



Conifer Quarterly

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Garden of Terri and Jay Park, Carmel Indiana
Photo by Terri Park

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*Bickelhaupt
Arboretum*



*Bigcone
Douglas-fir Brooms*



*San Francisco
Botanical Garden*



*Preparing for a
Memorable ACS Auction*

The purposes of the American Conifer Society are the development, conservation, and propagation of conifers, with an emphasis on those that are dwarf or unusual, standardization of nomenclature, and education of the public.



ConiferQuarterly

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All editorial and advertising matters should be sent to: Ron Elardo, 5749 Hunter Ct., Adrian, MI 49221-2471, (517) 902-7230 or email conquarteditor@gmail.com

Editor

Ronald J. Elardo

Technical Editors

Steven Courtney
Robert Fincham
Ethan Johnson

Advisory Committee

Tom Neff, Committee Chair
Sara Malone
Ronald J. Elardo
Ethan Johnson
Evelyn Cox, past Editor

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Why I Love Conifers

Dorothy Danforth

It all started with blocking a view; it is ending with replacing endless perennials, grasses and annuals cultivated over thirty-five years of gardening.

I anticipate that I cannot care for such a large garden as the years add to my present 85th year on this earth. What happened in between?

I learned that there are no two trees in the Universe alike. Conifers are a special “breed.” They hold their own during twelve months of weather variations from gentle spring breezes, torrid summers to treacherous winters. They come in all sizes, shapes and colors. Whereas the marigolds will die, the black-eyed Susans will sleep, the conifers will stand steadfast thrilling one all year long.

If one loves blue trees, they will oblige...if one loves golden living sculptures, they are available...they produce endless shades of green. Then one spring they will amaze you with cones lighting up like red and purple lights on a Christmas tree. No other tree in nature can do that.

Conifers are not set in stone. Time brings change, some welcome and some disappointing. They have enemies. Not every living creature respects conifers. Predators come and devour and disfigure their beauty. But one thing is certain: conifers will be around as long as the Universe is viable. They will live to thrill new veterans long after I am gone. I bet they're grown in Heaven.

Letter to the Membership

Ron Elardo

Your *ConiferQuarterly* appears the way it does because of you. There are more photos in it as you requested through your representatives on the Board of Directors. For ease of reading, I increased the font size. With this issue I am eliciting your feedback on a format change.

I presented to the Board at the February, 2015 Tampa meeting a format change which would see the *CQ* expand its format to 8 ½" x 11" in size. The Board already knows that the increased size poses negligible processing costs. What the new format allows is a much better presentation of your photographic contributions along with more space for articles. Both in phone calls and emails you have told me of your wishes to see larger photographs, which makes perfect sense. After all, we all want to see greater resolution and detail in the conifers, about which the articles are. This larger format will achieve that and more. The larger font, your desire for more and better photography, and the continued need for a variety of articles result in a requirement to present better your contributions to the magazine.

It would be ideal if we were able to present you with an 8 ½" x 11" run of an issue along with the current sized one so that you could have a side-by-side comparison, but that would mean an extra run of the magazine, which would be costly. In lieu of that, the graphic designer and I are presenting part of one article in 8 ½" x 11" format. This sample is in the centerfold pages (24–25).

Imagine having the same quality of production, only in a form which elevates *ConiferQuarterly* to the status of national and international gardening magazines, which it deserves as a specialty magazine with information from experts on conifers.

If you would, please contact your Regional presidents, directors, or me with your thoughts on an 8 ½" x 11" *CQ*. I am certain you will like both the feel and look of the new magazine, not to speak of its contents. It will have the same glossy pages and the same weight paper for those pages as it does now. Depending on your feedback, the new *ConiferQuarterly* may be launched as early as the Summer issue.

Thank you for being decision-makers in this very important process.

Nota bene: Check the ACS website for a hotel update for the 2015 National Meeting. Also, please notify the National Office if you **do not** want to be listed in the new *Directory*.

The Esoteric Evergreen

By Scott Kuhn

While walking through one of the extraordinarily crowded shopping malls during last year's holiday season, I overheard a little boy asking his dad why people cut down and bring trees inside to decorate if the trees are only going to die later on.

“Dad, wouldn't it be better if they decorated the ones outside?” he queried.

Because I was walking toward a different store, I wasn't able to hear the gentleman's reply to his son, but that didn't matter as it was the question itself which sent memories flooding into my brain. I smiled and chuckled to myself. It was many, many moons ago when one of my nephews inquired about the same thing. Seemed that the response my sister gave at that time wasn't satisfying enough.

“It's tradition to have one inside the house during Christmas time,” she said.

I noticed the still quizzical look he had on his face.

“That tradition is older than Christmas itself,” I said, “that's actually a sun and solstice thing.”

My sister shot me a look as she knew I never leaned toward the religious ... and maybe a tad bit leery of me trying to have an existential, historical or deeply philosophical conversation with a six-year-old. Even as children, our mother always spoke to my sister and me like adults, and



I wanted to do the same for my nephew.

“What’s a solstice?” he asked, trying to mimic the way I said the word.

“There are two every year,” I said while giving my sister a reassuring look, “one in the summer and one in the winter. The solstice in winter marks the day with the longest amount of night and darkness. Every day after that has more and more daylight, and people like these types of trees and plants because they are green all year long. It reminds them that spring is just around the corner so that they would decorate ones outside and sometimes bring them indoors.”

“People did that before Santa Claus?” he innocently asked after seeming to digest what I had said.

“Yes indeed they did,” I replied while trying to stifle my smirk. “Folks admired evergreens long before St. Nicklaus’ time.”

“Who brought the presents?”

“The sun,” I answered quickly while pointing upwards, “every one grew their own food back then, and the end of winter meant the gifts of heat and light could help grow things. It still brings us gifts.”

I waited to see if I had gone a bit too deep. I could see he grasped the concept of the solstice, and he certainly understood that the days were longer during the summer. Could I tie it together without causing my sister future grief via incessant questioning? I started thinking about how far down the religious rabbit hole I should go. How was I going to tell a six-year-old about the pagan customs of warding off evil with fir trees and holly? I knew my nephew was bright but, could I or should I try to explain the symbolism of the annual death and resurrection of the sun and the sprig of acacia which marks its grave? Was it possible to discuss the use of evergreen ivy in the mysteries of Dionysus? Or, possibly the garlands of myrtle used in the sacrifices to the Roman goddess Ceres? Would it be crazy to bring up the *Erica carnea* which decorated the Osirian temple in Egypt? My mind was awash with the seemingly countless examples of evergreen admiration which has existed throughout history ... none of which would have interested a child whose only current concern was determining who schlepped around bags of toys near the winter solstice before Kris Kringle landed the gig.

I decided to just sit back and see if the lad had understood the sun-centered pseudo-simile I sent his way. He appeared to comprehend that the gifts bestowed by the sun were indeed gifts ... just not exactly the same

type of gifts which can be wrapped in shiny paper and ribbons only to be unwrapped later. What came next impressed me.

“So, what were they called if they weren’t called Christmas trees?” he pondered aloud whilst looking out the window into the backyard which contained a few tall spruces.

“It depends on what time in history,” I responded. “Different folks called them different things in different languages. Some just used branches like the garland strewn across the fireplace mantle over there.”

He glanced over at the hearth and mantle and then his gaze returned to the window and his view of the yard. I could tell he was formulating something ... I just wasn’t ready for this child’s profundity.

“Well, isn’t it bad that people cut down the trees” he began, “ ‘cause then they won’t get any more presents from the sun?”

“Does seem a bit unfair to the trees, huh?” I said while staring out the window with him.

“Yeah, it’s unfair not to share,” he said.

I looked down at him and was rendered both speechless and proud. I later learned that phrase was one of the mantras which he picked up at school.

“From the mouths of babes,” said my brother-in-law, who was standing but a few feet away and had overheard a bit of our conversation, “the truth is unencumbered at that age.”



Cupressus cashmeriana on the right and *Cupressus macrocarpa* on the left can serve as Christmas trees.

“You are not kidding,” I replied, still impressed with the clarity that my young nephew possessed.

Leaning over to whisper in his ear I said, “Well, maybe you can talk your mom into decorating the backyard trees next year instead of bringing in one which was cut down and bought from a store, but I wouldn’t say anything until after this Christmas because she worked very hard on the one in the living room.”

“Yeah,” he attempted to whisper back, “and Bosley keeps knocking stuff off the tree with his tail anyway, so it would probably be better ‘cause mom gets mad at him.”

I smiled again, “Well, we might be able to save Bosley some grief then, huh?”

“Uh-huh.”

We stared out the window at the spruces for another minute or two as I thought about how many years it might be until we revisited this conversation. I wondered if he would even remember it after some time had gone by.

“Uncle Scott?”

“Yes,” I said.

“Can we get my mom not to get any more cut down Brussels sprouts, too?”

“Oh, that one is on you, pal,” I replied while smiling and catching my sister’s eye. “That one is totally on you.”



