

JOURNAL

American Rhododendron Society

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American Rhododendron Society

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To encourage interest in and to disseminate knowledge about rhododendrons and azaleas. To provide a medium through which all persons interested in rhododendrons and azaleas may communicate and cooperate with others through education, meetings, publications, scientific studies, research, conservation and other similar activities.

Membership Benefits

- Chapter affiliation with scheduled meetings
- Journal American Rhododendron Society* published quarterly
- Annual convention and regional conferences
- Seed exchange
- Listing of registration of names and descriptions of new rhododendron hybrids published in the Journal

To Join the Society

Membership categories:

(January 1 – December 31)

Student (include proof if over 18)	\$10.00
Regular	\$40.00
Commercial	\$90.00
Sustaining	\$75.00
Sponsoring	\$150.00
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You can join the ARS through your local ARS chapter (check the website www.rhododendron.org for chapter contact info) or by sending a check or money order directly to the Office Administrator of the American Rhododendron Society at the above address. Checks must be in US funds. Make checks payable to the "American Rhododendron Society." Membership includes one year (4 issues) of the *Journal American Rhododendron Society* and affiliation with the chapter of your choice. **To receive the winter issue of the Journal, renewals must be postmarked no later than Dec. 1.**



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ARS Digital Resources

Website: www.rhododendron.org

Office: www.arsoffice.org

JARS online: www.arsoffice.org/protect/login.asp

JARS back issues: <http://scholar.lib.vt.edu/ejournals/JARS> [to Vol. 63, 2009]

Archives: www.lib.virginia.edu/small

ARSSore: www.ARSSore.org

Blog: www.rhododendron.org/blog/default.asp

Plant Name Registration: www.rhododendron.org/plantregistry.htm

Cover Photo



Winter in Kristian Theqvist's Rhododendron Garden.
Photo by Kristian Theqvist

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From the President

Ann Mangels

Baltimore,
Maryland



We had a wonderful Fall ARS conference in Chattanooga last month. There were nearly 100 people in attendance and the ARS members soaked up the southern hospitality given us. The planned activities were informal and allowed time to mingle, talk and get to know each other. It was a very relaxing time!

When asked the question, "What do you like most about the ARS?," many members reply by saying that getting to meet other rhododendron enthusiasts, and making new friendships with people from other parts of Rhodyland, makes the ARS a very special part of their lives. Of course, we all love also to talk about our gardens and hear from others about the similar challenges and highlights we all share. But, our personal interaction, whether at chapter get-togethers or at a more formal convention, provides to many of us the in-depth enjoyment and vigor we feed on.

You'll see a synopsis of the ARS meeting further on in this Journal. As has been a problem with fall BOD meetings, it is sometimes difficult to realize a full quorum in attendance. Before our past meeting, Dave Banks and Hale Booth made sure the hotel could comply with a teleconference hook up, and the board was notified about the system. Wouldn't you know it but this time we had a full complement of attendees? The next test then will be for the Executive Committee to hold its meeting via teleconference prior to the annual meeting in Philadelphia. If need be, we can finish the details later, but it should be a good test for future teleconference use.

At the board meeting we learned that the site for our 2021 spring meeting has not yet been established. Please notify Steve Krebs or one of the eastern directors if your chapter/district would be willing to host the spring 2021 annual meeting. There are many nice plants already started by District 12 for the plant sale, especially Brueckner and Vineland hybrids.

A long-standing policy that Gold and Silver Medals be given only at the Annual (Spring) Meeting was discussed, and it was decided that Silver Medals may now be given at a Fall Conference if that is the more logical venue. Since the Silver Medal is a regional award, some potential recipients may not regularly attend the Annual Meeting when it is geographically distant. The Honors Committee will select all Gold and Silver Medal recipients the same as always. Citations for both medal types will be sent to the calligrapher at the same time, and so the verbiage as to the date of presentation to silver medal awardees will thus need to be specified. The absent member will not be identified at the Annual meeting, but it will be announced that "another Silver Medal will be awarded later to a recipient not here today. Be sure to watch your JARS to find out about the presentation.

It was a good meeting and there was plenty of time for everyone to speak. I believe we all felt we accomplished our mission.

I hope you had a great Holiday Season and that at our next meeting in Philadelphia, we'll talk about our wonderful gardens with both our old and new friends!

From the Editor

Glen Jamieson

Parksville, BC
Canada



As I write this message in late November, the rains have finally come to the West Coast, but too late for those that suffered from the horrendous fires in central and southern California. Although relatively limited in impact to only a few communities, those devastated such as Paradise were largely totally destroyed, with fires exploding so fast and furious, and so fast-moving (the length of a football field per second in Paradise!), that escape for many was impossible. Our condolences go out to all those families impacted by these recent catastrophes!

My personal feeling is that such events are really likely to be the future “normal,” and not just for California but for much of western Canada and the USA. Milder winters with likely heavier rains and a reduced snow pack will mean that spring plant growth is more extensive than in the past, which will lead to more fuel for fires in the late summer and fall as it dries out because of summer drought. Here as gardeners on Vancouver Island, many of us have noticed the much more extensive spring plant growth this past year, and for mature gardens, pruning throughout the summer and fall has become a much more required endeavour. In some places after fires, this may lead in the long term to an ecological shift in the native communities from forest to a more drought and fire tolerant shrub (chaparral) biome, not a good scenario for those whose homes in the future may become surrounded by this biome.

On a more positive note, I have been receiving considerable positive feedback for the recent content of JARS issues. I welcome feedback, as what Don Smart, my associate editor, and I are striving to do is to make JARS as informative and readable as possible, given all the different interests and geographically unique challenges that ARS members have. However, to do this, I need ARS members to continue to submit articles and notes to me for publication, and we thank all those members that are doing so. Without these contributions, it would be impossible to have JARS as relevant and as fun to read as we hope it is for most of you.

The Azaleas of Stagecoach Hill, Trinidad, CA

Rick Edwards
Cedarcreek, MO

Photos by author.



(Modified from *Azalea Blooms*, the Sept. 2018 newsletter of the Azalea chapter)

I grew up in California and my family spent most weekends during the summers camping in the Sierra Nevada Mountains near Placerville, CA. As a kid, my brothers and I spent our time chasing lizards and romping up and down Slab Creek. My mother on the other hand cherished the countless azaleas blooming along the banks of the creek. She is 86 now and doing just fine here in the Missouri Ozarks. But she stills reminisces and talks much about the azaleas. She knew they weren't honeysuckles, but didn't know what they were, so she called them "those wild honeysuckles."

Science has discovered one of the strongest triggers for memories is smell. Our nose helps us remember when our brain just can't. She closes her eyes and goes on about the fragrance, "so pleasant and sweet, but not overpowering, and with a hint of honeysuckle, sent straight from Heaven!" I gotta tell ya, that didn't interest this little kid at the time! But now, as a grown-up, civilized, reasoning adult, listening to her remember out loud, compels me to close my eyes too...and remember. It was such a grand time in my life, but I remember the azaleas too. Even as a kid, there were those rare times when we sat on a rock to warm up (those snow melt creeks were very cold even in August!). I close my eyes and I can smell those heavenly scents. The fragrance was so captivating that even us boys would take time to agree with mom as she "carried on" about those white and yellow flowers down at the creek.

I live in outhwest Missouri not far as the crow flies from Branson. I have several azaleas growing on the east side of the house and lots in pots under the big red oak sharing company with the dogwood and hostas. Azaleas are one of my favorite



Rhododendron occidentale.



Entrance to State Park.

plants of all. But I enjoy those with a fragrance most. So doing a little research, I found that *R. austrinum* is truly a scent from heaven. I have sought out those fragrant hybrids and tried to get some of the species in my collection. Taking advantage of the internet, I found Ronnie Palmer (Azalea Hills Nursery, White Hall, AR) and Earl Sommerville. Both gentlemen have been very kind and gracious to me. I have purchased several from Ronnie and Earl has shared his wisdom, experience and encouragement in my pursuits on the "Azalea Trail." Earl encouraged me to contact Mitch Mortvedt (Woodland Wonders Nursery, Gilbert, AR) to help with identification of a Missouri native, *R. prinophyllum*. He also has been very kind, gracious, generous and just a great guy! I have also added some of his achievements to my little collection.

All of this leads up to Stagecoach Hill. I found a website about Stagecoach Hill, <https://www.singtree.>



Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*).

com/digest/the-western-azaleas-stagecoach-hill-ca, and the multi-colored azaleas there, and that was it. All I had ever seen were white and yellow, so I had to see this western azalea for myself. I'm from Missouri now, and it ain't called the "show me state" for nothin'! So, it took two years of planning and coordinating with the rest of my family for us to go to the West Coast. There is only one species of azalea on the west coast of America—*Rhododendron occidentale*, the western azalea. I was dazzled by the pinks, rose, and almost red flowers that I saw. I knew of a simple smooth flower with entire margins on the lobes of the corolla. With just a tad bit more research and I was seeing yellows! There were doubles, ruffles, and little stars. Some look fairly smooth and flat, but others looked like crepe paper.

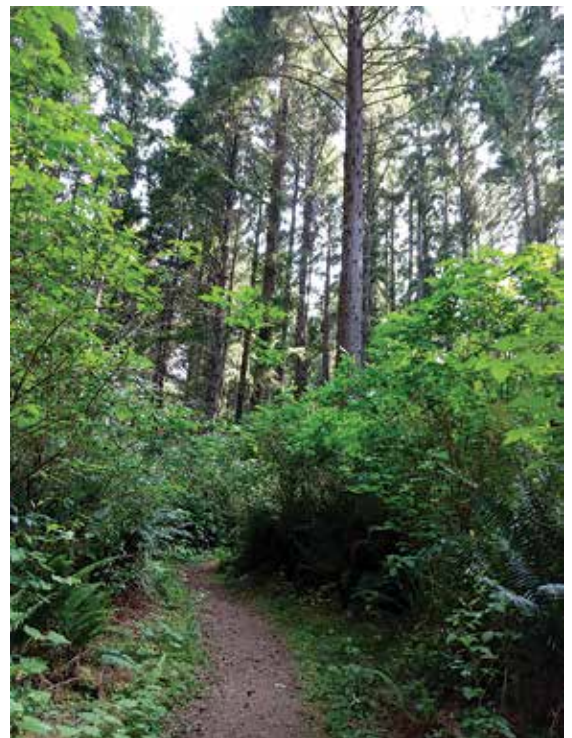
Now when you consider all the incredible variations, hybrids, scents and non-scents, found in the eastern and particularly southeast states, what's the big deal? Well, it's not too hard to appreciate and even expect to see quite a display when you put three or even five compatible species in one region. When you play the shell game of spin the bottle, "shazzam," you can't help but have quite a show. But that isn't the case out west. There are at least 50 different variations in form, structure, colors and patterns in just the flowers of *R. occidentale*, all in one single species, yet presenting a range and number of specific identifiable variants of flowers that rivals the entirety of discovered flower variations in the entire eastern United States. In addition, there is some very distinct variation in pigmentation in the shoots and mature leaves, in addition to extreme differences in fall foliage colors.

Stagecoach Hill Nature Preserve is home to the greatest number of distinct and different variations in flowers than any other known location. It's a regular "honey hole," the jack pot, a truly rainbow selection and presentation of *R. occidentale* genetics! So let's take a look.

It was a long drive up from Ft. Bragg to Stagecoach Hill—about seven hours, but I confess, we did take a few hikes through the redwoods, and of course a drive through one redwood in particular, along the way!

We arrived at Stagecoach Hill late in the afternoon. It covers more than 40 acres (16 ha) on a west facing hillside above Big Lagoon and the Pacific Ocean. I again confess, I wasn't thinking about pictures or a presentation. I was worse than any kid turned loose in Willy Wonka's "Chocolate Factory." It did not disappoint! You come to the "T" at Kane Road, and there is the sign with an arrow pointing to the left. You follow the dirt road for about a quarter mile (400 m) and then it just opens up. You are driving right through the middle of the azaleas. They are on both sides of the road—not some skimpy little bushes but a whole lot of big ones. Some of these suckers are 10-15 feet (3-4.5 m) tall and up to 25 feet (7.6 m) across. It is a dazzling display of pink and gold shades. On a single azalea, there might be more than a thousand flowers open with darker buds spread throughout, like so much pepper on an over-easy egg! WOW! It was just so dazzling and over-whelming, that I forgot to stop the van and take some pictures —honest!

I will settle down now and get really focused, and show photos of Stagecoach Hill. The trail starts out in a grove of tall Douglas-firs. Many are over 100 ft (31 m). We don't see trees that tall in Missouri. Along the trail there are mosses, ferns, fungi, Pacific trilliums (*Trillium ovatum*) and huge banana slugs. It's a short five minute walk and then you abruptly break into the open azalea savannah. You are looking down the hill with the ocean beyond in clear view. Coming from the shadows of the firs, it's bright and beautiful. The trail continues to the left, but the savannah and azaleas stretch down the hill out of sight and both to the left and right. The trail is a loop. Although it does meander a wee bit, it keeps veering back to the left.



Trail through azaleas.

As you follow the trail, there are azaleas crawling low on the ground to



Pacific trilliums (*Trillium ovatum*).



Banana slug (*Ariolimax*).

over 15 feet (4.5 m) tall. There are at least half a dozen variants along the trail. There are forget-me-nots, foxgloves, iris and columbines. There are at least three different ferns and some of those ferns are six feet (1.8 m) tall, again not what we are used to seeing in Missouri. We were also dazzled by bright orange Allen’s hummingbird (*Selasphorus sasin*) as big as some of the sparrows we have back home, diving and screeching as two males fought for territory. There is something for everyone to see and enjoy. The whole trail can be walked at a leisurely pace in 30 minutes, and there is a bench about $\frac{3}{4}$ way through the savannah to rest or just sit and take it all in.

That is the trail. However, if you want to truly see the incredible diversity and really experience Stagecoach Hill azaleas, you have to plunge into the savannah. It is not a meadow full of azaleas. The grasses, brambles, other shrubs and vines are from waist high to well above LeBron James’ head—and so are the azaleas. You have to “wade” from one azalea to another. Although they look tame and domesticated from the trail, they are not! What appeared to be a five foot (1.5 m) shrub turns out to be ten ft (three m) tall and 20 feet (six m) across. Each azalea is like an island in this sea of greenery, but that is the



Azaleas on Stagecoach Hill.



Azaleas on Stagecoach Hill.



R. occidentale.



R. occidentale.

amazing thing. At a distance they all look kind of pink and blurry but when you get up close, they each present their own special look.

I didn't have sense enough to follow the trail. I plunged headlong into my "dream come true," and I found myself flat on the ground. I wrestled my way back up and just looked. I thought "no one's going to believe this." WOW! I present some of the variations I saw in an area of about half an acre (0.2 ha). I'm not kidding. The azaleas go on around the hill and down the hill all the way to the ocean, well over 40 acres (16.2 ha). Take time to see the buds, flowers and foliage. This is all *R. occidentale*—one single species, but what a set of genes. Take that Calvin Klein!

All things must come to an end, and it was getting very close to dark. But I couldn't pass up another picture or three, and I'm down on my knees doing my thing. Fifteen minutes later, as we passed the last azalea, my oldest daughter hollers, "Look at that bear!" Sure enough, there was about a 300 pound (136 kg) black bear. No "king of the grizzlies" but it was a full grown adult black bear just the same! Next time, I'm gonna wear a bell so the bruins will know there's a ding-a-ling in the azalea patch and for sure leave me alone!

