees wet with the water from the forest floor. According to Kean, "if the fire did go through, we wanted it to be a cool burn, in order to give the trees the best chance of survival."



Wollemia nobilis.

The fire did sweep through the canyons and through the groves, where the trees had survived for millions of years. For several days the smoke was so thick that it was impossible to know if the preventive efforts had paid off. When the smoke cleared, officials found that a few trees had been charred, and two had died, but most of the trees had been saved.

While the last remaining stand of virgin Wollemi pines is tiny and dwindling, the trees have been propagated and widely distributed since their 1994 discovery. The



Wollemi pine foliage and immature female cone.

Wollemi pines have a thin, fragile bark that is covered in dark-brown, corky bumps that give them a sort of “bubbly” appearance. The pines are monoecious, each tree bearing both male and female cones. In the wild, some of the trees are 130 feet tall.

In the photos provided here by Sam Pratt, one can see a young Nobel’s Wollemi pine and its leaf structure. The male, pendulous, reddish pollen cones and the female cones, at the tips of the branches, clearly demonstrate the monoecious nature of the pine.

James Eckenwalder (*Conifers of the World*) notes that *Wollemia nobilis* generally resemble species of *Agathis* and *Araucaria*, the long-known genera of *Araucariaceae*, but they clearly differ in bark, leaf, and seed cone structure. The leaf arrangement of adult branches is unique among conifers. The leaves are soft and almost look like the leaves of ferns.

Although classified as critically endangered on the International Union for Conservation of Nature’s Red List, Wollemi pines are thankfully being propagated and made available for purchase. This so-called “dinosaur tree” has been brought back from the dead. Their survival shows what humans can do to protect Nature’s vulnerable species.

Wollemia nobilis red male pollen cones and green female seed cones.



Prevent Arborvitae Deer Damage. Here's How.

Text and Photography Jennifer Smith, *Deerbusters Deer Fence*



Closeup of plastic-coated deer fencing.

Arborvitae (*Thuja occidentalis*) are a favorite conifer species to plant as ornamental trees and hedges. While some homeowners may use them for privacy screening, the tall, vibrant trees are known to attract nosy, marauding deer. *Thuja occidentalis* is a sweet-tasting snack for white-tailed deer that will strip bare the bark and leaves from the trees as high up as they can reach. Because arborvitae are a favorite cool- and cold-weather food source for deer, homeowners need to be proactive in implementing deer-management strategies if they wish to keep deer away from their trees.

Deer Repellents

Gardeners often turn to deer repellents at the first signs of deer-damaged arborvitae. The reasoning is simple. Deer repellents are inexpensive, easy to use, and effective — that is, for a brief time. The odorous deer repellents can drive white-tailed deer away from gardens for several months. However, during changing weather patterns, do we re-apply the repellent or not? This becomes a guessing game for home gardeners and a chore rather than a no-hassle deterrent. While the initial cost of repellents is attractive to homeowners, they are more effective as secondary forms of protection along the perimeter of a deer fence rather than as primary deterrents.

Deer Fencing

Deer fencing is the most-effective means for deer control and is also credited with reducing the risk and

spread of Lyme Disease by 83 to 97 percent (National Center for Biotechnology Information). This is especially significant for homeowners trying to mitigate the disease and keep it away from small children and pets. Many types of fence exist on the market.

Wooden fences are elegant, but costly, and deer can jump over them. Chain-link fences are a popular choice by pet owners, but most homeowners will admit that they are not aesthetically pleasing. Besides, the initial cost of materials and the price tag associated with installation by certified fence installers are high. In addition, a single line of fence, if not high enough, will require a second line of fence to keep the deer at bay. Both lines will also need to be electrified. Hungry animals will probe any barrier to find a way in. Electrified fencing is not recommended if there is a danger that humans will come into contact with it. The best height for deer fence is 7 1/2 to 8 feet high. The reason is that deer have poor eyesight (20/100 in the daytime) and are not comfortable taking a leap of faith if they cannot see the other side of where they hope to land. As it turns out, the most cost-effective and efficient deer fencing is made of plastic.

When To Use Plastic Deer Fence

The word “plastic” has a bad reputation as something that is flimsy and cheap. However, the material is lightweight and easy to handle, making it a great weekend install project for DIYers. Plastic deer fence



Plastic-coated deer fence (Amor-Flex) in Eastern Shore, MD.

is also durable, with breaking strengths ranging from 650 to 1,400 pounds and a life expectancy of up to 20 years. Plastic fence can also be easily produced in tall heights at reasonable costs.

This fence type is meant for light to moderate deer populations, but not recommended for gardeners dealing with chewing animals.

When To Use Metal Deer Fence

Metal fences are popular among gardeners for several reasons. They are stronger than plastic fences, hold up longer in the environment, and are chew-resistant against wildlife. Metal fences are mostly used by chicken owners to keep coyotes away from the flock. While they serve well for livestock management, they are missing a key element that should be considered when shopping for a metal deer fence, PVC-coating. Steel deer fences that are covered in PVC are recommended for gardeners dealing with chewing animals and heavy deer pressure. The PVC also acts as a secondary layer of protection on the fence, blocking chew marks by wild animals and rust caused by dry and damp climates. Metal deer fences last 10 to 20 years longer than plastic fences.

