

AMERICAN CONIFER SOCIETY

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Household (1–2 Persons) – \$40; **Business** – \$100; **Nonprofit** – \$40; **Student** – FREE; **Sustaining** – \$75; **Patron** – \$150. **International** and **Life** memberships are also available.

Please notify the National Office four weeks in advance if you are moving.

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Picea pungens 'Filip's Blue Compact'

Platycladus orientalis 'Franky Boy'

Pinus contorta var. *latifolia* 'Taylor's Sunburst'

Metasequoia glyptostroboides 'Miss Grace'

Picea pungens 'R.H. Montgomery'

Pinus pinaster 'Wrecking Ball'

Cupressus nootkatensis 'Green Arrow'
Photograph by David E. Perry

Inside Cover Photo

Picea engelmannii 'Blue Magoo'

Photograph by David E. Perry

Back Cover Photo

Pinus densiflora (Stupka selection)

Selected by Joe Stupka from *Pinus densiflora* 'Oculus Draconis' for its superior variegation.

Photograph by Robin Mann



AMERICAN CONIFER SOCIETY

Enter the Cone Zone!

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ACS President's Message Summer 2023

Text Jeff Harvey and Photography Jennifer and Jeff Harvey and Christopher Glenn

It was so good seeing everyone at the National Meeting in Charlotte, North Carolina. The hotel, which had just been completely renovated, was amazing. The weather was a bit damp the first day we were at the Bartlett Tree Research Laboratory and Arboretum, but it did not keep many of us from walking the grounds. Those who stayed inside enjoyed three great lecturers. They were very informative and entertaining. The Society had a meeting there about 13 years ago, and it is incredible how much the original gardens have grown and how many new conifers they have added. We all need to thank the Bartlett team for everything they did for us. They provided lecturers; snacks; a wonderful classroom and lounging area; a fleet of golf carts to help us see all of the vast grounds; and friendly, informative staff to answer questions and make us feel entirely at home. We could not have asked for more.

The Post Tour was incredible. All the gardens were in great shape, and the weather was perfect. The mixed bus tour and drive-yourself seemed to work well. Each of the gardens was different and reflected the character of their owners. If you were on the tour, please take a minute and send the garden owners a thank you. They deserve it for all the work they did.

Because of problems with the originally planned venue, the 2024 national meeting will be held in the exciting city of Cincinnati in June 2024. Keep your eye on the Society's website at <https://www.conifersociety.org> for more information. We are hard at work selecting a hotel and gardens to visit. If you live in the Cincinnati area and would like to be on tour or know someone with a fantastic garden, please let us know. Additionally, we are always looking for people to help out with different areas of the national meetings, so if you have a knack for marketing, promotions, or fundraising, to name a few areas, we could use your help. The National Meeting is our largest source of funding after membership dues. It is also the largest gathering of "Coneheads" in the world!

Speaking of volunteers, our society is a volunteer society. We have a part-time office staff that takes care of the essentials. We need people to help out with small jobs. One of the things you can help us with is answer-



Jeff Harvey stands amidst the golden hues of *Pinus densiflora* 'Gold Ghost' in his Watertown, Tennessee, landscape.

ing questions on Facebook. We will be crowdsourcing the answers to people's questions. We had just a few people trying to answer all the questions, but you may be more familiar than they are with specific questions about conifer cultivation, sources, cultivars, and problems that interest people. We need your help in answering novices' questions, too, to get them interested in the Society. Check out the Facebook addresses listed in the *Conifer Quarterly* on page one, and enjoy all the articles, pictures, and advice on growing conifers while adding your expertise to the conversation.

We also need people to help with having meetings or gatherings to get more people interested in the Society. It is not complicated. We can help get the word out for you. Just open your garden for a few hours one Saturday or Sunday and grab some dinner afterward or have an ice cream sundae bar on the deck for your visitors. It is always great to talk about your garden with others and share ideas.

We need people to help on the regional and national level at meetings. All the regions have officers who need help with committees and projects. Contact the officers listed in the Directorate on page 34 in the *Conifer Quarterly* and ask how to help. If there is anything you would like to help with, contact me at president@conifersociety.org or the office at national-office@conifersociety.org.

We will be on our way to the Central Region meeting in Kansas City in a few weeks. Looking forward to seeing all our conifer friends there and the amazing gardens the Central Region has arranged for us to tour. Along the way, we may be stopping at Missouri Botanical Garden, and we have a tour set up at Lovett Arboretum with Nick Baker, which was made possible through connections made at conifer events. By attending conifer meetings, you can make some great friends.



Maplewalk Gardens , Tom and Lib Nunenkamp



Serenity Gardens, Patsy Reames



Mary Griggs's garden



John and Deborah Gardner's garden



UNC Charlotte Botanical Gardens

Reflections on the 2023 National Meeting in Charlotte

Text Jeff Harvey and Photography Christopher Glenn, Jeff and Jennifer Harvey, and Robin Mann

We convened in the beautiful Queen City of Charlotte, North Carolina, for our National Meeting in April. Despite some rain on Thursday, the weather was splendid on Friday and Saturday. Programs such as this one thrive due to the indispensable assistance of countless individuals. I want to take a moment to extend my heartfelt thanks to the individuals who made this event possible: Richard Bartlett, Patrick Franklin, Adam Black, and the incredible team at Bartlett. Your exceptional hospitality truly made a lasting impression. I would also like to thank our gracious post-tour garden hosts, Tom and Lib Nunenkamp of Maplewalk Gardens, John and Deborah Gardner, Patsy Reames of Serenity Gardens, and Mary Griggs. If you get a chance, please thank all those that made the National Meeting possible.

At the Bartlett Tree Research Laboratory and Arboretum, we were provided with remarkable passenger golf carts, allowing us the convenience of being chauffeured to our desired locations within the garden. The staggered but efficient drop-off system ensured no one had to wait to explore the stunning grounds. I must commend the meticulous upkeep of the gardens, with every plant perfectly labeled. Having previously visited the Arboretum 13 years ago, I was astonished by the remarkable growth of the plants since then. Over the past five years, Jennifer and I have had the pleasure of visiting several times, and it is incredible how rapidly plants grow within the Arboretum's conditions. The assort-

ment of conifers we saw was truly mind-boggling, for sure making it the most extensive collection of cultivars in the country, if not the world, within a single garden.

What's truly amazing is that we missed an entirely new section they recently planted, brimming with witchhazels and Japanese maples just across the street. Perhaps, if there is interest and they are willing, we can organize a "winter meeting" there in the next year or two, enabling us to witness the enchanting witchhazels, camellias, and magnolias in flower and the captivating colors of conifers in the winter. Winter highs in Charlotte reach the 40s and 50s, except for a couple weeks.

Considering the extensive list of auction item donors, I wonder if there will be enough space in this issue of the *Conifer Quarterly* to include them all. However, rest assured; they will be acknowledged in the next issue without fail. I want to extend my sincere appreciation to Missy Galloway and Michele Polito for their efforts in soliciting donations, as well as the major donors of this year's auction items: Bruce Apeldoorn, Michael Balogh, and Conifer Kingdom. Your contributions have made this event an extraordinary fundraiser for the Society, ensuring that people will enjoy their plants for many years to come.

I would also like to express gratitude to Wayne and Missy Galloway, Dennis and Carole Groh, Bartlett Tree Research Laboratories and

Arboretum, and GrowTech for their significant donations supporting the meeting. Their generous contributions allowed us to provide attendees with essentials such as bags, name tag holders, speakers, and a publication on conifer culture. Furthermore, the giveaway plants were donated by Bailey Nurseries, with the selection of *Thuja occidentalis* 'RutThu3' (First Edition Lemon Burst arborvitae) made by our esteemed ACS member, John Ruter, from the University of Georgia. Thank you all for your kind and generous donations!

To all those who assisted during the meeting and the night before, please accept my sincere gratitude. With your invaluable help, we ensured everything was ready on-site. Your support is truly appreciated.

The private gardens we had the pleasure of visiting during the post-tour were equally impressive and brought immense joy to all of us. Once again, I would like to express my deepest gratitude to every one of you for the incredible amount of time and effort you dedicated to preparing for our visit. We genuinely appreciate your hard work. John, I hope you received some valuable tips on where to plant that incredible auction plant you acquired during the meeting.

Looking ahead, we eagerly anticipate our next meeting in the other Queen City, Cincinnati, Ohio, scheduled for June 13-15, 2024!



One of the engaging lectures at BTRLA.



Participants delight in a fireside feast on the patio.