Reminder: the Jean Iseli Memorial Award application deadline is July 10, 2015. Send applications to Ethan Johnson at Ejohnson@holdenarb.org

THE DAWNING OF A NEW ERA:

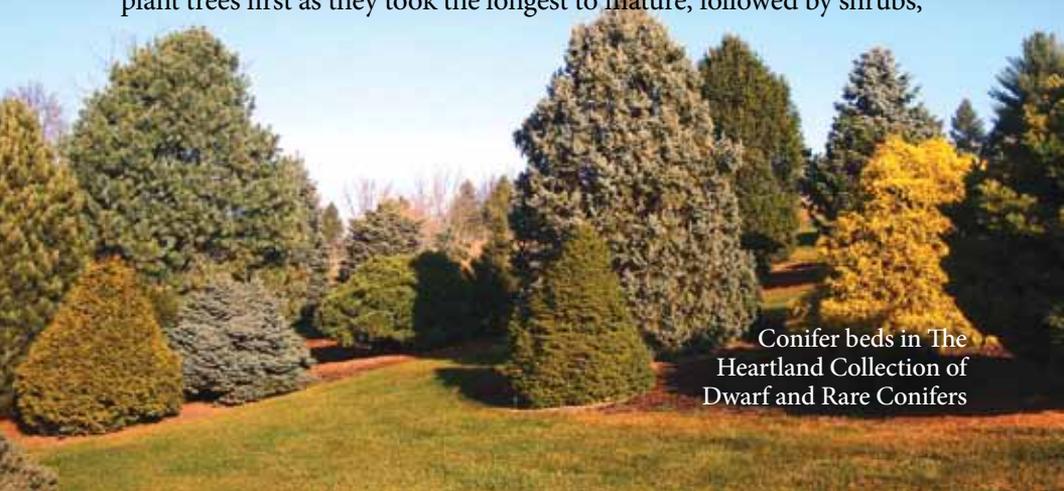
The Heartland Collection at Bickelhaupt Arboretum

By David Horst

There have been many exciting changes over the years at the Bickelhaupt Arboretum, but none perhaps as exciting as the signing of it over to Clinton Community College of the Eastern Iowa Community Colleges. This starts a new beginning for us, filled with enthusiasm and excitement. Perhaps, before going too far, we should back up 45 years and start from the beginning.

The Bickelhaupt Arboretum in Clinton, Iowa, was started in 1970 by Robert and Frances Bickelhaupt. They owned and operated a successful automobile dealership in Clinton for many years, selling Mercedes-Benz cars and International Scout pickups. Upon retiring, they wanted to give back to the community which had been so good to them over the years. Upon seeing the devastation of the American elm by Dutch elm disease on the beautiful tree-lined streets where they grew up, they decided to help educate people on proper selection and care of plants. They walked 90 miles of the city streets of Clinton and took careful notes on how residents cared for their trees and shrubs. It was decided an arboretum would be a lasting contribution to the community.

They decided the ten acres surrounding their home on the west edge of Clinton would be an ideal location with the rolling hills and Rock Creek meandering naturally through the center of the valley. They decided to plant trees first as they took the longest to mature, followed by shrubs,



Conifer beds in The Heartland Collection of Dwarf and Rare Conifers

and eventually some perennials and annuals for color. The primary focus was on woody plants, which would become Bickelhaupt Arboretum. There were some large native trees already existing on the grounds which gave them a good base for their new mission.



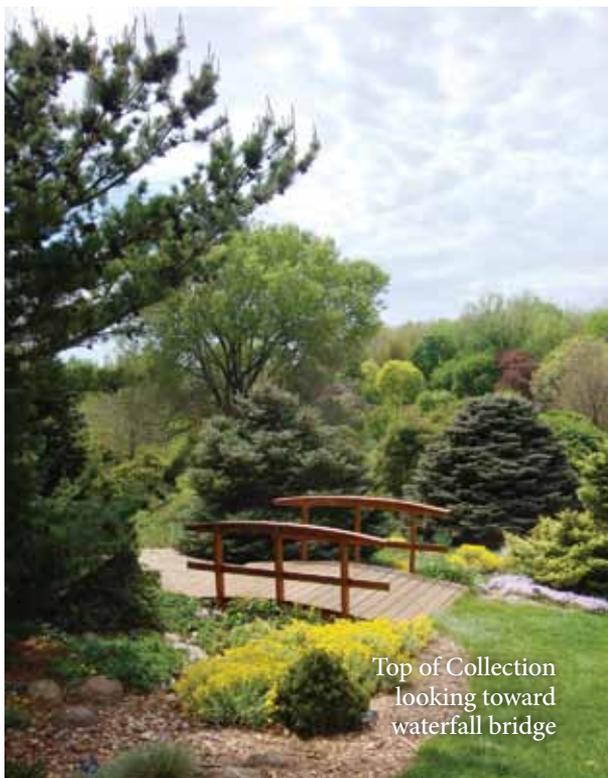
There have been a lot of changes over the years, and the collections have been updated to represent the best plants which grow in the Midwest. The Arboretum has grown to 14 acres since 1970 and currently has over 1,800 plant accessions in the plant database. There are many noteworthy collections including The Heartland Collection, Alma Rose Garden, Mercy Hospice Herb Garden, Butterfly Garden, Rock Garden and Hosta Glen.

In the late 1980's, Justin "Chub" Harper of Moline, Illinois, an avid conifer collector and expert, appeared at our doorstep. He encouraged the Bickelhaupt's to include a conifer collection in the master plan. Little did we know at that time that this addition would expand and grow into the extensive collection it is today. It was Chub's initial donation of a large collection which later became known as "The Heartland Collection of Dwarf and Rare Conifers."

Chub had a natural tendency to give his plants away so that they could be shared with and viewed by more people. His original collection in 1981 was donated to Hidden Lake Gardens of Michigan State University and is nationally known as The Harper Collection of Dwarf and Rare Conifers.

The first phase of the Bickelhaupt project involved designing the new garden and the initial plant selections in 1990. Chub was very meticulous when it came to maintenance. We decided the free-formed beds used at The Harper Collection at Hidden Lake would simplify mowing, maintenance and be aesthetically appealing to the eye. Chub and I flew out to Iseli Nursery in Boring, Oregon, and selected plants for the initial planting. We planted 307 conifers in the spring of 1991 and continued to add new plants and beds until the hillside collection area was full in 1998.

The Heartland Collection currently has 408 specimens, all labeled with the scientific name, common name and accession number. We felt from the beginning that educating the public on conifers should be the number one priority. Chub felt it important to include witch's brooms to show visitors where many of the conifers had originated. Interestingly, several brooms have been discovered in the collection and include *Pinus strobus* 'Green Twist', *Pinus mugo* 'Dave's Choice', *Pinus strobus* 'Mr. B' and *Pinus mugo* 'Bickelhaupt Arboretum'. These are all being propagated and grown by various ACS members.



Top of Collection
looking toward
waterfall bridge

The Bickelhaupt Arboretum hosted the American Conifer Society Central Region Meeting in 2001 and was a tour stop for the 2008 National Meeting held in Dubuque. We were also the host garden for the 2013 Iowa Garden Rendezvous.

Chub continued to evaluate and enjoy this collection as it matured until his passing in March of 2009. We will always be indebted to him for his expertise, time and the resources he committed to making the Heartland Collection what it is today. He is greatly missed for his sense of humor, wealth of knowledge and friendship. His memory will live on in the conifer collection.

Today, the Arboretum is very fortunate to have dedicated horticulture experts serving on our newly formed grounds committee to assist with important decisions pertaining to the collections. They are Dr. Jeffrey Iles, Professor and Chair, Department of Horticulture at Iowa State University, Alan Craig, sales representative of Iseli Nursery, Randy Dykstra, Heartland Gardens, and Jeff Rathje, Lasting Beauty Landscaping. Randy and Jeff are local landscapers, longtime ACS members and experts in the conifer field. This group of experts offers a tremendous wealth of knowledge and help as the Heartland Collection moves forward with future plant selection and design support.

In 2012 we were proud that the American Conifer Society selected The Heartland Collection as a Reference Garden. In the fall of 2014 we were so excited to be the recipient of the \$1,500 Reference Garden Grant, which was matched by the Central Region. This grant money will be used to acquire new and hardy conifers to replace those lost or injured in the severe winter of 2013–14.



Dark clouds over The
Heartland Collection

There have been many long time ACS members who have shown support and contributed plants over the years to The Heartland Collection at Bickelhaupt Arboretum. We decided, when purchasing plants with the Reference Garden Grant, to acquire the plants from members to support their businesses. They are Rich's Foxwillow Pines, Gee Farms, Heartland Gardens, Lasting Beauty Landscaping, Duvall Nursery, Hermsen Nursery, Stanley and Sons, Iseli Nursery, and Klehm's Song Sparrow. We thank them for all the support given to The Heartland Collection and the American Conifer Society over the years.

On a sad note, Frances Bickelhaupt or "Mrs. B", as she liked to be called, passed away on July 27, 2013. Her husband Robert, or "Mr. B", had passed away in October of 2006. Their daughter Francie Hill had taken an active role in the daily operations of the Arboretum as Director and President of the Board of Directors from 2000 until it was donated to Eastern Iowa Community Colleges in the fall of 2014.

This brings us back to the beginning of my story and the signing over of the Arboretum. I encourage you to come and see the new changes at the Arboretum as we start a new era with EICC. Robert and Frances Bickelhaupt had dreams and goals more than 45 years ago in starting an arboretum and educating people in the field of horticulture. Today they would be so proud to know those goals will continue to be met well into the future. I would like to encourage you to come and visit the Bickelhaupt Arboretum to see The Heartland Collection of Dwarf and Rare Conifers. We are proud to be part of a greener better world through conifers.



Heartland Collection bed



American Conifer Society Central Regional Meeting

**Radisson Hotel & Conference Center
Green Bay, Wisconsin
July 10–11, 2015**

Come visit some wonderful gardens and rub elbows with fabulous horticulturists and just plain good folks. The Central Region of the American Conifer Society will hold its annual member conference at the Radisson Hotel and Conference Center in Green Bay, Wisconsin, July 10 and 11.