Deer-Resistant Plants To Grow

Deer-resistant plants are essential no matter the fence type. They include perennial flowers and herbs that have a pungent fragrance and a taste that deer can't abide. Gardeners should plant deer-resistant flowers on the outside perimeter of deer fences as another line of deterrence. Some of the most effective plants to grow for deer resistance include peonies (*Paeonia*), daffodils (*Narcissus*), iris (*Iris*), calliopsis (*Coreopsis*



Armor-Flex fence used in the Cleveland, OH, Metro Parks.

tinctora), marigolds (*Tagetes*), sage (*Salvia*), and garlic (*Allium sativum*). Western arborvitae, also known as western red-cedar (*Thuja plicata*), is a cold-hardy tree that is also deer-resistant!

Final Thought

Arborvitae are a favorite food for deer in the fall and winter months — not just to eat, but to use during deer-rutting season. The most cost-effective deer fencing with the easiest install is the plastic deer fence. A popular fence with nurseries, parks, and arboreta, plastic fence is the best, first line of defense to keep deer away from your arborvitae. We can even go beyond just protecting arborvitae to include all conifers. Since all conifers are susceptible to deer damage, plastic fence is the best fence remedy. Deer-resistant plants and deer repellents make up this three-pronged punch to combat deer damage. All good things come in threes.



R. Smith Nursery, Medford, NJ, uses plastic-coated deer fence.

The Fun Side of Art and Math in Garden Design

Text and Photography Mary Warren

Using art and math to create a garden design might seem like artificially superimposing incompatible sets of rules on plant placement in garden beds. However, in concert, art and math can actually provide good mechanics for building a garden that will be a joy to behold. In this article, the experienced and the hobby gardener alike will find suggestions for a successful layout that will also aid in the best plant choices, all based on artistic and mathematical principles.



Logarithmic spiral.

To begin, one doesn't have far to look to find a planting grid. Nature provides a few. The structure of the fronds of a fern or the cone scales of the Coulter's pine (*Pinus coulteri*) can suggest a garden diagram. Follow the downward spiral of the cone's scales or the fern's unfurled fronds, and a three-dimensional, conical display emerges. If plants are placed to mimic the swirl, with attention paid to the distance between plants, the result is that each plant is simultaneously visible and also contributes to the entire scene. When painting in oils, this layering is referred to as working *lean to fat*, building pigments from the bottom layers



Fiddlehead fern.



Coulter's pine — a mature seed cone.

up and across the canvas. When applied, this principle creates a garden with many levels. The garden becomes a living painting as its plants layer up and across the bed.

Gardeners who choose the pattern of the scales of the Coulter's pine cone or the furls of the fiddlehead fern are actually using what the mathematicians dubbed "The Golden Ratio". To put it simply, the gardener must give plants space, according to growth rates, so that they don't spoil their neighbors by growing into them. One can find conifer growth rates and sizes in the American Conifer Society's Conifer Database (conifersociety.org). Other plant specifications are available on the Internet. Knowing how large plants will get assists in choosing the right ones for the space the garden affords.

In selecting plants for the garden, color, texture, and shape provide visual stimuli, evoking a sense of beauty that is unique to each person. For one gardener, the arms of *Cupressus nootkatensis* 'Green Arrow' (Green Arrow Nootka cypress) might appear too zigzagged and visually disruptive. For another, 'Green Arrow' symbolizes a skyward motion, a reaching-up, like an arrow shot into the sky. Another gardener might prefer more conventionally shaped conifers like *Picea glauca* var. *albertiana* 'Conica' (dwarf Alberta spruce), with its



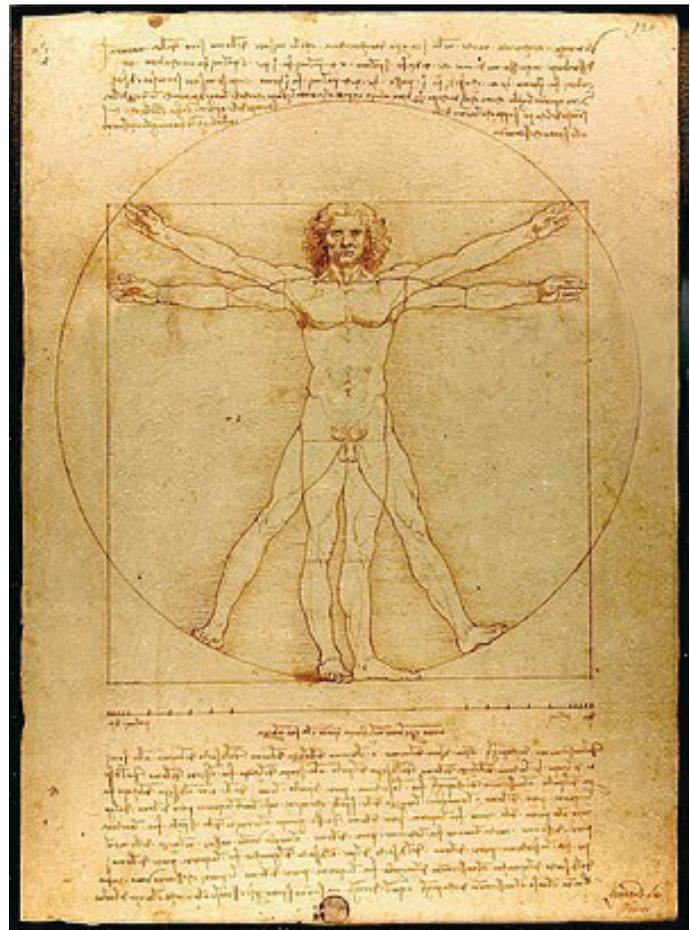
'Green Arrow'. Photo by Ron Elardo.