Conifer enthusiasts participate in a lively silent auction.



Participants engage in a bidding war for prized conifers.



Golf carts and drivers patiently await guests.



A rain-soaked individual studies a captivating conifer.

Marvin and Emelie Snyder Award of Merit for Dedicated Support of the American Conifer Society

Text David Speth and Dennis Groh and Photography Jennifer Harvey

Byron Baxter was honored with the Marvin and Emelie Snyder Award of Merit for Dedicated Support of the American Conifer Society during the National Meeting held in Charlotte, North Carolina. This prestigious recognition is a testament to Byron's unwavering dedication and support of the Society. The Snyder Award pays tribute to individuals who have made outstanding contributions to the Society through their exemplary service, enthusiasm, unwavering commitment, and promotion of ACS membership. It acknowledges those who have actively engaged in the Society's activities at the regional and/or national, or both levels.

Through his long-term involvement at both ACS national and regional levels, Byron has demonstrated his service, enthusiasm, commitment, and promotion of the Society. These include service on the ACS Board of Directors, president of the ACS Central Region, organizer of numerous ACS local events, and generous donor of many auction plants.

Byron has served as a national and regional officer. He has served as vice president and then president of the ACS Central Region for three terms. During this time, he helped establish and organize several local events that attracted many new members. These local events include Central Region's annual January Zoom Presentations featuring local garden tours; Cincinnati's Winter Lunch-n-Learn sessions since 2018 (except for COVID-19 years); and, beginning in 2017, Central Region's Ohio Conifer Connection Weekend.

During his three terms as CR president, Byron represented the region on the ACS National Board of Directors. At the direction of the BOD, he established and chaired the Bylaws and Policies Committee. Under his direction, the committee reviewed the ACS Bylaws and Policies of the Board and presented recommendations for updating the documents. The BOD accepted the recommendations, and the documents were updated.

Byron has achieved the distinguished Professional Registered Parliamentarian certification from the National Association of Parliamentarians. This is a highly respected certification and a major accomplishment

requiring years of continuing education. Byron has donated his services to the ACS BOD as its parliamentarian, providing guidance on parliamentary procedure.

Byron attends and represents the ACS at local garden clubs, Master Gardener programs, and other regional plant society events. He is a regular and generous donor of auction plant material and has helped solicit plant donations for conference auctions.



Byron Baxter standing before previous recipients.

The Marvin and Emelie Snyder Award of Merit for Dedicated Support of the American Conifer Society is given annually at the ACS National Meeting. It is named for the Overland Park, Kansas, couple who gave unstintingly to the organization for over two decades. Marvin served in a leadership role for nine of the ACS's first 21 years. Emelie played an equally important role behind the scenes as a volunteer at local, regional, and national events. The Snyders had a significant impact on shaping the Society as it exists today.

ACS Members can nominate another member by sending their name, address, phone number, and email address along with a brief note describing the candidate and the reasons the candidate is deserving of this recognition. Send nominations to the ACS president at president@conifersociety.org. Please include "Snyder Award Nominee" in the subject line of the email.

Justin C. "Chub" Harper Award for the Development in the Field of Conifers

Text Dennis Groh, Gary Gee, and Bill Barger and Photography Bill Barger

Henk van Kempen was presented with the Justin C. "Chub" Harper Award during the National Meeting held in Charlotte, North Carolina. Henk's remarkable contributions made him a truly deserving recipient of this prestigious accolade. The recipients of this award exemplify many of the characteristics embodied by Chub Harper (1928–2009), which encompass a passion for collecting and showcasing conifers, a willingness to share knowledge about plants, and an unwavering enthusiasm and drive to discover and develop noteworthy conifer cultivars. The nominating committee also takes into account published articles, books, or texts, as well as innovative propagation techniques and designs aimed at the advancement of conifer usage, when considering potential awardees.

Henk is the owner of the Kempen Tree Nursery in the Netherlands. It has an impressive display garden with several thousand carefully and accurately labeled different conifer cultivars. Henk is also an avid broom hunter. He has traveled extensively in Europe and North America to seek out new grafting stock. Henk has introduced an amazing number of conifers (primarily in Europe). He is a long-time member of the American Conifer Society and an expert propagator. Henk is very generous with his plant material and his plant knowledge. He actively participates in online forums to support conifer education, identification, and nomenclature. He is currently developing a new nursery website at <https://henksgarden.nl/> with great descriptions of cultivars and high-quality images of conifers. The website is in Dutch but can be converted to English with Google Translate (<https://translate.google.com/>) or any other translation site.

It is our assessment that Henk van Kempen meets all the requirements of the Justin C. "Chub" Harper Award for Development in the Field of Conifers. He is a passionate collector of conifers and has a stunning display garden at his nursery. The plants are artfully arranged and properly labeled. Henk is a real plantsman with a vast knowledge about conifer cultivars and takes the time to share this knowledge. He also is recognized as an expert by many of the major propagators in the conifer industry and regularly exchanges plant material

and information with them. His skill as a propagator has enabled both his introductions and other quality conifers to become more quickly available.



The Justin C. "Chub" Harper Award for the Development in the Field of Conifers is given annually at the ACS National Meeting. It is named for the renowned collector of conifers and prominent ACS supporter (and past president) whose collection of over 500 specimens is now preserved at Michigan State University's Hidden Lake Gardens.

ACS Members can nominate another member by sending their name, address, phone number, and email address along with a brief note describing the candidate and the reasons the candidate is deserving of this recognition. Send nominations to the ACS president at president@conifersociety.org. Please include "Harper Award Nominee" in the subject line of the email.



2023 Southeast Region Rendezvous

Text Wayne and Missy Galloway and Photography Wayne Galloway and Jeff Harvey

The Galloways will host a rendezvous on September 16 at their Elk Mountain-top home northeast of Asheville. The gardens have continuously evolved since the property was purchased in 2011, as is, with landscaping by Lowes. The 3½ acre parcel, with 10 acres adjoining, is on the top of a ridge with over two lightly forested acres, providing appropriate sun for the gardens.

The elevation is almost 4,000', and this cooler climate enables them to grow a variety of plants typical for Asheville and also many specimens not typically successful there.

The individual garden areas now number twenty, and the selections are labeled with their location and plant name. The property has numerous rock formations often previously hidden by the blackberry and brush. Once cleared, the rocks provided a great backdrop for the garden's focus, dwarf and miniature conifers and Japanese maples. Unbridled enthusiasm has pushed

the collection past the 1,000-plant benchmark. The material has been sourced from five nurseries in Asheville and five in Oregon— Stanley and Sons Nursery and Conifer Kingdom being the main contributors. Interestingly, many of the plants from that northwest region grow quite well in this climate and altitude.

Pinus and *Picea* varieties account equally for about half of the plants. *Abies*, with 22 selections, are about 19% of the collection, and *Chamaecyparis* is about 6%. Also, there is a wide range in *Acer* to provide exciting accents. The remaining 25% is an assortment of experiments. Jeff Harris, a new ACS member, recently did some Japanese-influenced hardscapes. The collection is ever-growing and evolving through the ongoing knowledge and encouragement Missy has gained from her many ACS friends.

The garden will be open from 10:00 AM to 4:00 PM, with lunch and beverages at 12:30 PM. There will also be a small silent auction. Registration is required to attend. Registration is \$20 per person and is open until September 2 on the Society's website at <http://conifer-society.org>.

The location is easily accessed off the Blue Ridge Parkway at the Bull Gap exit. It is 30 minutes from downtown Asheville, and the closest hotels are near the intersection of Rt. 70 (Tunnel Road) and the Blue Ridge Parkway. Hotels are on your own. Asheville and the surrounding area have many hotels in all price ranges. Since this is a Rendezvous, we do not expect enough people to be able to reserve a block of rooms. Other gardens and nurseries are on your own. We will help with a list for those that register.

Above: Croquet Court



Conifers welcome visitors along the driveway.



A mesmerizing water garden delights the senses.



An oldie from Larry.



Dwarf conifers grace the Polito garden.

ACS Photo Contest and 2024 Calendar

Text Bob and Karen Iames

Attention all you shutterbugs out there! Gather your best photos for a great competition. We all take hundreds of photos of conifers each year, and now is your chance to show them off. The winning photos will then be used for our 2024 ACS calendar!

All the photos will be shown at the ACS National Meeting in Cincinnati during the meeting. So, here is your chance to get your photos seen by your fellow members!