This will be the first time the Central Region, covering 15 states and two Canadian provinces, has held an event in this area, offering a rare opportunity to learn more about the hardy species and cultivars of cone-bearing trees.

The annual meeting is an occasion for backyard gardeners, horticulturists and nursery operators to discuss rare and unusual forms of conifers, tour outstanding area gardens in the company of conifer experts, and participate in two lively and entertaining auctions of dozens of conifers. The auctions always include a variety of dwarf and miniature cultivars, offering a variety of colors and shapes. This year, there will be a “first – timer” section in the silent plant auction, so that people who have never attended an ACS meeting before don’t have to compete with those in an advanced stage of “Addicted Conifer Syndrome”. This year’s garden tours include the Green Bay Botanical Garden, Rose Hill Gardens and five other private gardens showcasing not only conifers, but a range of hardy companion plants. These private gardens belong to the Bayes, Kastors, Arendts, Vander Heuvels, and the Doerschs.

Well-known plant propagator and entertaining speaker Mike Yanny will discuss conifers he has helped introduce through Johnson's Nursery. Mike graduated in 1979 from the University of Wisconsin-Madison with a BS degree in Horticulture and is the Senior Horticulturist on Johnson's Nursery staff. Mike also owns his own business, JN Plant Selections in Menomonee Falls, WI.

You can register online on the ACS website. Click on Regions on the home page. Then go to the Central Region page and click on 'events'. The Green Bay meeting will appear. At the end of the page is the online registration button. Click on it and register.

When making your reservation at the Radisson, mention the American Conifer Society meeting so that you receive the group rate of \$109/night plus tax. Other hotels near the Radisson which also have rooms available (but no group rate for the ACS) include: Super8 (920-494-2042), Airport Settle Inn (949-499-1900), Baymont Inn – Green Bay (920-494-7887), Holiday Inn & Suites Green Bay Stadium (920-593-4600), and Airport Wingate by Wyndham (920-617-2000).

DON'T FORGET TO BOOK YOUR HOTEL ROOM
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Here is what will become
Pseudotsuga macrocarpa 'Mt. Wilson'

Bigcone Douglas-fir Brooms

By Dan Spear

There is no doubting I have a certain fascination for Bigcone Douglas-fir. It is certainly one of the stateliest trees out of the 13 conifers which live in these forests, my playground here in Southern California. They get enormous, both tall and very wide, and their branching structure is beautifully large and horizontal. They also have some of the most adorable seedlings, with their delicate needles and soft look. And, I don't deny a certain smugness as it is only native to the dry mountains of Southern California. It stands to reason that this conehead would want to find brooms so as to enjoy dwarf cultivars in my small yard. The trouble is, there weren't any, but there are now.

I looked while biking, hiking, and driving for almost two years, without seeing a broom. Then one day, as the sun was setting (really the best time to see that telltale silhouette), there it was. Huge. I had passed by it dozens of times, but never looked at the right spot at the right time. That broom was collected and sent to Conifer Kingdom in Silverton, Oregon, and it is now available as 'Gabrielino', the broom which opened the door to cultivars of *Pseudotsuga macrocarpa*. Conifer Kingdom has chosen to graft it onto *Pseudotsuga menziesii* to extend its range and allow for damper environments than these dry mountains, where it is native.

The pictures on the following page showcase the brooms found and/or collected over the last year. Hopefully there will be many more to come.



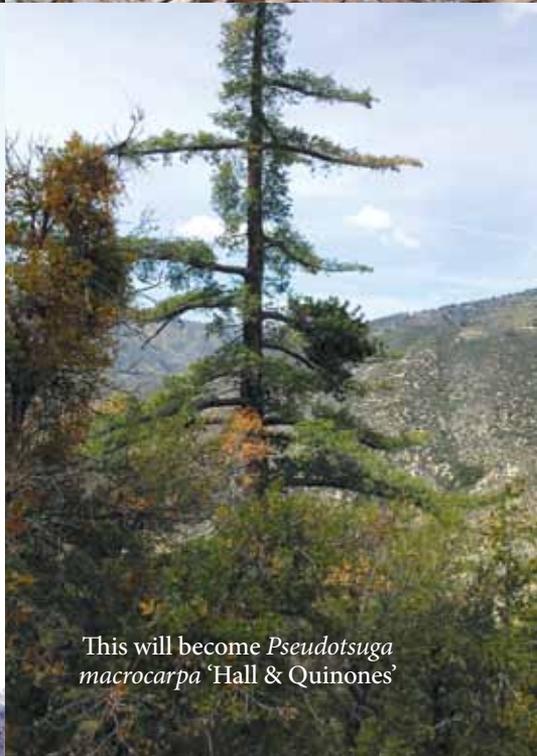
Pseudotsuga macrocarpa 'Gabrielino'



Pseudotsuga macrocarpa
'Gabrielino' close-up



Pseudotsuga macrocarpa 'Little Bigcone'



This will become *Pseudotsuga*
macrocarpa 'Hall & Quinones'

Bald-cypress Forest Now Growing in Oregon

Dan Kintigh | Dan's Dwarf Conifers

Bald-cypress is a deciduous tree with soft, green fern-like foliage which turns bronze in the fall. In its native habitat, it can reach 100'–120' in height.

I first learned of bald-cypress's unique ability to grow in standing water when I saw my father, and the young man helping him with yard work, digging a hole in the swamp for a large B&B bald-cypress tree. The hole was filling up with water, and I inquired as to how that tree would live. Father told me that the tree lived in swamps in the East.

I began to think about this tree and the swamp around the creek on the lower part of the farm, and thought I could grow a nice little forest in that location instead of the brush and weeds growing there; after all, we claim to be a tree farm! Because I was not able to find seedlings to buy, I purchased some seed and grew my own seedlings in the reforestation nursery I manage.

A reforestation project is not easy. The first challenge was the unwanted vegetation growing in the area. Non-native grass, introduced by the pioneers for



grazing, blackberry vines and willow had to be killed or removed. The willow clumps I pulled with my excavator, or I winched them so that they could be pulled out with the Cat we use for logging.

My second hurdle was preventing deer from eating the tops. I protected them with netting. After getting the trees established, I lost some to mice girdling. Fortunately, I had some extras in pots to replant, around which I fastened foil in order to prevent the mice from snacking. Now that the trees have made it past the rodents and deer, they are really growing well. These trees now benefit the wildlife by providing nesting places for birds and shade for the stream which will potentially help trout live.

Eighteen years later, I can appreciate my hard work with some trees pushing 25'. Sometimes I sit and just look at the trees because they are very beautiful.

In the future, if a person desires trees and their land is swampy, perhaps bald-cypress will become an option for swampy ground in the West.

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BOOK REVIEW

By Didier Maerki

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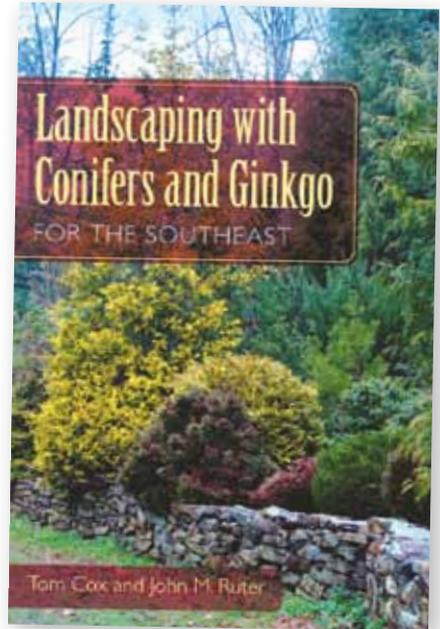
Landscaping with Conifers and Ginkgo for the Southeast

By Tom Cox & John M. Ruter

ISBN: 978-0-8130-4248-0
Soft cover. \$29.95

The purpose and the scope of this book are perfectly described by its title: to provide advice on which conifers to use in the Southeastern US climate, that is warm and moist in summer, with freezing temperatures going down occasionally to -15°C (hardiness zone 8) in winter. Not all species will like these conditions. In fact, this kind of climate favours several diseases especially for plants adapted to drought, and it is not fit for most high altitude trees. Usually it is necessary to wait at least 30 years before being reasonably confident that a species will thrive—or let alone survive—at any given locality. Here Tom Cox, with co-author John Ruter, thanks to his experience of managing an arboretum since 1990, is providing a thorough list of conifer species. For any botanical garden or arboretum, this kind of information is important, for it will help to decide which species to introduce in priority. Obviously in Georgia the exotic origins are from similar climates like those of southern China and Japan and likely some localities in Mexico.

The book is divided into four parts: planting advice, pests and diseases (in two different chapters), a list of conifer species and their cultivars, and several interesting and useful appendices.



After the introduction, the chapter *Cultural Practices* gives a lot of meaningful and detailed instructions on how to plant and care for the newly acquired conifer seedlings or saplings. Whatever the advice, gardeners will seldom agree with everything. There are many different kinds of soil and, certainly with their experience, the authors know which is the best advice in their local condition, that is with a heavy clay soil. The following recommendation (page 8): “If a plant is going to adapt to our soil, then the best way to acclimate it is to get the roots spreading into native soil from Day One”, is excellent for any type of soil. Except for a heavy clay



Cupressus glabra 'Blue Ice'
Cox Arboretum, Georgia, USA

soil, I would not recommend digging a planting hole twice as wide as the root ball as it is preferable that the native soil will be least disturbed. A planting hole too large will require more watering as the disturbed soil will become dry more quickly than the undisturbed soil. About fertilizers, I think that they are useless or even counterproductive, except in very special cases, for instance when it is necessary to promote root growth. For a healthy tree, there should be a balance between the roots and the foliage. Fertilizers will boost the shoot and foliage growth, eventually weakening the tree in case of storm or snow. In nature no chemical fertilizer is available. The last disagreement is on the use of such chemicals like glyphosate. In no case would I recommend it. There are alternative means like mulching or special fabrics. Once established, a tree will care for itself by shading the place.