It's a long way out there, 2500 miles (4180 km) one way for me, but it was worth it! I plan on returning, and intend to spend an entire day just photographing. The peak bloom is the first two weeks in June. They don't freeze due to the nearby ocean, and summer temps rarely hit 80° F (27° C) and not that hot most years. Individuals start blooming in February and stragglers go into September— just love those genetics! *R. occidentale* ranges from southern Oregon to San Diego and their habitats vary from very hot dry summers with temps in the 90's (32° C) down south, to winters of -30° F (-34° C) and five to ten feet (1.5-3 m) of snow at elevation over 6000 feet (1828 m) in the Sierra Nevadas, and it's all the same species! Here are some links to some of the many cataloged and described variations of bloom. Prepare to be amazed!



R. occidentale.



R. occidentale.



R. occidentale.

http://www.smith-mossman.net/v/Mossman_Slide_Show/
<http://www.smith-mossman.net/v/BMS-SS-1/>

<http://www.smith-mossman.net/v/BMS-SS-2/>
http://www.smith-mossman.net/v/cavender_registrations/
<http://www.smith-mossman.net/v/hrhelm/>
http://www.smith-mossman.net/v/davidian/?g2_page=1

Rick Edwards is a member of the Azalea Chapter.



R. occidentale.



The Chandelier drive-through redwood tree near Leggett, CA.



R. occidentale.



R. occidentale.

Establishment of a New Rhododendron Species Garden – the Vancouver Island, Canada,

Glen Jamieson,
John Deniseger,
Marilyn Dawson
and Tony Ansdell
Vancouver Island,
BC, Canada



Photos by Glen Jamieson
except as noted.

Authors names shown left to right.

The first Canadian rhododendron species garden has just been established on Vancouver Island, BC, and we thought it would be useful to others for us to document our experiences so that others possibly considering the establishment of their own species rhododendron garden might benefit. Some of our challenges were obviously site-specific and parochial, but the unexpected seems to almost always occur, so how we overcame challenges may still be of interest to others.

Background

As has been pointed out in a number of previous articles (Jamieson 2011, Jamieson and Yarmoshuk 2018), Vancouver Island (VI) is somewhat unique in the “rhododendron world” in that there are five ARS chapters with a total of about 375 members located in a relatively straight line 230 km (145 miles) long, i.e., with an ARS chapter about every 45 km (28 miles) miles, making this perhaps one of the densest concentrations of dedicated rhododendron growers in the world. Members of the chapters, from south to north being Victoria, Cowichan Valley, Nanaimo, Mount Arrowsmith and North Island, interact extensively and collaborate in the sequential holding of plant sales, sharing monthly speakers and assisting in plant propagation, just to name a few activities.

There are many rhododendron gardens on the island (Efford *et al.* 2015, Efford 2018), and gardening is a significant recreational activity for many. With this level of interest in gardening and in rhododendrons in particular, rhododendron species have naturally garnered more attention amongst more serious gardeners. However, while there are many rhododendron species at the University of Victoria’s Finnerty Gardens in particular, that garden is not focused around rhododendrons *per se* and is primarily a show garden rather than an educational garden. Other noteworthy nearby rhododendron gardens are both on the mainland—a relatively expensive two-hour ferry ride from the island, and much longer if you don’t live near a ferry terminal. These are VanDusen Botanical Garden and the University of British Columbia’s Botanical Garden in Vancouver, BC, again neither focused on education about rhododendrons but which are both more extensive in their rhododendron collections than is Finnerty Garden; and the Rhododendron Species Botanical Garden in Federal Way, Washington, 270 km (170 miles) south of Vancouver, a world-class species rhododendron collection that is unequalled anywhere. The latter is a great resource, but because it takes about six plus hours and a costly ferry crossing to reach, relatively few islanders have ever visited it, making it functionally unavailable to most island residents.

To address this issue, two keen island ARS members, Harry Wright and Jim Greig, first discussed the idea of establishing a rhododendron species garden on Vancouver Island in 1998. Milner Gardens & Woodland (MGW) in Qualicum Beach was centrally located among VI’s ARS chapters and had just been donated to Vancouver Island University (VIU). It was a potential location, but because VIU’s relationship with MGW was still in its infancy, establishment of such a species garden there then was both premature and not practical. The idea was revived again in 2008, and Geoff Ball, the new executive director of the garden, was supportive, but before the idea could get off the ground, the 2008 decline in the world’s economy occurred. This again shelved the concept, as a significant amount of money would be needed to make the species garden a reality. Timing is often everything!

In 2012, Nanaimo hosted the ARS Fall Convention, with tours for participants to MGW, and this again revived the idea of a species garden there among island ARS members. The initial challenge was for ARS members first to raise \$20,000 in seed funds, which VIU would then match. ARS District 1 (BC) was suggested to champion this effort, but it soon evolved into solely a VI chapter initiative within District 1, with representatives from the five VI ARS chapters in early 2014 agreeing collectively to raise these funds. This was done by the summer of 2014, with each of the five VI chapters contributing as their budgets and commitments permitted. The next step was the establishment of a Memorandum of Understanding that



Fig. 1. Milner Garden Woodland (MGW) rhododendrons in the spring. Photo by Gus Thompson.

was legally sound and that laid out the roles and responsibilities for all parties. While time consuming, it aligned the various goals and objectives of each group and laid the foundation for a partnership between VIU, MGW and the five VI chapters for all future activities. Out of this, the different organisational committees and subcommittees were created. A Species Garden Advisory Group with representation from all VI chapters, MGW and VIU was created to provide guidance, oversight and technical advice on an ongoing basis.

The Significance of a Rhododendron Species Garden

With many thousands of rhododendron cultivars available, there is little public awareness of the diversity, geographic distribution and beauty of species within the genus *Rhododendron*. Existing gardens

showcase many beautiful cultivars, which help promote rhododendrons as desirable landscape plants, and so why is having a garden with only rhododendron species relevant to the public and ARS gardeners? Members of the island ARS chapters believe it is desirable to:

- 1) Showcase the diversity in species of rhododendrons, while educating the public on their geographic origins and to inspire gardeners in the propagation of both species and new cultivars;
- 2) Provide a source of species for propagation, as many serious gardeners desire rhododendron species that are not sold in commercial nurseries and are thus difficult to find;
- 3) Assist in species conservation through the culturing of some species that are either endangered or threatened in the wild by providing an additional collection of these; and
- 4) Encourage greater collaboration among island ARS gardeners by providing a common activity that they have all bought into.

Significance of Milner Gardens to the VI Rhododendron Community

As summarised by Efford (2018), rhododendron nurseries began on Vancouver Island in the late 1800s, but it wasn't until Ted and Mary Greig began their nursery in Royston in 1934 that island rhododendron propagation really took off. Ray and Rina Milner acquired their 28 ha (70 acre) seaside property in Qualicum Beach, 60 km (38 miles) south of Royston, in 1937 and they began the earliest development of the garden. Unfortunately Rina passed away in 1952, but more extensive work in the garden portion of the estate was started in 1954 after Ray's marriage to his second wife, Veronica.

By 1954, they had completed their design of a 4 ha (10 acre) garden and had begun acquiring plants from the Greigs. By this time, Mary Greig had developed into a continental expert on the genus and had become one of the early North American hybridizers (she received with her husband an ARS Gold Medal later in 1966). She was particularly interested in adding species to her collection, and obtained these from seed exchanges and plants sent



Fig. 2. The MGW "cottage," an English-style rambling structure designed to include features of a Ceylonese tea plantation house.

to her from many locations. The Milners became close friends of Mary, and obtained many of their rhododendrons from the Greigs until they retired and closed their nursery in 1965. The Milner Garden thus contains an extensive mix both of rhododendron species and hybrids, with many by the late 1990s upwards of 40 years old and up to six m (20 feet) high (Fig. 1). These, along with an interesting mix of exotic tree species, were surrounded by native coastal forest, mostly Douglas-fir (*Pseudotsuga menziesii*) and Red cedar (*Thuja plicata*). When the Milner property was given to VIU in 1996, the property had matured into an extensive, mature rhododendron woodland that surrounded an English-style rambling “cottage” designed to include features of a Ceylonese tea plantation house (Fig. 2). Its seclusion and character were such that through the 1980s on separate occasions, both Prince Charles and Princess Diana, related to Veronica Milner, and later Queen Elizabeth II and Prince Philip spent time there when they visited Vancouver Island! The property, then, had many unique features that made it particularly desirable to rhododendron gardeners—a central location on the island, an interesting history, a large existing rhododendron collection surrounded by a natural forest, great ocean views, mild microclimate, and most importantly, with it being transferred to VIU, an owner that was maintaining the site through its horticultural and volunteer programs, that wanted to expand its educational potential, and that was keen to work with local community organizations to achieve these objectives.



Fig. 3. The removal of selected trees. Photo by John Deniseger.

The VIU Milner Garden and Woodland

The 28 ha (70 acre) estate at Qualicum Beach was Horatio “Ray” Milner’s retreat from his busy business life as a lawyer in Alberta. Veronica Milner was a British aristocrat, being the widow of Desmond Fitzgerald, 28th Knight of Glin, County Limerick, Ireland. Her mother was a cousin of British Prime Minister Winston Churchill, and both Churchill and Veronica were descended from the First Duke of Marlborough, and thus were related to Diana, Princess of Wales.

Veronica was a keen horticulturist, being on the Founding Committee of the VanDusen Botanical Gardens in Vancouver, a member of the Royal Horticultural Society and a Fellow of the Garden Conservancy. Veronica acquired many of the trees and shrubs at their estate when she accompanied her husband on his many business trips abroad. The garden was thus dedicated in 1996 by VIU as “The Milner Gardens” in recognition of Ray and Veronica Milner and VIU’s goal was to maintain the garden in perpetuity for both education and the community’s benefit, with the support of Veronica, who died shortly after in 1998.

Milner Gardens & Woodland is also supported by the Milner Gardens and Woodland Society, which raises funds and provides VIU with advice on the operation of MGW. MGW is also supported by hundreds of local community volunteers who assist in the maintenance and operation of the garden, from education, interpretation and fund raising to garden and facilities construction to plant propagation for plant sales.

Establishment of the Rhododendron Species Garden

The Milner Gardens & Woodland was thus an ideal location for an island rhododendron species garden, so what were the steps that have made this a reality:

1) Fund Raising and Gifts in Kind

Obtaining financial support followed multiple pathways involving the VI ARS chapters, VIU, MGW, individual donors, and corporate donors. To date, donations from the five chapters total over 40k. Funds have also been contributed directly from VIU. A grant for plant purchase was awarded to the island chapters collectively by the ARS. Private donations, including naming rights have brought in more than \$50,000. The estimated final cost of the garden, excluding volunteer labour contributed by ARS members, community volunteers, VIU staff and students, is projected to be between 120-150k.

Gifts in-kind have also been made by the island ARS chapters, particularly by the Nanaimo and Mount Arrowsmith chapters given their closer proximity to the garden. Thousands of volunteer hours, as well as administrative coordination and financial coordination, have been contributed to date.

2) Garden site selection and layout design

A central, level 0.25 ha (0.63 acre) forested area was selected for the species garden, and the previous executive director of Milner Gardens, Jim Cadwaladr, a retired Landscape Architect, volunteered to develop the landscape design *pro bono*. Much of the land was cleared of most of its forest (Fig. 3), to create room for the rhododendrons and to let in sunlight for their growth and survival, while limiting competition from trees such as western red cedar. Tree removal required approval from the town for heritage tree conservation, and open communication and transparency also minimized negative public feedback. The challenge was to identify which trees needed to be left as some were needed for shade and to allow the site to blend in with the rest of the garden. All trees were inventoried, and the decision was made to remove cedars, unhealthy trees, and alders. A case was made for each tree that was to be saved, which included older growth, trees on a nurse log, and some dead wildlife trees for birds such as woodpeckers. The end result was that about 90% of the trees were removed, and although there was concern that some of those left might later fall because of their sudden exposure in the clearing to strong winter winds, none actually did. Because of this possibility though, no rhododendron planting occurred until after the first winter following tree removal, which also allowed for further site preparation. Using the initial garden design, a planting layout evolved featuring six geographic regions (Fig. 4): North America; Northeast Asia, Yunnan, Himalayas, Sichuan, and Europe (Southern Europe and the Middle East). Two additional planting categories were developed: species at risk in the wild (vulnerable species) and “Milner Roots”, i.e., species used to create the heritage hybrids in the MGW, with the species in these categories located in the six identified garden sections.

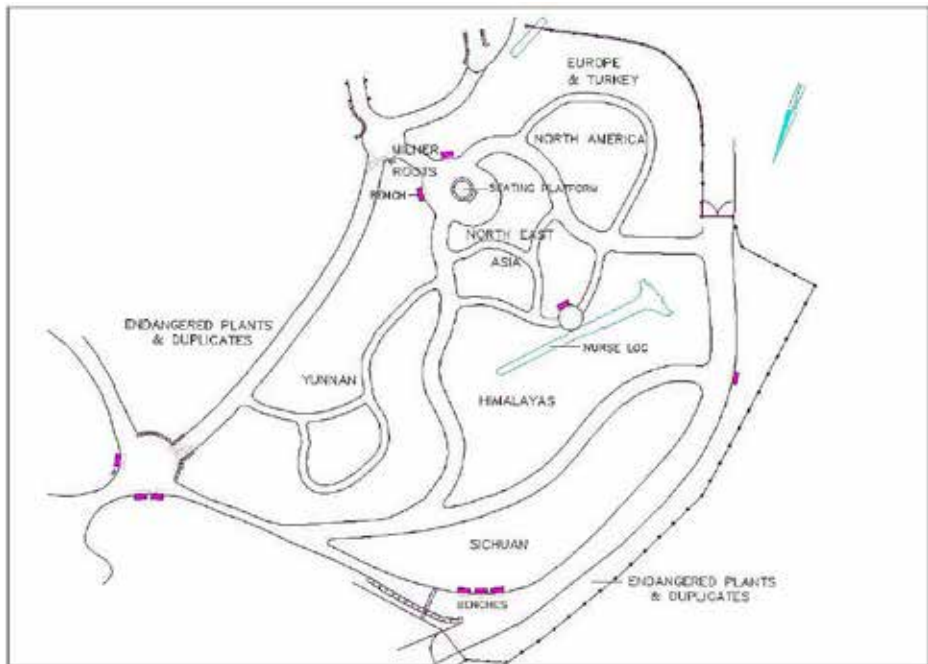


Fig. 4. A map of the Greig Rhododendrom Species Garden showing its “geographical” zones.

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3) Site Preparation

After removal by hand of much of the debris from tree falling and stump removal, the site was levelled, which opened up another issue. Coastal sites in western North America have been inhabited by native First Nation people since the last ice age, with settlement sites typically indicated by extensive clam shell deposits, termed middens. Stump removal turned up clam shells, which Provincial law then required that an archaeological survey be conducted to establish the site’s significance to the local First Nations. This delayed on-site physical activity for about six months. VIU covered all of the costs and expanded the survey to the entire MGW property so that the issue could be dealt with in detail. To our relief, no significant artifacts were unearthed. The survey had the added benefit of also engaging the local First Nation and involving them in the overall garden. However, it did mean that in some areas of the new garden, no holes deeper than about 35 cm (14 inches) could be dug in the species garden unless a trained monitor was present. Partially to get around this issue, while also improving soil structure and ensuring adequate drainage, the ground level was raised substantially. Fortunately, rhododendrons have shallow root systems and so no deeper holes were required to plant them.

This required the importing of about of 460 m³ (600 yd; 40 dump truck loads) of a special soil mix. Working with the RSBG, we used a mixture of 75% coarse sand and 25% fish compost (a local product, consisting of decomposed cultured salmon parts mixed with wood chips and aged) that was similar to what the RSBG used both in terms of soil structure and nutrient analysis. The mixture was spread over the entire site to a depth of about 25 cm (ten inches).

