



conifer

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CONIFER QUARTERLY

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Cover Photo

Pinus parviflora 'Glauca Nana' (Japanese white pine) at Sherman, CT. Photo by Susan Rostenberg.

Inside Cover Photo

Picea abies 'Acrocona' (acrocona Norway spruce) at Magyar Garden, New Hartford, CT. Photo by John O'Brien.

Back Cover Photo

Tsuga canadensis 'Sargentii' (Sargent's weeping hemlock) at Bayard Cutting Arboretum State Park, Great River, NY, on Long Island. Photo by Frank Goodhart.

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The Maturation of a Plant Society

By David Olszyk, President

This quarter, I am particularly proud to announce that the ACS Board of Directors met in Atlanta, GA, this past February, and reactivated one forward-looking committee and established another.

The charge of the **Research Committee** is to accept grant requests focusing on the facilitation and support of fundamental and applied academic research by arboreta, botanical gardens, colleges, and universities, actively involved in conifer research. Research may include, but is not limited to, propagation methods and techniques, plant pathology, and plant identification methods, such as DNA fingerprinting. We have recruited several highly qualified members of the ACS to serve on this committee. We anticipate that our first funding requests will come next year.

The newly formed **Conservation Committee** will process grant requests for organizations dedicated to conifer conservation. The International Union for Conservation of Nature (IUCN) claims that 34% of the conifers of the world are on the IUCN Red List, which means that these species are threatened by either loss of habitat, predation by exotic pests, or global warming. I am pleased to chair a Board now committed to addressing these critical problems. If you work in the field of conifer conservancy, or are interested in serving our cause, please let me know. We would love to have you serve on this committee

Funding the budgets for these committees would not have been possible without generous donations we received from you during our recent, year-end appeal. Your generosity resulted in over \$16,000, which included an extremely generous \$5,000, matching donation from the William and Inez Mabie Foundation of California.

In the nearly 35 years of the existence of the ACS, not only have we been the coolest plant society on earth, but we are now also on our way to making a difference on a global scale.

With that, I wish to make the following presidential decree:

The American Conifer Society fully acknowledges the effects global warming is having on these ancient and compelling plant species we seek to nurture and protect, and will take steps to support the scientific community, which is committed to stem, or slow the problem.



Note from the Editor, Spring 2019

By Dr. Ronald J. Elardo

There has been feedback about my choice of cover art for the last two issues of the CQ. Rest assured that I am well aware of the concerns.

The cover photo of the Fall CQ is artistic. As you know, the conifer on that cover is *Cedrus deodara* 'Cream Puff' (Cream Puff Deodar cedar). It stood against the backdrop of the sun, which was shrouded by the smoke of the wildfires in California this past autumn. I chose it for the image, the impact, the colors, and, of course, the conifer.

The cover of the Winter CQ resulted from a mistake in production. As soon

as I received my copy, I immediately contacted the printer. In addition, pages 2 and 3 also suffered from a discoloration.

I received from the printer a 20% reduction in the cost of printing the Winter CQ. Your Board of Directors received an email from me to that effect. In order to safeguard the CQ from any such problems in the future, I have put into place more checks and balances, all designed to ensure the best quality CQ.

If there is something you want to see in the CQ, write about it. Typically, articles

are between 1,200 and 1,500 words. I will happily work with you to develop your theme. Articles must be submitted in Microsoft Word.

Also, please send your photos in 1MB (300dpi) or greater size (resolution). Please provide captions for your photos, botanical names of plants, and the geographical location of the scene. If you need any assistance, contact me.

As always, thank you for your contributions to the CQ. ACS members enjoy hearing from you.

Ron

Left, winter color. Right, spring color. *Platycladus orientalis* 'Morgan' (Morgan's Chinese arborvitae). Photos by Ron Elardo.





AMERICAN CONIFER SOCIETY

We have vacancies on several committees of ACS importance. For full details on these positions, please refer to the ACS Board Policies on our website. Go to "About Us", click on "Background and Information", and then select "Business Office" and "Records and Documents".

The American Conifer Society, the coolest on earth, owes its success to the quality and dedication of our volunteers. Unfortunately, we always seem to put most of the burden on the shoulders of our hardest and most dedicated workers, burning them out over time. We hope that these periodic "help wanted" ads will inform our membership of roles and projects which need more attention, with the goal of keeping our ACS Board and its committees vibrant and motivated. Please consider stepping up, if you have the time and talent. We need you!

Reference Garden Coordinator

immediate and critical need

The ideal candidate will have a strong interest in, and familiarity with, our reference garden program, and some of the member gardens. Duties will include, but are not limited to:

- Maintaining the database of the ACS Reference Gardens, points of contacts, and ACS liaisons
- Developing and refining standards for entry into the Reference

Garden program, and managing expectations of all parties

- Developing standard procedures for gardens wishing to apply for grants
- Following up on grants to ensure that ACS gifts are used as intended

Awards and Recognition Chair

available now for an apprentice position

The ideal candidate is either a former Harper or Snyder award winner, or a senior ACS member who has a keen awareness of other senior members, and their contributions to the Society. Dennis Groh, the current chair, has notified us of his intent to retire, effective June 2020. This allows for a period of overlap, in order to familiarize the incoming chair with committee procedures.

Scholarship Chair (student liaison)

available now for an apprentice position

The ideal candidate is either a current or former college professor with experience in interpreting scholarship applications, or a recently graduated student with experience in applying for scholarships. Jerry Kral, after long and dedicated service, including the origination of the ACS scholarship program, wishes to step aside and enjoy the benefits of full retirement. He agreed to remain on the committee as a consultant until his replacement is fully trained.

Social Media Director

immediate and great need

The ideal candidate is someone with excellent working knowledge of our various social media platforms (Facebook and Twitter), as well as the time and agility to administer and moderate all content. We would consider the ability to recruit and develop additional committee members from across our regions to be a bonus. Our new website has a feed from our Instagram account. The director will have immediate impact!

Conservation Committee

multiple committee positions available

The ideal candidate is someone active in the conservation community, who has experience in, or knowledge of applying for conservation grants. Duties will include, but are not limited to:

- Soliciting the community for conservation grant requests
- Parsing and selecting the best recipients for conservation grants
- Reporting results to the ACS Board of Directors
- Following up on grants to ensure that ACS gifts are used as intended

Anybody wishing to step into any of these important and rewarding positions within the organization, or anybody having questions about these positions, should contact the ACS President, David Olszyk.

The Miracle Mile and the Lure of Conifers

text Leah Alcyon photography Leah and Dave Alcyon

California is home to 52 native, conifer species. Some are record-breaking, conifer superlatives. It is a big state, which covers 10 degrees of latitude, with ecosystems from coastal regions to high mountains. The state boasts spectacular specimens: *Pinus lambertiana* (sugar pine), *Tsuga heterophylla* (western hemlock), *Picea sitchensis* (Sitka spruce), *Chamaecyparis lawsoniana* (Lawson cypress), and *Sequoia sempervirens* (coast redwood). California is home to the most massive tree on earth, *Sequoiadendron giganteum* (giant sequoia), and the longest-lived tree, *Pinus longaeva* (Rocky Mountain bristlecone pine). In the northern area of the state, called the Klamath-Siskiyou ecoregion, there are 36 conifer species. The complex terrain (geology, climate, and biogeographic history) has created great, temperate biodiversity. Yet, the relative remoteness of this area keeps it from being well known.

Several years ago, I found myself in the midst of *conifer hysteria*. Thanks, Mom! I focused on conifer cultivars, each with a variation on a theme. I chose to start with conifers in nature, in order to learn basic identification. I purchased *Conifer Country* by Michael Kauffmann, which has identification information and suggests hikes in Northern California, where this great, conifer diversity exists. As *conifer mania* had become a family passion, my plan was to hike my way to



www.kswild.org/ks-region-map



Above: Dave Alcyon hiking into Devil's Punchbowl.

Leah Alcyon looking at trees with binoculars at the parking lot of Devil's Punchbowl.



conifer knowledge and, then, into the American Conifer Society. That, at least, was the plan.

My first trip was to Devil's Punchbowl, where *Cupressus nootkatensis* (Nootka cypress, Alaskan cedar) is found. Alaskan cedar had survived there in ice-free pockets during the last Ice Age. I had been there before, while working for the Youth Conservation Corps in 1980, but that trip was recreational and did not include topics, such as plant identification and natural history. I found that information in another highly recommended book, *The Klamath Knot*, by David Rains Wallace. This more recent trip started with a confusing map of forest service roads and unmarked turns. The parking lot was bordered by the unmistakable *Picea breweriana* (Brewer spruce). Brewer spruce is a beginner-friendly conifer, which can be enjoyed and identified with minimal skill, even

at a distance, due to its distinct, weeping branches. There is nothing more uplifting and motivating than immediate gratification.

The climb up to the lake is not as difficult as the metrics make it seem (a 1,000-foot vertical in 1.5 miles, 8.9 miles with a 2,378-foot, total vertical). There are plenty of trees and stunning views to capture the attention of the visitor. The hike ends at a beautiful lake, bordered by steep walls of a glacial cirque. The map indicated that there were only a few *Cupressus nootkatensis* (Alaskan cedar) in number. They were in an area at the approach to the lake. The presence of the glacial cirque means that there was ice erosion in ages past. Therefore, it was a mystery that Alaskan

cedar was here! I remember spending the day taking a photo of every cedar in the area. In review, the dozens of photos appeared to reveal real *Calocedrus decurrens* (incense cedar), without an Alaskan cedar in sight.

The common name "Alaskan cedar" poses some problems in itself. *Callitropsis* appears many times instead of *Cupressus*. I decided to use *Cupressus*. The name of the species, *nootkatensis*, comes from the discovery of the tree on the lands of the Nuu-chah-nulth of Vancouver Island, British Columbia, who are one of the First Nations of Canada, and who are also known as the Nootka, hence the other common name, Nootka cypress. The physical characteristics of the trees can vary. In the alpine environment, trees growing out of rocks can be stunted, thus making the comparisons between coastal and alpine trees difficult. The age of the tree can also change its identifying characteristics. All of this can either seem like esoteric nonsense, or the delightful start to an ACS social icebreaker.