The *Pests* and *Diseases* chapters are targeting the health problems encountered in the Southeastern USA and are to the point, with an illustration for almost every kind of damage cited. To be noted that the use of the imidachloprid systemic insecticide is controversial and that miticides are useless in a non-degraded environment. In the wild, carnivorous

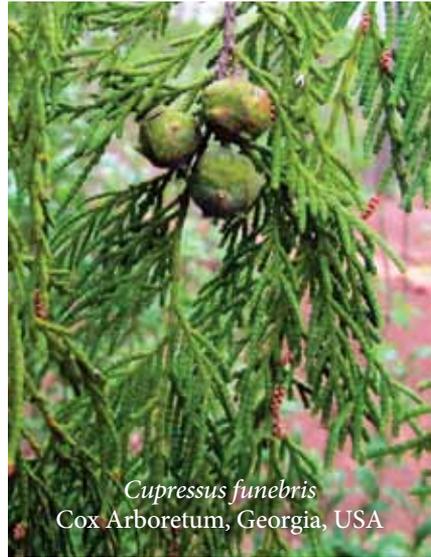
mites will soon control much better the mites which feed on conifer leaves. In nursery conditions, the problem is real.

The main part of the book is dedicated to the different conifer species and their cultivars adapted to the Southeastern region. The species are sorted by their alphabetical Latin names. Here at the *Cupressus* Conservation Project, we are least interested in cultivars and most interested in endangered conifer species, and of course the genus *Cupressus*. To each his own. Several cultivars are presented, and

surely the local gardeners will find this choice interesting, to be able to accommodate around their houses big plants which are not too large.

It is a pleasure to see American authors acknowledging the genus name *Cupressus* for the new world species. Giving its original Latin name of *Cupressus nootkatensis* to the Nootka cypress (unfortunately here as “Alaska-cedar” for the common name instead of D.Don choice) allows describing the cultivated hybrids as *Cupressus* hybrids and not intergeneric ones. Further (page 99), the description of the taxonomic mess for this genus is correct: “Depending on which taxonomist one goes with, the exact number of species and varieties can be a moving target. Much of the disagreement appears to stem from variation in and among relictual populations that have been historically subject to an array of naming and classification schemes. Probably no conifer genus has engendered more taxonomic treatment.” Twenty-four taxa of *Cupressus* are mentioned here, nine less than the species recognized by the CCP.

Not surprisingly, the number of cypress taxa presented is fairly low: 5 species and 3 hybrids. Most Californian species for instance do not do well in the Southeastern US climate as already experienced in Texas (Lovett Pinetum in Angelina County). At the Tifton Arboretum (nine taxa mentioned), *Cupressus macrocarpa* and *Cupressus dupreziana* were “removed due to poor health” (page 272).



Six appendices complete the volume: Heat Zone and Hardiness Zone maps, Conifer sizes, Selection of conifers based on landscape application, Nursery sources and conifer gardens in the South, Growth data for conifers at Tifton Arboretum, Georgia. In the list of species growing in full shade, the following genera shall be added: *Cephalotaxus*, *Taxus*, *Torreya*. They are understory taxa with an initial slow growth. As seedlings, several *Abies* and *Picea* species are adapted to such conditions too, but only a few species of those two genera will thrive in the Southeastern climate. Aside from the nursery list, seed sources would have been welcome too.

Despite being critical on some details, *Landscaping with Conifers and Ginkgo for the Southeast* is highly recommended for any person caring to enrich his garden with conifers as well as for botanic gardens and arboreta which will find safe advice for developing their collection.

¹Former president of the American Conifer Society, owner of the Cox Arboretum in Georgia.

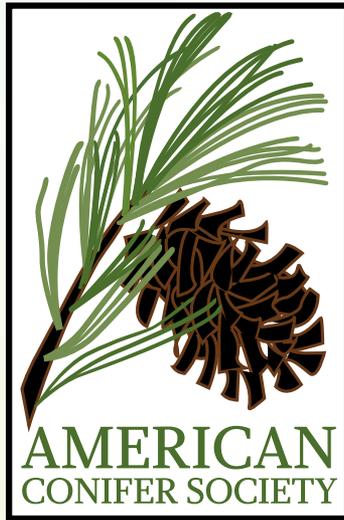
²Professor of Horticulture at the University of Georgia.

³For instance, there are 24 cultivars listed for *Cryptomeria japonica*, 13 for *Chamaecyparis obtusa* and 8 for *Cupressus glabra*, when every wild type is described on one page or less, but always with interesting observations.

⁴The common name cedar shall be kept for the genus *Cedrus*, which is a Pinaceae, not a Cupressaceae. For the same reason as one would not call a whale a fish.

⁵And please, not *Cupressus sempervirens* var. *dupreziana* but *Cupressus sempervirens*. *Cupressus dupreziana* cannot hybridize.

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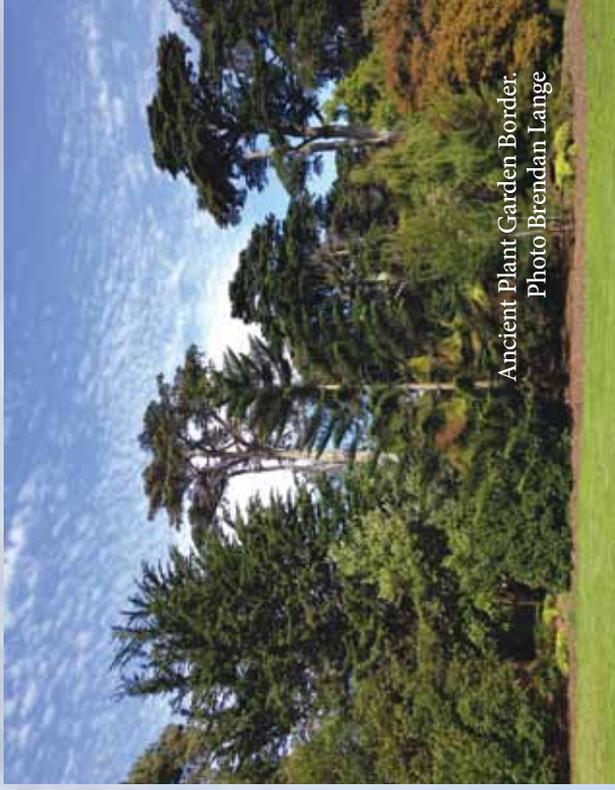
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The West's Newest Reference Garden: San Francisco Botanical Garden

By Sara Malone

Note: the SFBG will be part of the 2015 National Meeting in September. Join fellow ACS members on a personalized tour of the Garden with Curator Don Mahoney, Garden Trustees and former Garden Directors. We'll have an opportunity to go behind the scenes and see some of the rarest plants in the collection as well as tour the beautiful grounds.

Conifers are part of almost all noteworthy plant collections, but I cannot think of a garden where conifers play as significant a role as they do at the San Francisco Botanical Garden. Thus, it is no surprise that the SFBG has become the sixth Conifer Reference Garden in the Western Region, and the third in California. While locals tend to think first of the magnificent magnolia collection, in the Garden's words, "conifers are among the cornerstone plants at the Botanical Garden, framing our vistas and truly setting the tone for our 55 acres of plant life".



Ancient Plant Garden Border.
Photo: Brendan Lange

SFBG is blessed with a mild, maritime climate which allows a wide range of species to grow and flourish. The native *Pinus*, *Sequoia* and *Cupressus* grow side by side with a large and diverse collection of Podocarpaceae and Araucariaceae; there is a lush and extensive redwood grove, a dwarf conifer collection begun in 1960 and a grouping of *Metasequoia glyptostroboides* planted from seed in 1950, making them some of the earliest plantings of this species in the U.S. All told, the collection includes over 250 conifer species.

The Garden made its start as an arboretum in Golden Gate Park, and the conifer collection began in the

mid-1800's with the planting of over 450,000 canopy trees throughout the park to provide shade and protection from the wind. Two of the three species (the third was *Eucalyptus globulus*) were conifers: *Cupressus macrocarpa* (Monterey cypress) and *Pinus radiata* (Monterey pine).