Dwarf Alberta spruce. Photo by Ron Elardo.

classic Christmas tree shape. Regardless, the choice of plants expresses the gardener's individuality and personal vision.

In addition to the proportions suggested by the Golden Ratio, other possible bed designs can be inspired by both art and math. Buddhist mandalas, for example, combine both art and math and are meant to portray perfection. A mandala can be simple or complex. A Google search will yield a plethora of examples. From Western art, there is an even simpler mandala, based on Leonardo da Vinci's Vitruvian Man, man within a circle within a square, the so-called "squaring of the circle" (Carl Gustav Jung, *Symbols of Transformation*). From my design education and experience, modifying the square shape of this model to create a rectangular-shaped bed affords the gardener a much more flexible layout plan.



Da Vinci's Vitruvian Man.

The ancient Greeks applied "golden/sacred numbers" in the creation of the great architectural works they dedicated to their gods. The mathematically precise, rectangular spaces between the columns in the Temple of Athena Nike, at the top of the Acropolis



Columns of the Temple of Athena Nike.

in Athens, can be copied on a smaller scale in the construction of garden beds. Those rectangular shapes can accommodate more easily even or odd numbers of plants than square beds can. Avoid beds planted in rows. They lose dynamic energy and look like a production nursery. Lean to fat planting, as described above, produces a soft and relaxed reaction as the eye begins at the top of the design, pans downward to a flared-out base, and then around the bed back up to the top.

A fundamental rule in sketching and painting is to refrain from working solely from one corner outward. Gardeners should shape the garden from all directions simultaneously. They should engage with the entire planting area, in the same way that a tree is pruned aesthetically. The tree is simultaneously viewed from all angles. Gardeners should strive for the best possible three-dimensional look, recognizing that plants will inevitably steer their own way. Height, transparency, density, and color may require particular placement for best effect.

One last consideration is the inclusion of different soils, rock formations, structures, and figurines into the garden. These elements may require rethinking plant placements, while maintaining balance and the impact of a well-rounded display.

When modifying existing gardens, rely upon the inspiration art and mathematics can provide. Those mechanics will provide a framework for design decisions. The purpose in utilizing time-worn methods is to produce a garden that will refresh both the eye and the soul.

Enjoy this journey in artistic and mathematical design.

Mary Warren is the Owner of Gardening Artists located in Seattle, WA. She holds a Bachelor of Fine Arts Degree from the California College of Arts and Crafts and a Master of Fine Arts Degree in Sculpture from the University of Washington. She has been gardening since she was four years old, when her mother showed her how to plant fragrant sweet peas.

American Conifer Society Reference Garden Grant Report Making a Mountain Out of a Molehill

by Mark Weathington, Director of J.C. Raulston Arboretum
Photos courtesy of J.C. Raulston Arboretum

In 2017, the JC Raulston Arboretum (JCRA) at North Carolina State University, Raleigh, NC, received funding from the American Conifer Society to create and install a garden for miniature conifers adjacent to an existing crevice garden. The new garden is situated at the walk-on entrance to the JCRA's green roof and was envisioned as a focal point for the long main axis running down the center of the Arboretum. The garden was designed to feature miniature conifers and companion plants in order to stay in scale with the 20- by 20-foot space.

JCRA contacted a local design/build landscaping company that had done previous work for them, to build a miniature conifer garden, raising the soil level several feet utilizing boulders for a rock garden feel. The end result was less than satisfying. We were left with what I call a chocolate chip garden — boulders scattered around a pile of soil-like chips in a cookie. While planting can solve many landscape problems, some design issues just can't be fixed that way, especially with miniature conifers which don't provide much cover.

Because the 2018 ACS National Convention was to be in Raleigh, and we did not have the time to fix the issues, we made the best of it that we could during the Society's visit to the JCRA. Once we made it through the meeting and our significant fall programs, we were ready for a reset. We brought in

Jeremy Schmidt from Juniper Level Botanic Garden in Raleigh, who had created the amazing crevice garden there, as well as quite a bit of other rock work. Jeremy's reconfiguration had us removing the existing chocolate chips, along with most of the soil, and starting from scratch.

With Jeremy's eye for stone placing, we ended up with a much more aesthetic planting space with artfully arranged boulders that provide the ideal nooks and crannies for our miniature treasures. Thanks to the generosity of a JCRA volunteer and ACS member, an exciting collection of miniature conifers was procured with a selection of diminutive bulbs and rock garden plants.

Now we will do what we do best at the JCRA — display and evaluate plants for their suitability to the South. Miniature selections often perform much better than the straight species in the heat and humidity of the South. It will be interesting to watch the cultivars of species that have failed here in Raleigh in the past. We will also be looking at growth rates. The standard ACS definition of miniature is typically seen as less than one inch per year. With a growing season often stretching from mid-March into November, along with plenty of moisture, nothing grows that slowly in the South.

A small sampling of the conifers and other plants installed in the garden includes:



Construction begins.



Placement of some of the plants.



The plant placement continues.