Not to be deterred, several other hikes in conifer country were tried over the years, but none as inspiring to the

imagination as The Miracle Mile.

Who does not love the consonance, which alludes to some grand promenade? The Miracle Mile moniker originated in the 1970's with two professors from Humboldt State University, John Sawyer and Dale Thornburgh, Botany and Silviculture, and Ecosystems Management, respectively. They described the area which contains an amazing diversity of conifers. Up to now, 18 species have been identified.

In October 2016, we backpacked up to Little Duck Lake and prepared to tick off the 17 conifer species, which had been originally identified. We had scheduled three days to figure it out. This was not my first trip. In 2013, my conifer-obsessed mom and I had done the hike in a day.

The first obstacle is the physical challenge of getting to The Miracle Mile. The climb up to Little Duck Lake is 9 miles round trip with a 2,000-foot, elevation gain. The ridge behind the lake is another 800 feet of rock scrambling. The trail starts on former logging roads, which existed before the wilderness designation in 1984. None

of the trail is as steep as the short climb to Devil's Punchbowl. After the daylong hike, I knew that, in order to see all 17 conifer species, I would have to hike to the top of the ridge, or use a Celestron telescope, to identify the foxtail pine (*Pinus balfouriana*) and the whitebark pine (*Pinus albicaulis*).

At first, I was intimidated by the thought of trying to identify all of the trees, but you might note that the Alaskan cedar is missing from the lineup. Of the remaining trees, most can be identified without too much difficulty, provided that the observer has a basic guide available for identification. It helps that the pines have characteristics which are fairly straightforward. They represent 7 of the 17 on the list at the end of this article. The problem in locating the species is solved by consulting *Conifer Country*, even when there are just a few individual trees. None of the *Pinus albicaulis* (whitebark pine), which we encountered, had cones that year. Unfortunately, that became a missing clue. However, I could readily identify *Calocedrus decurrens* (incense cedar). Engelmann's spruce (*Picea engelmannii*) posed the toughest challenge to identification.

A list of conifers within the Miracle Mile:

1. *Pinus balfouriana* (foxtail pine)
2. *Pinus albicaulis* (whitebark pine)
3. *Pinus monticola* (western white pine)
4. *Pinus jefferyi* (Jeffrey's pine)
5. *Pinus ponderosa* (Ponderosa pine)
6. *Pinus contorta* (Lodgepole pine)
7. *Pinus lambertiana* (Sugar pine)
8. *Abies concolor* var. *lowiana* (Low white fir)
9. *Abies magnifica* (Shasta fir)
10. *Abies lasiocarpa* (subalpine fir)
11. *Picea engelmannii* (Engelmann's spruce)
12. *Picea breweriana* (Brewer spruce)
13. *Tsuga mertensiana* (mountain hemlock)
14. *Pseudotsuga menziesii* (Douglas-fir)
15. *Taxus brevifolia* (Pacific yew)
16. *Calocedrus decurrens* (incense cedar)
17. *Juniperus* sp. (unidentified juniper species)
18. *Juniperus occidentalis* (western juniper)

I always associated The Miracle Mile with a 2-dimensional path and not a space of a square mile. Hence, I contacted Michael Kauffmann for a clarification of the boundaries of this square mile. He told me that it was not exact, but that the general placement is included in the most recent edition of his book. The observer can see *Abies lasiocarpa* (subalpine fir) from the trail

at the lake with binoculars. This was the species, which caused Sawyer and Thornburg (mentioned above) great surprise and debate. We did not locate *Juniperus occidentalis* (western juniper), which has been added to the list. However, we did hike the valley south, in order to explore the backside of the ridge and to scan with binoculars. For those *conifer connoisseurs*, who are less

inclined to go hiking, the diversity of trees is available on roads throughout the area. After it was all over, I think my most memorable achievement was *car-conifering*. If you can drive on a windy road at even 40 miles per hour and still point out a number of species, it will be a lot of fun! The next level past that is pointing out brooms. Now, we are talking ACS language!



Clockwise from top left: Leah looking for Alaskan cedar at Devil's Punchbowl. Carol Brant, the mother of the author, at Little Duck Lake. Leah in the cirque above Little Duck Lake.

You Can Take it With You

text and photography Wynne Keller, drone photography Peter McNaughton

Two years ago, we decided to leave our home of 35 years in central Maine. We planned to build a new place for our retirement, one closer to one of our sons and his family. The new land was wooded and over an hour away.

A gardener, living so many years in one place, can create a lot of garden, and, in the last 12 years or so, I had contracted Addicted Conifer Syndrome. I had collected a lot of treasured trees I did not want to leave behind, especially with no guarantee a new owner would care about them, or, even worse, might even want to destroy them. My husband and I resolved to move as much as we could to the new property.

Our new home was not scheduled to be finished until December. That meant, we would have to create a new, conifer garden, while the house was under construction. Then, we would have to transplant trees before the ground froze. I began by using my spreadsheet of existing plants, flagging the ones I thought would be possible to dig. We eliminated anything which had been in the ground 8 years or more. However, that still left a lot of trees.

We even included some trees we thought might be at risk if transplanted, or would concern any new owner because of location, such as a pine growing way faster than I had anticipated it would, or any tree too close to the house. Since perennials can easily be split in spring with no loss to the appearance of a garden, I also included many companion plants.

The total to be moved exceeded 125

plants, of which 58 were trees. The trees were mostly conifers and a few Japanese maples. We dug a few trees every week throughout the summer. Not all went smoothly. Some trees suffered considerable loss of roots, especially those in place for multiple years. Some also had been grown in spots, which made digging awkward. These trees received extra care all summer and after transplanting.

In order to get a conifer garden laid out on the new property, we hired Lee Schneller Fine Gardens of Camden, ME. Lee had designed a Japanese-style garden for us years ago at our existing home. We were not doing a Japanese garden this time, but we liked her aesthetic sense and style of working. We met at the new property, while the foundation was being dug. We devised a plan for a dry rock stream to border the woods and culminate in a wet zone, so as to take advantage of the slope of the property.

Before we could get the designer and the backhoe/bulldozer expert together to lay out the dry stream, 6 weeks had elapsed. Meanwhile, we kept digging, and potting, and watering, and tending, and moving plants from one property to the other.

Construction day finally arrived, and we watched the dream begin to take shape. They dug the bed for the stream, laid in weed barrier, and piled on stones. At the end of the stream, a large hole was dug to hold extra soil for the wetland plants. This hole would slowly drain down the hill, and retain water

long enough to keep wetland plants happy.

By this point, we had moved most of the pots to the new property, and the crew spent two days getting holes dug in the rocky soil, adding topsoil, and placing the plants. Our mission now was to keep everything alive. We watered weekly and created shade barriers for the more challenged trees. Fortunately, the well had already been dug. The only trick to watering was to make sure we were on-site often enough.

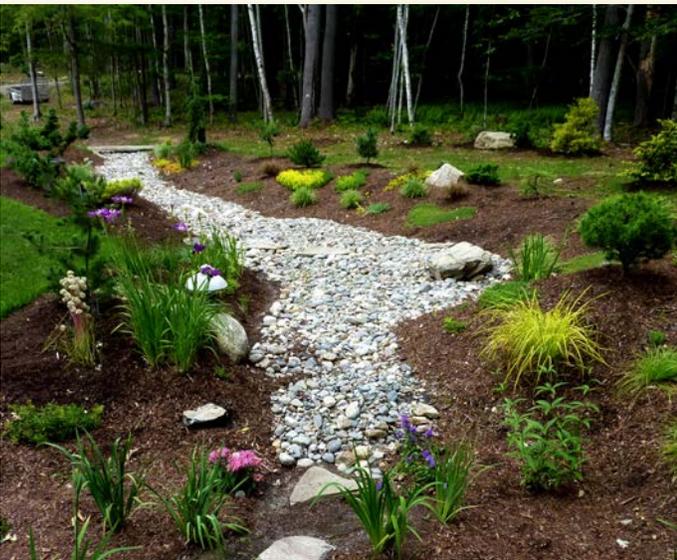
We had a huge rain storm in September, which flooded the entire front yard with about 4 inches of water. It turned out that the dry stream was not quite at the right slope to drain the yard properly. As a result, the front yard had to be dug up. Drainage pipe was laid, allowing water to empty into the wet zone. This is the peril of landscaping before the house is built.

Over the first winter, we lost 4 trees. We predicted 3 would die, as these trees had not come out of the ground easily, and 1 was unexpected. On the other hand, some lived which I did not think would make it. Our garden is still just beginning, but it has a lot more trees than we otherwise could have had. We are excited about watching the garden grow, and about adding to our landscaping, all of which is a lot easier now that we live here!

Wynne and Michael Keller reside in Central Maine.



Clockwise from top left: The plants were transported to the new home in our RV. The plants in their new home. Michael Keller moves a large pine. Pots were placed in readiness for planting.



Left column from top to bottom: The dry stream bed begins to take shape. A view upstream from the wetland. *Pinus strobus* 'Tiny Kurls' (Tiny Kurls eastern white pine).

Right column from top to bottom: View to the end of the dry stream. *Abies veitchii* 'Kramer' (Kramer Veitch's fir). *Picea orientalis* 'Tom Thumb Gold' (Tom Thumb gold Caucasian spruce).

Crazy for Conifers

text and photography Michelle Byrne Walsh

After I toured the two Woodstock, IL, properties, which comprise Rich's Foxwillow Pines nursery, each with a house and display garden, as well as retail and wholesale areas, Rich Eyre says farewell to me and then adds, "Have more fun; this IS the party."