While the size and stature of many of the remaining specimens is impressive, due to their age, they frequently fall prey to high winds and winter storms. Large limbs and indeed even entire trees are lost with increasing frequency. In 2009, the Garden created a canopy succession plan

to coordinate the replacement of the three main species with trees endemic to respective geographic collections in

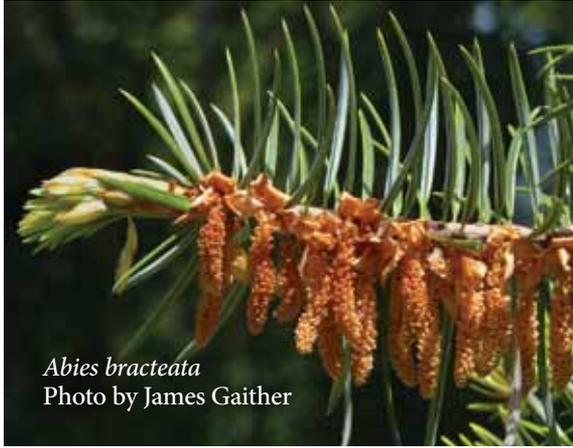


Great Meadow Vista
Photo by Kathryn Rummel

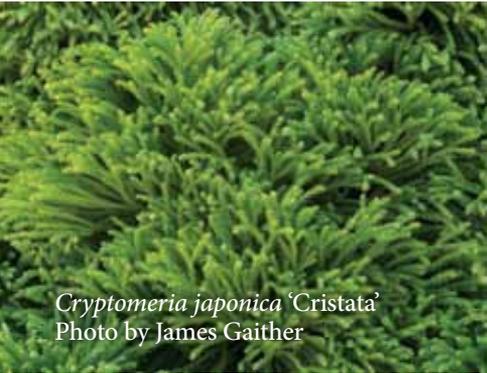
the Garden. Several hundred new taxa have been identified as appropriate, and the plan is underway. Some of the conifers in the plan include *Abies bracteata*, *Agathis australis* and *Pinus torreyana* ssp. *insularis*.

San Francisco Botanical Garden is an integral part of the City’s outdoor recreation facilities, situated as it is in the middle of Golden Gate

Park. The Park is the fifth most visited park in the United States, with approximately 13 million visitors annually. The Garden logs more than 300,000 visitors per year, and many locals are members and regulars. John McLaren, who served as the Park’s superintendent from 1887 to 1943, is largely credited with the development of Golden Gate Park into one of the great parks of the world, and he selected the Garden’s location in 1890, based on the presence of “a variety of soil and exposure, sloping, dry and sunny hillsides, sheltered spots and rich, low or marshy land.”



Abies bracteata
Photo by James Gaither



Cryptomeria japonica ‘Cristata’
Photo by James Gaither

Funding began with a bequest from Helene Strybing in 1926, the City broke ground in the 1930’s, and what was then called Strybing Arboretum opened to the public in 1940. In 2004, the name was changed to San Francisco Botanical Garden. This year the Garden celebrates its 75th Anniversary.

Under the stewardship of Curator Don Mahoney, who has been involved with the garden for 30 years, SFBG

now recognizes four key conifer collections in addition to the canopy: the James Nobel Dwarf Conifer Garden, the Dawn Redwood Grove, the Conifer Lawn and the Redwood Grove. In his words, “Conifers are the backbone of the Garden and act as a framework, around which all other

plantings were developed.” The Garden’s collection is particularly diverse because not only does it contain plants from all over the world, but it also includes cultivars as well as species. Many of the trees in the collection have grown to significant size. Among some of the oldest specimens (in addition to the canopy) are the *Sequoia sempervirens* in the Redwood Grove, which were planted around the turn of the 20th Century, and the enormous Monterey cypress in the middle of the conifer lawn, which stands over 100’ tall. The Redwood Grove is the only place to view a redwood forest in San Francisco and it includes a rare albino form of the species. The grove was designed to resemble a native California forest (such as Armstrong Woods, in Guerneville, which we will have visited the day before). The Conifer Lawn includes over 30 species of conifers, including *Abies* and *Picea* species, as well as a stately *Sequoiadendron gi-*

ganteum (giant sequoia). The oldest *Sequoiadendron* specimen has developed a spreading windswept appearance as it grew in strong



Albino redwood close-up
Photo by Brendan Lange



Albino redwood
Photo by Brendan Lange



Podocarpus matudae
Photo by James Gaither

ocean winds for the first 50 years of its life. Later planted specimens, more protected by the more mature canopy, are very upright.

SFBG has, in addition to its many conifer species, one of the oldest collections of dwarf conifers in a large US botanical garden. The James Nobel Dwarf Conifer Collection was created in 1960 with the gift of 372 dwarf conifer species by Effie V. Nobel. Mrs. Nobel's late husband, James, had amassed this collection as a result of the couple's travels over many years, searching for rare and unusual dwarf plants. At the time, this was one of the most important collections of dwarf conifers in the country. Currently there are over 100 species remaining in the collection, and ACS members accustomed to the very latest and most unusual cultivars will find many here no longer considered rare or unusual. However, it represents a good opportunity to observe much older specimens than most of us have in our gardens! There are also some choice dwarf cultivars planted in the entry to the Garden, my favorite is a *Cupressus macrocarpa* 'Coneybearii Aurea' with a delicate, golden, lacy canopy.

Although not recognized as a separate conifer collection by the Garden, one of the most interesting places to view key specimens is in the SFBG's Ancient Plant Garden. The Ancient Plant Garden is laid out so that

visitors move chronologically through five periods: Early Devonian, Pennsylvanian, Jurassic, Cretaceous, and Eocene. The Jurassic epoch is of the most interest to conifer lovers, as this was when seed plants began to dominate and before Angiosperms evolved and stole the show. Here we can see *Podocarpus*, *Araucaria* and *Agathis*. There are wonderful specimens of *Araucaria heterophylla*, numerous *Ginkgo biloba*, a *Retrophyllum rospigliosii* (a very rare conifer from the Andes in South America) and lovely *Wollemia nobilis*, the Australian conifer thought to be extinct until a small grove was found in a remote area in 1994. The Garden's *Wollemia* were

planted in 2004. The gymnosperms are also represented by cycads, and, when wandering in this area, without too much imagination, it is possible to travel back to a time before flowering plants existed!

The Garden is beautiful all year round, and with the mild climate, it is just as often a winter day which draws visitors as one in summer. At this writing in early February, the Garden's famous magnolia are in full bloom, and there are other signs of spring. The conifers spring to life in March and April with showy cones and bright new growth. When we visit in September we will see the first signs of autumn although September is when San Francisco generally enjoys its warmest, sunniest weather. If we are there on a hot day, we can refresh ourselves in the Redwood Grove, in the shade of the **original** San Francisco Giants!



Dwarf Conifer Pond
Photo by Joe Favetti

My Scholarship Experience

By Lauren Axford, Executive Director, Pine Hollow Arboretum

Over the past decade, my work and personal study have been focused on agricultural and native plant production. During this time, however, I had always reminded myself that “Trees are next!” Upon moving to upstate New York in 2012, I serendipitously found one of the most unusual, inviting and diverse tree collections in the area at the Pine Hollow Arboretum. Little did I realize that this discovery would be the catalyst in launching what I already recognized to be a lifelong educational endeavor – the study, propagation and preservation of significant conifer species.

When I first applied for the American Conifer Society Scholarship, I was somewhat unfamiliar with the world of conifers. Since being awarded the scholarship, I have experienced an incredible educational journey which has allowed me to learn more about the vast diversity of conifer species and cultivars.

Dr. John Abbuhl, the founder and president of the Pine Hollow Arboretum, my organizational sponsor, has played a significant role in my educational pursuits by conveying his passion for conifers while generously sharing his expertise. Dr. Abbuhl remains an active and integral part of the daily management of the property. The breadth of his knowledge pertaining to the land, history and provenance of each specimen in the collection informs a unique management decision framework which emphasizes the importance of ecological conservation and respect for ecological forest processes. This has resulted in a “living library” which provides insight into the biodiversity of the world’s forests through its representative collection of the world’s most captivating tree species.

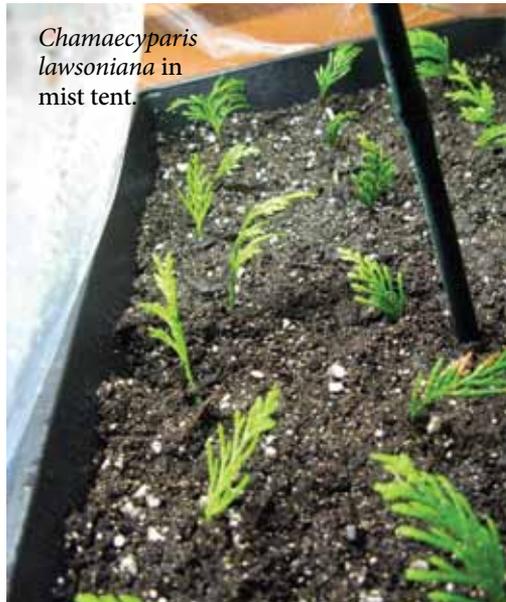
The arboretum’s cataloged collection consists of over 3,400 unique trees, shrubs and other woody plants from around the world, some of which are rare and/or endangered. The collection represents over 180 genera and is aesthetically arranged by origin in a natural setting which includes 12 ponds and an eastern white pine forest.

I couldn't have asked for a better place to learn about conifers. Being able to see the variation in growth form (habits) and such diverse aesthetic qualities on the property has really helped me to develop a great deal of respect for the world's conifer species. In drafting a tentative list of specimens to propagate, I learned of the interesting stories behind some of the arboretum's specimens. We have consequently started a list of specimens for future articles for *ConiferQuarterly*!

The scholarship fund allowed me to obtain some great texts about woody plant production, covering topics from seed biology and propagation, to rooting, cuttings and grafting. One of the most authoritative texts I have been using is *The Reference Manual of Woody Plant Propagation* by Michael Dirr.

In addition, I was able to obtain some essential equipment to create a home-scale propagation range such as a table-top fluorescent grow lamp and heated germination mats. Having previously worked at a facility with well-equipped greenhouses, I found that setting up my home for propagation took a bit of creativity. The results of my propagation project have helped me identify adjustments which will improve propagation success in the future.