Here is the fine print:

Guidelines for American Conifer Society 2024 Calendar Entries

Categories

- Conifer portraits—all or part of a conifer
- Garden shots
- Conifers in containers
- Conifers through the seasons

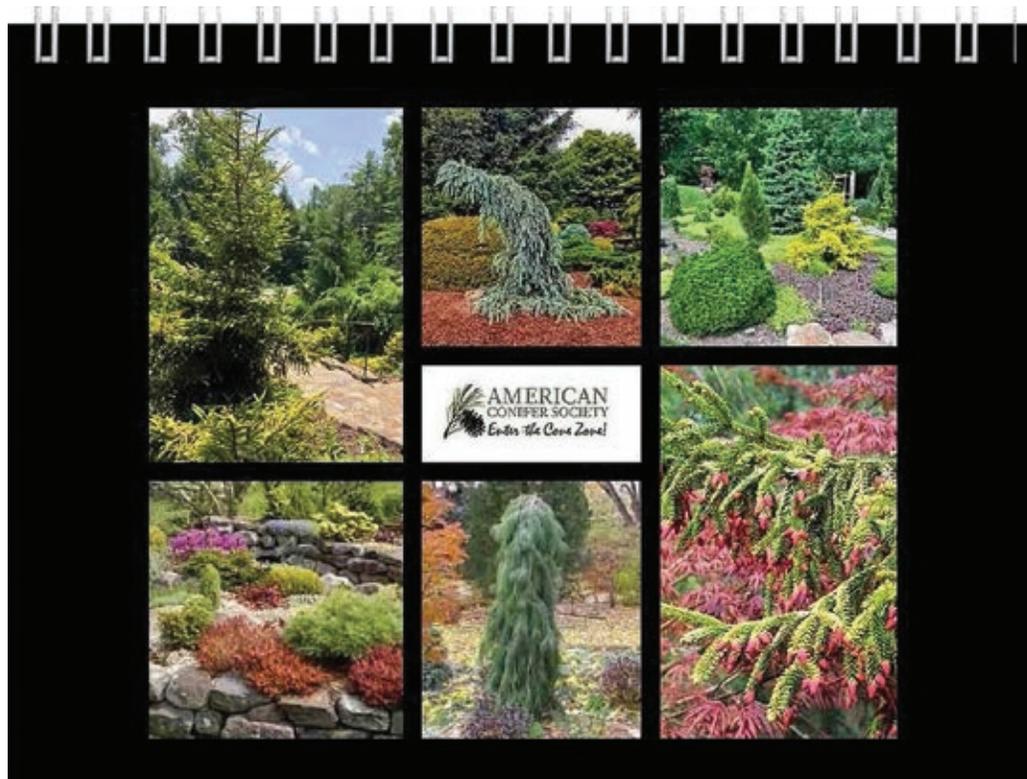
Minor photo editing, such as cropping and minor color and light correction, is allowed. Please avoid over-manipulation and enhancement of images. No borders or text should be used.

Submitting an entry grants the American Conifer Society (ACS) the right to reprint or republish submitted photograph(s) in any of the newsletters, journals, or websites published by ACS or any of its Regions.

First, second, and third place winners in each category will be published in the 2024 ACS Calendar.

Rules

- Must be a current ACS member. (Photos submitted by Reference Gardens must be taken by an ACS member, or an employee or volunteer of the Reference Garden.)
- Photos must be at least 300 DPI. (Tip: Set your camera options to the highest resolution and picture size possible.) Photos should be submitted in JPG format.
- Limit of five submissions per member per category.
- Digital photography only.
- Deadline is August 20, 2023.
- Email submissions to photocontest@conifersociety.org.
- The file name should include three pieces of information:
 - The category
 - Name of conifer and/or garden location
 - The photographer's full name
- Photos will be judged by a panel on originality, composition, technical excellence, overall impact, and artistic merit using the four Cs—creativity, craft, composition, content.
- All judging decisions are final.



A New Look for the American Conifer Society

Text Kathryn Keeler

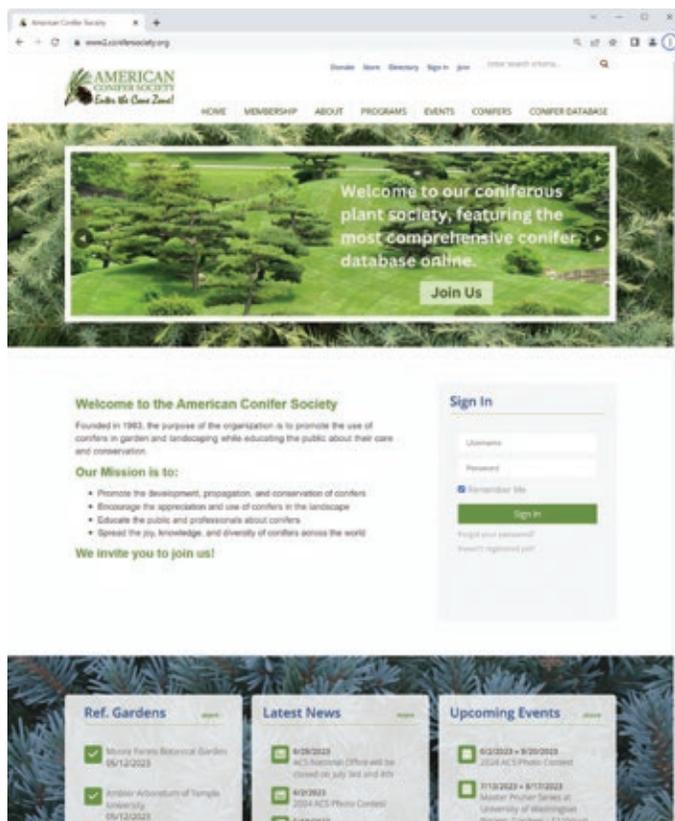
The American Conifer Society is excited to announce the launch of our redesigned website. The new site has a clean and updated look, improved navigation, and expanded functionality. You'll find:

- Easier event registration
- Simpler member engagement
- Cleaner look and feel

Bookmark the new site at <https://conifersociety.org>. Watch for an email from the National Office with your new username and password.

Once you've received your new login credentials, sign in to change your password. You may also change your username while editing your member profile. To return to the main page, click on the American Conifer Society logo.

Check out our new site, register to attend an upcoming meeting, and discover a new way to connect with fellow coneheads!



Volunteers Needed for the 2024 National Meeting in Cincinnati

Jennifer Harvey is the volunteer organizer for the 2024 National Meeting to be held June 13-15 in Cincinnati, Ohio. Many volunteers are needed for such a large meeting, so whether you have a lot of experience in such events or none at all, you can make a difference while getting to know your fellow members and having a great time, as well. Contact Jennifer at jrosethorn@gmail.com if you are willing to help, and let her know your areas of interest. Here are some of the many volunteer opportunities:

- Identify gardens or nurseries in the area that attendees can visit on their own. A list will be distributed to attendees before the meeting.
- Work with the Publicity Committee and others to promote and disseminate information about the National Meeting.
- Receive, organize, and set up auction plants and other auction items on the first day of the meeting at the hotel.
- Help at the registration table to check in and assist attendees.
- Assist in selling the ACS logo items at the sales table during the meeting.

As a volunteer, you will find your conference experience enhanced as you meet new people and team with others, making it an excellent experience for everyone.

Please contact Jennifer Harvey at jrosethorn@gmail.com today!





Selected Browning of Conifer Cultivars in the 2021 Pacific Northwest Heat Wave

Text John J. Albers and David E. Perry and Photography David E. Perry

A Port of Seattle park along Seattle's Duwamish River three months after the heat event. Many conifer varieties in public parks, along busy streets, and in private gardens suffered damage and, in many cases, death from the stress of the heat dome. The effects didn't always make immediate sense. Here, several conifers died while others growing right beside them escaped without apparent harm.

Despite our unusually cool, wet, and rainy springs in the Pacific Northwest the past few years, we still remember and cannot forget the record-breaking heat wave that blasted us in late June of 2021 elevating day-time temperatures 40 degrees higher than usual for early summer. This extraordinary event broke all-time records for the hottest temperatures in our region.

A nearly stationary, high-pressure system parked atop western North America for several days, blocking the easterly flow of weather systems typical for our region, forcing warm air downward and preventing surface heat from escaping into the upper atmosphere. This exceptional heat dome of parched, stagnant air remained trapped over northwestern North America for less than a week but pushed temperatures in Lytton, British Columbia, to 121°F, the highest temperature ever recorded in Canada, and to highs of 108°F in Seattle and 116°F in Portland, Oregon. These oven-like temperatures, in combination with profoundly low relative humidity, meant little evaporative cooling as well, further contributing to punishing high surface temperatures and desiccated soils. More than a year later, many of the scars and casualties of the daunting heat dome of 2021 remain.