That is exactly how Rich Eyre and his wife, Susan, live their lives, having fun doing what they love. They live at their business address, and their careers and charitable causes are their lives. The home gardens are also the display gardens of the nursery. They have lived for decades on both of the properties, where they sell their rare, dwarf conifers, unique woody plants, and hostas. "We count our blessings every day," Rich notes.

Rich served in the Peace Corps in the late 1960s, which gave him the opportunity to work in Bolivia. He was impressed with the people there. "They were hungry, but they always offered me the largest portion," he recalls, and, ever since, Rich and Susan have endeavored to raise funds to fight hunger and disease in Bolivia and other locations. The Eyres have for years been active members of and donors to Heifer International (heifer.org), which fights hunger and poverty internationally. The couple also funds Mano a Mano, which helps fight poverty by building hospitals, schools, roads, and reservoirs in Bolivia. They support the American Conifer Society, the Northern Illinois Hosta Society, and other organizations. They have also donated plants to the Chicago Botanic Garden, The Morton Arboretum, the Shedd Aquarium, the Lincoln Park Conservatory, the Woodstock Opera House, and several colleges.

It was while Rich was in the Peace Corps that he had a revelation: "I wanted to be the Johnny Appleseed of conifers."

In 1983, 3 years after they met, Rich

and Susan bought the 6-acre property on McConnell Road in Woodstock. When they moved into that house, which is now more than 150 years old, the original plan was to start a kennel and raise corgis. That never happened, and, in 1987, Rich returned to his first love, dwarf conifers. Rich was raised by organic farmers. His father, Leonard, was a home builder, and the family grew landscaping and nursery stock for the homes they built. With the encouragement and help of his mother, Margaret, Susan and Rich created a small specialty nursery in their backyard in 1987.

The property features a natural kettle moraine landscape, with a small, low-lying, circular pond in the center and ridges around it. The Eyres planted hundreds of different conifers, Japanese maples (*Acer* spp.), *Magnolia* spp., *Ginkgo biloba* cultivars, European beech (*Fagus*

spp.), and hostas (*Hosta* spp.) around that pond and among the existing native oaks and hickories. "The idea was to create a landscape, in which customers could experience the plants in person," Rich says. "Limited exposure, limited dreams, we wanted people to experience the trees firsthand."

"Within our landscape, the customer sees the trees in a garden setting, and then selects what he or she likes," Susan explains. "You choose the tree that you love. We made the landscape look like a botanical garden in all four seasons."



Top: Rich and Susan Eyre. Bottom: The kettle pond in spring.

Their gardens are also lessons in landscape design. Rich and Susan note that they are always discouraging homeowners from planting in straight lines. "Nature does not have straight lines," Rich asserts. "Do not plant a row of trees; aim for diversity with recurring waves of masses of plants!" They practice what they preach.

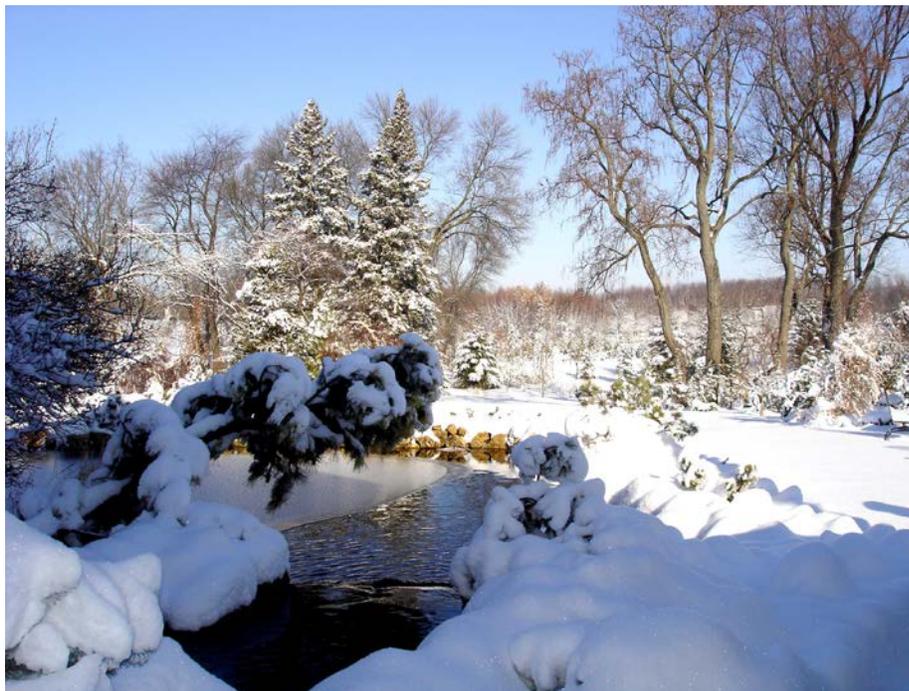
Each bend in the path reveals groups of evergreens, mixed with deciduous trees and perennials, the colors of which play off each other. Blue-needled spruces rub shoulders with yellow-needled pines, as well as red-leaved Japanese maples. The texture, color, and juxtaposition of these unusual trees and shrubs can be astounding.

"I was always a collector. This is a collector's garden," Rich recalls. "I gather things I like. I had an aunt from Japan, who was also a gardener, and she got me interested in Asian-style gardens and plants."

In 1997, the American Conifer Society held its National Meeting at Foxwillow Pines on McConnell Road, and, in 1998, the PBS show, *The Victory Garden*, filmed a segment there. An HGTV show followed shortly thereafter. "Those events changed our lives," Susan says. "We were then on the horticultural map."

Rich had rubbed elbows with many famous horticulturists, well before 1997. He credits much of the early success of his career to his mentor, Justin C. "Chub" Harper, who established a rare and dwarf conifer collection within the 775-acre Hidden Lake Gardens Botanical Garden and Arboretum in Tipton, Michigan. Chub Harper helped found the American Conifer Society.

Riding on their success, the Eyres bought a 30-acre farm in 2001 on Stieg Road, on the southwest side of Woodstock. Near the headwaters of the north branch of the Kishwaukee River, the property boasts a natural pond, streams, rolling hills, and native trees. Amid these features, Rich and Susan planted another display garden with hundreds of conifers, ginkgo, columnar-shaped trees, and other woodies. They



moved into the 100+ year old farm house, and then installed a massive brick patio in back (capable of seating more than 200 guests) and a gorgeous, 30-foot, raised pond with a waterfall, surrounded by conifers and perennials.

"We have held a few weddings here, as well as a fundraising breakfast for about 200 people here," Rich says, as he sits and gazes at the waving waterlilies.

Both Rich and Susan are art lovers, and many garden sculptures dot the garden on Stieg Road. Multiple, carved, serpentine, and granite figures are the focal points within several groupings of boulders, conifers, and perennials, tucked in various corners. Susan has a love of frogs, as evidenced by the statues near the front entrance.

The Eyres have made their mark on the horticultural world of Chicago, but they are starting to take things a little easier these days. "We want to retire and sell the business soon. We have been maniacs our whole lives, running all of the time, working seven days a week, but we are tired," Rich says. "Now it is time to teach the next generation."



Top: The kettle pond in winter. Bottom: The view of the back of the Stieg Road house.

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Pinus ponderosa (Ponderosa pine), styled as a **semi-cascade** bonsai (*Han-kengai*) for 12 years by Carl Morimoto, who purchased the plant at a regular nursery in California.

Over Hill and Dale, Looking for Potential Bonsai

text and photography Jack Christiansen

Spring is here, and I cannot think of a better time to go on the hunt for plants, either to start as bonsai, or to add to an existing collection of bonsai. Nurseries have already begun receiving new inventory for the season. The warmth of the sun beckons us to get out of the house and to be the first in line to view the new stock. Spring can also send us in other directions, in order to investigate sources of future bonsai. You might be surprised to discover, just where new finds exist. The focus of this writing is to assist the bonsai novice and the seasoned practitioner in finding suitable plants.

Many of my friends have scored specimens by digging up small trees or shrubs. Some plants have been growing in their own backyards. Many

times, future bonsai have come from jaunts through the woods. Neighbors in my community have decided to remove plants from their own gardens and have even been willing to dig plants for me. It is exciting to explore the possibilities!

An older plant can have a special potential and may reveal interesting trunk shape and branching, well before *bonsai-ing*. On walks in my community, I have noticed plants I have wanted to acquire. I have gone so far as to ask politely if I might remove a plant in exchange for a new plant of the same size. Bartering for plants and services rendered can result in a nice payoff. For example, old hedges of *Taxus* (yew) are a great source of bonsai. The plant hunter might have to go far afield to catch sight of a specimen which is

worthy of transformation into a bonsai.

Mountain areas and forests can yield great specimens. The San Francisco Bay Area, where I live, offers a wide diversity of regions, which are home to many species of conifers. Plants native to the Mediterranean climate grow here and add a new dimension for beginners and also experienced collectors. Always check your USDA zone to find what plants will thrive in your area!

When digging conifers in the wild, the land owner, be it a governmental unit or a private individual, generally requires permission to enter an area and remove plants. Conifers taken from the wild need special aftercare. Mortality rates can be high. I would not recommend digging a plant, especially

if there is no way to ensure a sufficient root ball. A quick Google search will provide sources on trunk caliper versus minimal root ball diameter.

Many of these naturally-occurring trees may live in small cracks or crevices. The weather in these conditions often creates an extreme environment, in which plants may only grow 1 inch or less each year. These plants make for highly desirable, collectible bonsai. Club members I know have developed their trees over years. They have shown their creations at yearly meetings. The bonsai are wonderful examples of natural art and are often hundreds of years old. It takes a high degree of skill to reveal that hidden beauty. A number of bonsai collectors in different parts of the United States go out and gather plants annually. They sell them, in turn, to other bonsai enthusiasts, or to well-known bonsai nurseries. You can Google "bonsai nurseries" to find the locations of such sources near you.

Other sources, of both developed and potential trees, are bonsai club meetings. Anyone can attend these gatherings. Clubs have annual fundraisers, where members bring in and offer specimens for sale at a good

price, in order to raise money for the club. Plants may have already been crafted into bonsai, or may be sold in an undeveloped state. Check your local listings for times and places of club meetings.