The main goal of the project was to attempt to propagate some of Pine Hollow Arboretum's most interesting specimens. With the guidance of Dr. Linda Jones, a forest ecologist at State University of New York, Empire State College, I compiled information from researching peer-reviewed literature on the ecological life histories of three conifer species: the Port Orford cedar (*Chamaecyparis lawsoniana*), the Atlantic white cedar (*Chamaecyparis thyoides*) and the Japanese cedar (*Cryptomeria japonica*).



Chamaecyparis lawsoniana in mist tent.

My intention was to gather information necessary for determining how the characteristics of their respective origins could potentially result in different conditions required for successful propagation. The information derived from this investigation was used in combination with published propagation protocols to inform the design of trials for this project.

The ecological life history survey of each species included the following categories: taxonomy, nomenclature, distinguishing features, variability, importance, ecological significance, economic relations, occurrence, range, habitats (general), climate, physiography, soil, fire tolerance, community types, growth characteristics, resistance, longevity and reproduction (initiation, pollination, maturation, dispersal, dormancy, germination, establishment, asexual reproduction). The dossier of each species includes photos of the specific specimens which would provide seed and/or vegetative material for propagation.

From my experience with native seed production, I assumed that, like many wildflower species, conifers might exhibit a high degree of variability concerning seed viability. Seed was collected over the season (i.e. early ripening, mid-season ripening and late-season ripening) from *Cryptomeria japonica* and *Chamaecyparis thyoides* in an attempt to obtain the most viable seed possible. Unfortunately, the *Chamaecyparis lawsoniana* specimen I targeted for the project did not yield any seed during the project year.



First seeds to
germinate

Unlike my previous experiences of seed collection, which involved collecting seed from many individual plants in a large population, I found that my biggest challenge was successfully collecting enough viable seed from one specific tree for the project. Thankfully, I was successful in propagating *Chamaecyparis thyoides* by seed, but was not able to collect and germinate enough seed to adhere to scientific experiment standards, which require several replications of each trial. However, I still found that the process of collecting seed, trying one or two different treatments and observing the results, was an extremely helpful exercise for learning more about the reproductive biology of conifers.

The seed I removed from the few reachable cones from the *Cryptomeria japonica* specimen looked ominously inviable (I noted the flatness of the seed and made the conclusion that the embryos were either non-existent or failed to completely develop); yet, I still tried two different pre-treatments to encourage germination. I came to the conclusion that, if there are specimens we are very interested in propagating seed from, it may be a more effective use of our time and efforts to collect, clean, and properly store seed from several years to be able to execute a germination trial which will yield scientifically significant data. On the other hand, trees take a long time to reach reproductive maturity; so, perhaps waiting a few years until the tree is more productive would be worth the wait. Though it will take some time to be able to observe, I am interested in whether any of the *Chamaecyparis thyoides* seedlings will exhibit the same lacey, blue foliage as the parent tree.

For propagation via cuttings, I chose to use a uniform rooting hormone concentration and soil substrate for all cuttings. Furthermore, all cuttings received the same irrigation, as they were misted uniformly with a spray bottle. I investigated two different variables: fall vs. spring and supplemental lighting vs. no supplemental lighting.

Cuttings were taken from all three specimens at two different times during the year: November and May. Despite several different texts acknowledging fall/winter to be the best time to root cuttings for these species, I had much greater luck with cuttings taken in the spring. More than anything, I think that the indoor environmental conditions of my home are much more conducive in the warmer months. We live in a 150-year-old, drafty farmhouse and heat with a wood stove. Therefore, it is difficult to maintain high humidity levels and ambient air temperature



Root development

in the winter. In order to create a humid environment for the cuttings, I received a great tip from Pine Hollow Arboretum's grounds manager, Sandy Brosseau. Sandy suggested using an old plastic comforter bag to trap moisture in and around the cuttings. Sandy had great success getting *Cryptomeria japonica* cuttings from the same specimen I used to root, and this method proved to be key in the success of my *Chamaecyparis thyoides* cuttings. In order to maintain warm enough temperature to encourage root growth, I used heated germination mats. This, paired with the comforter bags, allowed for soil temperatures to encourage root development. When testing light as a variable, I noted that



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cuttings receiving supplemental lighting had much faster rates of root development.

Though cuttings from all three species did in fact root, there were issues which prevented many of the rooted cuttings from thriving and surviving past the make-shift mist frame. Due to the long period of time it took roots to develop and the continual presence of moisture, many of the cuttings succumbed to either root damage from fungus, gnat larvae, or from a fungal pathogen. For the second round of cuttings, I was much more vigilant about providing adequate air circulation and not allowing the soil medium to become oversaturated. This seemed to help a larger proportion of cuttings to survive.

In acknowledgement of the challenges I faced in the duration of this project, I am grateful for the opportunity to learn from my missteps. The information I absorbed from textbooks and online literature research, in addition to time spent on the property of the Pine Hollow Arboretum with Dr. Abbuhl, is quite significant. I cannot imagine being able to embark on such a unique educational journey without the assistance of the American Conifer Society.

I would like to thank Gerald Kral and the ACS Scholarship Committee for providing such a wonderful opportunity for me to learn more about the world of conifers. Additionally, I would like to thank Dr. Linda Jones for her guidance and assistance in compiling the ecological life histories. Last, but certainly not least, many thanks to Dr. John Abbuhl and the Pine Hollow Arboretum for not only sponsoring me, but for providing an invaluable experience which has taught me so much.



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Auctioneer Brian
Jacob with a choice
Cedrus deodara
'Feelin' Sunny'



Behind the Scenes: Preparing for a Memorable ACS Auction

By David Olszyk | Photos by Janice LeCocq

People join the American Conifer Society for many reasons. Whether it is access to fine gardens, engaging in the camaraderie of other enthusiasts, or adhering to the causes the Society supports, we come together at events and meetings to share our common interest in these fabulous plants. My main reason for joining was to gain access to the strange and unusual conifer cultivars we regularly see at plant auctions. I share the sentiment of legendary plantsman Larry Stanley when I say that my favorite conifer is one that I haven't seen yet. I learned during my first ACS meeting in the early 2000's that an ACS plant auction was the ideal venue to satisfy my interest.

Over the years, I've had the good fortune to rise through the ranks of ACS leadership and to be able to guide (gently) and to influence the success of more than a few ACS plant auctions.

A major first key to a successful auction is to have good people working

for you. In the Western Region we have a small team of Conifer Acquisition Specialists. These are folks who are senior members of the Society and have spent many years forging meaningful relationships with the great conifer nurserymen of Oregon and Washington. The



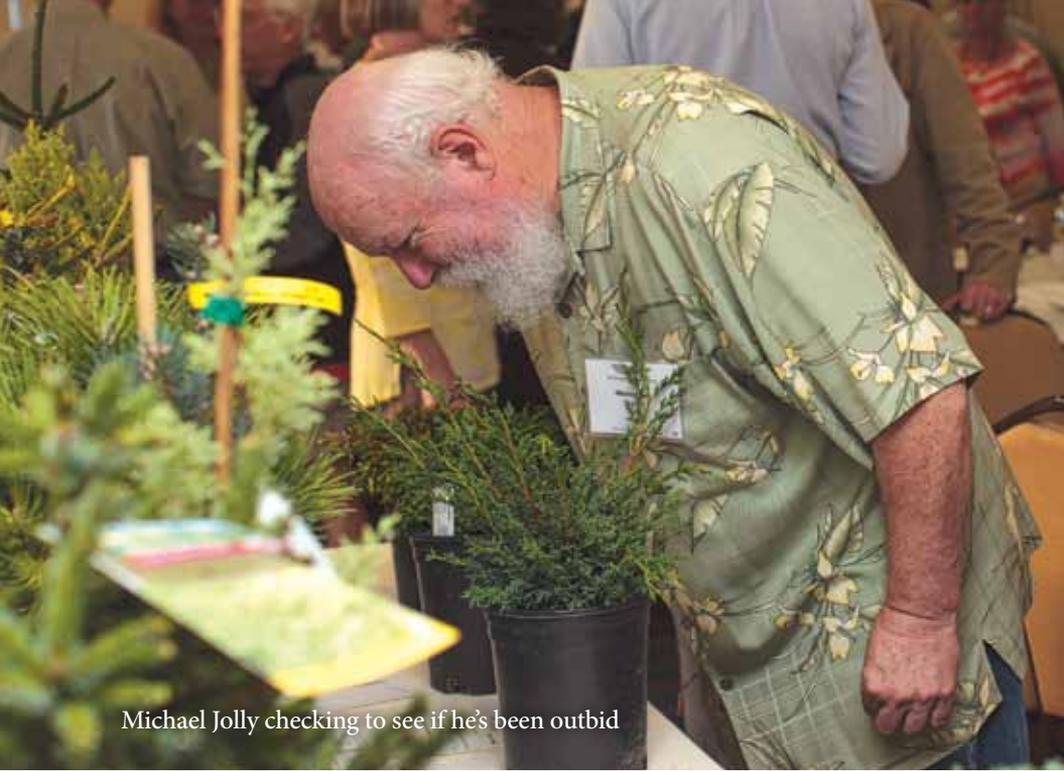
Sandy Scott contemplating choices in the Silent Auction

“Specialists” know all of their quirks and nuances and are quite adept at convincing them to donate great plants for “the good of the cause”.