Abies nordmanniana 'Münsterland'
(Münsterland Nordmann fir)

Bommeria hispida 'Gila Dwarf'
(Gila dwarf copper fern)

Campanula coriacea (Campanula bellflower)

Cedrus libani 'Katere' (Katere Lebanon cedar)

Chamaecyparis lawsoniana 'Green Globe'
(Green Globe Lawson false-cypress)

Chamaecyparis obtusa '22 Karat'
(22 Karat Hinoki false-cypress)

Degenia velebitica
(No common name in English, but native to Velebitica, Croatia)

Ginkgo biloba 'Munchkin'
(Munchkin maidenhair tree)

Juniperus communis
(Magowan form)
(Magowan form common juniper)

Larix kaempferi 'Blue Dwarf'
(Blue Dwarf Japanese larch)

Lilium callosum (thick skin lily)

Picea glauca 'Burning Well'
(Burning Well white spruce)

Picea mariana 'Blaues Kücken'
(Blaues Kücken black spruce)

Picea pungens 'Pali' (Pali Colorado spruce)

Pinus mugo 'Michelle' (Michelle mugo pine)

Pinus mugo nothosubsp. *rotundata* 'Dračí Hnízdo'
(Dračí Hnízdo rotund mugo pine)

Pinus strobus 'Mary Sweeny'
(Mary Sweeny eastern white pine)

Pinus sylvestris 'Little Brolly'
(Little Brolly Scots pine)

Schivereckia doerfleri (Doerfli mustard plant)

Teucrium halacsyanum (No common name)



A closeup view.



About the Author

Mark Weathington is Director of J.C. Raulston Arboretum. Mark travels extensively searching for new plants to diversify the American landscape. His explorations have taken him to China, Taiwan, Japan, Ecuador, Europe, Mexico, New Zealand, and throughout the U.S. He is the author of *Gardening for the South: The Complete Homeowner's Guide*.

The Curious* Coniferite, by J.D. Belanger, a book review

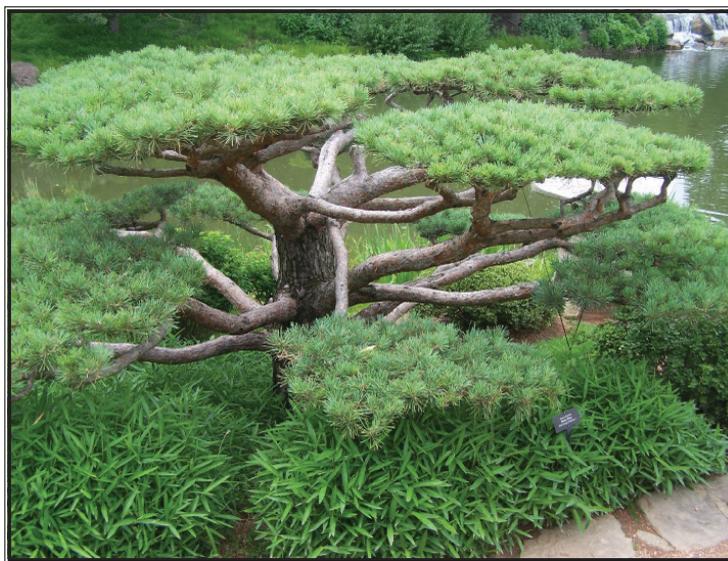
Text Dr. Ronald J. Elardo

The Curious* Coniferite

J. D. Belanger

*(**curious:** (*ky oor'e es, adj.* 1. eager to know or learn; 2. odd, strange)

Note: Both definitions apply to this book, its author, and possibly to its readers



"J.D.", as he is known in the American Conifer Society, is the publisher of the ACS Central Region's newsletter, *The Coniferite*. He refers to himself as *the curious coniferite*, a person who is both "eager to know or learn" and also "odd or strange". Let me add that J.D. is a connoisseur of conifers. Eager, odd, knowledgeable — what more could anyone want in a person writing about conifers? The result is that *The Curious**

Coniferite is a totally educational, entertaining study, a patchwork quilt of many pieces, flavored by J.D.'s sardonic language, filled with history, and containing a wealth of whimsy and a splash of humor.

The book is a paperback, contains just 116 pages (29 chapters), and is available on Amazon.com for the price of only \$9.95. It is a real bargain.

J.D. leaves no stone unturned. He begins the book with "conifer basics," just to make sure his readers know what these gymnosperms are. Although the interior photography of the book contains totally black-and-white photographs, they in no way detract from the overall message. Throughout, the author challenges his readers to go out and visit places where conifers are raised, sold, and planted. As I have learned, J.D. likes the old conifer books that contained nothing but black-and-white photos. Besides, getting the message out is far more important than paying a whole lot of money for color photos to be printed in the book.

J.D.'s experiences with conifers are sprinkled with amusing and anecdotal information. If you have ever planted a "dwarf" tree so close to your house and then later wondered why you can no longer see out the windows, you'll understand the statement: "Step one is planting the right tree in the right place."

Information comes at the reader fast and furious. For example, on the heels of the "right tree in the right place," is, *how does one determine plant hardiness*, which is followed by the size categories of conifers the American Conifer Society has adopted. After all, if you live in USDA Zone 5 and you plant a tree hardy to Zone 7 or warmer, rest assured that it will die, and that, over time, a "dwarf" conifer can grow to 35 feet tall and wide. J.D. inserts pieces of information in shaded boxes here and there. These are not rabbit-holes to divert the reader's train of thought, but products of his accumulated wisdom. J.D. has been around a long time and has witnessed a lot. Plus, he's a natural teacher.

For example -

Did you know that pine trees are the most-favorite subject of tattoos? Or that red-cedar is not a cedar? Or that conifers are carnivores? Or that Douglas-fir is not a fir? Australian pine is not even a pine? And, those pricey Norfolk Island pines sold around Christmas time are not pines at all? How about the fact that female voles begin reproducing when they're only three weeks old? How does one stay ahead of their gnawing of roots, trunks, and low-hanging branches?