Whether you decide to start out with a sapling from a nursery, a mature plant from the wild, one from a yard, or even a finished specimen, it is good to understand the time element involved in the development of a tree. It is a good idea to match your bonsai knowledge with the plant you choose to buy. Some developed bonsai can be expensive. You can also read about bonsai online and in books at your local library or bookstore. With the help of bonsai clubs, workshops, and ancillary materials, any individual can acquire the knowledge to be successful with trees.

I recommend two sources for bonsai history, style and care:

Herb L. Gustafson, *The Bonsai Workshop*, Sterling Publishing Co. Inc., New York, New York, 1996.

Amy Liang, *The Living Art of Bonsai: Principles & Techniques of Cultivation*

& *Propagation*, Sterling Publishing Co. Inc., New York, New York, 1991.

Bonsai never have a final stage in development and are always labors of love. It is not unusual for bonsai to be passed down from one generation to the next. There are bonsai which are hundreds of years old. Many are displayed on tour at botanical gardens, such as the Jardin Botanique in Montreal, Canada. The time spent tending your trees will be rewarding for the years ahead.

It may become more and more difficult over time to get down on the ground and maintain a rock garden, but bonsai trees and pots can be moved for ease of styling and tending. When the weather outside is miserable and forbidding, bonsai can be brought inside and styled. However, when temperatures rise, it is fun to get outside and *bonsai*.

There is the excitement of the hunt and the satisfaction of creating living art, both of which cannot be duplicated by other endeavors.

Jack lives in San Jose, CA. He is an accomplished photographer and a recognized bonsai practitioner.

Right: *Juniperus californica* (California juniper), styled as an **informal upright** bonsai (*Moyogi*) for 17 years by Seji Shiba, who collected the plant in the Mojave Desert, CA.

Far Right: *Taxodium distichum* (bald cypress), styled as a **formal upright** bonsai (*Chokkan*) for 21 years by George Shoptaw, who collected the plant in Louisiana.

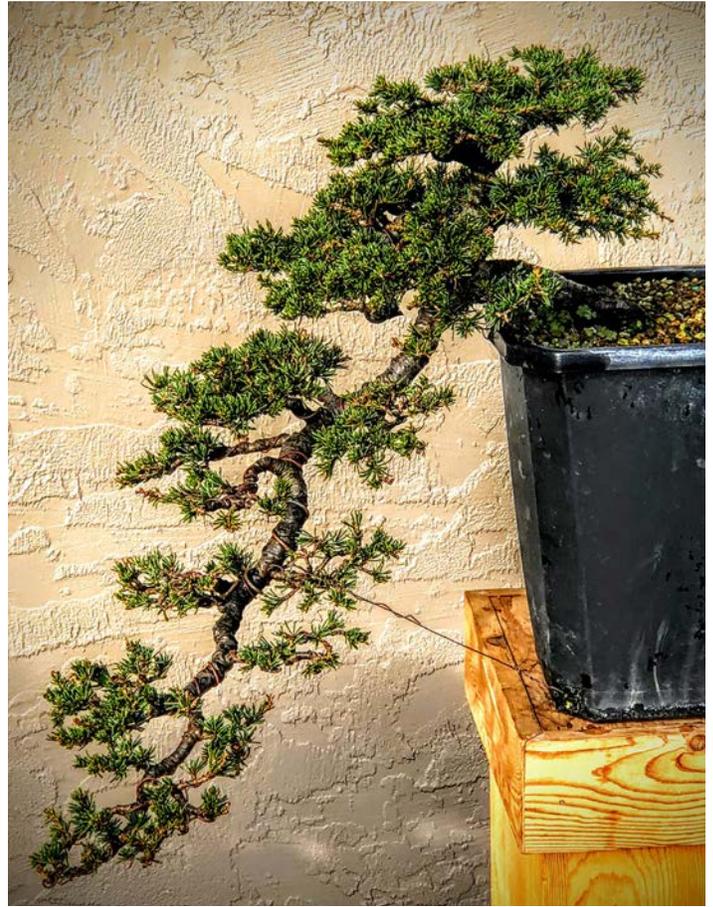
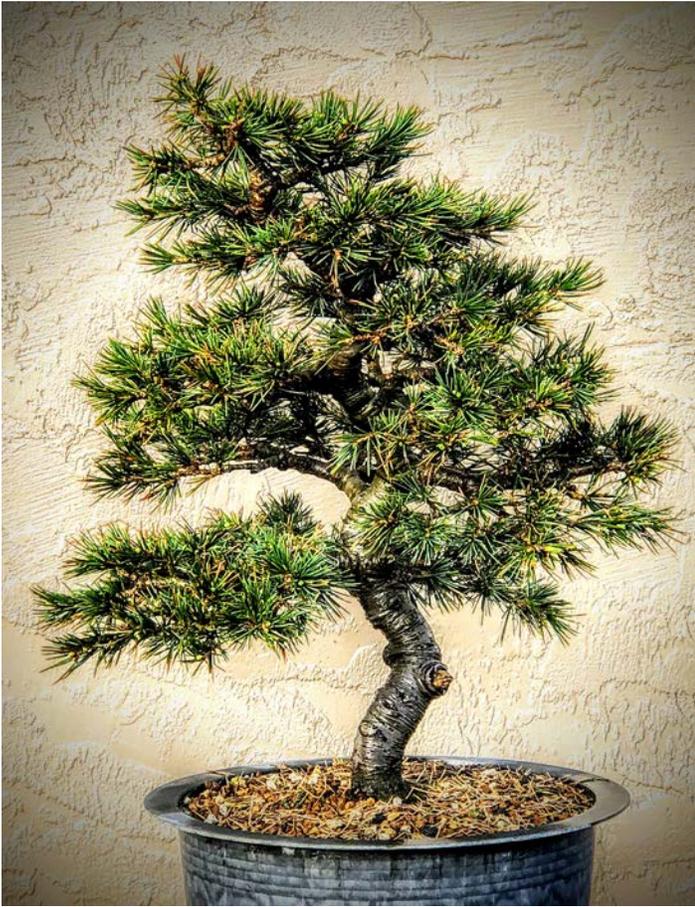




Left: *Callitris oblonga* (Tasmanian cypress pine), styled as a **literati** bonsai (*Bunjingi*) for 10 years by John Thompson, who purchased the plant at a bonsai nursery in California.

Below: *Juniperus chinensis* 'Shimpaku kishu' (Chinese juniper), styled as a **slanting** bonsai (*Shakan*) for 12 years by the Bonsai Society of San Francisco. The plant had been collected from a garden in California.

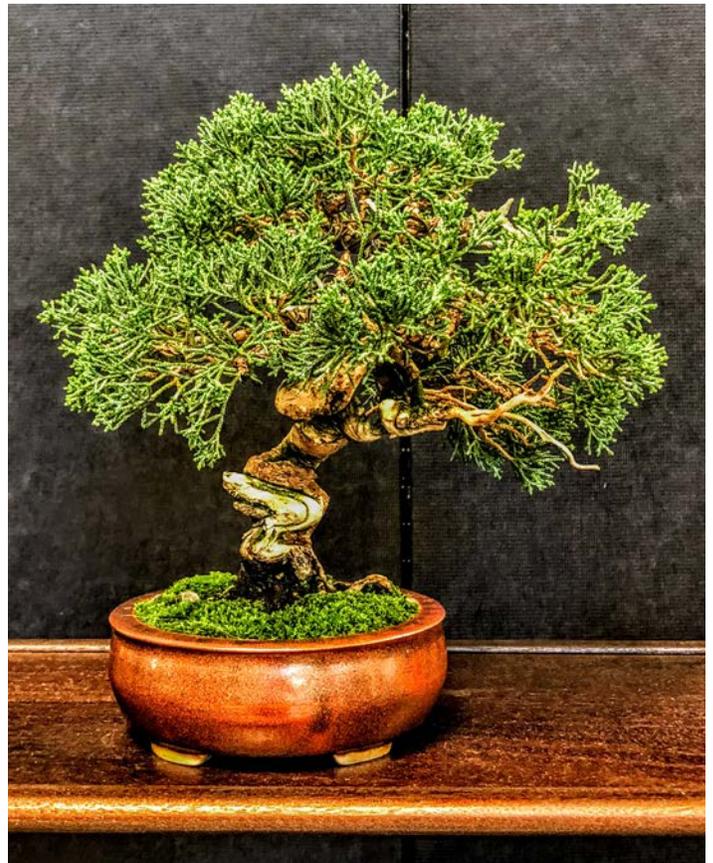




Clockwise from upper left: *Cedrus libani* 'Nana' (dwarf cedar of Lebanon), styled as an **informal upright** bonsai (*Moyogi*) for 5 years by Jack Christiansen, who collected the plant from his garden in Jose Jose, CA.

Cedrus brevifolia 'Treveron' (Treveron Cypriot cedar), trained as a sapling and styled as a **cascade** bonsai (*Kengai*) for 5 years by Jack Christiansen, who purchased the plant at a bonsai nursery in California.

Juniperus chinensis 'Shimpaku kishu' (Chinese juniper), styled as an **informal upright** bonsai (*Moyogi*) for 7 years by Jack Christiansen, who collected the plant from a neighbor's conifer garden in San Jose, CA.





Clockwise from upper left: *Sequoia sempervirens* (coast redwood), styled as a **formal upright** bonsai (*Chokkan*) for 11 years by the Bonsai Society of San Francisco, California. The plant was purchased at a bonsai nursery in California.

Juniperus chinensis ‘Shimpaku kishu’ (Chinese juniper), styled as a **cascade** bonsai (*Kengai*) for 5 years by Jack Christiansen, who purchased the plant at a bonsai nursery in California.

Juniperus scopulorum (Rocky Mountain juniper), initially styled as an **informal upright** bonsai (*Moyogi*) demonstration tree at a Sacramento Bonsai Convention, CA.