Albers Marcovina Vista Gardens, a four-acre botanical garden in Bremerton, Washington, is just one hour west of Seattle by ferry across Puget Sound (the Salish Sea). In addition to hundreds of other types of trees, shrubs, and perennials, the garden is home to more than four hundred conifer cultivars, representing 130 conifer species, most from the diverse geographical regions of the Northern Hemisphere. The varied members of this special conifer collection felt the effects of 2021's heat wave in unison, providing a unique data set from which to evaluate the impact of sustained, punishing heat across a wide range of currently available conifer cultivars. All plants in the analysis herein were growing on a southwest-facing hillside above Puget Sound's Port Washington Narrows.

On the day immediately following the three most punishing days of intense heat, John briefly ventured out to see how the garden had fared and noticed that the leaves of a few conifers had already turned brown. However, it was still too warm to begin a painstaking, thorough inspection.

Three weeks passed before John and Dave could begin a systematic inspection of the conifers in the garden to evaluate and photograph the extent of the heat damage, quantifying the damage by visually estimating the percentage of wilted and browned conifer crowns using the following criteria:

- Modest (15%–39% browning)
- Moderate (40%–59% browning)
- Substantial (60%–79% browning)
- Severe (\geq 80% browning)

Surprisingly, most of the conifers (nearly 90%), including all the conifers shaded from the hot afternoon sun, had little (< 10% browning) to no apparent foliar damage. John had grown those that did sustain damage in native clay soil amended with compost or top-dressed with mulch in full sun, and he did not irrigate them after their initial planting and establishment.

A follow-up examination of the conifers about three months after the heat wave showed that most of the conifers which had suffered moderate to more severe browning during the heat wave showed little additional browning after this initial three-week, post-heat inspection. However, some of the conifers that had initially appeared undamaged at week three had begun to exhibit noticeable browning at the three-month inspection, particularly at the branch tips. Interestingly, the browning pattern appeared more evenly distributed on these conifers. Additional browning occurred as the months passed, and twig dieback became evident on some conifers, particularly those with substantial or severe browning within three weeks after the heat wave.

Cultivars of seven different fir species exhibited modest or more substantial browning (Table 1). Four fir cultivars, 'Rumburk', 'DuFlo', 'Mt. Si', and 'Kristallkugel', had severe browning and extensive twig and branch dieback (Figure 1 and 2). Note that the original, correct name for 'Kristallkugel' is 'Grübele HB'. 'Rumburk' and 'DuFlon' have subsequently died. Although 95% of the crown of the California red fir cultivar 'Mt. Si' had turned brown, and over 90% of its branches died (Figure 3a, pictured on July 15, 2021), this fir exhibited a flush of new growth on a small portion of its branches, and it has managed to survive (Figure 3b, same specimen pictured on Oct. 19, 2021). The Korean fir

Table 1. Effect of the heat wave on fir cultivars as expressed by percent browning

Name	Cultivar	Age (years)	Percent Browning
<i>Abies koreana</i> (Korean fir)	'Kristallkugel'	12	95%
	'Blue Magic'	9	60%
	'Silberperle'	10	40%
	'Golden Traum'	11	25%
	'Oberon'	11	20%
	'Wellenseind'	9	15%
<i>Abies veitchii</i> (Veitch's fir)	'Rumburk'	12	95%
	'Heddergott'	16	65%
<i>Abies alba</i> (European silver fir)	'Pancake'	3	65%
<i>Abies cephalonica</i> (Greek fir)	'Minitip'	4	60%
<i>Abies concolor</i> (white fir)	'Ostrov nad Ohří'	9	45%
	'Jack'	6	25%
<i>Abies lasiocarpa</i> (subalpine fir)	'DuFlon'	12	95%
	'Prickly Pete'	3	50%
<i>Abies magnifica</i> (California red fir)	'Mt. Si'	12	95%

'Kristallkugel' has also survived severe browning. Four other fir cultivars, 'Blue Magic', 'Heddergott', 'Pancake', and 'Minitip' (Figure 4a, pictured on July 15, 2021), had substantial damage. Veitch's fir 'Heddergott' subsequently died, but the other three fir cultivars with substantial browning recovered well (Figure 4b, the same specimen of 'Minitip' but this time photographed on April 25, 2022).



Fig. 1: *Abies koreana* 'Kristallkugel' on July 15, 2021

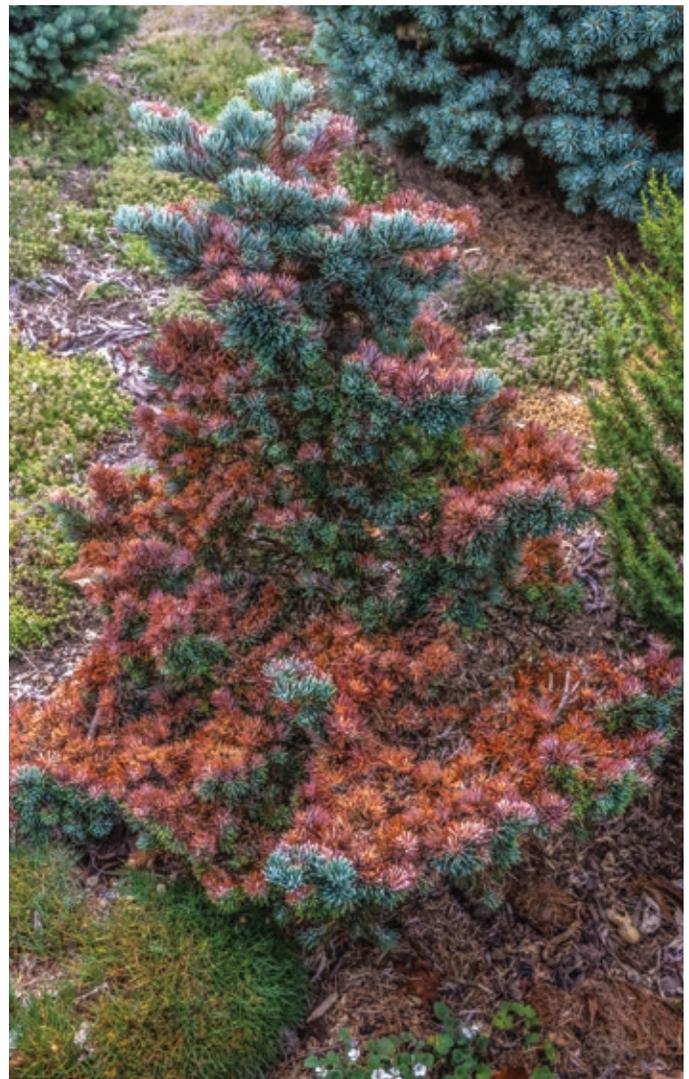


Fig. 2: *Abies veitchii* 'Rumburk' on July 15, 2021



Fig. 3a: *Abies magnifica* 'Mt. Si' on July 15, 2021



Fig. 4b: *Abies cephalonica* 'Minitip' on April 25, 2022



Fig. 3b: *Abies magnifica* 'Mt. Si' on October 19, 2021



Fig. 4a: *Abies cephalonica* 'Minitip' on July 15, 2021

Cultivars of six spruce species also exhibited moderate or more severe browning in response to the heatwave (Table 2). Three cultivars of Norway spruce, including a five-year-old 'Gold Drift', suffered severe browning. All three cultivars also had extensive dieback of their branches, but all three survived (Figure 5). Interestingly, a second older cultivar of 'Gold Drift' shaded from the afternoon sun by a woodland to the west did not suffer from the heat wave (Figure 6). Both were photographed on the same day, July 15, 2021. The two Norway spruce cultivars, 'Anita's Golden Cloak' and 'Pusch' showed modest browning and recovered well with minimal branch dieback (Figures 7a and 7b: 'Anita's Golden Cloak' photographed on July 15, 2021 and April 25, 2022). The white spruce 'Goldilocks' had 85% of its needles turn brown, while other white spruce cultivars experienced no browning. Conifer experts have speculated that 'Goldilocks' may be a cultivar of Norway spruce. The Serbian spruce cultivar 'Kuschen' suffered severe browning and branch dieback and subsequently died, while the Serbian spruce cultivar 'Treblitzsch' had modest browning and it recovered. The Caucasian spruce 'Schovenhorst' had substantial browning, and the cultivar 'Smee WB' had moderate browning, while other cultivars had no browning. The only Colorado spruce which suffered substantial browning was 'Mrs. Cesarini'.