J.D. provides historical perspectives of being a conifer guy, whether it's his citing Harvard's *Arnoldia* for incorrectly spelling "witch's brooms" or drawing

attention to *Pinus excelsea* becoming *Picea abies* (Norway spruce). If the pages of this book don't make you to smile or even laugh out loud, you're missing J.D.'s point. Knowledge and learning are supposed to be fun. And, language is to be laughed at.

Where are the monkeys in the monkey puzzle tree (*Araucaria araucana*)? Why is there a bevy of "invasive aliens: terrorists of the forests" moving to attack our trees and causing the extinction of certain species. Then there is Chapter 22, *The Red Cedar Saga*, another mix of education and entertainment. Don't forget the chapter on edible and drinkable conifers, even if the products can taste like turpentine. Try mugo pine jam or spruce beer.

Regarding plant tags and conifer books, J.D. points out that, many times, one will see an array of common names associated with any given conifer. *Caveat emptor*: "[t]here is no 'authority' on common names." (Ethan Johnson, Plant Records Curator, Holden Arboretum, Kirkland, OH). It's with that kind of information that J.D. educates his readers.

One underlying assumption of this book is the playful notion that the English language can become "even more ridiculous than it already is". That's why he insists on red cedar as two words, not one (red-cedar). J.D. is a tenacious researcher and debater, too. I know this from personal experience. His book enters into topics he has looked at every which way from Sunday. This is a little book that is a huge bargain because of everything it contains. It is a detailed story of people and plants, of one man and one of his major loves.

Get this book. It will be an entertaining and informative companion for any venue. Like any story, when told with a certain flair, it can be funny as all get-out. You'll love J.D.'s 20 snippets, which are like mini chapters themselves, each with a different topic, like how red-cedar seeds get deposited along fences and under power lines. I won't give you the answer. You'll just have to buy the book and read it for yourselves. You'll laugh. I promise.

Sit in the shade of a porch roof, in an easy chair with a beverage, or in bed. You'll be happy you own *The Curious* Coniferite*.

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'van Kempen's Visit' a Witch's Broom

Text David Olszyk

In March 2015, Henk and Jo van Kempen, two brothers from the Netherlands, visited the United States to study conifers. They discovered this witch's broom in

a Scots pine in Oregon and named it to commemorate their visit. ACS member, Sam Pratt of Conifer Kingdom nursery, provided all of the photos.



Pinus sylvestris 'van Kempen's Visit' young cones.



The original witch's broom in a Scots pine.



The propagated broom for sale.



Closeup of the 'van Kempen's Visit' witch's broom

The Life and Works of Dan Robinson

Text and Photography Jack Christiansen



Dan Robinson showing the root structure of a *Pinus ponderosa* (ponderosa pine).

Every now and then, someone comes along who changes a little bit of who we are and how we see things. That person may have led the life you always dreamed possible for yourself, but, unfortunately, never had the guts to try. I call these people natural-born innovators. They stand alone and are uniquely different. They epitomize the tag *nonmainstream*. Dan Robinson is just that kind of person.

Dan is an American bonsai pioneer, a living icon in the bonsai world. He surrounds himself with his bonsai garden on a seven-acre, shoreline property in Port Orchard, Puget Sound, WA. This place is his palette *within* a natural landscape.

I first met Dan last September while returning from a Canadian vacation. Dan has the reputation of being somewhat of a renegade with his unique bonsai style which he refers to as the *naturalistic look*. He likes the

way trees look in nature, kind of like *niwaki*, yet not exactly like it. Dan has fought for recognition of his style in the bonsai community that judges good bonsai based on the rigid principles practiced by the Japanese masters from centuries ago. Of late, he has been receiving recognition as a real bonsai innovator.

At the property's entrance is a wonderful, eclectic building full of rooms filled with amazing items he and his wife, Zenah, have collected from all over the world — a must-see experience before one enters the garden. There is a small entrance fee for visitors that walk the grounds outside in what the Robinsons call Elandan Gardens and Museum.

Dan caught up with me as I was about to start my journey after I had shared my appreciation for bonsai with his wife. She called him on the phone, and there he was.



Overlooking Dan's pond with a formed rock structure.



A lovely, styled, slanting style (*Shakan*) *Pinus thunbergii* (Japanese black pine) Niwaki growing in the ground.



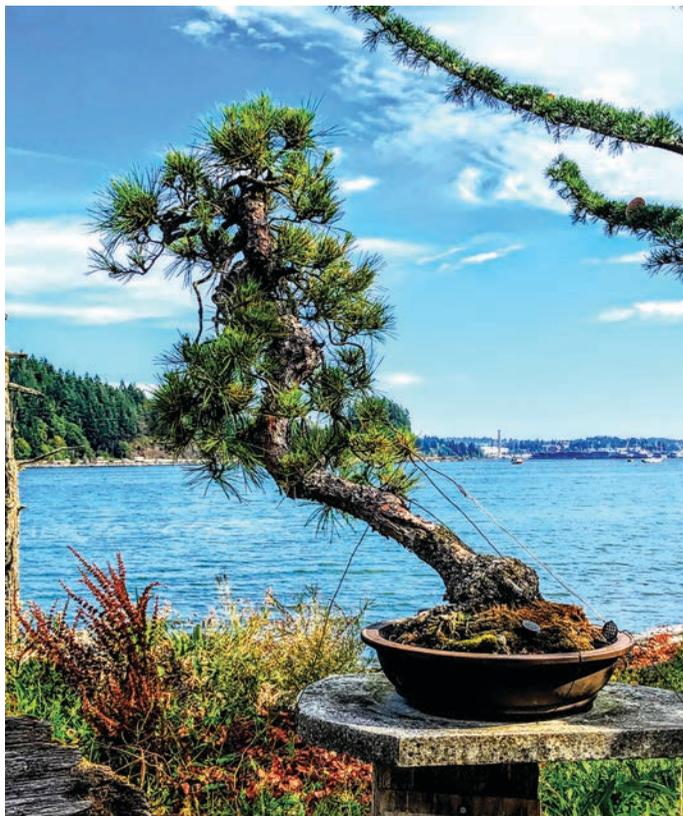
Towering deadwood structure with bonsai trees.