The Trail and History of the Canadian Hemlock

text and photography Frank Goodhart

Canadian hemlock (*Tsuga canadensis*) were the first, dwarf conifers I ever bought and collected. It was about 1980, when I first visited Watnong Nursery, now closed, in Morris Plains, NJ. The owners were Don and Hazel Smith, who established a nursery in their backyard after retiring. They specialized in rock garden plants, dwarf conifers, and other plants, which were rare and of interest to the keen collector. The Smiths were enthusiastic, kind, and empathetic to all who visited their nursery. Indeed, among their many contributions, was the education of their clients via long and patient discussions.

Sometimes the Smiths stocked 10-15 Canadian hemlock cultivars at one time. In those days, these plants did not have much availability anywhere in the United States. On the East Coast, many were acquired from other hobbyists and collectors, including ACS charter members Bob Fincham in Pennsylvania, Eddie Rezek and Joel Spingarn in New York, and Tom Dilatush in New Jersey. The Verkade and Vermuelen nurseries, both in New Jersey, also stocked Canadian hemlock cultivars. Don Smith propagated some cultivars by rooting them in a Nearing Frame.

Canadian hemlock is one of the four hemlock native to the United States. Its growth range extends from Quebec and Nova Scotia into the New England states, New Jersey, Pennsylvania (where it is the state tree), westward to disjunctive populations in Ohio, Illinois, northeastern Minnesota, the Appalachian Mountains, and as far south as Georgia. As a landscape plant, Canadian hemlock grows well in both sun and shade. Its natural habitat begins at 1,000-foot elevation and extends up to several thousand feet above sea level in mountainous areas. One may often observe them in cool, shady ravines.

The other native hemlock are: *Tsuga*



Tsuga canadensis 'Cole's Prostrate' (Cole's prostrate Canadian hemlock).

caroliniana (Carolina hemlock), *Tsuga heterophylla* (western hemlock), and *Tsuga mertensiana* (mountain hemlock). Carolina hemlock grows in the Blue Ridge Mountains from Virginia to Georgia. The mountain hemlock grows at higher elevations on the West Coast from California to Alaska. Its distribution is similar to that of the western hemlock.

There are four species of Asian hemlock: *Tsuga chinensis* (Chinese hemlock), *T. diversifolia* (northern Japanese hemlock), *T. dumosa* (Himalayan hemlock), and *T. sieboldii* (southern Japanese hemlock). Cultivars of these species are uncommon except for *T. diversifolia* (northern Japanese hemlock), of which there are a few. *T. diversifolia* is native to the Japanese islands of Honshū, Kyūshū, and Shikoku. In Europe and North America, *T. diversifolia* is sometimes employed as a tree for the garden. It has been in cultivation since 1861.

The wood of the Canadian hemlock has not been useful for general construction purposes because of its

softness and lack of durability. It has, however, been used as a source of pulp in the paper industry and to make crates. In the past, it was mercilessly harvested only for its bark, which has a very high tannin content of about 8% -10%. Large forests were decimated for the sole purpose of harvesting only the bark. Extracted, hemlock, vegetable tannins were used to cure and color leather. The stripped logs were left behind to rot.

Virgin forests of Canadian hemlock are non-existent today. The trees were an important part of forest ecology, making up as much as 33% of the forests in some areas of the Northeast. However, there are some very large trees remaining in several states. The current data may be found on the Eastern Native Tree Society (ENTS) website. Recently, a tree in the Great Smoky National Park (NC and TN) was 173-foot tall (52.8 meters), although this tree is now dead from hemlock woolly adelgid. Diameters of existing, isolated hemlock range from 2 feet 6 inches to 5 feet 11 inches (0.75–1.8 meters) and are about 150-foot tall (45.5 meters).



Tsuga canadensis 'Abbott's Pygmy' (Abbott's pygmy Canadian hemlock).



A hedge, formerly common, before identification problems.

T. canadensis is perhaps the most graceful of our native, eastern North America conifers with its gentle, weeping branches and informal, conical shape. It has been used effectively as a hedging tree, since it can be pruned regularly to increase branch density, while controlling its overall height. As a specimen tree, it can grow to a height of 70 feet and a width of 25-35 feet. It does not tolerate heat and does not grow well in urban areas. The Canadian hemlock has special significance to those of us in the ACS and to other gardeners. It was formerly a major source of conifer cultivars in the United States, and hundreds have been found and named. In the early 20th Century, it was the most common, dwarf conifer in the garden of the keen collector.

The first, conifer cultivar of our native eastern hemlock to find notoriety is *Tsuga canadensis* 'Sargentii' (Sargent's weeping hemlock). It can now be seen at several arboreta in the Northeast, including: The Arnold Arboretum, Boston, MA, New York Botanical Garden, NY, Planting Fields Arboretum, Nassau County, NY, Longwood Gardens, Kennett Square, PA, and Bayard Cutting

Arboretum State Park, Great River, NY. These specimens are over 100 years old. They are magnificent and well maintained. Other cultivars, whether of miniature, dwarf, or intermediate growth rates, offer textures and colors to the garden, which are quite different from those of pines, spruces, and firs.

The first ACS *Bulletin* (Vol.1, Summer 1983, No. 1) contained an article, *The Hemlock Arboretum at "Far Country"* by Charles Francis Jenkins, the first of a series of articles, which were reprints from the *Hemlock Arboretum Bulletin*. Jenkins was well known in the Philadelphia area as a member and leader of many charitable and educational organizations. He established the Hemlock Arboretum at his 7 1/2-acre residence, called Far Country, in the Germantown section of Philadelphia. It was here that he planted a collection of Canadian hemlock, as well as other, hemlock species and cultivars. There were 74 issues of the *Hemlock Arboretum Bulletin*, starting in 1932 and ending in 1951. This has become an important historical resource and has continued to have a strong influence on keen

collectors of conifers over the years. Jenkins obtained Canadian hemlock from nurserymen, horticulturists, and collectors throughout the country, and, in 1946, his card catalog contained 211 accessions.

Jenkins was further interested in developing additional knowledge about hemlock. He advertised in the *Hemlock Arboretum Bulletin* #19 (1937) for someone to perform his work. John Swartley applied for the job. He was a 1930's graduate of the University of Pennsylvania, Philadelphia, PA, with a Bachelor of Science degree in mathematics education. He soon found that teaching was not of interest to him and took a job at the Morris Arboretum at the University of Pennsylvania, where he carried out various horticultural duties, such as seed collection and propagation. Jenkins selected Swartley for the job and sponsored his education at Cornell University, Ithaca, NY. His Master of Science thesis was *Canada Hemlock and its Variations*. Soon afterwards, he enrolled at The Ohio State University, Columbus, OH, and obtained a Doctor of Philosophy degree in horticulture in 1942.

After World War II, Swartley returned to the Philadelphia area, where he lived and worked the rest of his life. He explored nurseries, arboreta, and estates, and collected many hemlock variations, subsequently planted at the Hemlock Arboretum. He viewed the Hemlock Arboretum as his laboratory. He was well known and respected by all the important plantsmen of the day, whether they were the heads of arboreta, outstanding nurserymen, or hobbyist-collectors.

Unfortunately, his thesis at Cornell was never published. Many horticulturists in the U. S., as well as others throughout the world, were disappointed, but were hopeful that he would write a book that summarized his findings over the years. However, he was stricken with a disabling disease which prevented him from doing this. The lack of formalization of the hemlock information Swartley provided became more critical with each passing year. Finally, two editors were found with the knowledge and skills to complete the book on hemlock; one was a world-renowned writer about dwarf conifers, Humphrey Welch, and the other was Dr. T. R. Dudley, a research botanist at the United States National Arboretum in Washington, DC. The book, *The Cultivated Hemlocks*, was finally published in 1984. This book remains the major reference source on hemlock today.

The first 62 pages contain botanical and other information on virtually all topics related to hemlock. Following this, there are monographs of cultivars with a description of each and information about discovery and origin. The cultivars are listed by groups such as pendulous, spreading, miniature, golden, and much more. The collection of this data spanned a period from 1938 to the 1970's. Swartley traveled extensively, collecting virtually every Canadian hemlock in existence at that time. Many similarities exist among the various cultivars. This problem was recognized, resulting in a further classification of Canadian hemlock into various groups (spreading, weeping, white tipped, golden, dwarf, extremely



Tsuga canadensis 'Little Joe' (Little Joe Canadian hemlock).

dwarf, and others). This is helpful also for placing various cultivars into the size categories delineated by the ACS. He also found discrepancies and duplication of names, some of which still exist today.

The latter part of the book describes the other species of hemlock, both those native to the U. S., and those native to Asia. Cultivars are also listed. The book ends with short chapters on propagation, along with problems of pests and diseases.

The Canadian hemlock is distinctive among other hemlock, since so many different forms were found and propagated. The tendency for it to produce atypical forms exceeds all other species in the *Tsuga* genus, as well as many other ornamental conifer genera, used in the gardens of today. Early named cultivars were found as wild seedlings in the forest. Later on, nurserymen intentionally planted hemlock seeds and looked for unusual forms. New and different forms and growth rates were noted in these experiments, resulting in the naming of some. It was concluded that the variations, consistently found among Canadian hemlock, were of a peculiar, genetic property. It may be that the mutant selections of hemlock could

have come from seeds of trees and seedlings of witch's brooms.

It appears that cultivars from witch's brooms of Canadian hemlock were identified during the later phase of cultivar selection. Swartley reports seeing many witch's brooms in the forests, as well as in gardens. The monographs for the cultivars sometimes list the source as a seedling or a witch's broom, but the sources of many are unknown.

Production of Canadian hemlock cultivars by some nurseries diminished, starting about 25 years ago, because of 2 insect and disease problems, infecting the species. In the eastern United States, cultivars were available from a number of small nurseries which are no longer in existence. Fortunately, many cultivars are now available from some West Coast, specialty nurseries. It appears that Canadian hemlock cultivars may be making a comeback in areas, where the tree had been severely affected by several insect and disease problems.