4) Irrigation

An automatic watering system was installed next, and quotes were obtained from local companies. They were all deemed too costly though, so the work was done over one month in the spring by VIU’s horticulture staff and students and Milner volunteers (Fig. 5).



Fig. 5. Installing the irrigation system. Photo by Geoff Ball.

5) Mulching

To provide more organic material for plant growth, to help retain soil moisture, prevent weeds and to keep the roots of the planted rhododendrons cool, a 15-20 cm (6-8 inch) layer of mulch was spread over all the planting beds, while keeping the mulch back from the trunks of the planted rhododendrons (Fig. 6). The mulch was provided free by a local tree service company from shredded trimmings that accrued during community tree removals. Being in coastal BC, the mix of trees in the loads of delivered mulch was unknown, but it largely consisted of Douglas-fir, red alder (*Alnus rubra*), red cedar and Bigleaf maple (*Acer macrophyllum*). About 150 m³ (200 yds) of mulch was delivered, which was then

spread by hand by volunteer ARS chapter members over a period of three months in the fall, 2017, and the spring, 2018.

6) Rhododendron Species Selection and Planting

A subcommittee was established to assess what species would be most appropriate for the garden, and after much discussion, the selection criteria determined were sequentially:

- 1) Species hardy enough to survive in coastal Vancouver Island,
- 2) Species representing the six geographical areas comprising the garden,
- 3) Species endangered or threatened, and
- 4) Species that were in the genealogy of the hybrid rhododendrons that were already well-established in Milner Gardens.

Given that we didn't have the space to include every potential species, the list was then pared down to include only the top rated species that would thrive in our area. A list of about 160 desirable species was created, and plants with documented provenance as to their purity were then sourced. Virtually all plants were obtained from the RSF, either being purchased outright or donated by ARS members, with the latter plants, still with their RSF labelling, having been obtained over the previous decade from the RSF and then grown out in private BC gardens. The species garden as presently designed has space for about 250 plants of differing sizes, with mostly just one plant of each species being planned. However, for the endangered or threatened species, at least three plants of each species are planned, to maximise their survival in the collection. Seventeen of the 29 identified acceptable vulnerable species will be in the garden.

Listings of all the rhododendron species planned for, or already planted, are included in this JARS' online issue in tables 1 - 8 at the end of the article. They were too extensive to be listed in this printed version.

Planting of the first 100 plants, including 60 relatively small plants obtained from the RSF, occurred in the spring of 2017, with another 20 of the much larger plants obtained from private gardens planted in the fall of 2017 (Fig. 7). How the latter were dug up and planted is described by Jamieson and Lightburn (2018). The problem with plantings in the spring is two fold. Firstly, young plants may not have been exposed to much direct sunlight in the nursery, and so their leaves may burn if suddenly planted in an open habitat. To counter this, awnings of weed cloth were built around each plant to give them partial shade (Fig. 8). Secondly, southern coastal BC typically has an extensive summer drought, and in 2017, this extended



Fig. 6. ARS volunteers spreading mulch from tree trimming. Photo by John Deniseger.



Fig. 7. The planting of some of the larger species rhododendrons.

from about mid-June to mid-September, with only a few millimeters (1/4 inch) of rain during this period. Since the performance of the just-installed sprinkler system was unknown, ARS chapter members visited the garden three times per week to ensure that all plants were being sufficiently watered and protected from excessive sun exposure. Only two of the 100 plants died because of excessive exposure to sun, heat or dry conditions (both were very small plants). Considering the extreme 2017 summer drought we had, we were happy with the result.

In the spring 2018, an additional ten large rhododendron species obtained from a private garden were planted, with another ten small plants obtained from the RSBG heeled in for later planting in the fall. In addition, various

companion plants and exotic tree species (see below) were added to the remaining endemic trees (Fig. 9) to provide more shade and a more realistic natural habitat for each geographical zone.

7) Companion Plants

The companion planting to date has been focused on the acquisition and installation of specimen trees. Eighteen large trees (Chinese mahogany (*Toona sinensis*), Persian ironwood (*Parrotia persica*), orangebark stewartia (*Stewartia monodelpha*), Empress tree (*Paulownia tomentosa*), *Magnolia* spp., paperbark maple (*Acer griseum*), Himalayan birch (*Betula utilis* var. *jacquemontii*) and the Chinese Parasol (*Meliiodendron xylocarpum*), to name a few) were planted in the spring of 2018, which were selected for their complimentary beauty and sized as large as possible to provide immediate shade relieve and to enhance the feeling of the entire space. The garden is also gradually being planted with a large array of perennials, ferns and small shrubs to add to the aesthetics of the garden and to assist with weed control. This will begin in earnest in the fall of 2018, when the rains commence again.

8) Hard Structures

To link the species garden with the rest of the garden, an entrance portal was created through an existing hedge. This including an impressive cedar gate which was designed, built and installed by volunteers (Fig. 10). This was accompanied by a stone wall and a fieldstone path that led into the garden. On Vancouver Island, we have a large native black-tailed deer (*Odocoileus hemionus*) population, which can pose a significant challenge to gardens. Over the 2017/2018 winter, a 2.5 m (eight foot) cedar lattice fence (Fig. 11) was constructed along the back of the species garden by both VIU staff and ARS chapter volunteers to keep them out.

A small speaker's platform was constructed near the garden entrance to be used by guides to address tour groups and classes. Over the coming year, benches will be added throughout the garden to provide rest places for guests. These benches will also be available for "person dedications," and their funding, which will be greater than their cost, will assist with the construction and maintenance of the garden.



Fig. 8. Shading the newly planted, smaller rhododendrons from the hot summer sun. Photo by John Deniseger.



Fig. 9. A “nurse log,” with native BC trees growing on its decomposing trunk.

9) Interpretation

A Milner staff member, Pam Murray, also a member of the National Association of Park Interpreters, met with ARS chapter representatives to develop appropriate interpretation signage for the garden. We have an opportunity to inspire and educate visitors to the garden about the tremendous diversity of the genus *Rhododendron*. The challenge was to first identify our audience (not ARS members), and then to achieve effective education, while making the content both interesting and informative. An example of some signage used at the dedication ceremony described below is shown in (Fig. 12).

10) Dedication ceremony

On April 22, 2018, about 55 ARS members (Fig. 13) and their families from all five island chapters, Friends of Milner Gardens, and First Nation, university and community leaders gathered together on a beautiful sunny day for the official dedication and opening of the Greig Rhododendron Species Garden in Milner Gardens and Woodland. Many members of the Greig family were present, and it was a fine culmination for all the planning and hard work that was needed to create this beautiful new garden (Fig. 14). It was a true community effort!

Lessons learned - Keys to success

The opportunity for ARS society members to participate hands-on in the development of the Greig Rhododendron Species Garden allowed members to take ownership of the initiative, and maintain their interest. This was critical to its success, as the project is extending over a number of years.

The initiative needed a project manager, and the fact that Geoff Ball, Milner’s Executive Director, stepped up kept the project on track and brought in essential resources at critical times.

It was important to have many champions in the VI ARS societies so that the workload, planning, communication, and fundraising activities were shared. This ensured that commitments were met, and enthusiasm was maintained.

Feedback to the societies occurred regularly: orally at meetings, through presentations and via society newsletters. Good communication was deemed essential to keep the positive momentum moving forward and by celebrating progress as it happened.

The garden design and layout was not created in isolation. It was done with the rest of the garden and other new initiatives



Fig. 10. The entrance gate to the Greig Rhododendron Species Garden.



Fig. 11. The garden fence constructed by ARS members to provide privacy and to keep deer out.

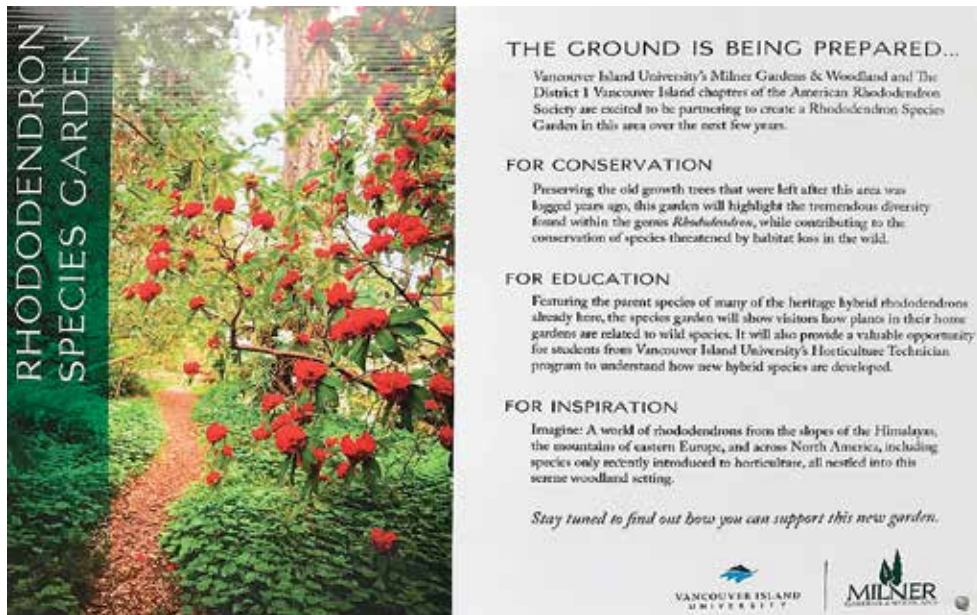


Fig. 12. Some of the interpretative material to explain the garden's importance.

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in mind, which created a new walking circulation pattern in the garden. It was integrated into a larger plan for MGW, which is why VIU and Milner agreed to the creation of a species garden.

The formation of an advisory committee with representation from all the VI ARS chapters led to priority determination, and the participation of members on the subcommittees according to their interests kept the project going.

Acknowledgements:

We would like to thanks Geoff Ball for his constructive comments and support of this project.



Fig. 13. ARS members from the five Vancouver Island chapters at the garden's dedication ceremony on April 22, 2018.

Glen Jamieson, Marilyn Dawson and Tony Ansdell are members of the Mount Arrowsmith chapter, and John Deniseger is a member of the Nanaimo chapter. They are only four of the many ARS volunteers that are participating in this project.



Fig. 14. The newly established Greig Rhododendron Species Garden in July, 2018.

Table 1: The 15 selected species in the North America garden section.

Species	No. of plants wanted	No. of plants in the garden June 2018	Status
<i>R. alabamense</i>	1	1	
<i>R. arborescens</i>	1		
<i>R. atlanticum</i>	1	1	
<i>R. calendulaceum</i>	1	2	
<i>R. canadense</i>	1	1	
<i>R. canescens</i>	1	1	
<i>R. catawbiense</i>	1	1	
<i>R. cumberlandense</i>	1	1	
<i>R. groenlandicum</i>	1		
<i>R. macrophyllum</i>	1	1	
<i>R. maximum</i>	1	1	
<i>R. minus</i> var. <i>minus</i>	1		
<i>R. occidentale</i>	1	3	
<i>R. periclymenoides</i>	1	1	
<i>R. prinophyllum</i>	1	1	

Table 2: The 20 selected species in the Northeast Asia garden section.

Species	No. of plants wanted	No. of plants in the garden June 2018	Status
<i>R. albrechtii</i>	1		
<i>R. dauricum</i>	1	1	
<i>R. degronianum</i> subsp. <i>yakushmanun</i>	1	1	
<i>R. degronianum</i> var. <i>heptamerum</i>	1	1	
<i>R. fansipanensis</i>	1	1	

Table 2. (Continued)

<i>R. makinoi</i>	3		vulnerable
<i>R. benhallii</i> (<i>Menziesia ciliicalyx</i>)	1		
<i>R. multiflora</i> (<i>Menziesia multiflora</i>)	1		
<i>R. molle</i> subsp. <i>japonicum</i>	1	1	
<i>R. morii</i>	1	1	
<i>R. mucronulatum</i>	1	1	
<i>R. nipponicum</i>	1	1	
<i>R. pachysanthum</i>	3	3	vulnerable
<i>R. pentaphyllum</i>	1	1	
<i>R. pseudochrysanthum</i>	3	3	vulnerable
<i>R. quinquefolium</i>	1		
<i>R. reticulatum</i>	1		
<i>R. sanctum</i>	1	2	
<i>R. schlippenbachii</i>	1	1	
<i>R. tashiro</i>	1		

Table 3: The 52 selected species in the Yunnan garden section.

Species	No. of plants wanted	No of plants in the garden June 2018	Status
<i>R. aberconwayi</i>	3		Vulnerable
<i>R. adenogynum</i>	1		
<i>R. anthosphaerum</i>	1		
<i>R. augustinii</i> subsp. <i>augustinii</i>	1	1	
<i>R. augustinii</i> subsp. <i>rubrum</i>	1		
<i>R. bureavii</i>	1	2	
<i>R. calastrotum</i> subsp. <i>calastrotum</i>	1	1	
<i>R. calastrotum</i> subsp. <i>keleticum</i>	1	1	
<i>R. campylogynum</i>	1		
<i>R. chamaethomsonii</i> var. <i>chamaethomsonii</i>	3		Vulnerable
<i>R. clementinae</i>	1		
<i>R. coelicum</i>	3	3	Vulnerable
<i>R. crinigerum</i> var. <i>crinigerum</i>	1	1	
<i>R. cyanocarpum</i>	3	1	Vulnerable
<i>R. davidii</i>	1	1	
<i>R. davidsonianum</i> 'Ruth Lyons'	1	1	
<i>R. decorum</i>	1	1	
<i>R. facetum</i>	1	2	Tender
<i>R. fastigiatum</i>	1		
<i>R. glischroides</i>	1	1	
<i>R. griersonianum</i>	1		Tender, endangered
<i>R. habrotricum</i>	3	1	Vulnerable

Table 3. (Continued)

<i>R. haematodes</i> subsp. <i>haematodes</i>	1		
<i>R. hanceanum</i> Nanum Group	3	3	Vulnerable
<i>R. hippophaeoides</i>	1		
<i>R. impeditum</i>	1		
<i>R. intricatum</i>	1		
<i>R. irroratum</i> subsp. <i>irroratum</i>	1	2	
<i>R. lepidostylum</i>	1	1	
<i>R. lutescens</i>	1	1	
<i>R. neriiflorum</i> subsp. <i>neriiflorum</i>	1	1	
<i>R. oreotrephes</i>	1	1	
<i>R. pocophorum</i>	1	1	
<i>R. praestans</i>	1		
<i>R. pronum</i>	3	1	Vulnerable
<i>R. proteoides</i>	1		
<i>R. qiaojaense</i>	3	2	Vulnerable
<i>R. racemosum</i>	1	1	

Table 4: The 28 selected species in the Himalayan garden section.