Four mugo pine cultivars had moderate to substantial browning (Figure 8: *Pinus mugo* 'Gordon Bentham' photographed on July 15, 2021), while other mugo pine cultivars had little or no browning. The Korean

Table 2. Effect of the heat wave on spruce cultivars as expressed by percent browning

Name	Cultivar	Age (years)	Percent Browning
<i>Picea abies</i> (Norway spruce)	'Gold Drift'	5	95%
	'Clanbrassiliana'	12	90%
	'Humilis'	4	90%
	'Pusch'	13	30%
	'Anita's Golden Cloak'	11	35%
<i>Picea glauca</i> (white spruce)	'Goldilocks'	11	85%
<i>Picea omorika</i> (Serbian spruce)	'Kuschen'	11	95%
	'Treblitzsch'	13	30%
<i>Picea orientalis</i> (Caucasian spruce)	'Schovenhorst'	12	60%
	'Smee WB'	7	40%
<i>Picea pungens</i> (Colorado spruce)	'Mrs. Cesarini'	8	65%
	'A.S.'	9	15%
<i>Picea rubens</i> (red spruce)	'Pocono'	8	50%



Fig. 5: *Picea abies* 'Gold Drift' growing in direct afternoon sun on July 15, 2021



Fig. 7a: *Picea abies* 'Anita's Golden Cloak' on July 15, 2021



Fig. 6: *Picea abies* 'Gold Drift' growing in afternoon shade on July 15, 2021



Fig. 7b: *Picea abies* 'Anita's Golden Cloak' on April 25, 2022



Fig. 8: *Pinus mugo* 'Gordon Bentham' July 15, 2021

pine (*Pinus koraiensis*) cultivars 'Blue Ball' and 'Variegata' experienced approximately 40% browning. However, the browning was minimal in an older Korean pine species. Two Douglas fir cultivars, 'Green Orca' and 'Logger Head', and all the hemlock cultivars, including Canadian hemlock (*Tsuga canadensis*), mountain hemlock (*T. mertensiana*), northern Japanese hemlock (*T. diversifolia*), and southern Japanese hemlock (*T. sieboldii*), encountered modest browning of their needles, particularly at the tips of the branches. The fact that most conifers recovered despite considerable damage emphasizes their resilience against foliar scorch and drought-induced mortality.

Extreme temperatures can severely damage leaf structures and functions. The extreme temperatures during the heat wave experienced by those conifers on a southwest-facing hillside exposed to the afternoon sun during the hottest part of the day on the longest days of the year exhibited foliage scorch relatively quickly, in just a few days and weeks, usually with more browning on their south and west sides and less browning on their north and east sides. These observations suggest that heat *per se* played a major role in the initial damage. In contrast, conifer desiccation and hydraulic damage likely played a major role in the longer-term impacts of this heat wave exhibited by additional leaf browning in a more evenly distributed pattern at the branch tips in the months following the heat wave, twig and branch dieback, and conifer mortality. Leaf scorch, be it due to extreme heat or a combination of heat and hydraulic damage, would impair photosynthesis and weaken the conifer, making

it more likely to succumb to other stressors. Leaf scorch in conifers may occur when their leaves lose water faster than they can replace it via transpiration. Usually, water evaporation at a leaf's surface creates negative pressure. This tension pulls water up through the water-conducting system of the plant, the xylem, like sucking on a straw. During dry and hot periods, this negative pressure can become excessive to the point that the water column breaks (a process called cavitation), causing an embolism, where air bubbles form, breaking the sustaining flow of water and interrupting hydraulic conductivity. The concurrent embolism of numerous water conduits impedes or shuts down water flow to conifer leaves, twigs, and branches. This leads to leaf browning and desiccation and is often associated with branch dieback. This desiccation and subsequent browning are not always fatal to the plant, but they do stress it.

Conifers differ in their sensitivity to drought and ability to avoid embolism. Evaporation creates a negative pressure within the conifer, expressed in MPa (Mega-pascal) units. A 50% loss of water conductivity in the xylem is referred to as P50, a key physiological parameter that reflects a conifer's ability to withstand sensitivity to drought. Thus, conifers with higher P50 negative pressures would likely have less embolism and be more drought-tolerant than those with lower P50 negative pressures. Indeed, together with two colleagues, we recently reported that conifer species at Vista Gardens with P50 negative pressures greater than -6 MPa, such as Deodar cedar (*Cedrus deodara*) and cedar of Lebanon (*C. libani*) with P50 of -6.69 MPa and -7.71 MPa, respectively, did not undergo any observable leaf browning in response to the heat wave. However, species with P50 negative pressures between -6 MPa and -5 MPa, such as black spruce (*Picea mariana*) 'Normanna Rd' (P50 -5.21 MPa) and single-leaf pinyon (*Pinus monophylla*) 'Blue Jazz' (P50 -5.55 MPa), had modest needle browning. In comparison, species with P50 negative pressures less than -5 MPa, such as two cultivars of Veitch's fir (P50 -3.52 MPa) and some cultivars of the Norway spruce (P50 -3.66 MPa), had moderate to severe browning up to 95% of the canopy (Klein et al.).

Although P50 appears to be a valuable metric of drought sensitivity among conifer species, trees with a given P50 had significant variations in leaf browning.



Fig. 9: John Albers in the conifer garden during their survey of the heatdome damage

For example, among the 15 Norway spruce cultivars ($P50$ -3.66 MPa), three had severe leaf scorch, two had modest leaf scorch, and the remaining ten cultivars had little or no leaf scorch. Among the 14 Colorado spruce cultivars, one had substantial browning, another modest browning, while the others had little or no browning. Similarly, among the fifteen cultivars of the Korean fir in full sun, one had severe leaf scorch and subsequently died, one had substantial browning, and the others had modest or moderate leaf browning. In contrast, the other cultivars, including the species, had no leaf browning. Among the eight cultivars of white fir ($P50$ -4.76MPa), one had moderate browning, two had modest browning, and the others had little or no browning. It is clear, therefore, that some cultivars of a given species appear to be more sensitive to leaf scorch than others.

What accounts for the differences in the sensitivity of cultivars to leaf scorch? Together with my colleagues, we previously reported that younger conifers at this site tended to be more vulnerable to leaf browning than older, better-established conifers (Klein et al.). Younger or smaller conifers would have less rooting

depth and less developed associations with mycorrhizae, leaving them more sensitive to drought and leaf scorch. Also, many of the conifer cultivars with substantial or severe browning were quite small, while the larger and older cultivars and species generally had little or no browning. The temperature close to the ground may be higher, thereby increasing the likelihood of heat damage to the leaves.

All the conifer cultivars evaluated in this study came from cuttings (scions) taken from plants with dwarf or miniature growth rates. They were grafted onto rootstocks of the same or related species of the witch's broom. The branching and leaves of most cultivars derived from witch's broom are more congested than those of the original species. Consequently, this tends to reduce air circulation and evaporative cooling at the leaf surface, which could contribute to higher temperatures at the leaf surface. Also, witch's broom cultivars may have altered shape, size, and distribution of the leaves, which could change other tree physiological metric differences, such as stomatal conductance and water use efficiency, thereby adversely impacting a cultivar's sensitivity to heat and drought.



John Albers (left) and David Perry (right) in John's garden

The heat and drought tolerance of the rootstock and the compatibility between the witch's broom scion and rootstock could also affect the cultivar's ability to withstand heat and drought. For example, it is known that fir scions grafted onto Japanese fir (*Abies firma*) rootstock do better in the American Southeast. More studies are needed on the impact of conifer cultivar grafting on heat and drought tolerance.

Our study, while useful, has obvious limitations. We collected our data from the conifers at a single site under the heat, moisture, and soil conditions at this specific site (Figure 9). Thus, it is impossible to extrapolate these data to the impact of the heat wave on conifer cultivars over the broader region and exposed to varying conditions. It would have been more desirable to obtain data from all over the broad region exposed to the heat wave. Additionally, we measured and recorded tree crown browning at only one time point, approximately three weeks after the heat wave.

It would also have been helpful to have complete data on the changes in leaf browning over time, in addition to our initial estimates of maximal browning of the trees' crowns.