Landscape use of Canadian hemlock is very limited today because of hemlock scale and woolly adelgid. Scale was identified in the Philadelphia, PA, area in the 1970's and was very prevalent

in northern New Jersey about 50 years ago. Trees died slowly over a period of time. The hedgerow of hemlock at the Watnong Nursery was removed in the 1980's due to scale infestation. Soon thereafter, woolly adelgid appeared and killed off the rest of the trees in the Northeast. Fear was put into the hearts of dwarf conifer collectors, who abandoned collecting and using dwarf hemlock. After a few years, it was found that these diseases are not prevalent in cultivars, and it appears that there is no well-defined reason for this. It has been hinted that the disease is spread by birds, but not on smaller plants.

Hemlock scale was introduced into the U. S. in 1908. It is commonly known as the elongate hemlock scale or as the fiorinia scale (*Fiorinia externa*). Infected branches have flat, waxy, elongated deposits under the needles. Female eggs hatch to form a type of nymph which crawls to the undersides of unaffected leaves. The mouth parts of the nymphs are inserted into the needles and suck out the fluids of the plant, while injecting a toxin. This toxin causes the needles to yellow and die. This cycle repeats itself several times during the growing season. This yellowing progresses throughout the tree in succeeding years and disfigures the tree, as more and more branches die.

An even more serious disease of Canadian hemlock is the woolly adelgid (*Adelges tsugae*). It first appeared in western states of North America in 1924 and then much later in the area of Richmond, VA, in 1951. The insect has been traced to southern Japan, where it has not affected native hemlock, either due to natural predators, or the development of resistance over time.

Hemlock woolly adelgid (HWA) is easily identifiable as it produces white, foamy-looking, egg masses, cottony

in appearance, on the undersides of the leaves. Larvae hatch in the spring and feed on the phloem sap of young, tender twigs on the outer part of the branches. HWA asexually reproduces, and there are frequently two generations per year. Tree branches die back each year, once infected, and, if untreated, die within 4-10 years. There seems to be a correlation between the cold hardiness of HWA versus the ability of the trees to be unaffected. Recently, I have seen Canadian hemlock in the Allegheny Mountains of West Virginia and in New Hampshire, which are free of woolly adelgid. A U. S. Forest service map seems to affirm this theory.

The insect can be partially controlled by application of horticultural oil. The timing of treatment is important, but this can be overcome by more frequent spraying and by using an integrated pest management (IPM) approach. Trunk and soil pesticide injections are also effective via licensed professionals.

More recently, it has been discovered that the black lady bug (*Pseudoscymnus tsugae*) from Japan has been an effective biological control. It has a life cycle similar to HWA and has been shown to be 47%-88% effective in 5 months at sites in New Jersey, Connecticut, and Virginia.

Two other predators have been evaluated for the control of HWA. These are *Laricobius nigrinus* (tooth-necked beetle), native to the Pacific Northwest, and *Laricobius osakensis* (a species of derodontid beetle) native to Japan. *Laricobius nigrinus* beetles prey naturally on the HWA and have been released in a hemlock grove near Lansing, NY. It is hoped that it will be established after 2-3 years. No pesticides will be used in the area, and final evaluation will be made after 10 years.

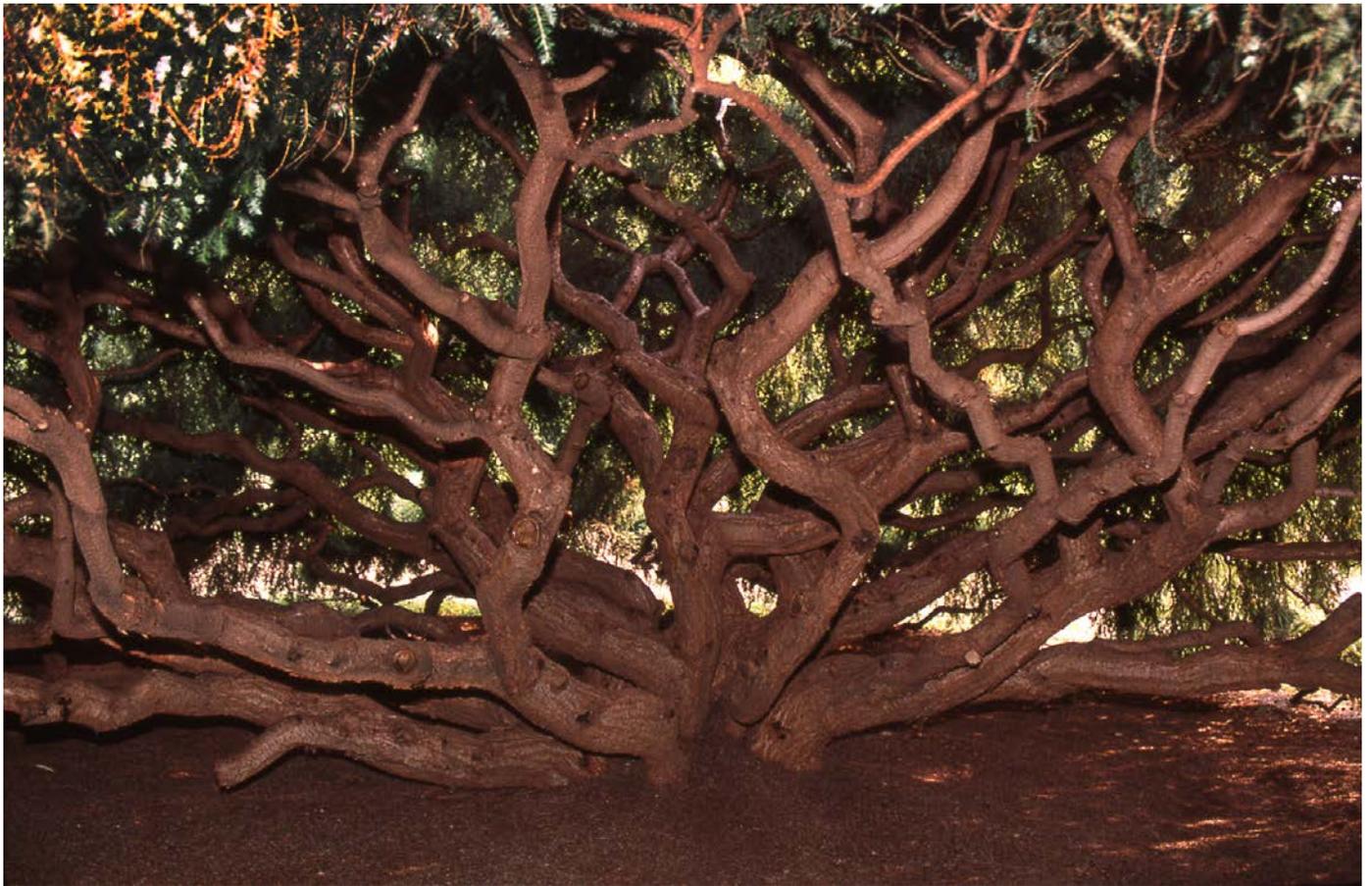
L. osakensis, a relative of *L. nigrinus*, has also shown promise in field trials.

It was first evaluated at Virginia Tech, Blacksburg, VA, for several years before obtaining approval from the USDA for release for evaluation in some natural, forest sites in Virginia. It has been effective in reducing HWA infestations and has survived and reproduced naturally in the forest.

A different approach has been taken by the Daniel B. Warnell School of Forestry and Natural Resources, University of Georgia, Athens, GA. Instead of seeking a predator for HWA, researchers created *in vitro* cultures from Canadian and Carolina hemlock, not affected by HWA. Using cryopreservation, germ plasm, was frozen, extracted, thawed, and then injected into the trees. Success was attained from all 3 samples of Carolina hemlock and 1 of 2 samples of Canadian hemlock.

With several means to arrest the decline of Canadian hemlock showing promise, there is now optimism that someday HWA will regenerate itself naturally in the forest. Perhaps, Canadian hemlock will once again be planted in landscapes, and the cultivars will regain a place in the garden, as in former times. However, the availability of hemlock cultivars is much less than it was 25-30 years ago. Aside from the insect and disease problems, many nurseries formerly growing hemlock are now closed. It appears that the wide range of cultivars will no longer be available except from collectors and small, local nurseries. One may refer to the websites of Iseli Nursery, Stanley and Sons Nursery, and others to see what cultivars are in their catalogs. Generally, the listed cultivars are available on a rotating basis, depending on propagation schedules.

Frank Goodhart has served the American Conifer Society as President, Northeast Region officer and ACS Board of Directors member. He is a mainstay of the Society.



Top: *Tsuga canadensis* 'Sargentii' (Sargent's weeping hemlock). Bottom: *Tsuga canadensis* 'Sargentii' (Sargent's weeping hemlock) interior.

Designing with Contrast: the Role of Conifers

text and photography Mary Warren, Seattle, WA

The keynote speaker for the second evening of the 2018 ACS National Meeting in Raleigh, NC, last summer, was local plantsman, Tony Avent, owner of Plant Delights Nursery. "Landscaping for Collectors" was the title of his presentation. Tony shared images from 30 years ago, documenting the early days of the purchase of his first home and the garden, which, at the time, awaited an upgrade.

The presentation revealed the change of his property from a blank canvas into a garden with intention. The before and after images demonstrated how his relationship with conifers began. One of his earliest designs incorporated just three, small conifers. Gymnosperms would prove to play a major role in his horticultural career and would become a trademark of his landscape designs. From my visits to Plant Delights Nursery and gardens on the meeting tour, along with visits to locations near my home in Seattle, WA, I have developed suggestions for ways to create interesting and colorful gardens.

Contrast is a way to increase interest in a planting arrangement, be it a pot, a small bed, or a rolling landscape. Contrast necessitates choosing a variety of plants for color, height, texture, and shape, all of which conifers can provide.