Species	No. of plants wanted	No of plants in the garden June 2018	Status
<i>R. arboreum</i> subsp. <i>cinnamomeum</i>	1	2	Tender
<i>R. argipelum</i>	1	1	
<i>R. baileyi</i>	1		
<i>R. barbatum</i>	3	3	Vulnerable
<i>R. basilicum</i>	1	1	
<i>R. callimorphum</i> var. <i>callimorphum</i>	3	3	Vulnerable
<i>R. campanulatum</i> subsp. <i>aeruginosum</i>	1		
<i>R. campanulatum</i> subsp. <i>campanulatum</i>	1		
<i>R. campylocarpum</i> subsp. <i>campylocarpum</i>	1		
<i>R. cerasinum</i>	1	1	
<i>R. ciliatum</i>	1	1	Tender
<i>R. cinnabarinum</i> subsp. <i>cinnabarinum</i>	1	1	
<i>R. dichroanthum</i> subsp. <i>scyphocalyx</i>	1	1	
<i>R. falconeri</i> subsp. <i>falconeri</i>	1	2	
<i>R. flinckii</i>	1	1	
<i>R. fragariiflorum</i>	1		
<i>R. fulvum</i>	1	1	
<i>R. griffithianum</i>	1		tender
<i>R. hodgsonii</i>	1	2	
<i>R. kesangiae</i> var. <i>kesangiae</i>	3	5	vulnerable
<i>R. lepidotum</i>	1		
<i>R. macabeanum</i>	1	1	
<i>R. maddenii</i> subsp. <i>crassum</i>	1	1	tender

Table 4. (Continued)

<i>R. maddenii</i> subsp. <i>maddenii</i>	1	1	tender
<i>R. niveum</i>	3	1	vulnerable
<i>R. setosum</i>	3		
<i>R. tephropelum</i>	1	1	
<i>R. tsariense</i>	1		

Table 5: The 32 selected species in the Sichuan (includes Tibet) garden section.

Species	No. of plants wanted	No of plants in the garden June 2018	Status
<i>R. dendrocharis</i>	1	1	
<i>R. auriculatum</i>	1	2	
<i>R. calophytum</i> var. <i>calophytum</i>	1	1	
<i>R. catacosmum</i>	3		vulnerable
<i>R. concinnum</i> var. <i>pseudoyanthinum</i>	1	1	
<i>R. elegantulum</i>	3		vulnerable
<i>R. erosum</i>	3		vulnerable
<i>R. floribundum</i>	1		
<i>R. forrestii</i> subsp. <i>forrestii</i>	1	1	
<i>R. fortunei</i> subsp. <i>discolor</i> (Affinity)	1	1	
<i>R. fortunei</i> subsp. <i>fortunei</i>	1	2	
<i>R. huianum</i>	1	1	
<i>R. insigne</i>	3	1	vulnerable
<i>R. lacteum</i>	1	1	
<i>R. micranthum</i>	1		
<i>R. moupinense</i>	1	1	
<i>R. orbiculare</i> subsp. <i>orbiculare</i>	3	3	vulnerable
<i>R. oreodoxa</i> subsp. <i>oreodoxa</i>	1	1	
<i>R. pemakoense</i>	1	1	
<i>R. pingianum</i>	1	1	
<i>R. platypodum</i>	1	1	endangered
<i>R. ririei</i>	3	2	vulnerable
<i>R. sanguineum</i> subsp. <i>didymum</i>	3		vulnerable
<i>R. sanguineum</i> var. <i>haemaleum</i>	1		
<i>R. sherriffii</i>	1	1	
<i>R. souliei</i>	3	1	vulnerable
<i>R. spinuliferum</i>	1	1	
<i>R. strigillosum</i>	1		
<i>R. sutchense</i>	1	1	
<i>R. tricanthum</i>	3	1	vulnerable
<i>R. williamsianum</i>	4	2	vulnerable
<i>R. wiltonii</i>	1	1	

Table 6: The nine selected species in the southern Europe and Middle East garden section.

Species	No. of plants wanted	No of plants in the garden June 2018	Status
<i>R. afganicum</i>	1		
<i>R. caucasicum</i>	1		
<i>R. ferrugineum</i>	1	1	
<i>R. luteum</i>	1	5	
<i>R. myrtofolium</i>	1	1	
<i>R. ponticum</i>	1	1	
<i>R. tomentosum</i>	1		
<i>R. smirnowii</i>	3		vulnerable
<i>R. ungernii</i>	1	1	

Table 7: The 28 selected vulnerable and endangered species .

Species	No. of plants wanted	No of plants in the garden June 2018	Assigned Region within species garden	Status
<i>R. aberconwayi</i>	3		Yunnan	vulnerable
<i>R. barbatum</i>	3	3	Himalayas	vulnerable
<i>R. callimorphum</i> var. <i>callimorphum</i>	3	3	Himalayas	vulnerable
<i>R. catacosmum</i>	3		Sichuan	vulnerable
<i>R. chamaethomsonii</i> var. <i>chamaethomsonii</i>	3		Yunnan	vulnerable
<i>R. coelicum</i>	3	3	Yunnan	vulnerable
<i>R. cyanocarpum</i>	3	1	Yunnan	vulnerable
<i>R. elegantulum</i>	3		Sichuan	vulnerable
<i>R. erosum</i>	3		Sichuan	vulnerable
<i>R. griersonianum</i>	1		Yunnan	endangered
<i>R. habrotricum</i>	3	1	Yunnan	vulnerable
<i>R. hanceanum</i> Nanum group	3	3	Yunnan	vulnerable
<i>R. insigne</i>	3	1	Sichuan	vulnerable
<i>R. kesangiae</i> var. <i>kesangiae</i>	3	5	Himalayas	vulnerable
<i>R. makinoi</i>	3		NE Asia	vulnerable
<i>R. niveum</i>	3	1	Himalayas	vulnerable
<i>R. orbiculare</i> subsp. <i>orbiculare</i>	3	3	Sichuan	vulnerable
<i>R. pachysanthum</i>	3	3	NE Asia	vulnerable
<i>R. platypodum</i>	1	1	Sichuan	endangered
<i>R. pseudochrysanthum</i>	3	3	NE Asia	vulnerable
<i>R. qiaojiaense</i>	3	2	Yunnan	vulnerable
<i>R. ririei</i>	3	2	Sichuan	vulnerable
<i>R. sanguineum</i> subsp. <i>didymum</i>	3		Sichuan	vulnerable
<i>R. smirnowii</i>	3		Europe	vulnerable
<i>R. souliei</i>	3	1	Sichuan	vulnerable
<i>R. tricanthum</i>	3	1	Sichuan	vulnerable
<i>R. williamsianum</i>	3	3	Sichuan	vulnerable
<i>R. zaleucum</i>	3		Yunnan	vulnerable

Table 8: The 28 species used to create the heritage hybrids in the MGW.

Species	No. of plants wanted	No of plants in the garden Dec 2017	Assigned Region within species garden	Status
<i>R. arboreum</i> subsp. <i>cinnamomeum</i>	1		Himalayas	tender
<i>R. augustinii</i> subsp. <i>rubrum</i>	1		Yunnan	
<i>R. auriculatum</i>	1	2	Sichuan	
<i>R. barbatum</i>	3	3	Himalayas	vulnerable
<i>R. calophytum</i> var. <i>calophytum</i>	1	1	Sichuan	
<i>R. campanulatum</i> subsp. <i>aeruginosum</i>	1		Himalayas	
<i>R. catawbiense</i>	1	1	N. America	
<i>R. caucasicum</i>	1		Europe	
<i>R. davidsonianum</i> 'Ruth Lyons'	1	1	Yunnan	
<i>R. dichroanthum</i> subsp. <i>scyphocalyx</i>	1	1	Himalayas	
<i>R. facetum</i>	1	1	Yunnan	tender
<i>R. falconeri</i> subsp. <i>falconeri</i>	1	1	Himalayas	
<i>R. forrestii</i> subsp. <i>forrestii</i>	1	1	Sichuan	
<i>R. fortunei</i> subsp. <i>discolor</i> (Affinity)	1	1	Sichuan	
<i>R. fortunei</i> subsp. <i>fortunei</i>	1	2	Sichuan	
<i>R. griersonianum</i>	1		Yunnan	Tender, endangered
<i>R. griffithianum</i>	1		Himalayas	tender
<i>R. haematodes</i> subsp. <i>haematodes</i>	1		Yunnan	
<i>R. impeditum</i>	1		Yunnan	
<i>R. lacteum</i>	1	1	Sichuan	
<i>R. lutescens</i>	1		Yunnan	
<i>R. maddenii</i> subsp. <i>crassum</i>	1	1	Himalayas	tender
<i>R. moupinense</i>	1	1	Sichuan	
<i>R. oreodoxa</i> subsp. <i>oreodoxa</i>	1	1	Sichuan	
<i>R. ponticum</i>	1	1	Europe	
<i>R. souliei</i>	3	1	Sichuan	vulnerable
<i>R. thomsonii</i> subsp. <i>thomsonii</i>	1	1	Yunnan	
<i>R. wardii</i> var. <i>wardii</i>	1	1	Yunnan	

A Collaboration Between Vireya Nurseries in Australia and Italy

Neil Puddey
Woolgoolga,
NSW Australia (right)
and
Enrico Ciarrocchi
San Benedetto del Tronto, Italy
(left)

(Modified from the *Viva Vireya* March, 2018, the newsletter of the Hawaii Chapter)



The Australian story (Neil Puddey)

In 2015, Enrico Ciarrocchi, a nurseryman from San Benedetto del Tronto, Italy, made contact with me, hoping to expand his vireya collection. This was an exciting prospect and many emails later, Enrico decided to fly to Australia to visit our nursery to identify vireyas suitable for trials in his environment.

Enrico is the director of a large family owned nursery, the principle activity of which is the propagation, growing out and marketing of *Camellia* throughout Europe. Several other lines of plants are also in his production system including the vireya hybrid 'Saxon Blush' of New Zealand origin. 'Saxon Blush' is certainly responding beautifully to Enrico's management, and by the end of 2017, Enrico had in his nursery growing-out area 20,000 plants of this hybrid (Figs. 1 and 2). I must add, these were all perfectly uniform and wonderfully healthy, a sight to behold.

East coast central Italy has a Mediterranean climate with quite a warm summer, but of more interest/challenge to a vireya grower, a cold and often gray winter. Over a one-week period, Enrico and I, with some help from Andrew Rouse, put together a selection of vireyas that may perform as well as 'Saxon Blush' in his region of Italy. There were several criteria used in making this selection, including:

1) Species used in the original hybridising should be from a high altitude, the idea being that some cold tolerance would be inherited (thank you George Argent



Fig 2. Enrico's wife Lorena with the vireya 'Saxon Blush'.



Fig 1. Trays of 'Saxon Blush'.

for making this information available in your publications).

2) The growth habit of the hybrid should be very compact. The European plant market demands that plants conform to desired specifications. Open free-form plants just do not make the grade and are not saleable.

3) Plants should be free flowering and/or will flower in response to fertilizer and water manipulations.

4) Plants should respond to pruning in a way that the resulting plant form will meet strict specifications set by the market, such as desired height, width, number of branches and number of flower buds.

It will be obvious to any vireya enthusiast that the list of hybrids to choose from that meet the above criteria was becoming very short indeed! Fourteen different hybrids, listed below, and the species *R. loranthiflorum*, were settled on, and the propagation and export preparation of them began.

Italy, being a European Union member, required that



Fig 3. Enrico Ciarrocchi with newly arrived vireyas from Australia.

plants imported comply with EU regulations. This, in short, states that plants must be free of all pests and diseases and that all appropriate measures have been taken to ensure this. Geographic isolation from some exotic diseases not yet found in Australia does make compliance fractionally easier for plants that originate there.

If the export was to be successful, these additions to Enrico's vireya collection will need to be assessed on their performance under Italian Mediterranean conditions. The performance in Italy of the hybrids selected may well be quite different from that in the subtropical conditions of East Coast NSW, Australia, where I am based – only time will tell how they fare!

The hybrids shipped to Enrico included (please note, some new registrations and provisional names 'preregistration'): 'Andrew's Orange', 'Charming Valentino', 'Happy Times', 'Jimmy Sax', 'Jimmy Sax 2', 'Just Peachy', 'Kisses', 'Little Bo Peep', 'Mango Swirl', 'Magenta', 'Martin John', 'Saxon Glow', 'Sarah Ormiston', and 'Vicky Griffith.'

On the September 1, 2016, the above 264 vireyas arrived into Rome's Fumico Airport. The feedback from Enrico was a great relief, as all but two were standing upright and looking good (Fig. 3). It was a very long journey in a cardboard carton from Woolgoolga, NSW, to Rome, and then on to San Benedetto del Tronto on Italy's east coast.

The Italian story (Enrico Ciarrocchi)

I have the following goals for vireyas that I am producing for the European market:

1) Cold tolerance.

This is a very important consideration when selecting varieties. Our plan was to sell vireyas all around Europe, and the greater their resistance to low temperatures, the better. Of course, in Northern Europe they will have to be considered "house plants," but in southern Europe they could be planted outside year around. At our nursery in Central Italy, we have been growing the Saxon hybrids outside (under shade) for seven years, so far without problems related to frost. The availability of varieties that can stand a few degrees below freezing point would be a great advantage.

2. Plant form. This is probably the most important criterion in selecting varieties. At the moment, we don't sell to hobbyists and collectors. We sell only to wholesalers, and this is the reason why we need very uniform plants. We have very strict plant specifications and no tolerance for low-grade plants. Specifications desired include: height, width, number of branches, number of buds, number of open flowers, and the number of plants that can be placed on a shelf or trolley (Fig. 4).

3. Flower scheduling. Contracts with wholesalers are made months in advance, and wholesalers want a shipment on a set date with a fixed flowering stage. It is not possible to sell vireyas simply "when they flower." This is the reason why we need varieties that can be scheduled to flower in a certain time period by managing tip pruning, fertilizing and temperature.

4. Crop time to flower. The longer the crop time, the higher the production cost. The market won't pay higher prices, as it's not a hobbyists market. This is a market that does not understand the difference between a slow growing variety and a fast growing one. Commercially, we need uniformly fast growing and quick to flower varieties.

Production Techniques

1. Substrate and water. I studied all the cultural information on



Fig 4. 'Saxon Blush' on trolleys ready for distribution to retail outlets.

vireyas concerning growing mixes, but when I started growing them, I just tried the substrates we used for our camellias and it seemed to work fine. The main ingredient is high quality peat moss from the Baltic countries, mixed with 30% perlite. It is a very loose substrate with a good drainage and it helps me to keep the plants always on the dry side. Our irrigation water comes from two excellent sources—from October to May we use rainwater from the roof of our greenhouses and in the summer, we use ground water. The groundwater is treated with two Reverse Osmosis Systems to remove excess salts, resulting in a very low salinity water. Soluble fertilizer is added to the water before irrigation.

2. Propagation. We propagate vireyas from cuttings that are rooted under mist. The cuttings are set in propagation trays, filled with a substrate composed of 60% peat moss and 40% perlite. Our schedule is to produce two batches of cuttings, one in May and one in August-September. Our success rate is high, even though we eventually experience some failure due to damping off of the cuttings under mist.

3. Growing on. Rooted plugs are transplanted the year following propagation into a 15 cm (six in) pot and are grown in a shade house with a 50% shading net. We have also tried to grow vireyas in our glasshouses but they don't like the environment there, as it is too hot, too dry, and does not have enough air flow. A percentage of the 15 cm pots are grown on to larger plants in 19 cm and 27 cm (7.5 and 10.5 in, respectively) pots.

4. Forcing. In order to schedule the plants to flower at a fixed date, we “force” the vireyas in the greenhouses in wintertime. The results are excellent, and the plants can be manipulated to flower in the fixed desired week. Forcing to date has been with *R. saxifragoides* hybrids, and as yet, we have not experimented with other vireya hybrids.