Despite these limitations, our observations are worth considering as we continue to experience the consequences of our changing climate in the continental United States. We are sure that we can expect warmer average temperatures, dryer summers, and longer and more intense heat waves in conjunction with increasing wildfires, insect outbreaks, and tree diseases. We will also experience greater extremes in temperature and precipitation and, thus, shifts in plant and animal life cycles.

Indeed, in the past few years in the Pacific Northwest, we have experienced extremes in temperature and precipitation. Given the negative impact of more severe drought and heat waves on conifers, we must

alter our practices and conifer choices. One significant finding of our study was that all conifers shaded during the hottest part of the afternoon escaped any significant leaf browning. Thus, the best way to protect conifers sensitive to future heat waves is to provide them with afternoon shade. Placing shade cloth over dwarf conifers before an impending heat wave is a practical solution. Also, the long-term impact of the heat wave will be lessened by providing supplemental water and mulching the conifer's roots to retain moisture before the heat wave. Selecting conifers that are more heat and drought resistant is the ideal approach. Thus, we need sound data to determine which species and cultivars will likely withstand higher temperatures and reduced precipitation.

Physiological parameters that predict drought tolerance may be available on economically important forest tree species, but data are not yet available for many ornamental species important to the landscape and nursery industries. Furthermore, few studies compare conifer species' physiological metrics to their cultivars. In view of our surprising data that cultivars of the same species differed significantly in their sensitivity to leaf scorch, hopefully, tree researchers will begin to compare the physiological metrics of tree species with their cultivars. Our studies show that fir, spruce, pine, and hemlock cultivars were susceptible to leaf scorch and twig dieback during the heat wave. However, the affected cultivars were highly selective. By contrast, the genera cypress (*Cupressus*), juniper (*Juniperus*), cedar (*Cedrus*), false-cypress (*Chamaecyparis*), and Japanese-cypress (*Cryptomeria*) at this site exhibited minimal or no leaf browning in response to this heat wave.

There are no adequate known physiological parameters to predict heat tolerance in conifers. What temperature for what length of time is required to elicit leaf damage, and what role does leaf desiccation and hydraulic damage play in this process? What are the physiological or structural parameters that determine a conifer's heat tolerance? These are some of the key questions that need to be addressed.

As conditions continue to evolve climatically, we will need better knowledge of those conifer species and cultivars most vulnerable to heat and drought-induced damage and mortality and those most tolerant. We

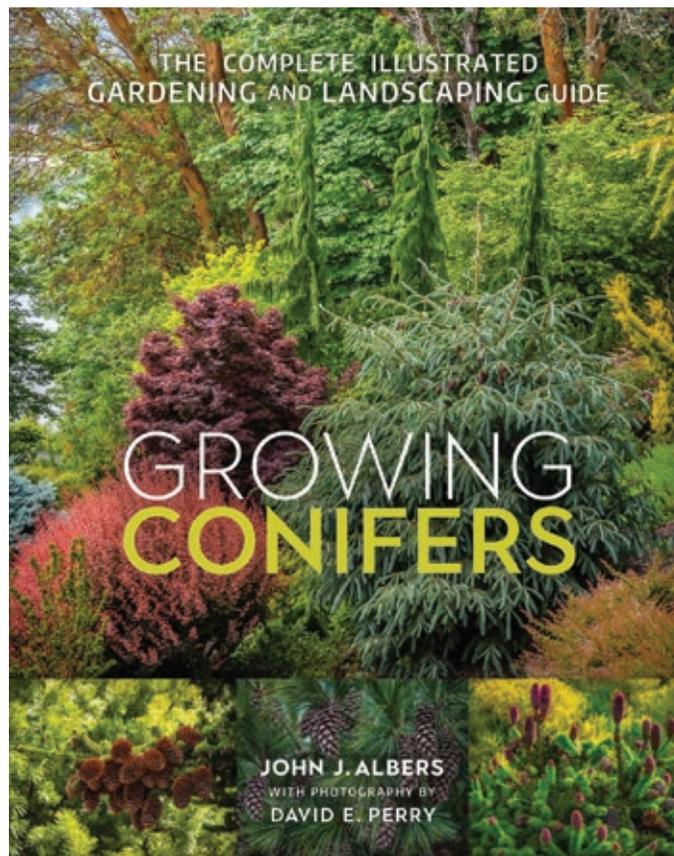
will also need to determine which physiological parameters best predict these vulnerabilities. Such critical information will allow the nursery, landscape, and gardening communities to better select those conifers most appropriate for a given region and better prepare them for the realities of the warming climate.

For a complete, updated, illustrated guide to growing and caring for conifers, see John J. Albers's *Growing Conifers: The Complete Illustrated Gardening and Landscaping Guide*, New Society Publishers, 2021.

References

Tamir Klein, Jose M. Torres-Ruiz, and John J Albers. Conifer desiccation in the 2021 NW heatwave confirms the role of hydraulic damage. *Tree Physiology*, 42, 722-726, 2022

John J. Albers. *Growing Conifers: The Complete Illustrated Gardening and Landscaping Guide*. New Society Publishers, 2021



Why Register Your Conifer?

Text Sharon McDonald

The Royal Horticultural Society is the International Cultivar Registration Authority for nine groups of plants: clematis (*Clematis*), conifers, daffodils (*Narcissus*), dahlias (*Dahlia*), delphiniums (*Delphinium*), dianthus (*Dianthus*), lilies (*Lilium*), orchids (Orchidaceae) and rhododendrons (*Rhododendron*). Visit <https://www.rhs.org.uk/plants/plantsmanship/plant-registration/> for more information.

The plants that you breed are unique. The RHS maintains a database recording all conifer registrations. We also try to maintain records of unregistered plants, finding these names in regular searches of catalogs, websites, books, journals, etc., so that we can check whether a name has been used.

We are working on having a searchable database of registered and checklist (unregistered) conifer names online in the next year or two.

Registering your plants ensures that they have unique names. This prevents the confusion that can arise when names are given without regard to those already in use. It also ensures a permanent record of your plant is maintained which, when most nurseries/plant sellers now have constantly changing web pages/lists, means that this may end up being the only record of your plant.

Registration is an international process. Conifers from around the world are registered and registers and their supplements are published for an international audience.

A record of cultivar names, with good descriptions and a good archive of pictures and/or herbarium specimens, makes identification easier. The more information you provide, the better the record will be.

The registration process for conifers is completely free, and we are pleased to offer a complimentary certificate of registration as well.

Registration forms are available from the registrars. North American registrants should contact:

Greg Payton
The Dawes Arboretum
7770 Jacksontown Road SE
Newark, Ohio 43056, USA
conifers@dawesarb.org

Outside of North America, please contact:

Sharon McDonald
RHS Garden Wisley
Woking, Surrey GU23 6QB, UK
sharonmcdonald@rhs.org.uk

Or find the registration form online at <https://www.rhs.org.uk/plants/plantsmanship/plant-registration/conifer-cultivar-registration>.



Taxodium distichum 'Gee Wizz' – Jacob Vrablic, Jr.



Pinus strobus 'Squiggles' – William Dunigan

Japanese Umbrella Pine Update

Text and Photography Frank Goodhart



'Mike's Dwarf', discovered by Michael Johnson, grows 2" per year; Summerhill Nursery

Approximately four decades ago, I was first introduced to the captivating world of Japanese umbrella pines. Intrigued by their allure and with an ideal spot in my landscape awaiting them, I embarked on a quest to acquire these trees from various nurseries. However, to my dismay, I discovered that they were nearly impossible to find. I was informed that these pines were unsuitable for my climate, prone to browning in winter, and challenging to propagate. While there was some truth to these assertions, the landscape industry was undergoing rapid technological advancements in plant production.

A breakthrough came in the form of a cultivar named 'Wintergreen,' developed by Dr. Sid Waxman at the University of Connecticut. This cultivar boasted good winter color and enhanced hardiness, leading to its widespread acceptance. Over the years, 'Wintergreen' became the most readily available cultivar, primarily due to its superior ease of rooting compared to the species and other cultivars. Nevertheless, successful rooting rates still varied annually and couldn't be relied upon consistently. Sid painstakingly grew his named cultivars from seedling selections, an arduous process considering that *Sciadopitys verticillata* seedlings are barely a few inches tall in five years. Interestingly, aside from their uniqueness, I've noticed that some of his selections root at higher rates than other cultivars.