When I became the Western Region’s President, my instructions to my acquisition team were quite brief. I simply asked them to focus on “conifers which can’t be found in garden centers anywhere”. A skill which goes hand-in-hand with knowing the growers is being aware of their “back rooms”, greenhouses which are tucked away in remote corners and which contain the absolute gems of the trade—plants under evaluation or extremely hard to produce in commercial quantities. These are items which generate considerable interest during the auctions.

Another source of auction excitement is a plant making its world debut during one of our events. We are lucky to have a couple of the West’s top witch’s broom hunters on our team. We can always count on them to find several new cultivars during the winter broom hunts. A successful broom hunt results in successful propagations named and hardened off just in time for a regional or national meeting. *Abies grandis* ‘Mrs. Collier’s Pet Duck’ and *Picea sitchensis* ‘Uncle Wiley’ are examples of brooms harvested during the winter of 2013/14, successfully propagated, named and auctioned off with great enthusiasm during the Western Regional meeting in August of the same year.

Probably the highest level of excitement attainable at a plant auction is the ability to bid on and win a provisionally-named conifer along with the naming rights. At a recent auction, one of our growers donated a



Michael Jolly checking to see if he's been outbid

plant previously known simply as *Pinus mugo* [seedling selection no. 3]. This plant's lucky winner happened to be a new member to the Society who quickly named it for her young grandson. There is no doubt that this experience will result in an enthusiastic, active, life-long ACS member and conifer lover.

There are times when a hint of melancholy graces the auction. Such was the case in the most-recent Northeastern Regional meeting when the organizers were fortunate enough to obtain conifer specimens donated from the Dennis Dodge collection. Not only were plants made available which were unknown to most of the attendees, but the fact that they once belonged to one of the legends of the trade made them even more desirable and helped to make the meeting one of the best in recent memory.

Although the bulk of the work involved with ACS auctions lies in the careful acquisition of the plants, the key to facilitate the exchange of a great conifer with a generous donation to the ACS is in the talents of the auctioneer. The best plant auctioneers are those who are knowledgeable about the products and can properly pronounce those strange Latin binomials and the at-times unpronounceable European cultivar names. Most

important is the auctioneer’s ability to “generate heat”. It’s one thing to identify a cultivar as a “nice, dwarf bun-shaped selection which will be a nice addition to a rock garden”; yet quite another to convey the story of an individual risking life and limb climbing 30’ into a fir tree in Minnesota in the middle of January to collect a witch’s broom precariously dangling from the end of branch. Which presentation is likely going to create the higher strike price?



Ken and Elena Jordan with treasures from the Silent Auction

The skillful auctioneer will also be very adept at monitoring and controlling the audience. Nothing will drag down the group and put an overall damper on the evening more quickly than a single attendee with deep pockets and an irrational desire to win every plant. There is a fine line between raising money for the Society and turning people off on the

Kym Pokorny stayed focused and got the one she really wanted.



experience with the opinion that our auctions are only for those who are financially well off. The best way to diffuse the potential for hurt feelings is a quick, friendly briefing before the action starts and witty dialog during the event in case one or two people try to dominate.

As you finish reading this article, the ACS Western Region's Conifer Acquisition team is hard at work combing the grounds of the West's top growers with the goal of assembling a selection of the most toe-curling conifers ever to be offered to the membership. If owning an eclectic collection of rare conifers is among your personal goals, the upcoming national meeting in Sonoma County, California, is not to be missed.



Maryann Lewis. Wine, tree and credit card—what a great combination!

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Growing *Abies* in Raleigh, NC: My First 7 Years' Experience PART 2

By Harrison Tuttle

In the fall of 2009, I began more readily to find plants grafted onto *Abies firma*. My experience with firs grafted onto *Abies firma* rootstock is summarized in Table 3.

In general, I have had much better success with firs grafted onto *Abies firma* than onto other rootstocks. The late Dennis Dodge was very good to me, and I received several fascinating cultivars from him. Interestingly, the orders I received only vaguely resembled what I asked for, but I was never disappointed when I opened the packages.

Unfortunately, most of the excellent dwarf cultivars never survived for even half the summer, and I saw *Abies procera* 'Blaue Hexe', *Abies koreana* 'Kohouts Icebreaker', and *Abies veitchii* 'Heddergott' all quickly succumb within weeks of receiving the plants.

All had evidence of *Abies firma* rootstock when I received them so that I know they were grafted onto the correct roots. Interestingly, I have also had the straight species *Abies veitchii* grafted onto *Abies firma* also die in its second year. I



Figure 6 *Abies firma*

still have some excellent selections from Dennis including *Abies koreana* 'Blue Magic,' *Abies lasiocarpa* 'Creamy,' *Abies lasiocarpa* 'Martha's Vineyard,' and *Abies nordmanniana* 'Golden Spreader'. I have been pleasantly surprised with the survival of my beautiful *Abies delavayi* 'Buchanon,' which I received from Dennis in the spring of 2011, and I have also had broad success with *Abies koreana* and its cultivars. But perhaps the biggest testament to *Abies firma* rootstock is my *Abies spectabilis* (figure 5) I received from Don Howse in the early spring of 2009. This plant, as a seedling, reportedly doesn't do well in Oregon



Figure 7 *Abies concolor* 'Blue Cloak'

because of the heat. Mine is still yet to establish a true leader, but has been growing about 6"-8" per year and is now staked to about 4' in height. The large, dark-green needles have bright silver undersides and truly are "spectacular". As Table 3 indicates, I have certainly had a number of failures with firs grafted onto *Abies firma*, but I attribute some of these failures to keeping the plants in containers too long and trimming off the rootstock too early. It is my suggestion that these plants get put in the ground as soon as possible and that the rootstock be slowly trimmed over the course of 3 or more years. Early trimming of the rootstock in dwarf and miniature plants has been especially problematic.

SPECIES	DATE ACQUIRED/ PLANTED	APPROX SIZE WHEN BOUGHT	NOTES/COMMENTS
ALIVE (all grafted onto <i>Abies firma</i>)			
<i>Abies alba</i> 'Green Spiral'	Fall 2012	1 yr graft	survived 2 summers, looks good
<i>Abies balsamea</i> 'Eugene Gold'	Spring 2010	1 yr graft	survived 1 summ in container, planted in shade, next year transplanted to part. shade (more gold)
<i>Abies balsamea</i> 'Tyler Blue'	Fall 2012	2d yr graft	6 hours full sun, looks great
<i>Abies balsamea</i> 'Tyler Blue'	Spring 2013	2d year graft	filtered shade, looks great
<i>Abies balsamea</i> 'Tyler Blue'	Fall 2014	3 yr graft	just planted in full sun
<i>Abies balsamea</i> 'Tyler Blue'	Fall 2014	3 yr graft	just planted in full shade
<i>Abies borisii-regis</i> 'Greece'	Fall 2014	1 yr graft	
<i>Abies borisii-regis</i> 'Greece'	Fall 2014	1 yr graft	
<i>Abies cephalonica</i> 'Meyer's Dwarf'	Fall 2014	2yr - 3 yr graft	just planted in full sun
<i>Abies cherenis saluensis</i>	Spring 2013	1 yr graft	survived 2 summers, full sun, looks good
<i>Abies concolor</i> 'Compacta'	Fall 2012	1 yr graft	survived 2 summers, looks healthy, full sun
<i>Abies concolor</i> 'Compacta'	Fall 2013	2 yr graft	survived 2 summers, looks healthy, full sun
<i>Abies concolor</i> 'Compacta'	Fall 2013	2 yr graft	survived 2 summers, looks healthy, partial sun
<i>Abies delavayi</i> 'Buchanan'	Spring 2011	2cd yr graft	survived 4 summers, full shade, beautiful
<i>Abies koreana</i> sp.	Fall 2012	3g	healthy, full sun, full and 3 feet tall, has a leader
<i>Abies koreana</i> 'Aurea'	Spring 2009	1 yr graft	survived 6 summer (1 in container), healthy, colorful, no definite leader, half day sun
<i>Abies koreana</i> 'Aurea'	Spring 2009	1 yr graft	survived 6 summers (1 in container), healthy, colorful, developing leader, most day sun
<i>Abies koreana</i> 'Aurea' (firma)	Fall 2013	1 yr graft	survived 1 summer, full sun, great color
<i>Abies koreana</i> 'Blue Magic'	Spring 2010	1yr graft	survived 5 summers, looking good, morning sun
<i>Abies koreana</i> 'Kohouts Icebreaker'	Fall 2014	1 yr graft	just planted full sun
<i>Abies koreana</i> 'Kohouts Icebreaker'	Fall 2014	1 yr graft	just planted morning sun
<i>Abies koreana</i> 'Horstmanns Silberlocke'	Summer 2008	1st year graft	survived 7 summers, filtered sun, looks nice but not as full as those in full sun
<i>Abies koreana</i> 'Horstmanns Silberlocke'	Spring 2009	2 yr graft	survived 6 summer (2 in container), attractive but no definite leader, filtered sun
<i>Abies koreana</i> 'Horstmanns Silberlocke'	Spring 2009	2 yr graft	survived 6 summer (2 in container), pretty, no definite leader, filtered sun