Problems and results

1. Shipping. In the Spring 2017, we shipped for the first time vireyas to several European countries: Spain, Italy, France, Belgium, Holland, Denmark and Germany. Plants left in excellent conditions with the buds starting to open. Feedback from our customers has been varied. Some of them experienced success, others failure. Two factors could be identified that resulted in success or failure—temperature and handling/facilities. The more successful customers of course were those in the warmer countries, but interestingly the main difference was related to the type of infrastructure and their handling. The best results achieved were with garden centers that placed the plants on display as soon as they received them. Plants that suffered more

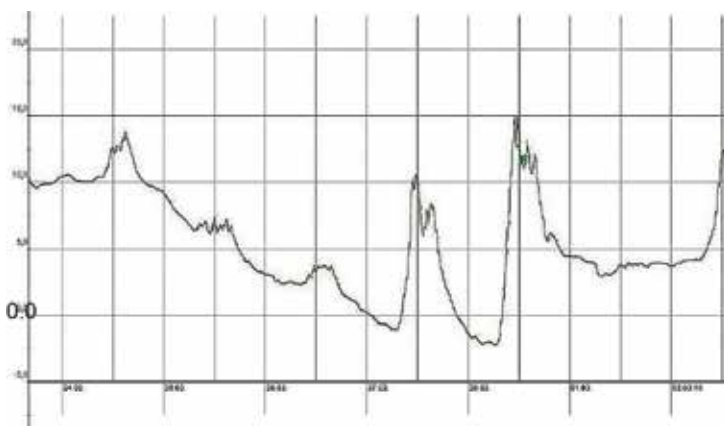




Fig 9. 'Saxon Blush' with a dry bud.

where those that spent additional time on trucks, trolleys or in warehouse conditions, with low light and low air flow (cash & carry and wholesalers). Our company will work on this issue, but one thing is certain, vireyas have great potential as a viable crop to ship.

2. Climate at the different country destinations.

Vireyas are native to tropical highlands that experience vastly different climatic conditions to that of the climatic zones of Europe. Vireyas must therefore be marketed as “indoor plants” in Holland and as “garden plants” in Spain. Customers must be informed of a vireya’s requirements, as their success is also related to the information growers can provide to the retail nurseries.



Fig. 12. Enrico's wife Lorena with the vireya 'Kisses'.

3. Period of sales. For the first year, we suggested vireyas would be available from April 1st to May 15th. It is a very important sale period, spanning from Easter to Mother's Day. For the future, we will try to widen this period of availability. This could be challenging as plants in bud are a market requirement, and we will be attempting to force plants to flower during different periods. Also, plant sales in general tend to drop off during the summer months (June to September).

Postscript: (From Andrew Rouse):

Enrico's vireyas in 2018 at his nursery endured the European brutal blizzard called the “Beast from the East,” and he sent me photos of his vireyas covered in snow. The vireyas supplied from Australia were in the greenhouse (an unheated glasshouse) where the temperature dropped below 0° C (32° F) (Fig. 5). Fig. 6 shows snow on the camellias in the unheated glasshouse, and Figs. 7 and 8 show snow on the vireya shade cloth and greenhouses.

Fig. 9 shows the effects of freezing temperatures on 'Saxon Blush', i.e., dry buds, with Fig. 10 showing an okay 'Saxon Blush'. Fig. 11 shows leaf damage from cold on *R. loranthiflorum*. The majority of the vireyas showed very little damage and those that did grew out of it without problem.

Neil Puddley operates the Jagera Wholesale Vireya Nursery in Australia, from which he propagates about 2000 vireyas a year, 50% of which are exported and the remainder sent mail order around Australia. He started propagating small numbers of vireyas

in 1990 for his shady garden, but was encouraged by a local nursery owner to propagate more, and has now exported vireyas to 14 different countries, developed new hybrid vireyas, and has formed many new friendships along the way. He has enjoyed some success in developing new vireya hybrids that he calls “garden friendly,” having less disease susceptibility, a bushier growth habit and repeat flowering.

Enrico Ciarrocchi owns and manages Ciarrocchi Vivai, a wholesale Italian nursery that grows and sells plants all over Europe. He is a graduate of the DuPage Horticultural School in West Chicago, and has worked for many companies in both the USA and Europe.



Fig 10. 'Saxon Blush' with a good bud.



Fig 11. *R. loranthiflorum* with leaf damage.

Society News

**American Rhododendron Society
Board of Directors Meeting
Chattanooga, Tennessee
Friday, October 19, 2018**

Summary of Discussions and Decisions

President Ann Mangels welcomed everyone. Fourteen Board members, two Committee chairs and two guests were present. Ann announced that Perc Moser and Harold Greer had been re-appointed to the Research Foundation.

Meeting Highlights and Decisions

- Eastern VP Steve Krebs reported that despite several very encouraging meetings with the Montreal Botanical Garden and the Quebec Rhododendron Society, the proposed convention for 2021 in Montreal will not go ahead. Eastern districts and chapters are encouraged to consider holding the 2021 ARS Convention. Approximately 800 plants have been propagated and are available for sale at the convention.
- Treasurer Dave Banks reports that we are doing fine financially. US chapters were asked to ensure that they file with Internal Revenue in order to maintain their non-taxable status.
- Brenda Ziegler was pleased to report that the Van Veen Heritage Garden, owned and operated by the Portland Chapter in accordance with Kathy Van Veen's wishes, is now established. They are ready to receive cuttings to propagate.
- Steve Henning reported that great tours and speakers are ready for the 2019 Spring convention in Philadelphia. Chanticleer and Winterthur will be on a pre-tour and the board of directors will hold its meeting in the evening to allow members to enjoy all the tours.
- Mt. Arrowsmith and Nanaimo chapters recently had a one-day fall conference entitled "Fall into Gardening" with five exceptional speakers for just \$25, with the available 100 seats sold out.
- In some special circumstances where it makes sense, an ARS Silver Medal Award could be bestowed at a Fall Conference.
- Linda Derkach and Steve Krebs announced that the Rhododendron of the Year (ROY) Awards would go ahead until a new scheme to identify good performers can be planned and agreed upon. A task group was formed to plan how to move forward, chaired by Steve Krebs. A small task group, chaired by Richard Fairfield, was formed to explore the possible development of a ROY app.
- The Board approved \$5000 annually to subsidize travel expenses of the President, 2 VPs, Secretary and Treasurer who all have no other source of financial assistance. Members expressed concern that the high cost of attending board meetings will prevent good people from seeking to join the board. While many Directors have funds made available by the chapters in their district, some do not. Ann will encourage all districts to financially assist their directors with travel expenses.
- The board agreed to a donation of \$500 from the President's Discretionary Fund in memory of Bob McIntyre for the Hinsdale Garden
- Because old plantings are disappearing through neglect, Nick Yarmoshunk reported that his group is trying to resurrect the Vineland azaleas before they are destroyed. The Board approved \$500 to allay operating expenses for the Brueckner Project, and \$400 for transportation of the Vineland material.

Submitted by
Linda Derkach, ARS Secretary

Fall into Gardening: A Successful Collaborative Marketing Activity

Chris Southwick and John Deniseger
Vancouver Island, BC, Canada

A keen group of five members from two ARS District 1 chapters (Mount Arrowsmith (MARS) and Nanaimo (NRS)) collaborated to organize a one-day fall gardening "mini-conference" in Parksville, B.C., on Vancouver Island. The October 28, 2018 event was so successful that we thought it would be worthwhile sharing this idea through JARS. Our goals included:

Society News



Glen opening the conference.

- Increasing awareness of our respective chapters in our gardening communities,
- Attracting potential new members,
- Creating an event that would appeal not only to rhododendron enthusiasts but to the broader gardening community,
- Holding the event in the fall when the gardening calendar is less hectic, and
- Keeping the event simple in format but high in quality, while focusing on education and learning.

We are in a somewhat unique position in that our two societies are only about a 30 to 40-minute drive from one another. We decided to work together in building the event, while holding it in a central location. This reduced the workload, strengthened the ties between our clubs, and took advantage of our collective networking ability, increasing our chances of success. Our committee included John Deniseger and Chris Southwick from the NRS; and Tony Ansdell, Marilyn Dawson and Glen Jamieson from MARS.

We decided upon a small, no frills, one day conference with excellent speakers on a topic range that we felt would appeal to all gardeners. Topics were "Gardening Myths – fact or fiction", "Grow Better Food Faster", "Plant Exploration in Tibet", "Rhododendron Companion Plants" and "Crevice Gardening." We called the event "Fall into Gardening" and we chose a theme, "Garden Myths: Fact or Fiction", booked prospective speakers, found a venue for a maximum of approximately 100 people, and kept the cost down to \$25 per person. Participants had to bring their own bag lunch, but the cost included five speakers, door prizes, as well as coffee, tea and water. In addition, members of both chapters provided treats for coffee breaks.

We did no formal advertising as we simply spread the word through our District 1 chapter newsletters and meetings in the spring, and further to the local Master Gardener Community. By early fall, well in advance of the event, we were sold out! We had found a "sweet spot" in the calendar and an eager audience, keen to learn more about gardening and to socialize with other garden "nuts". The day went smoothly with each society's members sharing duties. Each of our five speakers gave excellent presentations covering a wide variety of topics and presentation styles. The follow-up survey by attendees was overwhelmingly positive. It remains to be seen if the conference will result in new members, but several folks expressed an interest in the 2019 ARS Fall Regional Conference that was advertised during our event.

We've definitely raised the profile of both our societies. Will we attract new members? That will take some time to assess. In the meantime, we'll be turning this into an annual event beginning in 2020. We've already started by booking a larger venue, and contacting potential speakers.

Chris Southwick and John Deniseger are members of the Nanaimo chapter.



Chris, Tony and Marilyn at the welcoming table..



Art (one of the attendees), John and his wife June taking a break!

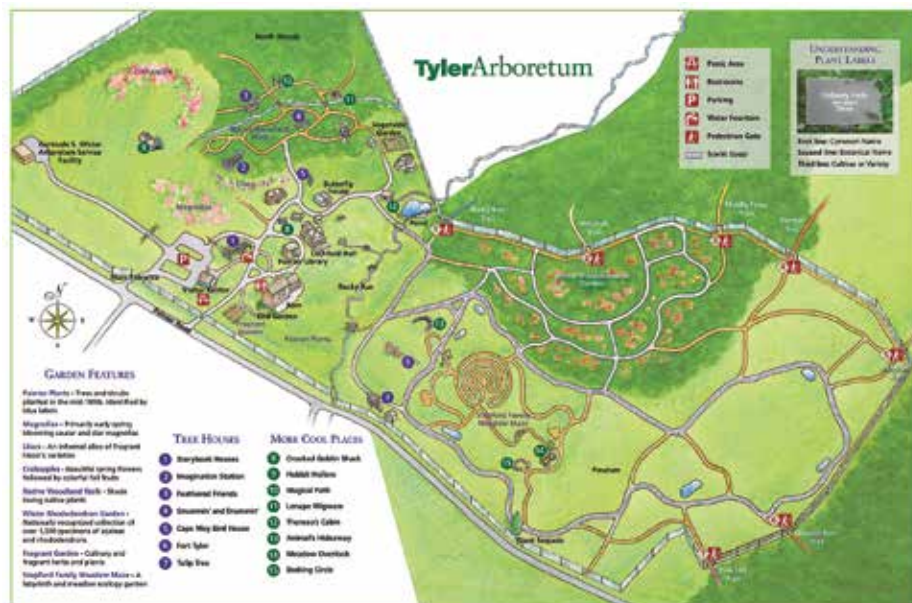
The Tyler Arboretum's Wister Rhododendron Garden: An Evolving Historic Collection

Jerry O'Dell,
Phoenixville, PA

Photos by
Dave Charlton



My journey at Tyler Arboretum began in 2011 when I was hired as the seasonal part-time gardener responsible for the Wister Rhododendron Garden. This garden is John Wister's legacy, a heritage collection of 13 acres (5.3 ha) of hundreds of varieties of rhododendrons and azaleas with a bloom season that lasts from spring through summer. The Garden has undergone significant changes and upgrades over time. As Tyler slowly transitions this collection to a garden design with major focal points, working on these important plants has helped me formulate a strong stewardship approach to



Map of Tyler Arboretum.



John Wister dedication plaque.

managing this renowned collection. In keeping with the Tyler Arboretum Mission, i.e., to preserve, enhance, and share our rich heritage, collections, and landscapes, to create and inspire stewards of the natural world, I now see my role as gardener, historian and preservationist.

Brief History of Tyler Arboretum

The story of Tyler Arboretum began in 1681 as a land grant from William Penn to Thomas Minshall. Incredibly, the land never left the family through eight generations of the Minshall/Painter/Tyler family line, dating from 1681 until 1944. Through these years, the property was a working farm and later used as the summer home for the Tyler family. The foretaste of an important arboretum began around 1845 when the fifth generation Painter Brothers, Minshall and Jacob, began to plant numerous species of trees and shrubs for botanical study; twenty-two of these still survive. In 1944, Laura Tyler, a direct family descendent, bequeathed the property as an arboretum. The newly established Board of Trustees soon appointed John Casper Wister as the first Director of the John J. Tyler Arboretum, and he proceeded to quickly build on the Painter Brother's heritage by creating collections of many plant species, one of which was the genus *Rhododendron*.

History/Timeline of the Wister Rhododendron Garden 1960s

Dr. Wister began to develop the Rhododendron Collection in its present location during the early 1960s after his collection near the present Native Woodland Walk became a popular destination during the bloom season. After major clearing, which included working around and saving the best trees and clearing the poorer specimens, he began planting in earnest in 1961 and continued through the next few years. As he stated in 1971 (Wister *et al.* 1971): "The main purpose, from the beginning, was to present a semi-wild naturalistic garden in which plants were grouped and classified by size, season of bloom and color and, equally important, by botanical relationship and by horticultural history."

Through the early 1960s, planting was extensive. The lion's share consisted of rhododendrons and azaleas but oak, pine, hemlock and smaller trees and shrubs that worked well as companion plants were also planted. In a special report (Wister 1966), Dr. Wister stated that, along with creating a beautiful woodland garden, he wanted the collection to "present in an

orderly way as many possible representatives of the different series, species, and hybrids of rhododendrons and azaleas to give a long season of bloom and attractive color harmony that would inspire more and better rhododendron and azalea planting in the Philadelphia area, and that it would be used by expert growers for serious study.”

The azalea selections included native species, such as *R. alabamense*, *R. x bakeri*, *R. cumberlandense*, *R. canescens*, and *R. viscosum*. An extensive amount of *R. schlippenbachii* were planted along the pathways, which added (and still does) early spring bloom and beautiful fall foliage. Glenn Dale azalea varieties and some Gable introductions were massed together for effect, as well as being planted among the large-leaf rhododendrons to add interest.



Rhododendron 'Duke of York'.

His rhododendron selections began with the Ironclads, which Dr. Wister firmly stated (Wister *et al.* 1971) “should always be the backbone of any collection on the east coast, north of Washington, at least.” Tyler’s collection contains all but three of the original fourteen Ironclads. Missing are ‘H.W. Sargent,’ which was never planted; ‘Lady Armstrong,’ which was lost in 1997 and ‘Mrs Charles S. Sargent,’ which was lost in 2004. Most of the Ironclads were planted in open, exposed areas, but nevertheless, have done remarkably well over the years. Very near to the Ironclads, but in areas more protected from the wind, were planted other tough rhododendron varieties such as ‘Duke of York,’ which is still a large healthy, impressive specimen; ‘Old Port’; ‘Edward S. Rand’ and others.

The major hybridizers of the 20th century are represented in the collection but Dr. Wister set aside special sections for plants from hybridizers like Joseph Gable and Guy Nearing. Without question, the largest group are the many named and unnamed Dexter hybrids. Dr. Wister was a member of the informal committee formed by Dr. Clement Bowers of New York Botanic Gardens in 1945 to search out and evaluate Dexter plants. From 1945 to 1953, this committee visited Dexter’s estate and many private and public gardens and was extraordinarily successful in saving and further propagating important Dexter plants (Livingston and West 1978). The majority of these were transplanted to the Scott Arboretum at Swarthmore College and the Tyler Arboretum, many of which Dr. Wister used in his testing and hybridizing.