The scarcity of Japanese umbrella pines in the past can be attributed to the slow growth of seedlings. Sid conducted his research on plant selection and rooting techniques

for *Sciadopitys* around 45 years ago. He discovered that certain clones rooted better than others through his work. His experimentation also revealed that higher rooting percentages could be achieved in January and February, although rooting could also occur during the summer and fall seasons. However, rooting success during these seasons was significantly lower, rendering it impractical. The specific rooting instructions were published in the *Proceedings of the International Plant Propagator's Society* in 1960 (Volume 10, pages 178-185). Despite all the research, achieving high propagation success rates remained elusive. To improve rooting rates, cuttings were soaked in water for a few days to remove the resinous sap. Even hobbyists could achieve success with a well-controlled system. Nonetheless, *Sciadopitys* proved more challenging to root than other conifers, necessitating precise control of environmental conditions. Con-

sequently, propagation methods shifted towards grafting, with the 'Wintergreen' cultivar becoming the preferred understock due to its ease of rooting and compatibility with various cultivars.

Around the same time, Kurt Wittboldt-Müller in Germany was developing new cultivars, documented in two German booklets: *Tannen mit Pfiff* and *Tannen-Atlas*. Kurt was a hybridizer who created new cultivars through seed radiation. One of his earliest cultivars to reach the United States was 'Sternschnuppe,' more commonly known as 'Green Star' in the United States. Subsequently, additional cultivars found their way into the country and were propagated and evaluated by Iseli Nursery and the now-defunct Bethlehem Nursery. Some of these plants are still available today, adding a diverse spectrum of Japanese umbrella pine selections with various characteristics. Some display dwarf and dense growth,



Sciadopitys verticillata cultivars with *Pinus strobus* cultivars in the foreground at the University of Connecticut Campus Arboretum in 1984.

while others exhibit short, thick, fine, or yellow needles; weeping habits; or shorter internodes, providing conifer enthusiasts with an expanded palette of options. However, certain cultivars remain elusive and challenging to find, although dedicated collectors may stumble upon them in the private gardens of keen collectors.

Dennis Dodge, a notable collector and propagator of Japanese umbrella pines and rare conifers, made significant contributions to the field. His success stemmed from masterful grafting techniques that enabled him to cultivate rare plants and eventually offer them to others. Visitors to his nursery estimated that he had a collection of 60–70 cultivars. Undoubtedly, communication with collectors and hobbyists worldwide played a role in achieving this feat. However, only one or two of the more obscure cultivars were listed in his winter catalogs, with most of his collection becoming available for sale only after his passing.

In a communication dated April 20, 2009, Dennis Dodge shared valuable insights: "*Sciadopitys* are easy to graft and unless you have a dead scion or a dead understock, 100% is not impossible[;] in fact[,] this is what I expect. They are very forgiving as far as the cambium alignment. I have had scions slip out of position and still callous up and heal. *Sciadopitys* can also be summer grafted when the wood starts to harden off with the same success as winter grafting." Regarding rooting, he added, "Rooting *Sciadopitys* is not as difficult as people make it out to be. 20 or 30 years ago *Sciadopitys* were

thought to be almost impossible to root with ease. Thanks to Sid Waxman and the University of Connecticut and many years of experimentation, they became easy to root. 'Wintergreen' will root 99%, and most cultivars except the gold ones will also root at high percentages. The gold ones will also root but in lower percentages, so it is easier to graft them and get 100%. The biggest problem is *Sciadopitys* take 12 to 20 weeks to root, and cuttings must have a perfect environment for that amount of time in the bench. Time of taking cuttings is also an issue. Too wet, they will not (root); too dry, they will fail to root. Some people say that some clones will not root at all but I think they will root but just in smaller percentages."

Rooting *Sciadopitys* remains a challenging task for novices. Standard methods involve bottom heat, a misting system, double wounding, and a potent rooting hormone. Personally, I take cuttings in January or February, including all the previous year's growth, which exhibits a light reddish-brown color. I then place the cuttings in fresh water, changing it daily for at least three days to remove the white resin. Cuttings can be kept in water for longer durations with regular water changes. While the cuttings readily flush, the rooting process takes time, often extending to September or even later, in my experience. Whether rooted or not, the cuttings should be placed outdoors in late spring, ensuring they are kept in the shade and shielded from direct sunlight, as even a kiss of sun is fatal. Additionally, they need to be kept adequately moist.



Sciadopitys and other conifers on a 10' × 4' propagation bench with bottom heat and a mist system



A reverse osmosis system prepares purified water for the mist system

Since 2008, one notable nursery has been grafting *Sciadopitys*. They utilize 'Wintergreen' and 'Joe Kozey' as understock due to their exceptional rooting rates. After three to four years, the young trees reach a stem diameter of approximately 0.3", making them suitable for use as understock. This technique has significantly increased the availability of several cultivars.

Currently, the most widely accessible cultivars are 'Grüne Kugel', 'Mecki', and 'Picola'. Of these slow-growing forms, 'Picola' is the smallest, followed by 'Mecki' and 'Grüne Kugel'. Growth rates appear to be quite sensitive to growing

conditions, with some plants growing two to three times faster in Oregon than in the Northeast. In regions with slower growth, these cultivars may be considered miniature or dwarf trees. Younger plants are well-suited for rock or intimate gardens, while as they mature, relocating them to a different location where a specimen conifer is desired would be appropriate.

Cultivars with golden tones or yellow sections within the plant have garnered interest over the years. The most popular cultivar in this category is 'Ossorio Gold', described by some as golden but appearing greenish yellow to me.

Another popular cultivar with splotches of gold is 'Janssen's Variegated'. However, it should be noted that the presence of yellow areas on plants with normally green leaves can vary from year to year. There are no golden areas on my plant this year. Instead, it is yellow green throughout.

The list of cultivars is long, and finding photographs and information on many of them can be challenging. This lack of information is particularly common because Japanese umbrella pines are rarely propagated and primarily reach hobbyists and collectors through boutique nurseries. While most of the rare cultivars mentioned in this article may not be widely available, they are still propagated and exchanged to some extent among hobbyists. Readers are encouraged to share photographs and comments with the author and the ACS, as they are welcome additions to the existing knowledge on the subject.



'Janssen's Variegated' in the ACS Reference Garden at the Frelinghuysen Arboretum, Morristown, New Jersey. – Kristin Prommel

Further Reading

A comprehensive article on *Sciadopitys* was published in the ACS's *Bulletin* in 1998 (Volume 15, Number 3). Ten years later, three articles in the *Conifer Quarterly* (Volume 25, Number 3) discussed the natural history of *Sciadopitys*, featuring cultivar photographs and detailed propagation techniques.

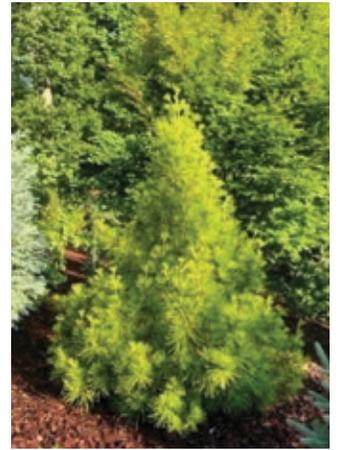
For an extensive list of cultivars, references such as the *World Checklist of Conifers* by Humphrey Welch and Gordon Hadlow (1993), *The International Conifer Register and Checklist (Part 5)*, and the *Conifer Treasury 7.0 of the World* by Kósa Géza and Mesterházy Zsolt provide valuable resources.



'Ossorio Gold', golden needles - Jay Angle



'Yellow Dream' chartreuse needles - Ed Shinn



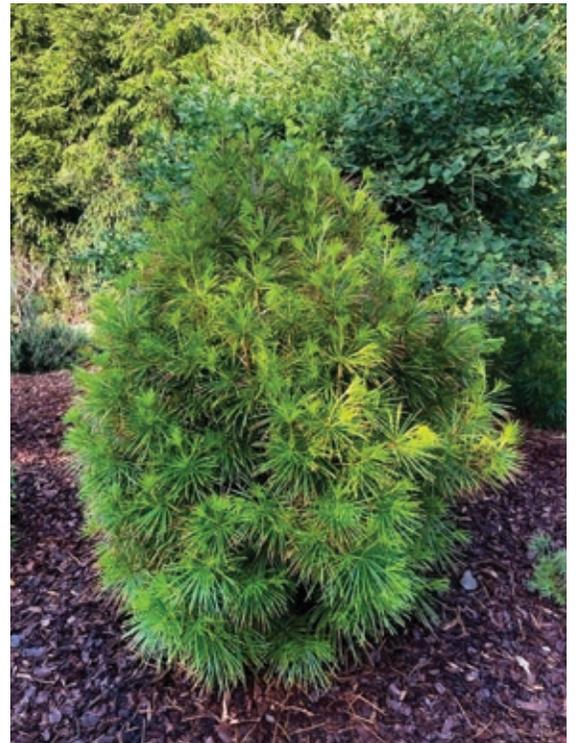
'Moonlight', large, golden needles - Jeff Zage