<i>Abies koreana</i> 'Horstmanns Silberlocke'	Spring 2009	2 yr graft	survived 6 summer (2 in container), pretty, full sun, developing leader
<i>Abies koreana</i> 'Horstmanns Silberlocke'	Spring 2009	2 yr graft	survived 6 summer (2 in container), but no definite leader, full sun, roots in wet soil
<i>Abies koreana</i> 'Horstmanns Silberlocke'	Winter 2012	4th yr graft	full sun, developing leader
<i>Abies koreana</i> 'Horstmanns Silberlocke'	Spring 2012	1 yr graft	survived 3 summers (1 in container) looks healthy
<i>Abies koreana</i> 'Silver Show'	Fall 2009	1st year graft	survived 5 summers (2 in container) afternoon sun, no leader yet
<i>Abies koreana</i> 'Taiga'	Spring 2013	2 yr graft	survived 2 summers (1 in container), mostly shade, looks good
<i>Abies lasiocarpa</i> 'Arizona Compacta'	Spring 2010	1 yr graft	survived 5 summers (in container), then transplanted after 1 yr - looks healthy
<i>Abies lasiocarpa</i> 'Arizona Compacta'	Fall 2013	2 yr graft	full sun, looks great
<i>Abies lasiocarpa</i> 'Arizona Compacta'	Fall 2013	2 yr graft	full sun, looks great
<i>Abies lasiocarpa</i> 'Creamy'	Spring 2011	2cd yr graft	survived 4 summers, full sun, looks great, developing leader
<i>Abies lasiocarpa</i> 'Glacier'	Fall 2014	1 yr graft	will plant full sun
<i>Abies lasiocarpa</i> 'Martha's Vineyard'	Spring 2012	1 yr graft	survived 3 summers, full sun, looks healthy
<i>Abies nebrodensis</i>	Spring 2013	2 yr graft	survived 2 years (1 in container), full sun - beautiful
<i>Abies nordmanniana</i> 'Golden Spreader'	Fall 2009	1 yr graft	survived 5 summers, in full shade, sparse (needs more sun)
<i>Abies nordmanniana</i> 'Golden Spreader'	Fall 2014	1 yr graft	will plant full sun
<i>Abies nordmanniana</i> 'Golden Spreader'	Fall 2014	1 yr graft	will plant full sun
<i>Abies numidica</i>	Spring 2013	1 yr graft	survived 2 years in container; barely hanging on
<i>Abies pinsapo</i> 'Aurea'	Summer 2008	1st year graft	survived 7 summers (2 in container), survived transplant after 2 years in grnd, full sun, dev. leader
<i>Abies pinsapo</i> 'Aurea'	Fall 2009	2 yr graft	survived 5 summers (2 in container), full sun, never burned, great color
<i>Abies pinsapo</i> 'Aurea'	Fall 2009	2 yr graft	survived 5 summers (2 in container), full sun, never burned, great color
<i>Abies pinsapo</i> 'Aurea'	Fall 2009	2 yr graft	survived 5 summers (2 in container), full sun, growing well, developing leader
<i>Abies pinsapo</i> 'Glauca'	Fall 2009	2 yr graft	survived 5 summers (2 in container), then 2 transplants, full sun, healthy, but small
<i>Abies pinsapo</i> 'Glauca'	Fall 2009	2 yr graft	survived 2 summers, healthy, but growing slowly, full sun
<i>Abies procera</i> 'Delbar's Cascade'	Winter 2012	1st year graft	survived 2 summers, healthy, but growing slowly, full sun
<i>Abies procera</i> 'Delbar's Cascade'	Winter 2012	1st year graft	survived 2 summers, healthy, but growing slowly, full sun
<i>Abies procera</i> 'Blaue Hexe'	Fall 2014	1st year graft	just planted full sun
<i>Abies procera</i> 'Blaue Hexe'	Fall 2014	1st year graft	just planted, morning sun
<i>Abies sachalinensis</i> var. <i>mayriana</i>	Spring 2012	2cd year graft	survived 3 summers (1 in container) full sun, beautiful

<i>Abies spectabilis</i>	Spring 2009	1g	survived 6 summers (2 in container), 6 hours sun at most, beautiful foliage, developing leader?
<i>Abies squamata</i> 'Flaky'	Fall 2014		just planted filtered sun
<i>Abies squamata</i> 'Flaky'	Fall 2014		just planted, full sun
DIED			
<i>Abies concolor</i> var. <i>lowiana</i>	fall 2010	1st year graft	died in container during 2cd summer
<i>Abies koreana</i> 'Aurea'	spring 2009	2cd year graft	died in container during first summer
<i>Abies koreana</i> 'Aurea'	spring 2013	1st year graft	died first summer, despite good siting
<i>Abies koreana</i> 'Silbermabers'	spring 2012	1st year graft	died in container during first summer
<i>Abies koreana</i> 'Silbermabers'	spring 2012	1st year graft	died in container during first summer
<i>Abies koreana</i> 'Silbermabers'	spring 2012	1st year graft	died in container during first summer
<i>Abies koreana</i> 'Silbermabers'	spring 2012	1st year graft	died in container during first summer
<i>Abies koreana</i> 'Starker's Dwarf'	spring 2012	1st year graft	died in container during first summer
<i>Abies koreana</i> 'Oberon'	spring 2012	1st year graft	died in container during first summer
<i>Abies koreana</i> 'Tundra'	spring 2012	1st year graft	died in container during first summer
<i>Abies koreana</i> 'Kristal Kugel'	spring 2012	1st year graft	died in container during first summer
<i>Abies koreana</i> 'Kohouts Icebreaker'	spring 2010	1st year graft	died in early June (1 month after shipment)
<i>Abies nebrodensis</i> sp.	spring 2013	1 yr graft	died in container during 1st summer
<i>Abies nordmanniana</i> 'Berlin'	spring 2012	1st year graft	died in container during 1st summer
<i>Abies nordmanniana</i> 'Durham Dwarf'	spring 2012	1st year graft	died in container during 1st summer
<i>Abies numidica</i> sp.	spring 2013	1 yr graft	never looked healthy, died in container during 1st summer
<i>Abies procera</i> 'Blaue Hexe'	spring 2010	1st year graft	died in early June (1 month after shipment)
<i>Abies procera</i> 'Glauca Pendula'	spring 2009	1st year graft	died after its second transplant (survived 4 years and 1 transplant)
<i>Abies sibirica</i> sp.	fall 2010	1st year graft	died in container during 2cd summer
<i>Abies veitchii</i> sp.	fall 2010	1st year graft	died in container during 1st summer
<i>Abies veitchii</i> 'Heddergott'	spring 2010	1st year graft	died in early June (1 month after shipment)
<i>Abies veitchii</i> 'Rumburk'	spring 2010	1st year graft	died in early June (1 month after shipment)

Directorate

National Officers

President	Brian Jacob , 812A John Liner Rd., Sedro-Woolley, WA 98284, PH (503) 754-1307, E-mail: brianecjacob@gmail.com
Vice President and Treasurer	Tom Neff , 4000 Lindsey Rd. NE, Marietta, GA 30067-4224, E-mail: tsneff2003@yahoo.com
Secretary	Kathleen Pottratz , PO Box 292, Scott Mills, OR 97375, PH (503) 985-7561, E-mail: kpotzz@gmail.com
Past President	Larry Nau , 25 Knollwood Dr, Churchville, NY 14428, PH (585) 202-1815, E-mail: lnau@frontiernet.net

Regional Directors

Northeastern Region President	Colby Q. Feller , 5 Peter Cooper Rd. Apt. 7E, New York, NY 10010-6629, PH (347) 661-5478, E-mail: colbyfeller@yahoo.com
Director	Michael Mahoney , 150 Elm St, Hanover, MA 02339, PH (781) 826-2915, E-mail: misuel150@verizon.net
Southeastern Region President	Dr. John M. Ruter , Dept. of Horticulture The University of Georgia, 327 Hoke Smith Building Athens, GA 30602, PH (706) 542-9059, E-mail: ruter@uga.edu
Director	Neil Fusillo , 2265 Old Orchard Dr., Marietta, GA 30068, PH (770) 955-2444, E-mail: conifers@arcdiv.com
Central Region President	Ethan Johnson , The Holden Arboretum, 9500 Sperry Rd., Kirtland, OH 44904, PH (440) 602-3803, E-mail: ejohnson@holdenarb.org
Director	Bill Barger , 3200 Rohrer Rd. Wadsworth, OH PH (330) 336-9695, E-mail: bilb@conifergarden.com
Western Region President	David Olszyk , 6810 44th Ave NE, Olympia, WA 98516-6220, PH (360) 456-2896. E-mail: david.olszyk@gmail.com
Director	Anton Klemens , 5203 Summit St., West Linn, OR 97068-2920, PH (971) 269-9609, E-mail: coniferklemens@gmail.com

Staff & Volunteers

National Office Manager	Steven W. Courtney , American Conifer Society, PO Box 1583, Maple Grove, MN 55311, PH (763) 657-7251 Email: nationaloffice@conifersociety.org
Conifer Quarterly Editor	Dr. Ronald J. Elardo , 5749 Hunter Ct, Adrian, MI 49221-2471, PH (517) 902-7230, E-mail: ConQuartEditor@gmail.com
Website Administrator	Sara Malone , 909 Mustang Ct., Petaluma, CA 94954, PH (707) 486-0444, E-mail: webeditor@conifersociety.org
Collectors Conifer Chairman	Dennis Lee , PO Box 1332, Stow, OH 44224, PH (330) 688-4283, E-mail: coniferden@msn.com
Seed Exchange Chairman	Jim Brackman , Old Highway 410 SW, Olympia, WA 98512, PH (253) 736-5864, E-mail: james.brackman@weyerhaeuser.com
Conifer Registrar	Richard Larson , The Dawes Arboretum, 7770 Jacksontown Rd, Newark, OH 43056, PH (800) 443-2937, E-mail: ralarson@dawesarb.org





Pinus parviflora 'Bergman'
Hidden Lake Gardens
Photo by Don Wild