Dan is a rugged outdoorsman. I noticed right away that, when he's talking to another bonsai enthusiast, he is in his element. He led me to a wide-open view of the property and the waters on the inlet's north shore. It was a breathtaking view. The many rock formations and trees Dan installed over the years jut like pillars up into the blue skies and soft, streaking, white clouds. Somehow, I just knew that this was about to be the start of a very special day with a man of great presence and bonsai knowledge.

As you notice from my photos of each bonsai and its setting, Dan has a real environmental flair for placement and use of naturalistic elements.

Driftwood, rock formations, and groupings make for an exciting display of his bonsai art. These natural elements bring him personal joy and satisfaction while accentuating his unique style. He loves sharing his art with visitors to his place.

Once we started the tour, Dan pointed out the various trees he has collected from the wild. In fact, all of his bonsai have come from various trips he has made throughout the U.S. and Canada. About 80% of his collection consists of conifers. After walking through the garden and hearing the many stories of his trees, I came to understand that this octogenarian is made of something very special. He has a different way of



Informal upright style (*Moyogi*) *Pinus thunbergii* (Japanese black pine) bonsai.

approaching bonsai. He exemplifies the naturalist way of seeing trees where they live, and that made a big impression on me. As a result, I have begun to look at my own bonsai style in a different way.

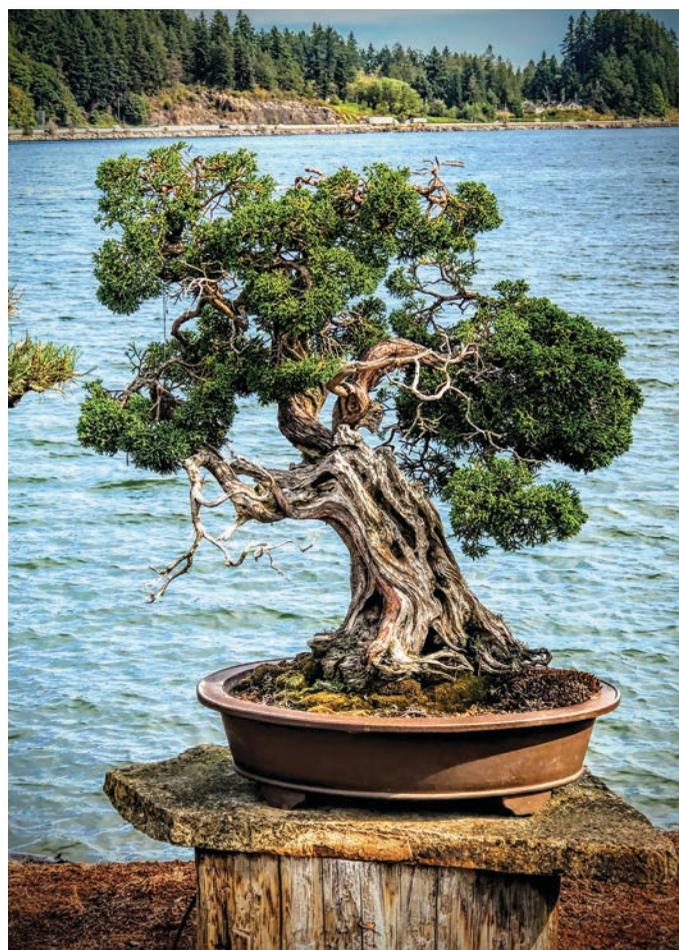
One can best describe Dan's bonsai style as *gnarly*, that is, no tree is mature until it shows evidence of the struggles it would have endured over time as a full sized tree. His goal is to create a tree ravished by deadwood, forced to relinquish its beautiful green top for lack of water and the forces of wind and snow. Dan *kills off* branches and treetops on purpose, using motorized tools to operate on the trunk for greater control in creating deadwood. This is all done in his outdoor workshop, while sitting on his plastic chair, enjoying the freedom of solitude while working on his trees.

His garden can be described in one word: incredible! How could this man have embarked on such an immense project, creating a visionary place on every inch of a 7-acre property? How does one care for over 100 bonsai daily; watering, feeding, styling, cutting back new growth, and generously sharing time with visitors? He does it because he loves what he does and he wants to share his method.

After saying our goodbyes, Dan had chores to do. I left him and proceeded to take the photos you see. It's hard to leave a person who is so knowledgeable. I could have spent days wandering the property, looking at each bonsai tree with the detail that decades of work took to develop. Elandan Gardens is a one-of-a-kind place in the world. If you love bonsai trees and appreciate the creativity needed to shape them, you'll have to add this place to your bucket list.