'R. W. Knight', a rare, weeping cultivar - Jeff Zage



'Green Cushion', a true miniature - Michael Larkin



'Explosion', twisted needles - Jeff Zage



'Mr. Happy', entirely green, entirely yellow, or variegated needles – Jeff Zage



'Picola', a dwarf, broadly pyramidal cultivar – Jeff Zage



'Mecki', dwarf with dense branches – Jeff Zage



'Green Kuter', compact with well-branched habit – Ed Shinn

Sacred, Almost Secret, Conifer Garden

Text and Photography Joseph Kowalski



Fifty miles from Boston on the eastbound side of Interstate 90, otherwise known as the Massachusetts Turnpike, is a small, hidden, almost-secret jewel of a conifer garden any conehead would be most joyous to become immersed in. The garden is open to the public and is located at the Massachusetts State Police barracks in Charlton, Massachusetts. The sacred space serves as a place of remembrance and a unique beacon of support. It provides a setting for rest, stillness for reflection and contemplation, and a unique opportunity for visitors to make and leave spiritual offerings if they choose to do so.

The garden's primary purpose is to honor Massachusetts State Police Officer Thomas L. Clardy and the oath he and all peace officers take to protect us. Thomas was a victim of vehicular homicide on this highway in March of 2016, less than a mile away from this memorial setting.

Miniature and dwarf conifers occupy the entire garden. Over 90 labeled and identified trees represent 86 species and varieties holding the space at the Clardy Memorial Conifer Peace Garden. There is an abundance of weeping trees, cascading evergreen foliage, and ground-hugging trees that energetically and symbolically connect the sky (heaven) and earth and keep the subtle energy within the space.

The tiny (1,200+ square feet) garden consists of two sections. One section embraces the memorial stone and lies adjacent to the short walkway leading to it in a horseshoe-shaped area. Here are paired trees and large blue ceramic pots on each side of the short walkway leading to and embracing the stone memorial.

The second area lies adjacent and just behind this space and consists of a 75' bluestone contemplative walkway leading through the small formal garden area. Here, visitors are afforded the opportunity to offer and then leave something of value if they choose to, in addition to feasting on the botanical delights surrounding them. It is designed to involve the visitor's heart, senses, and intellect.

Along the contemplative walkway are three pillars with bowls placed atop them. Within these bowls are turquoise stone offering orbs. Visitors can choose a stone from the assorted bowls as they meander through. As they grasp the orb, a remarkable process unfolds ... an infusion of "all the things that cannot be held." Gratitude, blessings, memories, prayers, the oath, support, and love, to name a few, can all be imbued into the orb, crafting a profound and personal connection. They can then return this now-infused orb into another bowl within the garden as they leave. In this way, they can leave something of value that cannot be



divided. Something that they did not think they even were aware of or that they could share so freely ... until they found themselves drawn into this contemplative garden. The orbs then get moved from one bowl to another and continually build upon this infused bounty.

The trees, contemplation path, pillars, bowls, and orbs are visible and illuminated at night by a total of twenty LED landscape lights. In this way, the orbs then serve all the troopers and members of the public as a continual reminder of the gratitude and support they now contain and display. The entire space supports this contemplative practice and then displays this goodness. The offering pillars come right out of the ground and are open to the welkin in an open, receptive way.

This project is part of the BlueTrees Program and is our most ambitious effort. The design, creation, building, installation, planting, and maintenance is an entirely donated effort. We have a support group of over 75 contributors, contractors, nurseries, and other donors. For more information about the program and a virtual walk-through video of the conifer garden, please explore <https://ganeshtree.com/bluetrees-program/>.

On some days, over 80,000 vehicles pass within 175' of this sacred space on their way to Boston or further points north in New England and never notice it. Some people do ... and others are lucky to stop and imbibe the space in person. By doing so, they can also become part of making this the beacon of honor, memories, and living support it was envisioned to be.



Jake Szeredy (S&S Landscapes) and a Westover Young Marine installing a garden paths.



A Westover Young Marine installing a garden path.





AJ Chamberlain planting a *Pinus parviflora* 'Ogon' at the Officer Clardy Memorial.



Jake Szeredy planting a *Chamaecyparis obtusa*.



LED lights bring nature to life at night.

Conifer Labeling in Our Garden—A Journey

Text and Photography Sandy Haffner

To say that our journey to find the perfect plant markers began in 2018 may be false since it has been an evolution of sorts. But if my husband, Tom, and I had to pinpoint a date, we would say it began in Madison, Wisconsin, in June 2018 at the Central Region Meeting (our first). It was and has been an epic journey! (If you are confused by the previous reference, stop me at a meeting, and I will explain).

You may wonder why plant markers have been so important to us and why this has been such a journey. First of all, I am a microbiologist by education, so the scientific name of a plant is very important for me to know, just as is true of the bacteria I deal with on a daily basis. Plant markers are a reminder of the species' name and, with so many conifer cultivars available, an aid to remember just which conifer that is planted on the south side of our home. Initially, we were using a standard issue two-pronged plant marker with a copper area for labeling (Figure 1). We were using a permanent marker, AKA a Sharpie, for labeling. We soon realized two things ... not all permanent markers are created equal (Sharpie does not stand up to weather and UV light), and the copper color of the plant markers does not stand out against the pine straw mulch we use and poses a tripping hazard! After both tripping over these plant markers numerous times and being unable to read markers after one season, the search began for a better solution to plant labeling.

And while we spent many hours searching for plant marker sources online, you might be thinking, "what's their problem, there are many varieties of plant markers on the internet!" Well, I should clarify what we were searching for. What we were looking for is: 1) a single staked marker, rather than one with two prongs to extend into the soil; 2) a heavy gauge stake that resists bending easily; 3) a large enough area to label with species' botanical name and cultivar name and be able to read the label easily by using an adequate font size.

And then kismet occurred in the form of dumpster diving! To further explain: Tom works as a project manager for a residential construction company. He is responsible for overseeing renovation and construction projects, and, as a part of that, he is responsible for everything that goes with a project, including making sure what goes in



Fig. 1: Two-prong plant marker

the dumpster is just construction debris and no food waste, etc., that will result in a fine from the dumpster company. And Tom also tries to pack as much construction debris into one dumpster to keep costs down for the homeowner who is paying for the project. While in the process of dumpster reorganization, Tom found 200 or so plant markers that the homeowner had deposited into the construction dumpster (Figure 2). The single stake was heavy gauge (8 gauge) and the plant marking space was generous at 3.375" × 1.75". Eureka! We began replacing all the flimsy copper markers with our newly found sturdy markers and Brother labeling system (Figure 3). And all was well with our garden.

However, it didn't take long for our supply of plant markers to dwindle, as anyone with addicted conifer syndrome knows. And since one does not live by conifers alone, there are perennials to be labeled as well. When we found we had fewer than 10 marker stakes left, we began to worry. Would we have to forgo bidding on conifers at future ACS gatherings? That thought seemed like an impossibility! We began discussing other strategies for labeling, such as using the found markers to label conifers and a different style of label to designate perennials. But that idea seemed like a lot of work, and we like the idea of having all plant markers the same in our garden.

While in Dayton in 2022 at the Conifer College, we found ourselves at the Stump the Experts panel discussion. My question to the panel of experts that included Gary Gee, Ted Hildebrant, Ethan Johnson,

and Bill Barger was "Where do you source plant markers?" The answers I received were AAA Quality Engravers (<https://www.aaaqualityengravers.com>), Pawpaw Everlast (<https://www.everlastlabel.com>), and Kincaid (<https://www.kincaid-plantmarkers.com>). To our delight, upon an investigation of each of these websites, AAA Quality Engravers had the same plant markers that Tom found while dumpster diving! We didn't have to institute a second type of label for our perennials, and we could feed our addiction for conifers by continuing to bid during the auctions at future ACS meetings and continue to buy Conifer of the Year selections.

The moral of this story is a) always visit fellow ACS member gardens to see what products other gardeners are using, and b) don't hesitate to ask a panel of experts for their opinion about a topic. And, of course, keep your eyes open at garden sales, etc., for valuable used garden items.



Fig. 2: Single-stake plant marker



Fig. 3: Two-stake plant marker with Brother label on 3.375" × 1.75" surface

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