1970 thru 2000

The 1970s saw continued plantings, including a joint endeavor by both the Greater Philadelphia and Valley Forge ARS Chapters, whose goal was to develop a rhododendron display garden with emphasis on eastern hybridizers (Landt 1972). Unfortunately, around this same time, the deer population began to increase and this has had a major negative impact on the collection. The planting ceased while deer browsing and an increase of invasive weeds and vines continued to take their toll on the collection through the 1980s and 1990s. Maintaining and preserving the collection then became an uphill and almost hopeless battle (Herald 2005).



Rhododendron 'Parsons Gloriosum'.

2000 thru 2010

However, the importance of this collection and what was happening to it did not go unnoticed, and Tyler began to address these issues in its Strategic Master



Rhododendron 'July Delight'.



Rhododendron 'Purpureum Grandiflorum'.

Plan of 2000. First and foremost, through generous donations, the ongoing deer issue was tackled by encircling approximately 100 acres (40.5 ha) of the Arboretum, including the Rhododendron Garden, with a twelve foot (3.7 m) deer fence. Positive things then began to develop quickly, while the Tyler staff began (and still are) attacking the invasive weeds and vines. Landscape architect Gary Smith, whose focus is public garden design, was engaged to work on a concept design and master plan for the collection. An irrigation system was installed in 2004 and Robert Herald, a horticultural consultant, was retained to do a comprehensive evaluation report on the condition of the collection, which was completed in 2005. In addition, a committee, which included Tyler Staff and representatives from the local ARS chapters, was formed to work on strategic goals for the collection. Lastly, in 2010 an easy-to-traverse, ADA [Americans with Disabilities Act] accessible, pervious asphalt path system was installed which meanders through the garden, enticing visitors to see what rhododendron gems awaits them around the next corner (Ney 2011).

Moving Forward: 2011 to Present

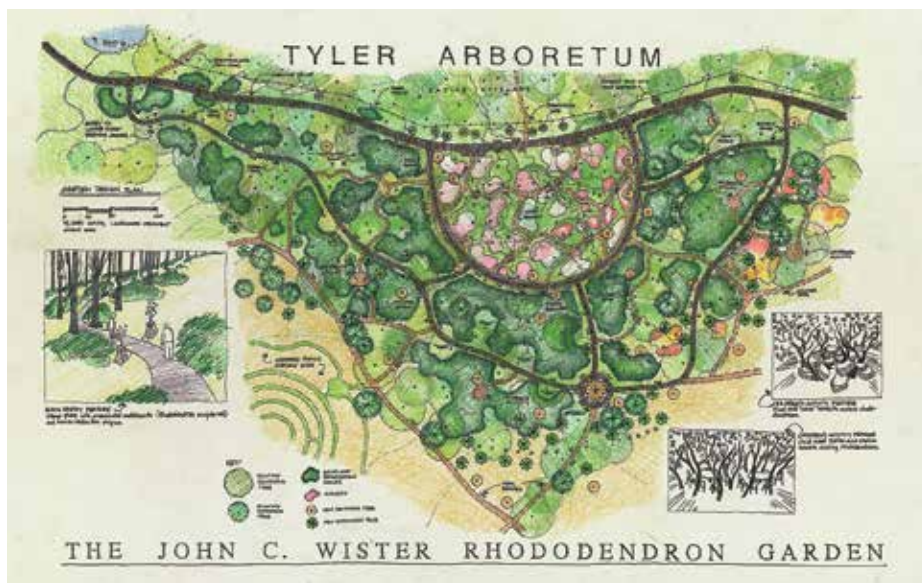
In the fall of 2010, Tyler received funding to hire a part-time gardener to maintain the Rhododendron Garden, and the following spring I was hired, commencing working in April 2011. The first year we planted a number of woody and herbaceous plants along the path system to soften the appearance of the asphalt and to add companion plants to the design. This time was also spent learning the layout of the collection, evaluating the condition of the important rhododendrons and developing a program for much needed rejuvenation pruning, dead wooding and overall garden maintenance, including invasive plant removal and management.



View across the azalea bowl.

Design Plans

This time was also spent reviewing and finalizing the conceptual design plan to develop a garden "destination" to attract both rhododendron enthusiasts and general garden visitors, with the major focus of this design being the central area of the Rhododendron Garden. This section contained many azaleas that appeared to be planted according to the hybridizer and not necessarily by color, making it essentially a collection rather than a garden. This area, now referred to as the Azalea Bowl, sits below the newly installed semi-circular paved pathway and was redesigned to make it a main "destination" (Smith 2002). The intent was to move the existing plant material, both woody and herbaceous, to perimeter areas



Tyler Arboretum Plan with Permission of W. Gary Smith, Landscape Architect.

'Takasago,' 'Blaauw's Pink,' 'Roehr's Tradition,' 'Ellie Harris,' 'Hershey's Red' and 'Red Red.' Herbaceous ground cover varieties were also planted to add interest and to contrast with the azaleas throughout the year.

Rhododendron Collection Stewardship

"It is unique - truly an irreplaceable living museum collection," as Robert Herald stated in his Curatorial Evaluation Report on the condition of the Wister Rhododendron Garden (Herald 2005). This viewpoint and a sense of history are always at the forefront of every maintenance decision concerning these magnificent specimens.

While the deer fence successfully addressed that problem, other maintenance issues persist and are being addressed on a daily basis. Invasive weed control is one, and managing an especially damaging woody invasive, Oriental bittersweet (*Celastrus orbiculatus*), is always a priority. In addition, many of the rhododendrons in the collection had become quite top-heavy over the years and were on the verge of uprooting from the weight of heavy 90° branching. Considerable work still needs to be done, but considerable rejuvenation pruning has already been completed with good results.

The Ironclads in particular have responded well to pruning, maybe another reason Dr. Wister said they should be the "backbone of any collection" (Wister *et al.* 1971). Dr. Wister's "SW53-604" series, one of his Swarthmore 1953 hybrids, have also responded well to pruning with healthy, vigorous new growth. This series was a tangled clutter a few years back and watching their recovery has been especially rewarding. This series contains some of Dr.



View across the azalea bowl..



"The Hosta Overlook" - The hosta garden that overlooks the azalea bowl.



Rhododendron 'Sagamore Bayside'.

Wister's important named rhododendrons such as 'July Hope'* and 'July Possibility',* as well as some unnamed plants such as "SW58-604F," which is quite stunning in bloom. Also, in this same section and once hidden behind the tangled mess of cross branching and out-of-control Oriental bittersweet, was found three specimens of *R. cv* "Morris #22-41," a vigorous Dexter hybrid with very attractive and healthy foliage.

Another group that has rebounded quite well to major pruning is the "SW58-333," series whose parentage included *R. maximum* and Dexter #201 (*R. John Wister*). The specimen "SW58-333B" was cut back hard in 2014, and it is now a very showy plant with beautiful foliage and blossoms.

A Few Favorites

Before I end I would like to add a list of five particularly interesting rhododendrons in the Wister Rhododendron Garden. Along with beautiful bloom, which all of these plants have in abundance, the qualities I look for are healthy foliage and good form and branch structure, which make for a good looking and healthy rhododendron throughout the entire year. Often I'm drawn to a particular rhododendron largely because of how it looks in the off-season. The following rhododendrons fit this description with ease:

1) 'Scintillation'

Appropriately, Dexter's Flagship rhododendron sits in a most prominent location along the paved path for everyone to view its midseason beauty and enjoy its distinctive foliage throughout the year. A true classic in every way.

2) 'Caroline'

As I began working in the Rhododendron Garden and a particular Rhododendron would catch my eye because of excellent structure and well-shaped branching, invariably it turned out to be a Gable hybrid. His group of 'Caroline' have been contentedly growing here for almost sixty years. After enjoying their beautiful floral display, one needs to look long and hard to find any deadwood or crossing branches, it's that rare. Hats off to Joseph Gable—his 'Caroline' is a remarkable rhododendron.



Rhododendron 'Scintillation'.

3) 'Lady of Wynnefield' * SW12506-10

Wister *et al.* (1971) talk about a small group of Dexter plants that the Scott Foundation received from the Dexter Estate in 1945. He described them as "very tall growing with magnificent foliage and very late flowers, blooming here in late June." I knew right away he was referring to the "Lady Series," of which 'Lady of Wynnefield' is a member. This is a large full plant with large sloping foliage that catches your eye, and is strategically located so it can't be missed, as it stands alone along the paved path as one enters the section of the Garden which contains the Dexter hybrids, which are named for the many towns and townships of Cape Cod. A wonderful plant, as are all in the "Lady Series."



Rhododendron 'Scintillation'.

4) 'Nearing-Reid #3A'*

This rhododendron has the distinction of probably being the longest blooming rhododendron in the collection and is a full healthy plant with good foliage and purplish magenta blooms. Another curiosity, the 2018 spring was very wet and humid, and



Rhododendron 'Lady of Wynnefield'.

this plant did not seem to be affected by *Ovulinia* petal blight as many other rhododendron were. This also is an outstanding and attractive rhododendron throughout the year.

5) SW58-295E*

This is one of Dr. Wister's Swarthmore 1958 hybrids with Dexter parentage. It is a beautiful rhododendron with pinkish blossoms, an overall small tree-like structure and good foliage, with no evidence of disease problems, which grows quite well in its out-of-the-way location—a wonderful eye-catching rhododendron.

In conclusion, I hope this verbal excursion through the Tyler Arboretum's Wister Rhododendron Garden has been informative and has provided a brief overview of what's going on in the garden. As the garden design slowly moves forward, maintaining the integrity of Dr. Wister's magnificent rhododendron specimens will always be a major goal because, to repeat what Robert Herald so eloquently stated, the Wister Rhododendron Garden is "truly an irreplaceable living museum collection." (Herald 2005). A view shared by everyone at the Tyler Arboretum.



Rhododendron 'SW58-295E'. *

(Note: The Tyler Arboretum will be on the tours of "The Philadelphia Story: Rhododendrons in America's Garden Capital," the May 2019 International ARS Convention.)



Rhododendron 'True Treasure'.

* unregistered.



R. austrinum X *R. canescens*.

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Jerry O'Dell, the president of the Valley Forge Chapter, is the part-time seasonal gardener at the Tyler Arboretum and is responsible for the Wister Rhododendron Garden. Photos were taken by Tyler Trustee Dave Charlton, a long time Tyler Volunteer and Docent, who contributes as photographer and assists with the Plant Records Department, American Chestnut Orchard and Education Department.

“The master of the garden is the one who waters it, trims the branches, plants the seeds, and pulls the weeds. If you merely stroll through the garden, you are but an acolyte.”

Vera Nazarian, *The Perpetual Calendar of Inspiration*

Philadelphia: a Legacy of Horticulture

Nicole Juday Rhoads

Philadelphia, PA.



There is no evidence that Pennsylvania founder William Penn was a gardener. When he first laid out the plan for Philadelphia in the 1680s, he envisioned a rationally laid-out city different from European capitals, whose maps conjure broken spiderwebs. Punctuating the grid would be five central squares of open green space, creating a “greene countrie” town which will never be burnt and always be wholesome.” Penn would have known of the great estates in England with their well-planned grounds, but in the 1600s European cities did not boast public green spaces.

Many of Philadelphia’s earliest streets were named for native trees—Spruce, Pine, Sassafra, Locust, and even Vine. It’s unknown if this reflected Penn’s admiration for the natural world, but that he chose trees as the unifying theme for navigating his emerging city indicated a respect for their importance to the new Commonwealth.

Indeed, Penn arrived in America acutely aware that for Pennsylvania to become a financial success, it must exploit its natural resources for export to Europe. The fertile soil, favorable aspect, temperate climate, and adequate rainfall of the Philadelphia region certainly contributed to the economic success of the colony, which was soon exporting lumber products, seeds, and grains overseas.

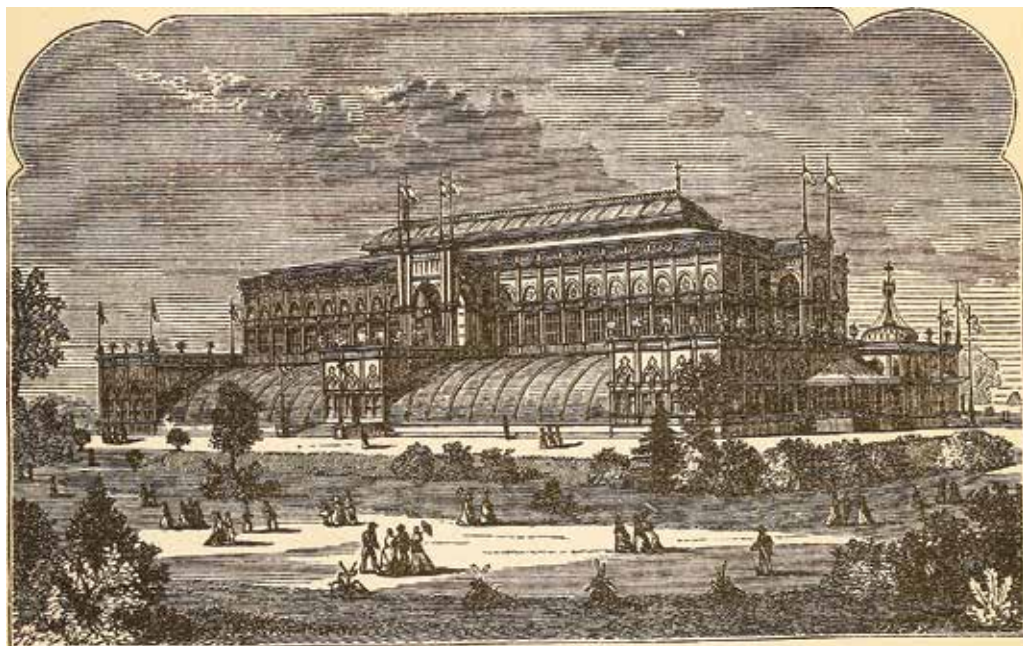
Besides an amenable climate, an ideological factor may have contributed to Philadelphia’s early resonance with nature, if not horticulture, compared with early settlers in other regions. Although colonized 50 years earlier, the Puritans of New England never developed the tradition of great horticulture that became such a feature in Philadelphia. Puritan writings consistently conflate nature with “wilderness” and its associations with being lost and alone in the face of evil. Nature is portrayed as dark and scary, the domain of savages, wild beasts, and the devil himself.

The early Quakers that came with Penn to establish the colony had an entirely different relationship with the natural world. Nature was perceived as the source of economic independence but also as something of great beauty and spiritual nourishment. In a colony founded on religious tolerance, nature and the sects that worshipped it were not cast aside.

The earliest botanical garden in America was started before 1700 on the banks of Wissahickon Creek by nature-worshipping mystic German Pietists living in hermit caves. This garden included medicinal plants brought from Europe as well as native plants that the native Lenni Lenape people taught the hermits to cultivate for medicinal purposes.

As a young man, Philadelphia’s most famous horticultural figure John Bartram (1699-1777) learned about botany and native plants from his mentor Christopher Witt, who had been associated with the hermits of the Wissahickon and was familiar with the mystics’ reverence for plants and nature.

Bartram became well-known in his time and is still so today for both his garden and his business exporting American seeds, bulbs, and roots to his English patron, Lord Robert James Petre, 8th Baron Petre of Thorndon Hall, Essex, who was at that time the foremost collector of North American trees and shrubs in Europe. He also enjoyed a lively correspondence of both letters and plants with the Englishman merchant Peter Collinson, a fellow Quaker and a member of the Royal Society, who shared Bartram’s new plants with friends and fellow gardeners. During Bartram’s career, many American plants were introduced to Europe and many European



Horticultural Hall at the 1876 Centennial Exposition.

plants became established in Philadelphia gardens. Among the plants he introduced to England was *Rhododendron maximum*, native to Southeastern Pennsylvania and which is still found growing wild within Philadelphia's city limits. A talented botanist, Bartram and his son William both made significant contributions to the field of natural history, the observation-based study of animals and plants typically presented in popular rather than academic form.