Dan has a sizable display and show at The Pacific Bonsai Museum, just south of Seattle. His displays keep true to the person that he is and demonstrate his vision. The museum has a beautiful outdoor display of bonsai, along with a lovely walk in a forested environment.

Recently, Dan has had his life story and works published. His book is called *Gnarly Branches, Ancient Trees* and contains beautiful photos of his majestic trees, along with a well-written autobiography.



A beautifully motor-tooled, informal upright style (*Moyogi*) *Juniperus chinensis* 'Shimpaku kishu' (Kishu Shimpaku Chinese juniper) bonsai.

Do we have a third species of *Agathis* in Papua New Guinea?

Text and Photography Reuben Wertz

The possibility that there might be an as-of-yet unidentified species of *Agathis* in Papua New Guinea (PNG) came to light earlier this year while I was discussing tropical conifers over coffee with Geoff Stocker at his home on the Atherton Tablelands in North Queensland, Australia. Geoff is a specialist in tropical forestry and has spent several years as Professor of Forestry at the PNG University of Technology as well as Director of the PNG Forest Research Institute.

Toward the end of his contract with the Institute in February 1996, Geoff was asked by officers of the Forestry Department to investigate reports from local staff that an *Agathis* species was being logged on Lavongai (also known as New Hanover), a large island in the far northwest of New Ireland Province. The Department had no previous records of *Agathis* from this island, and its presence was somewhat unexpected. Administratively, the report was significant since the export of all conifers (and several other highly valued species such as ebony) in round log form was banned countrywide.

At the time of Geoff's visit to check the reports from Lavongai, two *Agathis* species had been recorded for Papua New Guinea. *Agathis labillardieri* (western New Guinea kauri) had been found in small, scattered stands in western PNG and in neighboring West Papua, a province in the far east of Indonesia, centered on the island of New Guinea. *Agathis spathulata* (New Guinea kauri), previously *A. robusta* spp. *nesophila*, was in small stands through the eastern part of the mainland and on the Island of New Britain. Geoff provided me with an account of his visit to Lavongai.

Geoff chose a senior program leader at the Forest Research Institute, Tom Kosi, to accompany him on what was to be a flying visit. They flew from Lae to Kavieng on the northern tip of New Ireland Province. There, they were met by Forestry Department employees with an outboard-motor-powered, aluminium dingy. The following morning, they set off through a maze of reefs and islands to the forestry camp on the northern coast of Lavongai. On the next day, Geoff travelled with some forestry employees in

a four-wheel drive vehicle along a logging road which ended midway up the mountain range. Overnight, Tom had met some of the local villagers and decided to access the mountain via traditional tracks from the other side. They arranged to meet near the summit later that day. From the end of the road, Geoff followed snigging tracks, caused by the dragging of logs, and soon located a stand with scattered *Agathis* within. Tom's journey was far more arduous, and he didn't join up with Geoff until mid-afternoon.

Geoff concentrated on trying to determine the approximate extent of the stand and thought it was probably confined to a relatively small area, 300 feet or so below the summit. Most *Agathis* trees in the stand appeared to have escaped logging. Unfortunately, Geoff was unable to collect decent botanical material to determine accurately the species. A few fragments, including a wood sample, were being kept in the Lae Herbarium. Geoff recalled that the wood sample, cut from the stump of a felled tree, was very light in weight. Tom and Geoff returned to Kavieng the next day.

I thought about Geoff's account for a few days, referring to maps and satellite photos, trying to pinpoint the place where he encountered the *Agathis*. After a few more conversations, I picked his memory for every detail. My research had uncovered a paper by T.C. Whitmore published in 1980 in *The New Phytologist*, which declared *Agathis* absent from the nearby New Ireland mainland. Thus, Geoff's discovery became even more intriguing. The geographic isolation from other occurrences suggested a strong possibility that *Agathis* would be distinct from known species. By August 2019, I had acquired enough information to mount a search. The island is only 162 miles from a mining operation, where I spend a few months each year. Some of my national crew were familiar with the area or had relatives, called *wantok* in the local language, who could help me out. While on break, I flew to Kavieng to start my journey.

Clem Anton and John Sumaien met me at the hotel, and we formed a plan for travel to the island. Based on Geoff's recollections, it appeared that



Peter Vani (center wearing a baseball cap) with local men at the base of the provisionally named *Agathis munem*.

the easiest way to access the mountain range was from a coastal village on the remote western side of Kavieng. Next morning, we bought fuel and provisions, hired a boat, and embarked on our search. After some hours across the water, we arrived at a village named Baungnung. It was there that we found Peter Vani, a knowledgeable, local elder and ex-military man, who immediately recognized what we were after from my collection of photos and botanical sketches. Moments later, a local man brought over a small branch which was clearly from *Agathis*. He led me to a little specimen growing in a garden nearby and described how it began life as a seedling under the big *Agathis* on the mountain. His relatives had transplanted it to the garden some time ago.

A tour of the village's gardens revealed larger planted specimens with DBH's (diameter at breast height) of 10 to 12 inches and crowns breaking through the canopy of the coconut plantation. Peter explained that these trees grew from seedlings collected over 20 years ago by villagers who were with Geoff Stocker on the day that he stopped the logging operation. Geoff expressed the importance of these trees, so that a number of locals took it upon themselves to transplant seedlings for preservation. He certainly made an impression on them.