Using color contrast is a solid way to gain attention. For example, an *Abies nordmanniana* 'Golden Spreader' (golden spreader Nordmann fir) and a *Picea pungens* 'Montgomery' (Montgomery Colorado blue spruce) planted together demand attention and provide impact, which are not delivered by repetitious planting in typical landscapes.

A design might contain an entire bed of contrasting, purple foliage, such as *Tradescantia pallida* (purple-heart), dotted with lemon-yellow conifers, like *Chamaecyparis obtusa* 'Fernspray Gold' (golden fernspray Hinoki cypress). However, when arranging plants for color, a better approach would be to relegate a few areas for the installation of contrasting elements. The areas in between can then be used as vehicles

to guide the eye smoothly from one place to another. Related colors of varying intensities tie the areas together, while keeping in mind the adage that *less is more*.

Differing heights are another way to liven up your planting bed. Consider height and proportion in choosing conifers. Tall conifers lined up in a row, like soldiers at attention, appear rigid and regulated. If the goal is to guide the eye from a taller to a smaller specimen, choose a selection of conifers which sweep down to a ground cover. The conifers offer a wide, horizontal structure.

Transitions are integral to the overall composition, also. They can be harsh,



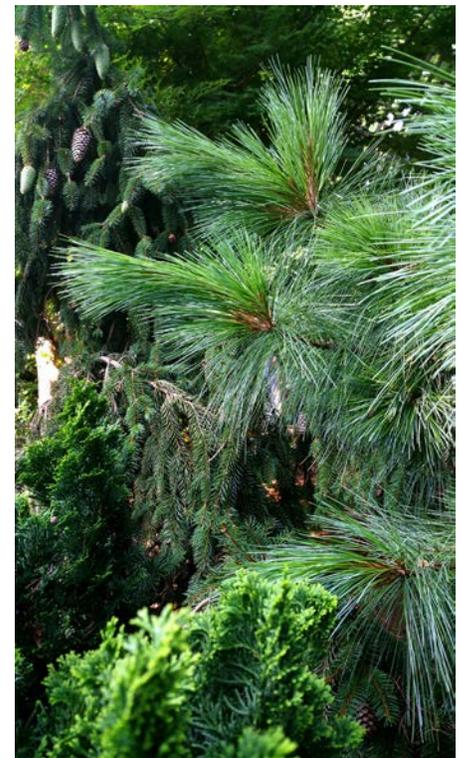
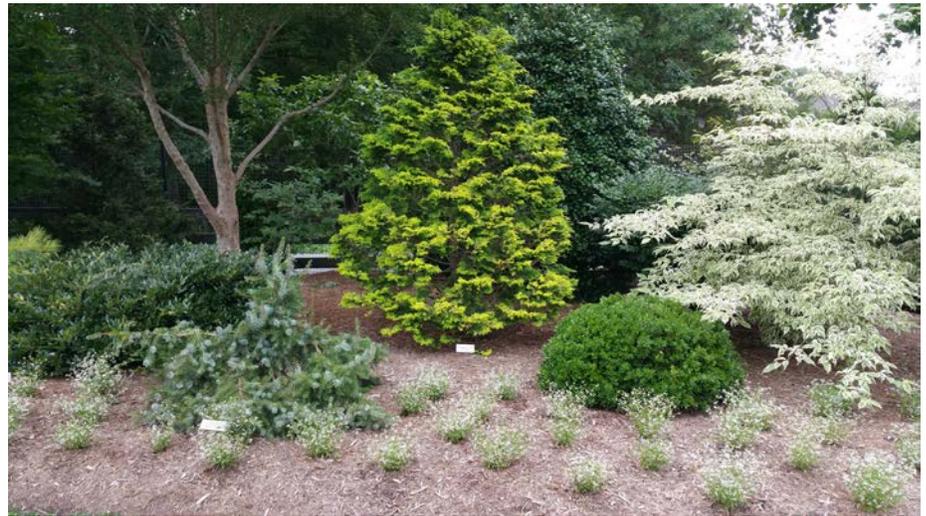
The Harrison Tuttle garden in Raleigh, NC, and reveal multiple colors and textures, all working together to create a patchwork harmony.



as in pairing *Cupressus sempervirens* 'Totem' (totem Italian cypress) with *Juniperus horizontalis* 'Bar Harbor' (Bar Harbor creeping juniper), from tall and thin, immediately reduced to wide and flat. That same 'Bar Harbor' can also sweep up to a *Pinus mugo* (mugo pine), the branches of which lead the eye upward to an emerging *Chamaecyparis obtusa* 'Mariesii' (Maries' Hinoki cypress). Experience with plants allows the gardener to be better able to demonstrate skill in creating a more relaxing composition.

Textures in the garden can also highlight winter interest. For example, the variety of shades of green are many. With little other than conifers to view, the characteristics of each plant can pop, even in a variegated, green palette.

Other colors add depth to the overall picture. Sunlight will vary on gold-tipped cultivars, even if in the shade. A bit of white on freshly emerging stems reveals new growth. As temperatures begin to rise, conifers bring the finest displays of color. Tips burst onto the scene with soft yellows, apple-greens and chartreuse, which, in turn, add



Clockwise from upper left: Ground cover above provides color, texture, and height. (Tuttle Garden, Raleigh, NC) Conifers of varying heights, along with perennials, demonstrate a good mix of texture and color, as in The Unique Garden, Chapel Hill, NC.

finely detailed color and texture to the design, not to speak of the varied hues of the female cones.

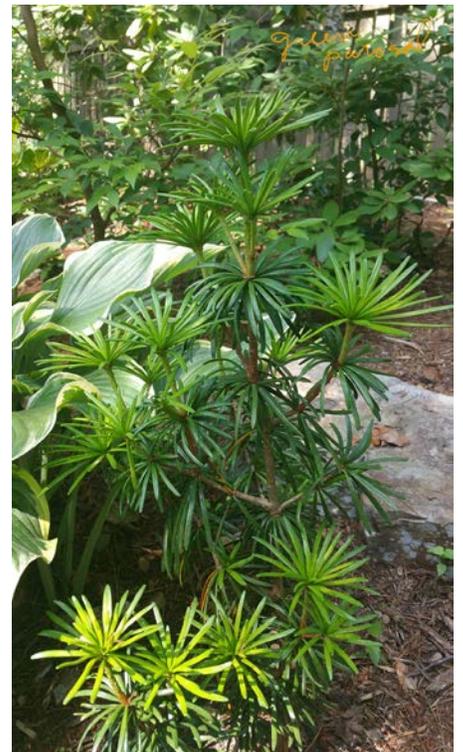
Each genus of conifer has a different, overall look. *Cryptomeria japonica* 'Spiralis' (spiral Japanese cedar) has branches which form twisted ropes of ringlet-like foliage, whereas *Picea omorika* (Serbian spruce) stands straight and tall, with lower branches, which weep with age. *Picea pungens* 'Glauca' (Colorado blue spruce) has

a horizontal structure, which speaks of strength. *Chamaecyparis obtusa* (Hinoki cypress) shows off swirling, fan-shaped leaves, which, from afar, imply movement. *Sciadopitys verticillata* (Japanese umbrella pine) opens upward and outward, inviting the eye to follow.

Every conifer has a variety of textures and subtleties, even within a single genus. Simply look at a list of *Chamaecyparis obtusa* (Hinoki cypress)



The top photograph and the one below it are from Bramble Bump-JM Cellars Winery, Woodinville, WA. Lower center is a scene at the garden of Sandy Horn, Cary, NC. The far right photo is *Sciadopitys verticillata* (Japanese umbrella pine) at the Tuttle garden.



specimens alone and appreciate the wealth of plants to investigate!

The overall form of conifers is worthy of consideration, as well. Think about color, texture, and height. Tall conifers can be skinny, plump, or airy. Short, rounded, shrub-shaped specimens can be open and lacy, or solid and thick. Does the specimen weep, curve upright, or maintain the same shape, simply growing wider and taller? Although it is better to situate conifers in the right place from the start, they *can* be moved about easily, as the garden expands. When it comes to designing a garden, nothing is written in stone!

As I look back at the gathering of last summer in Raleigh, NC. I appreciate that Tony Avent provided examples to ACS attendees to consider when designing a landscape, no matter how large or small that landscape is. May the thoughts and photos I have presented be further inspirations for use of contrast in landscape design.

Mary Warner lives in Seattle, WA, with her husband, Dan Gurney. They are co-owners of Gardening Artists. Mary also serves as head gardener at Bramble Bump-JM Cellars Winery in Woodinville, WA.

Note. If any ACS members would like to share pictures of scenes like those in the article by Mary Warren, please send them to ConQuartEditor@gmail.com.

Mark Your Calendars for the September Northeast Region Meeting

text and photography John O'Brien

Everything is coming together nicely for the Northeast Region Meeting this September in the Farmington River Valley of Connecticut.

The highlight of this meeting will be the tour on Saturday, which will feature three, outstanding, conifer gardens. We have the Artist's Garden, the Conifer Society Tailgate Sale Garden, and a garden which features many conifers purchased from Dennis Dodge. There was an exceptional article in the Winter CQ (2019), describing these gardens.

In addition, we are assembling a number of both private and public gardens and conifer nurseries for you to visit, both on the pre- and post-tour.

Our keynote speaker on Friday night will be Adam Wheeler of Broken Arrow Nursery, Hamden, CT. He will be making a presentation entitled: "Oddball Plants for Oddball People!" I do not know about you, but I fit into that category!

The Northeast Region is known for its amazing collection of unusual plants for the silent and live auctions. Our plant acquisition team is busy assembling something which will appeal to everyone. We anticipate that we will have obsolete offerings from both Sid Waxman and Dennis Dodge.