By the 18th century, Philadelphia's wooded Schuylkill and Delaware riverfronts were being cleared for country houses of the emerging wealthy class. Usually only inhabited during the summer months, these estates offered healthful breezes and fresh air not always experienced in the city. The most famous of these was the Woodlands, the home of William Hamilton. Hamilton had visited the great country houses of England as a young man and came back to Philadelphia determined to replicate their grandeur in the still provincial New World. Thanks to his large fortune inherited from a wealthy family of colonial lawyers and politicians, he was able to build an extensive heated hothouse, create parklike grounds with a walking circuit, and acquire plants just arriving in America from all over the world, including the first Ginkgo tree (*Ginkgo biloba*) and the first red rose. Thomas Jefferson called Woodlands "the only rival I have known in America to what may be seen in England."

Other families who collected plants had entirely different motivations. With natural history growing as a popular pursuit, particularly for those with means and leisure, Philadelphia emerged as the center of this field in America, drawing many prominent botanists, naturalists, and plant explorers who deposited their findings in several institutions there devoted to science.

The Painter brothers of Media were among the many who amassed collections of minerals, rocks, and herbarium plants before converting part of their farm to an arboretum in 1825, with space to hold 1000 tree and shrub specimens. Today vestiges of their collection are still intact at what is now the Tyler Arboretum.

Arguably one of the great events for horticulture in Philadelphia occurred in 1876. The Centennial Exposition's World Fair brought exhibitors from across the world, most notably Japan, which had just opened to the West. Open for seven months, the Centennial exposed Americans for the first time to culture, design, and plants from all over the globe, and spurred a new excitement for exotic plants and gardens, particularly those from Asia. The Centennial Exposition was also America's introduction to rhododendrons as garden plants, as hybrids of the native *R. catawbiense* were planted throughout the Exposition grounds.

Perhaps because of the Centennial's influence, early 20th century American gardens focused their collections on plants from around the world. Siblings John and Lydia Morris's estate "Compton" (now the Morris Arboretum) was designed to display plants in groups from different geographical regions, and Asian garden sculptures adorned the grounds along with a great number of exotic species.



Jenkins Arboretum, Devon, PA



The Barnes Arboretum, Merion, PA.

The DuPont family of Wilmington, Delaware, pursued gardening on a scale almost unparalleled anywhere in the country. With their vast gunpowder and chemical fortune, this large, extended family lived on nearly contiguous properties, and invested in sophisticated and elaborate gardens, often with a French influence inspired by their ancestors. Pierre DuPont acquired his estate "Longwood" from the Pierce family, Quakers who had built a small arboretum on 15 acres (six ha) of their farm, providing the foundation for one of the most extensive living plant collections in the country today.

The fabulous estates of the golden age of American horticulture famously ran on "money, manpower, and manure."

World War II and the changes in the American economy and society brought this golden age to a close. Cheap labor, once plentiful around cities, disappeared as manufacturing increased, and fuel to heat private greenhouses was in short supply. Consequently, many were shut down permanently after their inhabitants succumbed to the elements.



Longwood Gardens, Kennett Square, PA:

observation of species, and the Quaker principle of religious tolerance and the belief that becoming close to nature allows one to be closer to God, created a favorable environment for plant collecting and gardening. Thus, almost all the great 18th and 19th century American gardens were established by Quakers, creating the foundation for the great gardens established by the industrialists of the early 20th century and paving the way for gardening as a pursuit available to all today.

Historic Gardens and Arboreta with great Rhododendron Collections

The Barnes Arboretum, Merion, PA:

Perhaps inspired by the woodlands of Winterthur, Laura Barnes built a horticultural collection to rival her husband Albert's storied art collection, which includes many rhododendron species and cultivars.

Jenkins Arboretum, Devon, PA:

The most extensive collection with over 5000 rhododendrons, azaleas, and hybrids from around the world, including a large number of native species. The blooming season begins in late March with *R. dauricum* and *R. mucronalatum*, and ends in late July with *R. prunifolium*.

Longwood Gardens, Kennett Square, PA:

The original owner Pierre S. du Pont was enamored with hybrid azaleas and planted them extensively throughout his estate. Today the collection has been expanded to include deciduous species native to the USA. For those that can't visit in person, Longwood also has an excellent online database of its collection.

Morris Arboretum, Chestnut Hill, Philadelphia, PA:

The site of an ARS Test Garden in the 1950s and home to many Dexter hybrid rhododendrons, this grand estate-turned public garden also has an azalea meadow with descendants of many of Henry Skinner's wild collected native azaleas.



Morris Arboretum, Chestnut Hill, Philadelphia, PA:

As the region transitioned to a more democratic expression of horticulture, organizations like the Pennsylvania Horticultural Society (PHS) took up the cause of gardening as a means to address social issues including urban blight and food insecurity resulting from a rapidly urbanizing city. Founded in 1827 and the creator of the oldest and largest flower show in the world, the PHS transitioned from a cloistered private society to a community development organization responsible for many of the public landscapes, tree planting initiatives, and community gardens that are part of the fabric of Philadelphia today.

When attempting to answer the question of why of all the early cities in America, it was Philadelphia that created the richest legacy of horticulture, evidence leads directly to the roles of science, religion, and money. The emergence of natural history and its pursuit to understand the natural world through

Mt. Cuba Center, Hockessin, DE:

With a collection focused on plants native to the mid-Atlantic piedmont region, Mt. Cuba is a wonderful place to study native azaleas and rhododendrons in both woodland and formal settings.

Scott Arboretum, Swarthmore College, Swarthmore, PA:

Founding director of the Scott Arboretum John C. Wister was passionate about rhododendrons. Today, the collection numbers over 350 species and cultivars, some of which

were Wister's selections.

Tyler Arboretum, Media, PA:

See the O'Dell article on the Tyler Arboretum's Wister Rhododendron Garden on P. 32.

Winterthur, Winterthur, DE:

Eight acres (3.3 ha) of this large estate are devoted to the Azalea Woods, considered Henry Francis du Pont's masterpiece. The collection started over 100 years ago with Kurume azaleas and has expanded with many other species and cultivars over the years, including a collection of *R. kaempferi*. (See Eirhart 2018).

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Scott Arboretum, Swarthmore College, Swarthmore, PA:



Winterthur, Winterthur, DE.



Mt. Cuba Center, Hockessin, DE.

Rhododendrons for Beginners: Subsection *Lapponica* in the subgenus *Rhododendron*

Glen Jamieson

Parksville, BC,
Canada

Photos mostly from Hirsutum.info.



In previous articles, I discussed first the general characteristics and taxonomic relationships among the main types of rhododendrons in cultivation, i.e., rhododendrons, azaleas, vireyas and maddenia (Jamieson 2018a), and then secondly the species of deciduous azaleas in subgenus *Hymenanthus*, section *Pentanthera* (Jamieson 2018b). The largest subgenus is *Rhododendron*, which contains all of the lepidote rhododendrons, meaning species that have scales on the underside of their leaves, and a major section in it also has the name *Rhododendron*. This is a very diverse section, with 28 subsections containing upwards of 118 species. I previously discussed species in subsection *Triflora* (Jamieson 2018c), and in this article, I will present the species in another major subsection, *Lapponica*, which along with *Maddenia*, is also one of the subsections with the most species (at least 15). Lapponicas are higher elevation rhododendrons, many of which are alpine and put on spectacular displays in the wild (Figs. 1, Larsen 2017), and so grow particularly well in northern North America and in Scandinavia.

Cladistics is the systematic classification of groups of organisms into clades on the basis of shared characteristics thought to derive from a common ancestor, and here is a brief review of the taxonomic relationships of this subsection in the genus *Rhododendron*:

Genus *Rhododendron*

Clade A

Subgenus *Rhododendron*: Typically smaller leaves with scales on the underside of their leaves (lepidote). Three sections, about 400 species.

Subgenus *Choniastrum*: Eleven species.

Clade B

Subgenus *Hymenanthus*: Typically larger leaves with no scales on the underside of their leaves (elepidote) , including most deciduous azaleas. Two sections, with about 157 species.

Clade C

Subgenus *Azaleastrum*: Nearly everything else, most notably deciduous azaleas such as *R. schlippenbachii* and many evergreen azalea species from south Asia. Three sections, about 120 species

Subgenus *Rhododendron*

1) Section *Pogonanthum* (six species)

2) Section *Rhododendron* (28 subsections, 118 species)

1. *Afghanica* – 1
2. *Baileya* – 1
3. *Boothia* – 6
4. *Camelliiflora* - 1
5. *Campylogyna* – 1
6. *Caroliniana* – 1
7. *Cinnabarina* – 2
8. *Edgeworthia* – 3
9. *Fragariflora* – 2
10. *Genestieriana* - 1

11. *Glauca* - 5
12. *Heliolepidia* - 3
13. ***Lapponica*** - 40
14. *Ledum* - 4
15. *Lepidota* - 2
16. *Maddenia* - 35
17. *Micrantha* - 2
18. *Monantha* - 5
19. *Moupinensia* - 3
20. *Rhododendron* - 3
21. *Rhodorastra* - 3
22. *Saluenensia* - 2
23. *Scabrifolia* - 6
24. *Tephropepla* - 6
25. *Trichoclada* - 4
26. *Triflora* - 18
27. *Uniflora* - 5
28. *Virgata* - 1



Lapponica panorama, the purple flowering rhododendrons on the hillside (Larson 2017).

3) Section *Schistanthe* (vireyas, 300+ species)

Section *Rhododendron*, Subsection *Lapponica*

I found the following descriptive summary of *Lapponica* in Blake's (1984) article on dwarf rhododendrons in Kallista, Victoria, Australia, which summarises the features of many of the subsection's species:

"In the *Lapponica* subsection, we find that the overwhelming majority are in the mauve purple colour range, and being very generous in their flowering, are absolutely indispensable in the rock garden, with most very hardy and sun tolerant. *R. polycladum* is almost royal blue in its best forms, *R. russatum*, a little larger in flower than most lapponicas, is deep purple, and in the colour breaks of yellow and white we have *R. flavidum* and *R. rupicola* var. *chryseum*) both yellow flowered, and white is represented by *R. orthocladum* var. *microleucum* and also by the albino forms of *R. chryseum* and *R. flavidum*. Among the taller growing lapponicas is, of course, *R. hippophaeoides*, with its lovely lavender blue flowers but suitable only for background planting. The foliage in most of the species is tiny, particularly in *R. telmateium*, *R. nivale* subsp. *boreale*, *R. edgarianum* [now considered a natural hybrid] and *R. tapetiforme* amongst others. Some turn rich colours in winter, particularly *R. dasypetalum*, and some have lovely glaucous foliage such as *R. fastigiatum*. *R. impeditum* is a delightful plant with quite large light blue flowers and is one of my favorites in the series. There are many more well worth growing, including *R. intricatum* and *R. x lysolepis*, even though this is a hybrid [*R. flavidum* X unknown], the choice usually being dependant on the space available. If you have a bed of lapponicas and are not too much of a purist, a planting of the hybrid 'Chikor' looks very much in keeping, and makes a good foil for the blues, mauves and purples."

Rhododendrons in this subsection are evergreen shrubs from moorland or high altitudes. *R. lapponicum* has a circumpolar distribution, with the remainder found in the Himalayas, especially in western China. These plants do best in cooler garden climate areas, such as Scotland, Scandinavia, Canada and southern New Zealand and Australia, where they make excellent garden plants, often being planted *en masse*. Although cold hardy, they are not easy to grow in warmer climates as they dislike summer heat.

They are small in all their structures except for *R. cuneatum*, their branchlets and leaves are densely scaly, and their leaves are usually less than 2.5 cm (one inch) long. Their flower colour is mainly at the blue end of the spectrum (lavender to purple), but a few species have white, pink or yellow flowers. Cox and Cox (1997) noted that species in this subsection are among the most taxonomically complex as features are often very variable even within the "same" species. Almost all the species hybridize/merge with their relations and so the boundary between species can be very arbitrary. Many species are rare in cultivation, and are mostly in specialist collections.

This is the largest lepidote Section *Rhododendron* subsection, and species have been organised in a number of ways in the literature, with Cox and Cox (1997) not organizing the species into any groups, but adopting the Philipson and Philipson (1975) revision of the subsection, which greatly reduced the number of recognised species. McQuire and Robinson (2009) split the species firstly into three groups based on the scale colour on the leaf underside: of one colour; of two colours, mainly golden brown with a few scattered darker scales; and of two colours, with pale and darker scales mixed in almost equal proportions. Some species listed here were not grouped by them, and so I have listed them as having pale scales. In the first

group, their second grouping is based on flower colour: flowers not mauve, lavender, or blue shades; or flowers in these colours. Here, I present descriptions of Lapponica species obtained from Cox (1985), Cox and Cox (1997), McQuire and Robinson (2009) and the Rhododendron Species Foundation (RSF) website, grouped by their scale and flower colour characteristics.

***Rhododendron*, subsection *Lapponica* (about 40 species, 19 discussed, red font species are more available)**

1. Scales on underside of leaf one colour.

A. Flowers not mauve, lavender or blue

- *R. dasypetalum*
- *R. flavidum*

B. Flowers mauve, lavender or blue

- *R. cuneatum*
- *R. fastigiatum*
- *R. hippophaeoides*
- *R. impeditum*
- *R. intricatum*
- *R. nitidulum*
- *R. polycladum*

2. Scales on leaf underside of two colours, but mainly golden brown.

- *R. orthocladum*
- *R. telmateium*

3. Scales on leaf underside of two colours, equal in number

- *R. lapponicum*
- *R. nivale*
- *R. rupicola*
- *R. russatum*
- *R. amundsenianum*

4. Remainder (pale scales)

- *R. thymifolium*
- *R. tsaii*
- *R. websterianum*
- *R. yungningense*

Species Descriptions

1. **Scales on underside of leaf one colour.**

A. Flowers not mauve, lavender or blue

- *R. dasypetalum* (epithet: with hairy petals)

Height, 30-90 cm (one to three feet), bright rose-purple flowers. Some cultivated “plants of this species” are considered questionable by Cox (1985), as they have shinier leaves and larger flowers than herbarium specimens, and may be a natural hybrid between *R. saluenense* and other lapponica species. As cultivated, the species has distinctive leaves that are “v-shaped” in cross section, a hairy corolla and relatively long hairs on the calyx.

- *R. flavidum* (epithet: somewhat yellow)

Height 45-90 cm (1.5 to three feet), pale yellow flowers. White flowers of this species are probably hybrids, perhaps with *R. yunnanense* (Cox 1985). Has shiny leaves, which distinguishes it from *R. rupicola*.



R. dasypetalum. Photo by Hank Helm.



R. flavidum. Photo by Hank Helm.

B. Flowers mauve, lavender or blue

- ***R. cuneatum*** (epithet: wedge-shaped)

Unusually large for the subsection, being 0.3 to 4 m (one to twelve feet) in height, with the largest leaves, corolla and calyx.

Has a large deeply lobed calyx, is usually free-flowering, but is more easily frosted than other lapponicas. This species may be a link between the *Lapponica* and *Heliopetia* subsections, and has natural hybrids with *R. yunnanense* and *R. rubiginosum*.