I was shown some more garden conifers which had originated from the local forest. One was likely to be *Retrophyllum filicifolium* (recently broken out from *R. vitiense*), and the other was a species of *Podocarpus*, with a close similarity in appearance to *P. grayae* (brown pine), which has a wide distribution over North Queensland, as well as in Western Arnhem Land. From the coastal village, we proceeded upriver by boat, as far as was navigable, and then hump swagged (backpacked) up the hills to a village with a lovely view, where a local pastor was kind enough to accommodate our party for the night.

On August 30th, when the rain stopped, we set out for the mountain. It was disappointing to see all the forest on the foothills destroyed. Three years ago, an Asian logging company clear-cut the area under the auspices of a Special Agriculture Business Lease (SABL), a loophole utilized by logging companies, in order to avoid adhering to the sustainable forestry

practices, required under the government-issued logging permit system.

The SABL allows forest lands to be clear-cut for agricultural development, but has systematically failed to protect communities' interests and indigenous land rights. In this case, after exporting every tree, the logging company planted seedlings for a rubber plantation, but then abandoned the area. Without management, the plantings quickly disappeared under bracken fern and raspberry bramble, leaving the locals with nothing to show for the loss of their forest and forcing them to walk miles to get bush material for their thatched homes.

Near the end of the logging road, we turned off the ridge and followed a footpath down to a valley of an undisturbed, closed-canopy rainforest. After crossing a flooded creek, the path followed a steep and narrow mountain spur. The heavens opened again, and the muddy track became a slippery, boggy mess. It was prudent first to get a handhold before taking the next step. Climbing ever upwards, we passed under some massive *Dipterocarpus alatus* (Yaang Naa tree) and other giants, the genera of which I could only guess.

As we gained altitude, the gradient eased, and the mountain was engulfed in cloud. The first *Agathis* was spectacular, around five-feet DBH, with a straight bole and a wide-spreading crown. Here I was able to find some freshly fallen branches (courtesy of marauding parrots) with leaves and pollen cones attached. Searching within the drip line turned up a solitary female cone and plenty of scattered scales, indicating that seeds were already in dispersal. The forest floor was thoroughly combed for seedlings. Locals recovered about 20 for transplanting in their gardens. Everybody wanted one!

We continued up the mountain, passing one smaller *Agathis*, and, in another 10 minutes, the anticipated giant loomed gray through the mist ahead. Towering over the track was the largest *Agathis* imaginable. Generations of ancestors must have revered this behemoth on this well-trodden footpath between villages. It bore not a single scar from an indifferent bush-knife. I had packed a rope to measure the circumference, but it fell short. An enterprising young man picked up a length of cane from a *Calamus*

palm which proved sufficient to calculate the DBH to approximately seven feet, three inches. There were no cones or seedlings found under this tree, which did not surprise the locals at all. "This was the 'Father' tree," they told me. The "Mother" tree was the first one we had passed. I soon found scales from last year's cones in the leaf litter and delivered an impromptu lecture on *Agathis* reproduction to a fascinated audience. After taking the necessary photographs as per instructions from Geoff, and, with everyone now wet and cold from the unending rain, it was time to make our way down the mountain. We arrived back in the village in the late afternoon.

There was much discussion that evening. The locals were pleased that somebody was finally taking an interest in their big tree. They wanted to know the implications if it turned out to be an unidentified species, as was suspected. What will it be named? To the best of my knowledge, I explained the necessity of collecting a type-specimen and getting it intact to a taxonomist with the appropriate expertise who could give the tree both a description in botanical terms and an introduction to the world.

"What would you like it to be called?" I asked.

There was a brief discussion in the native language which Peter Vani summarized for me afterwards. Those present concluded that the species name should recognize that the Lavongai *Agathis* bear a name in the local dialect, a name which has already been in use for many generations.

Peter said "munem". "Call it *Agathis munem*."

Munem is a Muslim boy's name. It means benefactor, donor, and grantor.

The rain wouldn't stop. As a result, I reluctantly left the village the next morning to continue my circumnavigation of Lavongai and eventually to return to Kavieng. The three large *Agathis* I encountered were clearly not part of the same stand that Geoff had described to me. We concluded that they were in the proximity of 1,312 feet of elevation above sea level. My sighting was on a steep ridge at around 656 feet above sea level, on the western slope of the mountain range, where the forest remained undisturbed. We

did not continue higher to link with the logging road that Geoff had traversed from the north coast. I was able to determine from aerial photos that we were at least over one mile away from his 1996 sighting. It was comforting to know that the species is likely dispersed over a much larger area than was suspected at the time of Geoff's expedition.

After examining my photos, Geoff suggested that this *Agathis* was almost certainly not *A. labillardieri* as the male cones of this species are generally no longer than 0.8 - 1.2 inches. The fresh cones found on the forest floor suggest a male cone length of 2 - 2.3 inches. For the species encountered on Lavongai, *A. spathulata* is a possibility, as well as an *A. robusta*. However, it is impossible to tell whether we have a new species without access to a range of herbarium material which we will endeavour to obtain soon.

There is much future work to do to finalize the characteristics of this *Agathis* and register its name. No matter what, it was a sight to have seen such a specimen and to know it has a chance of survival.

About the author

Reuben Wertz currently works as a mechanical supervisor in a gold ore processing plant on Lihir Island NIP, Papua New Guinea. Although he has no botanical qualifications whatsoever, his interest in conifers developed when he started collecting timber trees to plant in underutilized areas on the family farm which included *Agathis*, *Podocarpus*, and *Araucaria*. He believes we have a duty to preserve species on a global scale and to use the commercial nursery trade to ensure that rare species survive.



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