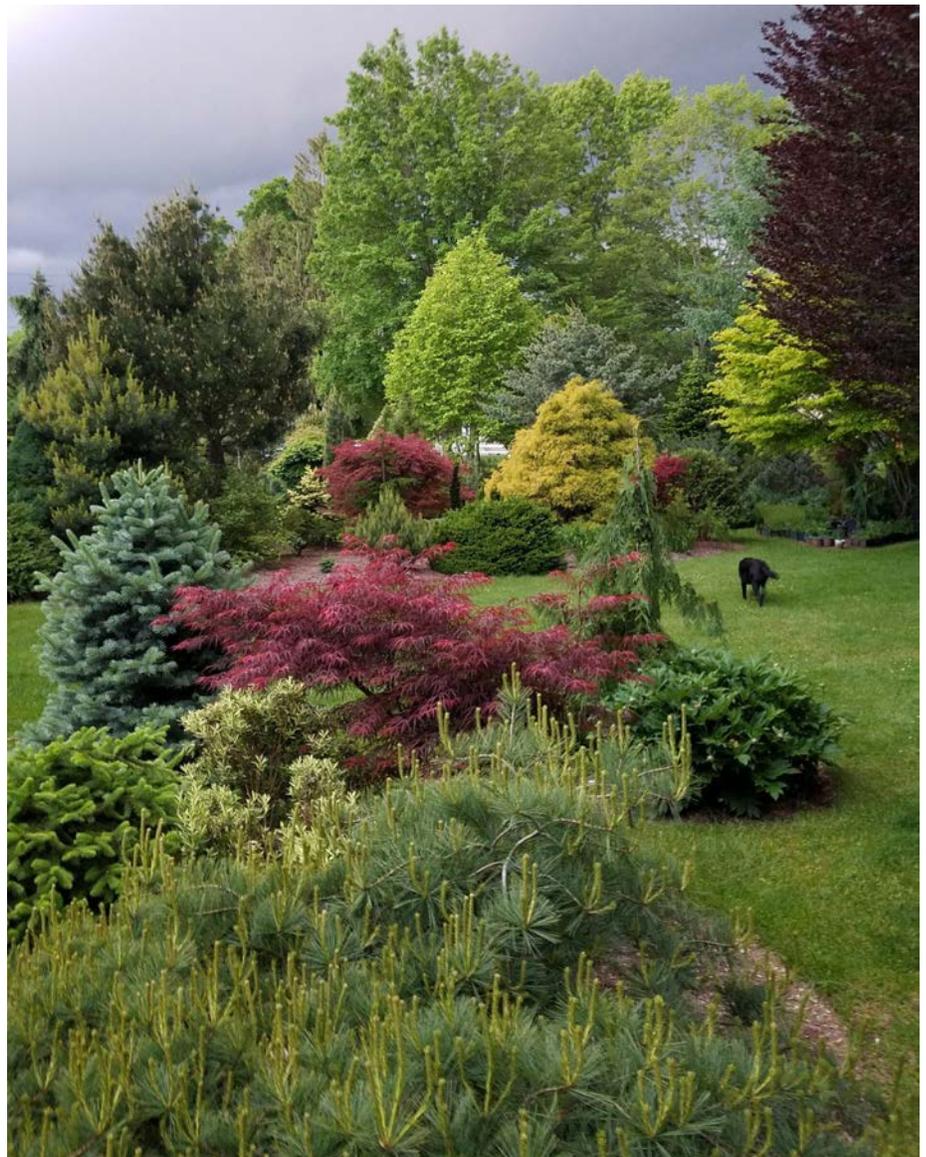
Rounding out the weekend, there will be an unsanctioned, tailgate sale on Sunday morning. Typically, there are 6-8 nurseries present, offering goodies at this early morning sale.

We hope that you will take a break from

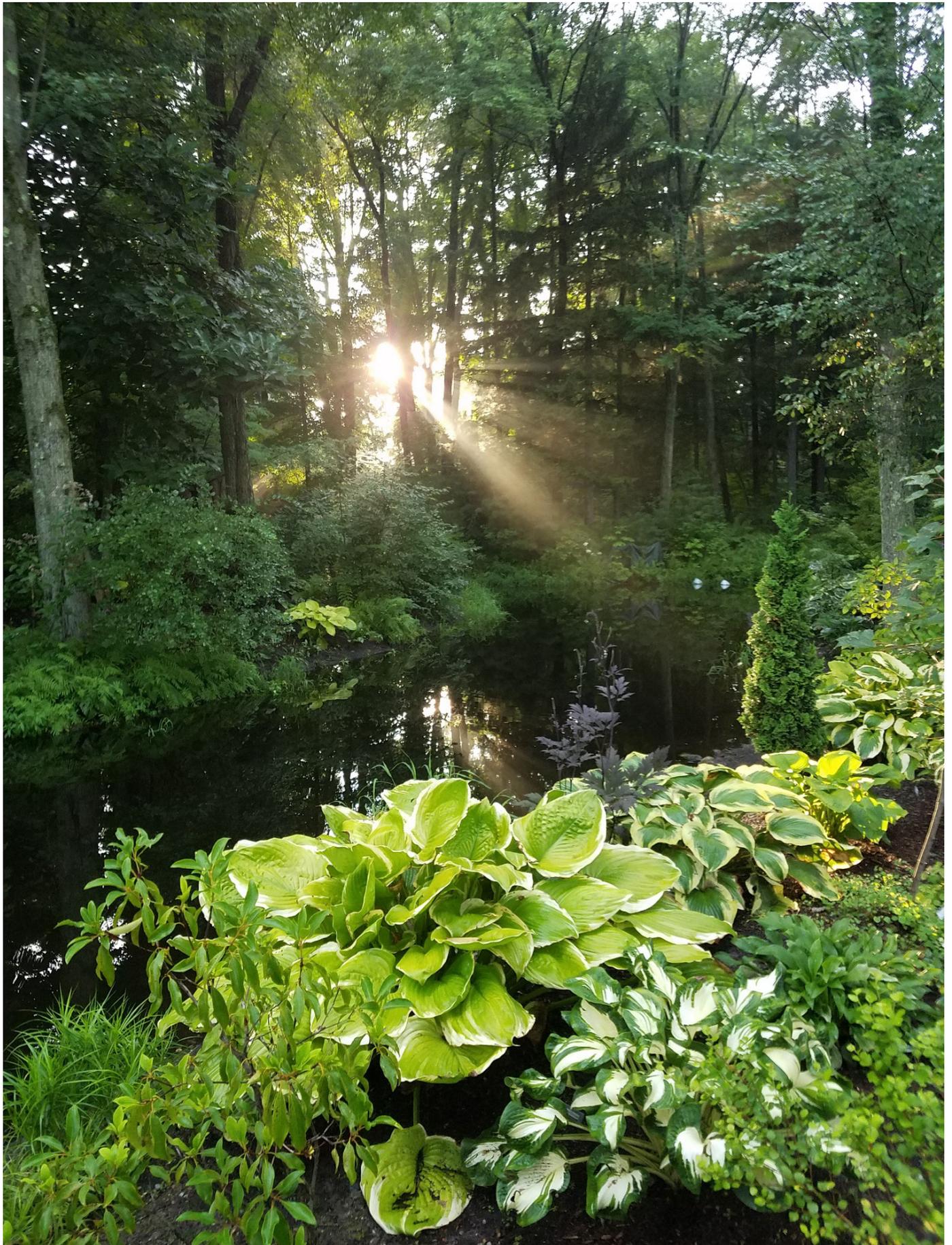
your busy schedule to spend some time in North Central Connecticut for the Northeast Region Meeting, September 20-22, 2019. You will find a registration form in this edition of the CQ.

John O'Brien is a long-time ACS

member, growing conifers since the 1970's He is the owner of O'Brien Nursery, Granby, CT.



This page and opposite: John O'Brien Garden, Granby, CT.





Clockwise from top: Both are D'Esopo Garden, Avon, CT. *Sciadopitys verticillata* (Japanese umbrella pine), 35 years old, Magyar Garden, New Hartford, CT. *Picea abies* 'Acrocona' (acrocona Norway spruce), Magyar Garden, New Hartford, CT.

Cryptomeria japonica 'Cristata'

photography Dan Gurney research and text Ron Elardo



Dan Gurney submitted the photo of 'Cristata' to the CQ. You would agree that it is most intriguing. Upon looking up *Cryptomeria japonica* 'Cristata' (cristate Japanese cedar) on the ACS conifer database, the trinomial evoked an investigation into the possible reasons for this phenomenon, known as cristation or fasciation.

The cultivar name 'Cristata' comes from the Latin adjective *cristatus*, which, in turn, is related to fasciate. The noun, fasciation, describes the banded or bundled growth at the tips of the branches of a plant. Cristate means having a crest-shape, like the cockscomb on the head of a rooster.

Scientists believe that cristation and fasciation result in the tip of the branch growing outward, instead of growing

farther along the stem. They attribute this fan-shaped growth to hormonal imbalance, insects, diseases, or physical injury to the plant. The strange growth is most likely caused by phytoplasma, which are obligate, bacterial parasites of the phloem tissue and of the vectors, which are involved in plant-to-plant transmissions. The fan-shaped protuberance appears on many genera of plants: cacti, roses, and beefsteak tomatoes, to name but a few.

As a consequence, since cristation is a cellular deviation, it may be the result of a genetic predisposition inherent in the plant, which causes division of growth and that characteristic spreading-out at the tip of the branch. It would be interesting to hear from you, the membership, on this subject. In the meantime, a Google search will yield an

array of beautiful pictures of plants with fasciation and cristation.

Dan Gurney reported that this particular cristate Japanese cedar is 50-60 years old and 50-feet tall. It has been growing in Woodinville, WA, 20 miles northeast of Seattle, at the JM Cellars Winery of Peggy and John Bigelow. The previous owners of the winery, Jan and Smitty Smith, were conifer collectors

tomatoes, to name but a few. In the ACS conifer database, one can see an excellent closeup of the cockscomb-like growth on a 'Cristata' specimen at the Cox Arboretum and Gardens in Canton, GA.

Dan Gurney is co-owner of Gardening Artists with his wife, Mary Warner. They reside in Seattle, WA.



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