- ***R. fastigiatum*** (epithet: erect)

Height usually under 0.6 m (two feet), with purple, occasionally pinkish, flowers. One of the best and easiest of dwarf rhododendrons, being hardy, has a neat, compact form, and excellent glaucous (a white, bluish or grayish waxy bloom) foliage. Sometimes incorrectly sold as *R. impeditum*, but differs from that species in its leaves having a glaucous upper surface rather than a green one, and in having lighter coloured, opaque scales rather than brown scales on their lower surface. The cultivar 'Indigo Steel' is very floriferous, and the flowers cover the plant in mid-spring.

- ***R. hippophaeoides*** (epithet: resembling sea buckthorn)

This is also one of the best and most cultivated lapponicas, with a height to 1.24 m (four feet). Leaves are slightly glaucous on their upper surface, with scales overlapping and forming a yellowish buff below. Flowers are lavender blue to near rose. There are two varieties, the more common and finest being var. *hippophaeoides* which is quite frost-hardy but prone to powdery mildew, and var. *occidentale* which has a narrower leaf, more purplish flowers and a smaller inflorescence. This is one of the best of the lapponicas for all-around garden use. It grows a bit larger than most of its close relatives but is still dwarf enough for a rock garden or the smaller urban garden. Very floriferous and easily grown, tolerant of wetter soils (with drainage), full sun best.

- ***R. impeditum*** (epithet: tangled)

Seldom over 0.3 m (one foot) in cultivation, this is a dense and mounded dwarf shrub with small aromatic leaves. Many plants sold as this species are in fact *R. fastigiatum*, so check plants for the differences outlined with that species description. Flowers deep purple to rose-purple. Somewhat variable in vigour but hardy and easy to grow wherever summers are not too hot. Forms a very slow-growing, fantastically textural dwarf mound of dark and glossy foliage.

- ***R. intricatum*** (epithet: entangled)

Height to 0.9 m (three feet) in cultivation, with lavender flowers that are tubular with spreading lobes. Attractive, with frost-hardy flowers, but hard to propagate so less common in gardens.

- ***R. nitidulum*** (epithet: shiny)

Height to 1.3 m (four+ feet), flowers rosy lilac to violet purple. This is a neat, dense grower with tiny leaves of good colour, and quite similar to some forms of *R. nivale*. Var. *omeiense* is a dwarf evergreen shrub with tiny and densely scaly leaves. The flowers of this rarely grown species are violet in color. A fine alpine species with a dense, twiggy habit and attractive small leaves.

- ***R. polycladum*** (epithet: sparkling)

Height to 1.2 m (four feet), flowers lavender to a rich purple blue. It has narrow leaves with rangy, slender arching shoots, and so benefits from pruning to improve



R. cuneatum. Photo by Dick Cavender.



R. fastigiatum. Photo by Herman Van Ree.



R. hippophaeoides var. *hippophaeoides*.
Photo by Staffan Bodén.



R. impeditum. Photo by Jens Birck..



R. nitidulum var. *nitidulum*. Photo by Jens Birck.



R. polycladum. Photo by Steve Henning.

its shape. It's usually cultivated as *R. polycladum* Scintillans Group.

2. Scales on leaf underside of two colours, but mainly golden brown.

- *R. orthocladum* (epithet: with straight shoots)

Height to 1.3 m (four+ feet), with deep lavender-blue to purple flowers. Is less rangy and has a shorter style than *R. polycladum*.



R. orthocladum var. *orthocladum*. Photo by Hank Helm.



R. telmateium. Photo by Steve Henning.

Sometimes sold as var. *microleucum*, which is an albino form with frost-hardy white flowers, so not really a variety.

- *R. telmateium* (epithet: from the marshes)

This species is hard to identify conclusively, as it has few distinguishing features from many of the other lapponicas. It is scarce in cultivation under the species name, and is usually sold as either Diacritum, Pycnocladum, Drummonium or Idoneum Group, which are all former species names.

3. Scales on leaf underside of two colours, equal in number

- *R. amundsenianum*



R. lapponicum. Photo by Garth Wedemire.



R. nivale subsp. *boreale*. Photo by A. J. Laros.

A newly introduced species from the RSF that has similar features to the well-known species in that group (*R. russatum*, *rupicola*, etc.). Relatively large leaves for this group and densely covered with dark brown scales beneath. Its flowers are relatively large and mostly a good blue-purple. Best in good light with excellent drainage.

- ***R. lapponicum*** (epithet: from Lapland).

Height to 1 m (three+ feet) with pale magenta-rose to purple flowers. Its distinguishing features are densely lepidote leaves with bicoloured scales, early flowering, and its sparse hanging leaves and bronze winter colouring that can make the plant look as if it were dead. The best form is the Parvifolium Group from coastal Japan, Korea and Siberia, as their frost-hardy flowers open in January in many places. It is a circumpolar species, and the really dwarf forms from the Arctic are almost impossible to grow in cultivation as they cannot tolerate warmer conditions.

- ***R. nivale*** (epithet: snowy)

Height to 1 m (three+ feet), prostrate, with deep purple to lilac flowers. It has contrasting pale and dark scales, and on



R. rupicola var. *rupicola*. Photo by Steve. Henning.



R. russatum. Photo by Han Boerrigter.

Himalayan hillsides, looks like a heather moorland from a distance when flowering. There are two common subspecies, subsp. *nivale* from the highest elevations (up to 5800 m (19,000 feet)), with very tiny leaves and which are only successfully grown in cool northern gardens and subsp. *boreale*, which grows at lower elevations and is generally taller. Subsp. *australe* is more upright and very rare in cultivation.

- ***R. rupicola*** (epithet: dweller in stony places)

Height to 0.6 m (two+ feet), with intense purple to crimson flowers in var. *rupicola* and yellow flowers in var. *chryseum*, which make it a nice contrast to the other lapponicas. The very deep purple flowers distinguish var. *rupicola* from all other lapponicas except for *R. russatum*.

- ***R. russatum*** (epithet: reddened)

Height to 1.8 m (six feet), low and compact to tall and straggly, with deep purple blue to lilac flowers. Relatively large leaves and deep-coloured flowers are distinguishing, and its striking flowers make it one of the most widely grown lapponicas.



R. thymifolium. Photo by Stephan Bubert.



R. websterianum var. *websterianum*. Photo by Hank Helm.

4. Remainder (pale scales)

- *R. thymifolium* (epithet: thyme-like leaves)

Height to 30 cm (one foot), with small grey-green leaves and usually solitary flowers. Has an upright habit. Scales dense and fawn coloured. A pretty plant in flower and foliage, and quite distinctive.

- *R. tsaii*

Height to 1.3 m (four feet) with dense buff scales on the leaves lower side. A recently introduced dwarf alpine species by the RSF with small and narrow, gray-green leaves. Lavender to pale purple flowers in mid-spring but with a much denser and smaller growth habit than the closely related *R. hippophaeoides*. Easy in full sun with good drainage and very floriferous. Seems to be drought tolerant and a great all-around garden plant.

- *R. websterianum*

Height to 1.5 m (five feet), and is much-branched and more erect than *R. nitidulum*, with buff rather than golden scales. It is characterised by new growth at its time of flowering, and looks like a smaller leaved *R. hippophaeoides*. Many plants obtained prior to 1990 may actually be *R. hippophaeoides*, as the true species may not have been introduced until that date.

- *R. yungningense*

Height to 1.3 m (four feet), habit erect, rounded low shrub. Fawn to rust coloured scale with a dark centre on the leaf's lower side. Deep purplish-blue to rose lavender flowers, with a very variable calyx—often irregular with margins with long hairs. Not particularly showy and characterised by its dull green leaves and variable calyx. Plants often sold earlier as *R. glomerulatum*, now a synonym.

Acknowledgements

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Glen Jamieson is the current president of the Mount Arrowsmith chapter and the editor of JARS.



2018 ARS Photo Contest Results

Winner

Best in Contest

Kathy Woehl,
Valley Forge Chapter.

Mollis deciduous azalea.



Runner-up

Best in Contest

Gus Thompson,
Mount Arrowsmith
Chapter.

Rhododendron 'Twicum'.



1) Flower, truss, or spray

Winner

Kathy Woehl,
Valley Forge Chapter.

Mollis deciduous azalea.



Runner-up

Stephen Henning,
Valley Forge Chapter.

Deciduous azalea bud
opening.



2) Plant in bloom

Winner

Gus Thompson,
Mount Arrowsmith
Chapter.

Rhododendron 'Twicum'.



Runner up

Linda Derkach,
Mount Arrowsmith
Chapter.

Rhododendron schlippenbachii.



3) Landscape or plants in the wild or in gardens

Winner

Jackson McCarter,
Southeastern Chapter.

Bremen Rhododendron
Park, Germany.



Runner-up

Kristian Theqvist,
Finnish Chapter.

Winter in my
rhododendron garden.



4) Foliage

Winner

Marc Colombel,
Scottish Chapter.

Rhododendron
lepidostylum.



Runner-up

Stephen Henning,
Valley Forge Chapter.

New Growth on a Rhodo.



5) *People, insects and animals*

Winner

Gus Thompson,
Mount Arrowsmith
Chapter.

Bumblebee in
'Castanets'.



Runner-up

Marc Colombel,
Scottish Chapter.

European green rose
chafer (*Cetonia aurata*).



6) Other; for creative or artistic effects of any kind that involves these plants



Co-Winner

Jackson McCarter,
Southeastern Chapter.

R. strigillosum.



Co-Winner

Gus Thompson,
Mount Arrowsmith Chapter.

'Temple Bells'.



Co-Runner-up

Kathy Woehl,
Valley Forge Chapter.

Double White after Rain.



Co-Runner-up

Jackson McCarter,
Southeastern Chapter.

Knaphill azalea.

Vireyas in Hawaii, 2018

Sherla Bertelmann
Kea'au, Big Island, HI



Vireyas in our Hawaii gardens here on the windward side of the Big Island of Hawaii (Fig. 1) have been put to the test this year. It began with a very wet winter, spring and summer, followed by a volcanic eruption in the middle of a subdivision in Leilani Estates outside of Pahoa on the southeast corner of the island (Fig. 2). This was followed by two hurricanes that became tropical storms as they hit our island.

Halema'uma'u Crater is a pit crater located within the much larger summit caldera of Kilauea in Hawaii Volcanoes National Park. The roughly circular crater was 0.25 square miles (0.7 sq km) in area prior to collapses that have increased the size of the crater four-fold, i.e., by more than one square mile (2.6 square km) after May 3, 2018. The crater is currently active, and until recently contained a lava lake. From 2008, when the current vent inside Halema'uma'u crater first erupted, to April 2015, lava was present inside the vent, fluctuating from 20 to 150 meters below the crater rim. On April, 2015 molten lava in the vent, known as the Overlook Crater, became directly visible for the first time from the Jaggar Museum overlook at the Hawaiian Volcano Observatory, and lava started spilling over the rim of the Overlook Crater and onto the floor of Halema'uma'u Crater, ultimately adding a layer of lava approximately 30 feet (9 m) thick to the crater floor.

From 2015 to 2018 the lava lake level remained close to the rim, but since early May 2018, the lava level in the Overlook Crater has dropped over 500 m (1640 feet) and out of sight, resulting in explosions, earthquakes and large clouds of ash and toxic gas, causing closure of the Kilauea summit area of the national park.

The volcano gave off heat, vog [a form of air pollution that results when sulfur dioxide and other gases and particles emitted by an erupting volcano react with oxygen and moisture in the presence of sunlight. The word is a portmanteau of the words "volcanic", "smog", and "fog"], and laze [acid rain and air pollution arising from steam explosions and large plume clouds

containing extremely acidic condensate (mainly hydrochloric acid), which occur when molten lava flows enter cold oceans. The term laze is a portmanteau of lava and haze]. It also created its own climate, including heavy rain. At the National Park, the Kilauea Crater gave off daily earthquakes as the lava column sank, with the lava exiting miles away through faults at the newly forming vents near the Leilani Estates, from which it flowed to the sea, notably at Kapoho Bay (Fig. 2), destroying about 700 homes and gardens on the way and filling in the bay.

The first hurricane, Lane, dumped about 4 feet (1.2 m) of rain on us. A short time later, the second hurricane, Olivia, brought more rain, but no wind. Of course, where the lava flowed, all vegetation is gone. One gentleman who had a two acre (0.8 ha) tropical and vireya garden in Leilani Estates, Pahoa, was one of the first to be wiped out. On the upper end of the subdivision, above the open fissures, two other vireya growers both had leaf burn on their plants, but the vireyas did not die. In fact, after our recent heavy rain, both folks reported they now



Fig. 1. A map of Hawaii's Big Island, showing the three volcanoes and the town locations of Kailua-Kona, Hilo, Kea'au, Volcano and Kapoho.

have blooms.

In the Volcano Village community located just outside to the east of the National Park (Fig. 1), the vireyas also seem to be doing okay, though most of what I saw in late August were not in bloom, perhaps the result of having more cloudy or overcast days than sunny days. In late September, I got a call from a resident of Volcano Village who said her vireyas are now budding, with a couple of them having a heavy bloom.

I live in Kea'au, relatively close to the city of Hilo (Fig. 1). Most of the vireyas in our garden came through with no problem, while several in large pots have succumbed, likely from too much water. Over all, the vireyas however are fine, but the blooming of my plants was also was set back and some leaves are turning yellow. I do suspect after so much rain

that some fertilizing will help. Vireyas in the Hilo area are also beginning to go into bloom.

In summary, the vireyas have come through this interesting year with little set back. I believe there are a couple of reasons for that. First is the heavy rain that washed away most of the ash and pollutants from the air off our plants, and secondly, our lucky avoidance of strong hurricane winds!

Sherla Bertlemann is president of the Hawaii chapter and a frequent contributor to JARS.

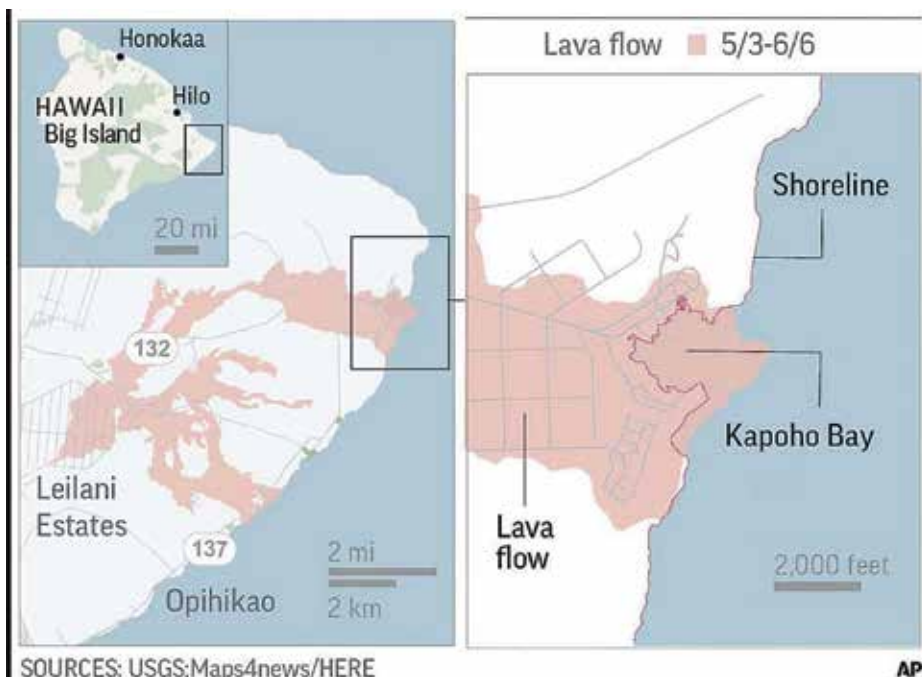


Fig. 2. Maps of the southeast corner of the Big Island showing the areas devastated by lava flows in 2018

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